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(71) Applicant *(for all designated States except US)*: **GENENTECH, INC.** [US/US]; 1 Dna Way, South San Francisco, CA 94080 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **ABBAS, Alexander** [US/US]; 2007 Lyon Avenue, Belmont, CA 94002 (US). **CLARK, Hilary** [US/US]; 1504 Noe Street, San Francisco, CA 94131 (US). **DIEHL, Lauri** [US/US]; 1460 Hollidale Court, Los Altos, CA 94024 (US).

(74) Agents: **BERNHARDT, Jeffery P.** et al.; Heller Ehrman, LLP, 275 Middlefield Road, Menlo Park, CA 94025-3506 (US).

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(54) Title: GENE EXPRESSION MARKERS FOR INFLAMMATORY BOWEL DISEASE

(57) Abstract: The present invention relates to methods of gene expression profiling for inflammatory bowel disease pathogenesis, in which the differential expression in a test sample from a mammalian subject of one or more IBD markers relative to a control is determined, wherein the differential expression in the test sample is indicative of an IBD in the mammalian subject from which the test sample was obtained.

GENE EXPRESSION MARKERS FOR INFLAMMATORY BOWEL DISEASE

Background of the Invention

Field of the Invention

[0001] The present invention relates to gene expression profiles in inflammatory bowel disease pathogenesis, including use in the detection and diagnosis of inflammatory bowel disease.

Description of Related Art

[0002] Immune related and inflammatory diseases are the manifestation or consequence of fairly complex, often multiple interconnected biological pathways which in normal physiology are critical to respond to insult or injury, initiate repair from insult or injury, and mount innate and acquired defense against foreign organisms. Disease or pathology occurs when these normal physiological pathways cause additional insult or injury either as directly related to the intensity of the response, as a consequence of abnormal regulation or excessive stimulation, as a reaction to self, or as a combination of these.

[0003] Though the genesis of these diseases often involves multistep pathways and often multiple different biological systems/pathways, intervention at critical points in one or more of these pathways can have an ameliorative or therapeutic effect. Therapeutic intervention can occur by either antagonism of a detrimental process/pathway or stimulation of a beneficial process/pathway.

[0004] Many immune related diseases are known and have been extensively studied. Such diseases include immune-mediated inflammatory diseases, non-immune-mediated inflammatory diseases, infectious diseases, immunodeficiency diseases, neoplasia, *etc.*

[0005] The term inflammatory bowel disorder ("IBD") describes a group of chronic inflammatory disorders of unknown causes in which the intestine (bowel) becomes inflamed, often causing recurring cramps or diarrhea. The prevalence of IBD in the US is estimated to be about 200 per 100,000 population. Patients with IBD can be divided into two major groups, those with ulcerative colitis ("UC") and those with Crohn's disease ("CD"). Both UC and CD are chronic relapsing diseases and are complex clinical entities that occur in genetically susceptible individuals who are exposed to as yet poorly

defined environmental stimuli. (Bonen and Cho, Gastroenterology. 2003; 124:521-536; Gaya et al. Lancet. 2006;367:1271-1284)

[0006] Although the cause of IBD remains unknown, several factors such as genetic, infectious and immunologic susceptibility have been implicated. IBD is much more common in Caucasians, especially those of Jewish descent. The chronic inflammatory nature of the condition has prompted an intense search for a possible infectious cause. Although agents have been found which stimulate acute inflammation, none has been found to cause the chronic inflammation associated with IBD. The hypothesis that IBD is an autoimmune disease is supported by the previously mentioned extraintestinal manifestation of IBD as joint arthritis, and the known positive response to IBD by treatment with therapeutic agents such as adrenal glucocorticoids, cyclosporine and azathioprine, which are known to suppress immune response. In addition, the GI tract, more than any other organ of the body, is continuously exposed to potential antigenic substances such as proteins from food, bacterial byproducts (LPS), etc.

[0007] There is sufficient overlap in the diagnostic criteria for UC and CD that it is sometimes impossible to say which a given patient has; however, the type of lesion typically seen is different, as is the localization. UC mostly appears in the colon, proximal to the rectum, and the characteristic lesion is a superficial ulcer of the mucosa; CD can appear anywhere in the bowel, with occasional involvement of stomach, esophagus and duodenum, and the lesions are usually described as extensive linear fissures.

[0008] The current therapy of IBD usually involves the administration of antiinflammatory or immunosuppressive agents, such as sulfasalazine, corticosteroids, 6-mercaptopurine/azathioprine, or cyclosporine, which usually bring only partial results. If anti-inflammatory/immunosuppressive therapies fail, colectomies are the last line of defense. The typical operation for CD not involving the rectum is resection (removal of a diseased segment of bowel) and anastomosis (reconnection) without an ostomy. Sections of the small or large intestine may be removed. About 30% of CD patients will need surgery within the first year after diagnosis. In the subsequent years, the rate is about 5% per year. Unfortunately, CD is characterized by a high rate of recurrence; about 5% of patients need a second surgery each year after initial surgery.

[0010] Refining a diagnosis of inflammatory bowel disease involves evaluating the progression status of the diseases using standard classification criteria. The classification systems used in IBD include the Truelove and Witts Index (Truelove S.C. and Witts, L.J. *Br Med J.* 1955;2:1041-1048), which classifies colitis as mild, moderate, or

severe, as well as Lennard-Jones. (Lennard-Jones JE. Scand J Gastroenterol Suppl 1989;170:2-6) and the simple clinical colitis activity index (SCCAI). (Walmsley et. al. Gut. 1998;43:29-32) These systems track such variables as daily bowel movements, rectal bleeding, temperature, heart rate, hemoglobin levels, erythrocyte sedimentation rate, weight, hematocrit score, and the level of serum albumin.

[0011] In approximately 10-15% of cases, a definitive diagnosis of ulcerative colitis or Crohn's disease cannot be made and such cases are often referred to as "indeterminate colitis." Two antibody detection tests are available that can help the diagnosis, each of which assays for antibodies in the blood. The antibodies are "perinuclear anti-neutrophil antibody" (pANCA) and "anti-Saccharomyces cervisiae antibody" (ASCA). Most patients with ulcerative colitis have the pANCA antibody but not the ASCA antibody, while most patients with Crohn's disease have the ASCA antibody but not the pANCA antibody. However, these two tests have shortcomings as some patients have neither antibody and some Crohn's disease patients may have only the pANCA antibody.

[0012] For clinical practice, a reliable test that would indicate the presence and/or progression of an IBD based on molecular markers rather than the measurement of a multitude of variables would be useful for identifying and/or treating individuals with an IBD.

[0013] Hypothesis free, linkage and association studies have identified genetic loci that have been associated with UC, notably the MHC region on chromosome 6,(Rioux et al. Am J Hum Genet. 2000;66:1863-1870; Stokkers et al. Gut. 1999; 45:395-401; Van Heel et al. Hum Mol Genet. 2004;13:763-770) the IBD2 locus on chromosome 12 (Parkes et al. Am J Hum Genet. 2000;67:1605-1610; Satsangi et al. Nat Genet. 1996;14:199-202) and the IBD5 locus on chromosome 5. (Giallourakis et. al. Am J. Hum Genet. 2003;73:205-211; Palmieri et. al Aliment Pharmacol Ther. 2006;23:497-506; Russell et. al. Gut. 2006;55:1114-1123; Waller et. al. Gut. 2006;55:809-814) Following a UK wide linkage scan identifying a putative loci of association for UC on chromosome 7q, further studies have implicated variants in the ABCB1 (MDR1) gene which is involved in cellular detoxification with UC. (Satsangi et. al. Nat Genet. 1996;14:199-202; Brant et.al. Am J Hum Genet. 2003;73:1282-1292; Ho et. al. Gastroenterology. 2005;128:288-296).

[0014] A complementary approach towards the identification and understanding of the complex gene- gene and gene- environment relationships that result in the chronic intestinal inflammation observed in inflammatory bowel disease (IBD) is

microarray gene expression analysis. Microarrays allow a comprehensive picture of gene expression at the tissue and cellular level, thus helping understand the underlying patho-physiological processes. (Stoughton et. al. Annu Rev Biochem. 2005;74:53-82) Microarray analysis was first applied to patients with IBD in 1997, comparing expression of 96 genes in surgical resections of patients with CD to synovial tissue of patients with rheumatoid arthritis. (Heller et. al. Proc Natl Acad Sci U S A. 1997;94:2150-2155) Further studies using microarray platforms to interrogate surgical specimens from patients with IBD identified an number of novel genes that were differentially regulated when diseased samples were compared to controls. (Dieckgraefe et.al. Physiol Genomics. 2000;4:1-11; Lawrance et. al. Hum Mol Genet. 2001;10:445-456).

[0015] Endoscopic pinch mucosal biopsies have allowed investigators to microarray tissue from a larger range of patients encompassing those with less severe disease. Langmann et. al. used microarray technology to analyze 22,283 genes in biopsy specimens from macroscopically non affected areas of the colon and terminal ileum. (Langmann et. al. Gastroenterology. 2004;127:26-40) Genes which were involved in cellular detoxification and biotransformation (Pregnane X receptor and MDR1) were significantly downregulated in the colon of patients with UC, however, there was no change in the expression of these genes in the biopsies from patients with CD. Costello and colleagues (Costello et. al. PLoS Med. 2005;2:e199) looked at the expression of 33792 sequences in endoscopic sigmoid colon biopsies obtained from healthy controls, patients with CD and UC. A number of sequences representing novel proteins were differentially regulated and *in silico* analysis suggested that these proteins had putative functions related to disease pathogenesis – transcription factors, signaling molecules and cell adhesion.

[0016] In a study of patients with UC, Okahara et al.(Aliment Pharmacol Ther. 2005;21:1091-1097) observed that (migration inhibitory factor- related protein 14 (MRP14), growth- related oncogene gamma (GROγ) and serum amyloid A1 (SAA1) were upregulated where as TIMP1 and elfin were down regulated in the inflamed biopsies when compared to the non- inflamed biopsies. When observing 41 chemokines and 21 chemokine receptors, Puleston et al demonstrated that chemokines CXCLs 1-3 and 8 and CCL20 were upregulated in active colonic CD and UC. (Aliment Pharmacol Ther. 2005;21:109-120) Overall these studies illustrate the heterogeneity of early microarray platforms and tissue collection. However, despite these problems differential expression of a number of genes was consistently observed.

[0017] Despite the above identified advances in IBD research, there is a great need for additional diagnostic and therapeutic agents capable of detecting IBD in a mammal and for effectively treating this disorder. Accordingly, the present invention provides polynucleotides and polypeptides that are overexpressed in IBD as compared to normal tissue, and methods of using those polypeptides, and their encoding nucleic acids, for to detect or diagnose the presence of an IBD in mammalian subjects and subsequently to treat those subjects in which an IBD is detected with suitable IBD therapeutic agents.

[0018] The present invention provides methods for detecting the presence of and determining the progression of inflammatory bowel disease (IBD), including Crohn's disease (CD).

[0019] The invention disclosed herein provides methods and assays examining expression of one or more gene expression markers in a mammalian tissue or cell sample, wherein the expression of one or more such biomarkers is predictive of whether the mammalian subject from which the tissue or cell sample was taken is more likely to have an IBD. In various embodiments of the invention, the methods and assays examine the expression of gene expression markers such as those provided herein as SEQ ID NOS: 1-426 and determine whether expression is higher or lower than a control sample.

[0020] These and further embodiments of the present invention will be apparent to those of ordinary skill in the art.

Summary of the Invention

[0021] In one aspect, the invention concerns a method of detecting or diagnosing an inflammatory bowel disease (IBD) in a mammalian subject comprising determining, in a biological sample obtained from the subject, that expression level of one or more nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS:2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356,

358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 is different relative to the expression level in a control, wherein the difference in expression indicates the subject is more likely to have an IBD. In all embodiments, the expression level of RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS:1-426 may be determined.

[0022] In one embodiment, the methods of diagnosing or detecting the presence of an IBD in a mammalian subject comprise determining that the expression level of one or more nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, and 316 in a test sample obtained from the subject is higher relative to the level of expression in a control, wherein the higher level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained. In all embodiments, the expression level of RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS:1-316 may be determined.

[0023] In another embodiment, the methods of diagnosing or detecting the presence of an IBD in a mammalian subject comprise determining that the expression level of one or more nucleic acid(s) encoding a polypeptide shown as any one of SEQ ID NOS: 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 in a test sample obtained from the subject is lower relative to the level of expression in a control, wherein the lower level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained. In all embodiments, the expression level of RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS:317-426 may be determined.

[0024] In one aspect, the methods are directed to diagnosing or detecting a recurrence of an IBD in mammalian subject that was previously diagnosed with an IBD and is currently in remission. The subject may have completed treatment for the IBD or is currently undergoing treatment for the IBD. In one embodiment, the methods comprise determining, in a biological sample obtained from the mammalian subject, that one or more nucleic acids encoding a polypeptide shown as SEQ ID NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, and 316 is different relative to the expression level in a control, wherein the difference in expression indicates the presence of the recurrence of an IBD. In a preferred embodiment, the recurrence of the IBD is detected in a mammalian subject with an inactive IBD. Alternatively, the test sample may be compared to a prior test sample of the mammalian subject, if available, obtained before, after, or at the time of the intial IBD diagnosis. In all embodiments, the expression level of RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS:1-426 may determined.

[0025] In all aspects, the recurrence of the IBD is a flare-up of an inactive IBD.

[0026] In all aspects, the mammalian subject preferably is a human patient, such as a human patient diagnosed with or at risk of developing an IBD. The subject may also be an IBD patient who has received prior treatment for an IBD but is at risk of a recurrence of the IBD.

[0027] For all aspects of the method of the invention, determining the expression level of one or more nucleic acids encoding a polypeptide described herein (or the expression level of RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS:1-426) may be obtained, for example, by a method of gene expression profiling. The method of gene expression profiling may be, for example, a PCR-based method.

[0028] In various embodiments, the diagnosis includes quantification of the expression level of one or more nucleic acids encoding a polypeptide described herein (or

the expression level of RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS: 1-426) such as by immunohistochemistry (IHC) and/or fluorescence *in situ* hybridization (FISH).

[0029] For all aspects of the invention, the expression levels of the nucleic acids (or RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS: 1-426) may be normalized relative to the expression levels of one or more reference genes, or their expression products.

[0030] For all aspects of the invention, the method may further comprise determining evidence of the expression levels of at least two of said nucleic acids (or genes), or their expression products. It is further contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least three of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least four of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least five of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least six of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least seven of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least eight of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least nine of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least ten of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least eleven of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least twelve of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence

of the expression levels of at least thirteen of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least fourteen of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least fifteen of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least sixteen of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least seventeen of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least eighteen of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least nineteen of said nucleic acids (or genes), or their expression products. It is also contemplated that the method of the invention may further comprise determining evidence of the expression levels of at least twenty of said nucleic acids (or genes), or their expression products.

[0031] In another aspect, the methods of present invention also contemplate the use of a "panel" of such nucleic acids or genes (i.e. IBD markers as disclosed herein) based on evidence of their level of expression. Such panels may be used to screen a mammalian subject in order to make a determination on whether an IBD is present in the subject. In some embodiments, the panel of IBD markers will include at least 1 IBD marker, at least 2 IBD markers, at least 3 IBD markers, at least 4 IBD markers, at least 5 IBD markers, at least 6 IBD markers, at least 7 IBD marker, at least 8 IBD markers, at least 9 IBD markers, at least 10 IBD markers, at least 11 IBD markers, at least 12 IBD markers, at least 13 IBD markers, at least 14 IBD markers, at least 15 IBD markers, at least 16 IBD markers, at least 17 IBD markers, at least 18 IBD markers, at least 19 IBD markers, or at least 20 IBD markers. The panel may include an IBD marker that is overexpressed in IBD relative to a control, an IBD marker that is underexpressed in IBD relative to a control, or IBD markers that are both overexpressed and underexpressed in IBD relative to a control. In one embodiment, the IBD markers that make up the panel are selected from SEQ ID NOS: 1-426. Such panels may be used to screen a mammalian subject for the differential expression of one or more IBD markers in order to make a

determination on whether an IBD is present in the subject, or whether a recurrence of an inactive IBD is present in the subject.

[0032] In one embodiment, the IBD markers that make up the panel are selected from SEQ ID NOS:1-426. In a preferred embodiment, the methods of diagnosing or detecting the presence of an IBD in a mammalian subject comprise determining a differential expression level of RNA transcripts or expression products thereof from a panel of IBD markers in a test sample obtained from the subject relative to the level of expression in a control, wherein the differential level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained. The differential expression in the test sample may be higher and/or lower relative to a control as discussed herein.

[0033] In one embodiment, the panel includes only those IBD markers that are up-regulated in Crohn's diease. In a preferred embodiment, the panel of up-regulated markers includes one or more of the markers shown as SEQ ID NOS:1-316. In another embodiment, the panel includes only those IBD markers that are down-regulated in Crohn's diease. In a preferred embodiment, the panel of down-regulated markers include one or more of the markers shown as SEQ ID NOS:317-426.

[0034] For all aspects of the invention, the method may further comprise the step of creating a report summarizing said prediction.

[0035] For all aspects, the IBD diagnosed or detected according to the methods of the present invention is Crohn's disease (CD).

[0036] For all aspects of the invention, the test sample obtained from a mammalian subject may be derived from a colonic tissue biopsy. In a preferred embodiment, the biopsy is a tissue selected from the group consisting of terminal ileum, the ascending colon, the descending colon, and the sigmoid colon. In other preferred embodiments, the biopsy is from an inflamed colonic area or from a non-inflamed colonic area. The inflamed colonic area may be acutely inflamed or chronically inflamed. In a preferred embodiment, the biopsy is tissue from the terminal ileum.

[0037] For all aspects, determination of expression levels may occur at more than one time. For all aspects of the invention, the determination of expression levels may occur before the patient is subjected to any therapy before and/or after any surgery. In some embodiments, the determining step is indicative of a recurrence of an IBD in the mammalian subject following surgery or indicative of a recurrence of said IBD in said mammalian subject. In a preferred embodiment, the IBD is Crohn's disease. In all

aspects, the recurrence of an IBD may be a flare-up of an inactive IBD. In another preferred embodiment, the recurrence of an IBD is a flare-up of Crohn's disease that had previously been inactive or in remission.

[0038] In another aspect, the present invention concerns methods of treating a mammalian subject in which the presence of an IBD has been detected by the methods described herein. For example, following a determination that a test sample obtained from the mammalian subject exhibits differential expression relative to a control of one or more nucleic acids encoding a polypeptide described herein (or of the RNA transcripts or the corresponding gene products) corresponding to an IBD marker described herein, the mammalian subject may be administered an IBD therapeutic agent.

[0039] In one embodiment, the methods of treating an IBD in a mammalian subject in need thereof, comprise (a) determining a differential level of expression of one or more nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS:2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 in a test sample obtained from said subject relative to the level of expression in a control, wherein said differential level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained; and (b) administering to said subject an effective amount of an IBD therapeutic agent. In all embodiments, the expression level of RNA transcripts or their expression products of one or more genes selected from SEQ ID NOS:1-426 may be determined.

[0040] In a preferred embodiment, the methods of treating an IBD comprise (a) determining that the expression level of one or more nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80,

82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, and 316 in a test sample obtained from the subject is higher relative to the level of expression in a control, wherein the higher level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained; and (b) administering to said subject an effective amount of an IBD therapeutic agent. In another preferred embodiment, the methods of treating an IBD comprise (a) determining that the expression level of one or more nucleic acid(s) encoding a polypeptide shown as any one of SEQ ID NOS: 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 in a test sample obtained from the subject is lower relative to the level of expression in a control, wherein the lower level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained. In some preferred embodiments, the IBD therapeutic agent is one or more of an aminosalicylate, a corticosteroid, and an immunosuppressive agent.

[0041] In one aspect, the panel of IBD markers discussed above is useful in methods of treating an IBD in a mammalian subject. In one embodiment, the mammalian subject is screened against the panel of markers and if the presence of an IBD is determined, IBD therapeutic agent(s) may be administered as discussed herein.

[0042] In a different aspect the invention concerns a kit comprising one or more of (1) extraction buffer/reagents and protocol; (2) reverse transcription buffer/reagents and protocol; and (3) qPCR buffer/reagents and protocol suitable for performing the methods of this invention. The kit may comprise data retrieval and analysis software.

[0043] All patent, patent application, and literature references cited in the present specification are hereby incorporated by reference in their entirety.

Brief Description of Drawings

[0044] Figure 1 shows a nucleotide sequence (SEQ ID NO:1).

[0045] Figure 2 shows the amino acid sequence (SEQ ID NO:2) derived from the coding sequence of SEQ ID NO:1 shown in Figure 1.

[0046] Figure 3 shows a nucleotide sequence (SEQ ID NO:3).

[0047] Figure 4 shows the amino acid sequence (SEQ ID NO:4) derived from the coding sequence of SEQ ID NO:3 shown in Figure 3.

[0048] Figure 5 shows a nucleotide sequence (SEQ ID NO:5).

[0049] Figure 6 shows the amino acid sequence (SEQ ID NO:6) derived from the coding sequence of SEQ ID NO:5 shown in Figure 5.

[0050] Figure 7 shows a nucleotide sequence (SEQ ID NO:7).

[0051] Figure 8 shows the amino acid sequence (SEQ ID NO:8) derived from the coding sequence of SEQ ID NO:7 shown in Figure 7.

[0052] Figure 9 shows a nucleotide sequence (SEQ ID NO:9).

[0053] Figure 10 shows the amino acid sequence (SEQ ID NO:10) derived from the coding sequence of SEQ ID NO:9 shown in Figure 9.

[0054] Figure 11 shows a nucleotide sequence (SEQ ID NO:11).

[0055] Figure 12 shows the amino acid sequence (SEQ ID NO:12) derived from the coding sequence of SEQ ID NO:11 shown in Figure 11.

[0056] Figure 13 shows a nucleotide sequence (SEQ ID NO:13).

[0057] Figure 14 shows the amino acid sequence (SEQ ID NO:14) derived from the coding sequence of SEQ ID NO:13 shown in Figure 13.

[0058] Figure 15 shows a nucleotide sequence (SEQ ID NO:15).

[0059] Figure 16 shows the amino acid sequence (SEQ ID NO:16) derived from the coding sequence of SEQ ID NO:15 shown in Figure 15.

[0060] Figure 17 shows a nucleotide sequence (SEQ ID NO:17).

[0061] Figure 18 shows the amino acid sequence (SEQ ID NO:18) derived from the coding sequence of SEQ ID NO:17 shown in Figure 17.

[0062] Figure 19 shows a nucleotide sequence (SEQ ID NO:19).

[0063] Figure 20 shows the amino acid sequence (SEQ ID NO:20) derived from the coding sequence of SEQ ID NO:19 shown in Figure 19.

[0064] Figure 21 shows a nucleotide sequence (SEQ ID NO:21).

[0065] Figure 22 shows the amino acid sequence (SEQ ID NO:22) derived from the coding sequence of SEQ ID NO:21 shown in Figure 21.

[0066] Figure 23 shows a nucleotide sequence (SEQ ID NO:23).

[0067] Figure 24 shows the amino acid sequence (SEQ ID NO:24) derived from the coding sequence of SEQ ID NO:23 shown in Figure 23.

[0068] Figure 25 shows a nucleotide sequence (SEQ ID NO:25).

[0069] Figure 26 shows the amino acid sequence (SEQ ID NO:26) derived from the coding sequence of SEQ ID NO:25 shown in Figure 25.

[0070] Figure 27 shows a nucleotide sequence (SEQ ID NO:27).

[0071] Figure 28 shows the amino acid sequence (SEQ ID NO:28) derived from the coding sequence of SEQ ID NO:27 shown in Figure 27.

[0072] Figure 29 shows a nucleotide sequence (SEQ ID NO:29).

[0073] Figure 30 shows the amino acid sequence (SEQ ID NO:30) derived from the coding sequence of SEQ ID NO:29 shown in Figure 29.

[0074] Figure 31 shows a nucleotide sequence (SEQ ID NO:31).

[0075] Figure 32 shows the amino acid sequence (SEQ ID NO:32) derived from the coding sequence of SEQ ID NO:31 shown in Figure 31.

[0076] Figure 33 shows a nucleotide sequence (SEQ ID NO:33).

[0077] Figure 34 shows the amino acid sequence (SEQ ID NO:34) derived from the coding sequence of SEQ ID NO:33 shown in Figure 33.

[0078] Figure 35 shows a nucleotide sequence (SEQ ID NO:35).

[0079] Figure 36 shows the amino acid sequence (SEQ ID NO:36) derived from the coding sequence of SEQ ID NO:35 shown in Figure 35.

[0080] Figure 37 shows a nucleotide sequence (SEQ ID NO:37).

[0081] Figure 38 shows the amino acid sequence (SEQ ID NO:38) derived from the coding sequence of SEQ ID NO:37 shown in Figure 37.

[0082] Figure 39 shows a nucleotide sequence (SEQ ID NO:39).

[0083] Figure 40 shows the amino acid sequence (SEQ ID NO:40) derived from the coding sequence of SEQ ID NO:39 shown in Figure 39.

[0084] Figure 41 shows a nucleotide sequence (SEQ ID NO:41).

[0085] Figure 42 shows the amino acid sequence (SEQ ID NO:42) derived from the coding sequence of SEQ ID NO:41 shown in Figure 41.

[0086] Figure 43 shows a nucleotide sequence (SEQ ID NO:43).

[0087] Figure 44 shows the amino acid sequence (SEQ ID NO:44) derived from the coding sequence of SEQ ID NO:43 shown in Figure 43.

[0088] Figure 45 shows a nucleotide sequence (SEQ ID NO:45).

[0089] Figure 46 shows the amino acid sequence (SEQ ID NO:46) derived from the coding sequence of SEQ ID NO:45 shown in Figure 45.

[0090] Figure 47 shows a nucleotide sequence (SEQ ID NO:47).

[0091] Figure 48 shows the amino acid sequence (SEQ ID NO:48) derived from the coding sequence of SEQ ID NO:47 shown in Figure 47.

[0092] Figure 49 shows a nucleotide sequence (SEQ ID NO:49).

[0093] Figure 50 shows the amino acid sequence (SEQ ID NO:50) derived from the coding sequence of SEQ ID NO:49 shown in Figure 49.

[0094] Figure 51 shows a nucleotide sequence (SEQ ID NO:51).

[0095] Figure 52 shows the amino acid sequence (SEQ ID NO:52) derived from the coding sequence of SEQ ID NO:51 shown in Figure 51.

[0096] Figure 53 shows a nucleotide sequence (SEQ ID NO:53).

[0097] Figure 54 shows the amino acid sequence (SEQ ID NO:54) derived from the coding sequence of SEQ ID NO:53 shown in Figure 53.

[0098] Figure 55 shows a nucleotide sequence (SEQ ID NO:55).

[0099] Figure 56 shows the amino acid sequence (SEQ ID NO:56) derived from the coding sequence of SEQ ID NO:55 shown in Figure 55.

[0100] Figure 57 shows a nucleotide sequence (SEQ ID NO:57).

[0101] Figure 58 shows the amino acid sequence (SEQ ID NO:58) derived from the coding sequence of SEQ ID NO:57 shown in Figure 57.

[0102] Figure 59 shows a nucleotide sequence (SEQ ID NO:59).

[0103] Figure 60 shows the amino acid sequence (SEQ ID NO:60) derived from the coding sequence of SEQ ID NO:59 shown in Figure 59.

[0104] Figure 61 shows a nucleotide sequence (SEQ ID NO:61).

[0105] Figure 62 shows the amino acid sequence (SEQ ID NO:62) derived from the coding sequence of SEQ ID NO:61 shown in Figure 61.

[0106] Figure 63 shows a nucleotide sequence (SEQ ID NO:63).

[0107] Figure 64 shows the amino acid sequence (SEQ ID NO:64) derived from the coding sequence of SEQ ID NO:63 shown in Figure 63.

[0108] Figure 65 shows a nucleotide sequence (SEQ ID NO:65).

[0109] Figure 66 shows the amino acid sequence (SEQ ID NO:66) derived from the coding sequence of SEQ ID NO:65 shown in Figure 65.

[0110] Figure 67 shows a nucleotide sequence (SEQ ID NO:67).

[0111] Figure 68 shows the amino acid sequence (SEQ ID NO:68) derived from the coding sequence of SEQ ID NO:67 shown in Figure 67.

[0112] Figure 69 shows a nucleotide sequence (SEQ ID NO:69).

[0113] Figure 70 shows the amino acid sequence (SEQ ID NO:70) derived from the coding sequence of SEQ ID NO:69 shown in Figure 69.

[0114] Figure 71 shows a nucleotide sequence (SEQ ID NO:71).

[0115] Figure 72 shows the amino acid sequence (SEQ ID NO:72) derived from the coding sequence of SEQ ID NO:71 shown in Figure 71.

[0116] Figure 73 shows a nucleotide sequence (SEQ ID NO:73).

[0117] Figure 74 shows the amino acid sequence (SEQ ID NO:74) derived from the coding sequence of SEQ ID NO:73 shown in Figure 73.

[0118] Figure 75 shows a nucleotide sequence (SEQ ID NO:75).

[0119] Figure 76 shows the amino acid sequence (SEQ ID NO:76) derived from the coding sequence of SEQ ID NO:75 shown in Figure 75.

[0120] Figure 77 shows a nucleotide sequence (SEQ ID NO:77).

[0121] Figure 78 shows the amino acid sequence (SEQ ID NO:78) derived from the coding sequence of SEQ ID NO:77 shown in Figure 77.

[0122] Figure 79 shows a nucleotide sequence (SEQ ID NO:79).

[0123] Figure 80 shows the amino acid sequence (SEQ ID NO:80) derived from the coding sequence of SEQ ID NO:79 shown in Figure 79.

[0124] Figure 81 shows a nucleotide sequence (SEQ ID NO:81).

[0125] Figure 82 shows the amino acid sequence (SEQ ID NO:82) derived from the coding sequence of SEQ ID NO:81 shown in Figure 81.

[0126] Figure 83 shows a nucleotide sequence (SEQ ID NO:83).

[0127] Figure 84 shows the amino acid sequence (SEQ ID NO:84) derived from the coding sequence of SEQ ID NO:83 shown in Figure 83.

[0128] Figure 85 shows a nucleotide sequence (SEQ ID NO:85).

[0129] Figure 86 shows the amino acid sequence (SEQ ID NO:86) derived from the coding sequence of SEQ ID NO:85 shown in Figure 85.

[0130] Figure 87 shows a nucleotide sequence (SEQ ID NO:87).

[0131] Figure 88 shows the amino acid sequence (SEQ ID NO:88) derived from the coding sequence of SEQ ID NO:87 shown in Figure 87.

[0132] Figure 89 shows a nucleotide sequence (SEQ ID NO:89).

[0133] Figure 90 shows the amino acid sequence (SEQ ID NO:90) derived from the coding sequence of SEQ ID NO:89 shown in Figure 89.

[0134] Figure 91 shows a nucleotide sequence (SEQ ID NO:91).

[0135] Figure 92 shows the amino acid sequence (SEQ ID NO:92) derived from the coding sequence of SEQ ID NO:91 shown in Figure 91.

[0136] Figure 93 shows a nucleotide sequence (SEQ ID NO:93).

[0137] Figure 94 shows the amino acid sequence (SEQ ID NO:94) derived from the coding sequence of SEQ ID NO:93 shown in Figure 93.

[0138] Figure 95 shows a nucleotide sequence (SEQ ID NO:95).

[0139] Figure 96 shows the amino acid sequence (SEQ ID NO:96) derived from the coding sequence of SEQ ID NO:95 shown in Figure 95.

[0140] Figure 97 shows a nucleotide sequence (SEQ ID NO:97).

[0141] Figure 98 shows the amino acid sequence (SEQ ID NO:98) derived from the coding sequence of SEQ ID NO:97 shown in Figure 97.

[0142] Figure 99 shows a nucleotide sequence (SEQ ID NO:99).

[0143] Figure 100 shows the amino acid sequence (SEQ ID NO:100) derived from the coding sequence of SEQ ID NO:99 shown in Figure 99.

[0144] Figure 101 shows a nucleotide sequence (SEQ ID NO:101).

[0145] Figure 102 shows the amino acid sequence (SEQ ID NO:102) derived from the coding sequence of SEQ ID NO:101 shown in Figure 101.

[0146] Figure 103 shows a nucleotide sequence (SEQ ID NO:103).

[0147] Figure 104 shows the amino acid sequence (SEQ ID NO:104) derived from the coding sequence of SEQ ID NO:103 shown in Figure 103.

[0148] Figure 105 shows a nucleotide sequence (SEQ ID NO:105).

[0149] Figure 106 shows the amino acid sequence (SEQ ID NO:106) derived from the coding sequence of SEQ ID NO:105 shown in Figure 105.

[0150] Figure 107 shows a nucleotide sequence (SEQ ID NO:107).

[0151] Figure 108 shows the amino acid sequence (SEQ ID NO:108) derived from the coding sequence of SEQ ID NO:107 shown in Figure 107.

[0152] Figure 109 shows a nucleotide sequence (SEQ ID NO:109).

[0153] Figure 110 shows the amino acid sequence (SEQ ID NO:110) derived from the coding sequence of SEQ ID NO:109 shown in Figure 109.

[0154] Figure 111 shows a nucleotide sequence (SEQ ID NO:111).

[0155] Figure 112 shows the amino acid sequence (SEQ ID NO:112) derived from the coding sequence of SEQ ID NO:111 shown in Figure 111.

[0156] Figure 113 shows a nucleotide sequence (SEQ ID NO:113).

[0157] Figure 114 shows the amino acid sequence (SEQ ID NO:114) derived from the coding sequence of SEQ ID NO:113 shown in Figure 113.

[0158] Figure 115 shows a nucleotide sequence (SEQ ID NO:115).

[0159] Figure 116 shows the amino acid sequence (SEQ ID NO:116) derived from the coding sequence of SEQ ID NO:115 shown in Figure 115.

[0160] Figure 117 shows a nucleotide sequence (SEQ ID NO:117).

[0161] Figure 118 shows the amino acid sequence (SEQ ID NO:118) derived from the coding sequence of SEQ ID NO:117 shown in Figure 117.

[0162] Figure 119 shows a nucleotide sequence (SEQ ID NO:119).

[0163] Figure 120 shows the amino acid sequence (SEQ ID NO:120) derived from the coding sequence of SEQ ID NO:119 shown in Figure 119.

[0164] Figure 121 shows a nucleotide sequence (SEQ ID NO:121).

[0165] Figure 122 shows the amino acid sequence (SEQ ID NO:122) derived from the coding sequence of SEQ ID NO:121 shown in Figure 121.

[0166] Figure 123 shows a nucleotide sequence (SEQ ID NO:123).

[0167] Figure 124 shows the amino acid sequence (SEQ ID NO:124) derived from the coding sequence of SEQ ID NO:123 shown in Figure 123.

[0168] Figure 125 shows a nucleotide sequence (SEQ ID NO:125).

[0169] Figure 126 shows the amino acid sequence (SEQ ID NO:126) derived from the coding sequence of SEQ ID NO:125 shown in Figure 125.

[0170] Figure 127 shows a nucleotide sequence (SEQ ID NO:127).

[0171] Figure 128 shows the amino acid sequence (SEQ ID NO:128) derived from the coding sequence of SEQ ID NO:127 shown in Figure 127.

[0172] Figure 129 shows a nucleotide sequence (SEQ ID NO:129).

[0173] Figure 130 shows the amino acid sequence (SEQ ID NO:130) derived from the coding sequence of SEQ ID NO:129 shown in Figure 129.

[0174] Figure 131 shows a nucleotide sequence (SEQ ID NO:131).

[0175] Figure 132 shows the amino acid sequence (SEQ ID NO:132) derived from the coding sequence of SEQ ID NO:131 shown in Figure 131.

[0176] Figure 133 shows a nucleotide sequence (SEQ ID NO:133).

[0177] Figure 134 shows the amino acid sequence (SEQ ID NO:134) derived from the coding sequence of SEQ ID NO:133 shown in Figure 133.

[0178] Figure 135 shows a nucleotide sequence (SEQ ID NO:135).

[0179] Figure 136 shows the amino acid sequence (SEQ ID NO:136) derived from the coding sequence of SEQ ID NO:135 shown in Figure 135.

[0180] Figure 137 shows a nucleotide sequence (SEQ ID NO:137).

[0181] Figure 138 shows the amino acid sequence (SEQ ID NO:138) derived from the coding sequence of SEQ ID NO:137 shown in Figure 137.

[0182] Figure 139 shows a nucleotide sequence (SEQ ID NO:139).

[0183] Figure 140 shows the amino acid sequence (SEQ ID NO:140) derived from the coding sequence of SEQ ID NO:139 shown in Figure 139.

[0184] Figure 141 shows a nucleotide sequence (SEQ ID NO:141).

[0185] Figure 142 shows the amino acid sequence (SEQ ID NO:142) derived from the coding sequence of SEQ ID NO:141 shown in Figure 141.

[0186] Figure 143 shows a nucleotide sequence (SEQ ID NO:143).

[0187] Figure 144 shows the amino acid sequence (SEQ ID NO:144) derived from the coding sequence of SEQ ID NO:143 shown in Figure 143.

[0188] Figure 145 shows a nucleotide sequence (SEQ ID NO:145).

[0189] Figure 146 shows the amino acid sequence (SEQ ID NO:146) derived from the coding sequence of SEQ ID NO:145 shown in Figure 145.

[0190] Figure 147 shows a nucleotide sequence (SEQ ID NO:147).

[0191] Figure 148 shows the amino acid sequence (SEQ ID NO:148) derived from the coding sequence of SEQ ID NO:147 shown in Figure 147.

[0192] Figure 149 shows a nucleotide sequence (SEQ ID NO:149).

[0193] Figure 150 shows the amino acid sequence (SEQ ID NO:150) derived from the coding sequence of SEQ ID NO:149 shown in Figure 149.

[0194] Figure 151 shows a nucleotide sequence (SEQ ID NO:151).

[0195] Figure 152 shows the amino acid sequence (SEQ ID NO:152) derived from the coding sequence of SEQ ID NO:151 shown in Figure 151.

[0196] Figure 153 shows a nucleotide sequence (SEQ ID NO:153).

[0197] Figure 154 shows the amino acid sequence (SEQ ID NO:154) derived from the coding sequence of SEQ ID NO:153 shown in Figure 153.

[0198] Figure 155 shows a nucleotide sequence (SEQ ID NO:155).

[0199] Figure 156 shows the amino acid sequence (SEQ ID NO:156) derived from the coding sequence of SEQ ID NO:155 shown in Figure 155.

[0200] Figure 157 shows a nucleotide sequence (SEQ ID NO:157).

[0201] Figure 158 shows the amino acid sequence (SEQ ID NO:158) derived from the coding sequence of SEQ ID NO:157 shown in Figure 157.

[0202] Figure 159 shows a nucleotide sequence (SEQ ID NO:159).

[0203] Figure 160 shows the amino acid sequence (SEQ ID NO:160) derived from the coding sequence of SEQ ID NO:159 shown in Figure 159.

[0204] Figure 161 shows a nucleotide sequence (SEQ ID NO:161).

[0205] Figure 162 shows the amino acid sequence (SEQ ID NO:162) derived from the coding sequence of SEQ ID NO:161 shown in Figure 161.

[0206] Figure 163 shows a nucleotide sequence (SEQ ID NO:163).

[0207] Figure 164 shows the amino acid sequence (SEQ ID NO:164) derived from the coding sequence of SEQ ID NO:163 shown in Figure 163.

[0208] Figure 165 shows a nucleotide sequence (SEQ ID NO:165).

[0209] Figure 166 shows the amino acid sequence (SEQ ID NO:166) derived from the coding sequence of SEQ ID NO:165 shown in Figure 165.

[0210] Figure 167 shows a nucleotide sequence (SEQ ID NO:167).

[0211] Figure 168 shows the amino acid sequence (SEQ ID NO:168) derived from the coding sequence of SEQ ID NO:167 shown in Figure 167.

[0212] Figure 169 shows a nucleotide sequence (SEQ ID NO:169).

[0213] Figure 170 shows the amino acid sequence (SEQ ID NO:170) derived from the coding sequence of SEQ ID NO:169 shown in Figure 169.

[0214] Figure 171 shows a nucleotide sequence (SEQ ID NO:171).

[0215] Figure 172 shows the amino acid sequence (SEQ ID NO:172) derived from the coding sequence of SEQ ID NO:171 shown in Figure 171.

[0216] Figure 173 shows a nucleotide sequence (SEQ ID NO:173).

[0217] Figure 174 shows the amino acid sequence (SEQ ID NO:174) derived from the coding sequence of SEQ ID NO:173 shown in Figure 173.

[0218] Figure 175 shows a nucleotide sequence (SEQ ID NO:175).

[0219] Figure 176 shows the amino acid sequence (SEQ ID NO:176) derived from the coding sequence of SEQ ID NO:175 shown in Figure 175.

[0220] Figure 177 shows a nucleotide sequence (SEQ ID NO:177).

[0221] Figure 178 shows the amino acid sequence (SEQ ID NO:178) derived from the coding sequence of SEQ ID NO:177 shown in Figure 177.

[0222] Figure 179 shows a nucleotide sequence (SEQ ID NO:179).

[0223] Figure 180 shows the amino acid sequence (SEQ ID NO:180) derived from the coding sequence of SEQ ID NO:179 shown in Figure 179.

[0224] Figure 181 shows a nucleotide sequence (SEQ ID NO:181).

[0225] Figure 182 shows the amino acid sequence (SEQ ID NO:182) derived from the coding sequence of SEQ ID NO:181 shown in Figure 181.

[0226] Figure 183 shows a nucleotide sequence (SEQ ID NO:183).

[0227] Figure 184 shows the amino acid sequence (SEQ ID NO:184) derived from the coding sequence of SEQ ID NO:183 shown in Figure 183.

[0228] Figure 185 shows a nucleotide sequence (SEQ ID NO:185).

[0229] Figure 186 shows the amino acid sequence (SEQ ID NO:186) derived from the coding sequence of SEQ ID NO:185 shown in Figure 185.

[0230] Figure 187 shows a nucleotide sequence (SEQ ID NO:187).

[0231] Figure 188 shows the amino acid sequence (SEQ ID NO:188) derived from the coding sequence of SEQ ID NO:187 shown in Figure 187.

[0232] Figure 189 shows a nucleotide sequence (SEQ ID NO:189).

[0233] Figure 190 shows the amino acid sequence (SEQ ID NO:190) derived from the coding sequence of SEQ ID NO:189 shown in Figure 189.

[0234] Figure 191 shows a nucleotide sequence (SEQ ID NO:191).

[0235] Figure 192 shows the amino acid sequence (SEQ ID NO:192) derived from the coding sequence of SEQ ID NO:191 shown in Figure 191.

[0236] Figure 193 shows a nucleotide sequence (SEQ ID NO:193).

[0237] Figure 194 shows the amino acid sequence (SEQ ID NO:194) derived from the coding sequence of SEQ ID NO:193 shown in Figure 193.

[0238] Figure 195 shows a nucleotide sequence (SEQ ID NO:195).

[0239] Figure 196 shows the amino acid sequence (SEQ ID NO:196) derived from the coding sequence of SEQ ID NO:195 shown in Figure 195.

[0240] Figure 197 shows a nucleotide sequence (SEQ ID NO:197).

[0241] Figure 198 shows the amino acid sequence (SEQ ID NO:198) derived from the coding sequence of SEQ ID NO:197 shown in Figure 197.

[0242] Figure 199 shows a nucleotide sequence (SEQ ID NO:199).

[0243] Figure 200 shows the amino acid sequence (SEQ ID NO:200) derived from the coding sequence of SEQ ID NO:199 shown in Figure 199.

[0244] Figure 201 shows a nucleotide sequence (SEQ ID NO:201).

[0245] Figure 202 shows the amino acid sequence (SEQ ID NO:202) derived from the coding sequence of SEQ ID NO:201 shown in Figure 201.

[0246] Figure 203 shows a nucleotide sequence (SEQ ID NO:203).

[0247] Figure 204 shows the amino acid sequence (SEQ ID NO:204) derived from the coding sequence of SEQ ID NO:203 shown in Figure 203.

[0248] Figure 205 shows a nucleotide sequence (SEQ ID NO:205).

[0249] Figure 206 shows the amino acid sequence (SEQ ID NO:206) derived from the coding sequence of SEQ ID NO:205 shown in Figure 205.

[0250] Figure 207 shows a nucleotide sequence (SEQ ID NO:207).

[0251] Figure 208 shows the amino acid sequence (SEQ ID NO:208) derived from the coding sequence of SEQ ID NO:207 shown in Figure 207.

[0252] Figure 209 shows a nucleotide sequence (SEQ ID NO:209).

[0253] Figure 210 shows the amino acid sequence (SEQ ID NO:210) derived from the coding sequence of SEQ ID NO:209 shown in Figure 209.

[0254] Figure 211 shows a nucleotide sequence (SEQ ID NO:211).

[0255] Figure 212 shows the amino acid sequence (SEQ ID NO:212) derived from the coding sequence of SEQ ID NO:211 shown in Figure 211.

[0256] Figure 213 shows a nucleotide sequence (SEQ ID NO:213).

[0257] Figure 214 shows the amino acid sequence (SEQ ID NO:214) derived from the coding sequence of SEQ ID NO:213 shown in Figure 213.

[0258] Figure 215 shows a nucleotide sequence (SEQ ID NO:215).

[0259] Figure 216 shows the amino acid sequence (SEQ ID NO:216) derived from the coding sequence of SEQ ID NO:215 shown in Figure 215.

[0260] Figure 217 shows a nucleotide sequence (SEQ ID NO:217).

[0261] Figure 218 shows the amino acid sequence (SEQ ID NO:218) derived from the coding sequence of SEQ ID NO:217 shown in Figure 217.

[0262] Figure 219 shows a nucleotide sequence (SEQ ID NO:219).

[0263] Figure 220 shows the amino acid sequence (SEQ ID NO:220) derived from the coding sequence of SEQ ID NO:219 shown in Figure 219.

[0264] Figure 221 shows a nucleotide sequence (SEQ ID NO:221).

[0265] Figure 222 shows the amino acid sequence (SEQ ID NO:222) derived from the coding sequence of SEQ ID NO:221 shown in Figure 221.

[0266] Figure 223 shows a nucleotide sequence (SEQ ID NO:223).

[0267] Figure 224 shows the amino acid sequence (SEQ ID NO:224) derived from the coding sequence of SEQ ID NO:223 shown in Figure 223.

[0268] Figure 225 shows a nucleotide sequence (SEQ ID NO:225).

[0269] Figure 226 shows the amino acid sequence (SEQ ID NO:226) derived from the coding sequence of SEQ ID NO:225 shown in Figure 225.

[0270] Figure 227 shows a nucleotide sequence (SEQ ID NO:227).

[0271] Figure 228 shows the amino acid sequence (SEQ ID NO:228) derived from the coding sequence of SEQ ID NO:227 shown in Figure 227.

[0272] Figure 229 shows a nucleotide sequence (SEQ ID NO:229).

[0273] Figure 230 shows the amino acid sequence (SEQ ID NO:230) derived from the coding sequence of SEQ ID NO:229 shown in Figure 229.

[0274] Figure 231 shows a nucleotide sequence (SEQ ID NO:231).

[0275] Figure 232 shows the amino acid sequence (SEQ ID NO:232) derived from the coding sequence of SEQ ID NO:231 shown in Figure 231.

[0276] Figure 233 shows a nucleotide sequence (SEQ ID NO:233).

[0277] Figure 234 shows the amino acid sequence (SEQ ID NO:234) derived from the coding sequence of SEQ ID NO:233 shown in Figure 233.

[0278] Figure 235 shows a nucleotide sequence (SEQ ID NO:235).

[0279] Figure 236 shows the amino acid sequence (SEQ ID NO:236) derived from the coding sequence of SEQ ID NO:235 shown in Figure 235.

[0280] Figure 237 shows a nucleotide sequence (SEQ ID NO:237).

[0281] Figure 238 shows the amino acid sequence (SEQ ID NO:238) derived from the coding sequence of SEQ ID NO:237 shown in Figure 237.

[0282] Figure 239 shows a nucleotide sequence (SEQ ID NO:239).

[0283] Figure 240 shows the amino acid sequence (SEQ ID NO:240) derived from the coding sequence of SEQ ID NO:239 shown in Figure 239.

[0284] Figure 241 shows a nucleotide sequence (SEQ ID NO:241).

[0285] Figure 242 shows the amino acid sequence (SEQ ID NO:242) derived from the coding sequence of SEQ ID NO:241 shown in Figure 241.

[0286] Figure 243 shows a nucleotide sequence (SEQ ID NO:243).

[0287] Figure 244 shows the amino acid sequence (SEQ ID NO:244) derived from the coding sequence of SEQ ID NO:243 shown in Figure 243.

[0288] Figure 245 shows a nucleotide sequence (SEQ ID NO:245).

[0289] Figure 246 shows the amino acid sequence (SEQ ID NO:246) derived from the coding sequence of SEQ ID NO:245 shown in Figure 245.

[0290] Figure 247 shows a nucleotide sequence (SEQ ID NO:247).

[0291] Figure 248 shows the amino acid sequence (SEQ ID NO:248) derived from the coding sequence of SEQ ID NO:247 shown in Figure 247.

[0292] Figure 249 shows a nucleotide sequence (SEQ ID NO:249).

[0293] Figure 250 shows the amino acid sequence (SEQ ID NO:250) derived from the coding sequence of SEQ ID NO:249 shown in Figure 249.

[0294] Figure 251 shows a nucleotide sequence (SEQ ID NO:251).

[0295] Figure 252 shows the amino acid sequence (SEQ ID NO:252) derived from the coding sequence of SEQ ID NO:251 shown in Figure 251.

[0296] Figure 253 shows a nucleotide sequence (SEQ ID NO:253).

[0297] Figure 254 shows the amino acid sequence (SEQ ID NO:254) derived from the coding sequence of SEQ ID NO. 253 shown in Figure 253.

[0298] Figure 255 shows a nucleotide sequence (SEQ ID NO:255).

[0299] Figure 256 shows the amino acid sequence (SEQ ID NO:256) derived from the coding sequence of SEQ ID NO:255 shown in Figure 255.

[0300] Figure 257 shows a nucleotide sequence (SEQ ID NO:257).

[0301] Figure 258 shows the amino acid sequence (SEQ ID NO:258) derived from the coding sequence of SEQ ID NO:257 shown in Figure 257.

[0302] Figure 259 shows a nucleotide sequence (SEQ ID NO:259).

[0303] Figure 260 shows the amino acid sequence (SEQ ID NO:260) derived from the coding sequence of SEQ ID NO:259 shown in Figure 259.

[0304] Figure 261 shows a nucleotide sequence (SEQ ID NO:261).

[0305] Figure 262 shows the amino acid sequence (SEQ ID NO:262) derived from the coding sequence of SEQ ID NO:261 shown in Figure 261.

[0306] Figure 263 shows a nucleotide sequence (SEQ ID NO:263).

[0307] Figure 264 shows the amino acid sequence (SEQ ID NO:264) derived from the coding sequence of SEQ ID NO:263 shown in Figure 263.

[0308] Figure 265 shows a nucleotide sequence (SEQ ID NO:265).

[0309] Figure 266 shows the amino acid sequence (SEQ ID NO:266) derived from the coding sequence of SEQ ID NO: 265 shown in Figure 265.

[0310] Figure 267 shows a nucleotide sequence (SEQ ID NO:267).

[0311] Figure 268 shows the amino acid sequence (SEQ ID NO:268) derived from the coding sequence of SEQ ID NO:267 shown in Figure 267.

[0312] Figure 269 shows a nucleotide sequence (SEQ ID NO:269).

[0313] Figure 270 shows the amino acid sequence (SEQ ID NO:270) derived from the coding sequence of SEQ ID NO:269 shown in Figure 269.

[0314] Figure 271 shows a nucleotide sequence (SEQ ID NO:271).

[0315] Figure 272 shows the amino acid sequence (SEQ ID NO:272) derived from the coding sequence of SEQ ID NO:271 shown in Figure 271.

[0316] Figure 273 shows a nucleotide sequence (SEQ ID NO:273).

[0317] Figure 274 shows the amino acid sequence (SEQ ID NO:274) derived from the coding sequence of SEQ ID NO:273 shown in Figure 273.

[0318] Figure 275 shows a nucleotide sequence (SEQ ID NO:275).

[0319] Figure 276 shows the amino acid sequence (SEQ ID NO:276) derived from the coding sequence of SEQ ID NO:275 shown in Figure 275.

[0320] Figure 277 shows a nucleotide sequence (SEQ ID NO:277).

[0321] Figure 278 shows the amino acid sequence (SEQ ID NO:278) derived from the coding sequence of SEQ ID NO:277 shown in Figure 277.

[0322] Figure 279 shows a nucleotide sequence (SEQ ID NO:279).

[0323] Figure 280 shows the amino acid sequence (SEQ ID NO:280) derived from the coding sequence of SEQ ID NO:279 shown in Figure 279.

[0324] Figure 281 shows a nucleotide sequence (SEQ ID NO:281).

[0325] Figure 282 shows the amino acid sequence (SEQ ID NO:282) derived from the coding sequence of SEQ ID NO:281 shown in Figure 281.

[0326] Figure 283 shows a nucleotide sequence (SEQ ID NO:283).

[0327] Figure 284 shows the amino acid sequence (SEQ ID NO:284) derived from the coding sequence of SEQ ID NO:283 shown in Figure 283.

[0328] Figure 285 shows a nucleotide sequence (SEQ ID NO:285).

[0329] Figure 286 shows the amino acid sequence (SEQ ID NO:286) derived from the coding sequence of SEQ ID NO:285 shown in Figure 285.

[0330] Figure 287 shows a nucleotide sequence (SEQ ID NO:287).

[0331] Figure 288 shows the amino acid sequence (SEQ ID NO:288) derived from the coding sequence of SEQ ID NO:287 shown in Figure 287.

[0332] Figure 289 shows a nucleotide sequence (SEQ ID NO:289).

[0333] Figure 290 shows the amino acid sequence (SEQ ID NO:290) derived from the coding sequence of SEQ ID NO:289 shown in Figure 289.

[0334] Figure 291 shows a nucleotide sequence (SEQ ID NO:291).

[0335] Figure 292 shows the amino acid sequence (SEQ ID NO:292) derived from the coding sequence of SEQ ID NO:291 shown in Figure 291.

[0336] Figure 293 shows a nucleotide sequence (SEQ ID NO:293).

[0337] Figure 294 shows the amino acid sequence (SEQ ID NO:294) derived from the coding sequence of SEQ ID NO:293 shown in Figure 293.

[0338] Figure 295 shows a nucleotide sequence (SEQ ID NO:295).

[0339] Figure 296 shows the amino acid sequence (SEQ ID NO:296) derived from the coding sequence of SEQ ID NO:295 shown in Figure 295.

[0340] Figure 297 shows a nucleotide sequence (SEQ ID NO:297).

[0341] Figure 298 shows the amino acid sequence (SEQ ID NO:298) derived from the coding sequence of SEQ ID NO:297 shown in Figure 297.

[0342] Figure 299 shows a nucleotide sequence (SEQ ID NO:299).

[0343] Figure 300 shows the amino acid sequence (SEQ ID NO:300) derived from the coding sequence of SEQ ID NO:299 shown in Figure 299.

[0344] Figure 301 shows a nucleotide sequence (SEQ ID NO:301).

[0345] Figure 302 shows the amino acid sequence (SEQ ID NO:302) derived from the coding sequence of SEQ ID NO:301 shown in Figure 301.

[0346] Figure 303 shows a nucleotide sequence (SEQ ID NO:303).

[0347] Figure 304 shows the amino acid sequence (SEQ ID NO:304) derived from the coding sequence of SEQ ID NO:303 shown in Figure 303.

[0348] Figure 305 shows a nucleotide sequence (SEQ ID NO:305).

[0349] Figure 306 shows the amino acid sequence (SEQ ID NO:306) derived from the coding sequence of SEQ ID NO:305 shown in Figure 305.

[0350] Figure 307 shows a nucleotide sequence (SEQ ID NO:307).

[0351] Figure 308 shows the amino acid sequence (SEQ ID NO:308) derived from the coding sequence of SEQ ID NO:307 shown in Figure 307.

[0352] Figure 309 shows a nucleotide sequence (SEQ ID NO:309).

[0353] Figure 310 shows the amino acid sequence (SEQ ID NO:310) derived from the coding sequence of SEQ ID NO:309 shown in Figure 309.

[0354] Figure 311 shows a nucleotide sequence (SEQ ID NO:311).

[0355] Figure 312 shows the amino acid sequence (SEQ ID NO:312) derived from the coding sequence of SEQ ID NO:311 shown in Figure 311.

[0356] Figure 313 shows a nucleotide sequence (SEQ ID NO:313).

[0357] Figure 314 shows the amino acid sequence (SEQ ID NO:314) derived from the coding sequence of SEQ ID NO:313 shown in Figure 313.

[0358] Figure 315 shows a nucleotide sequence (SEQ ID NO:315).

[0359] Figure 316 shows the amino acid sequence (SEQ ID NO:316) derived from the coding sequence of SEQ ID NO:315 shown in Figure 315.

[0360] Figure 317 shows a nucleotide sequence (SEQ ID NO:317).

[0361] Figure 318 shows the amino acid sequence (SEQ ID NO:318) derived from the coding sequence of SEQ ID NO:317 shown in Figure 317.

[0362] Figure 319 shows a nucleotide sequence (SEQ ID NO:319).

[0363] Figure 320 shows the amino acid sequence (SEQ ID NO:320) derived from the coding sequence of SEQ ID NO:319 shown in Figure 319.

[0364] Figure 321 shows a nucleotide sequence (SEQ ID NO:321).

[0365] Figure 322 shows the amino acid sequence (SEQ ID NO:322) derived from the coding sequence of SEQ ID NO:321 shown in Figure 321.

[0366] Figure 323 shows a nucleotide sequence (SEQ ID NO:323).

[0367] Figure 324 shows the amino acid sequence (SEQ ID NO:324) derived from the coding sequence of SEQ ID NO:323 shown in Figure 323.

[0368] Figure 325 shows a nucleotide sequence (SEQ ID NO:325).

[0369] Figure 326 shows the amino acid sequence (SEQ ID NO:326) derived from the coding sequence of SEQ ID NO:325 shown in Figure 325.

[0370] Figure 327 shows a nucleotide sequence (SEQ ID NO:327).

[0371] Figure 328 shows the amino acid sequence (SEQ ID NO:328) derived from the coding sequence of SEQ ID NO:327 shown in Figure 327.

[0372] Figure 329 shows a nucleotide sequence (SEQ ID NO:329).

[0373] Figure 330 shows the amino acid sequence (SEQ ID NO:330) derived from the coding sequence of SEQ ID NO:329 shown in Figure 329.

[0374] Figure 331 shows a nucleotide sequence (SEQ ID NO:331).

[0375] Figure 332 shows the amino acid sequence (SEQ ID NO:332) derived from the coding sequence of SEQ ID NO:331 shown in Figure 331.

[0376] Figure 333 shows a nucleotide sequence (SEQ ID NO:333).

[0377] Figure 334 shows the amino acid sequence (SEQ ID NO:334) derived from the coding sequence of SEQ ID NO:333 shown in Figure 333.

[0378] Figure 335 shows a nucleotide sequence (SEQ ID NO:335).

[0379] Figure 336 shows the amino acid sequence (SEQ ID NO:336) derived from the coding sequence of SEQ ID NO:335 shown in Figure 335.

[0380] Figure 337 shows a nucleotide sequence (SEQ ID NO:337).

[0381] Figure 338 shows the amino acid sequence (SEQ ID NO:338) derived from the coding sequence of SEQ ID NO:337 shown in Figure 337.

[0382] Figure 339 shows a nucleotide sequence (SEQ ID NO:339).

[0383] Figure 340 shows the amino acid sequence (SEQ ID NO:340) derived from the coding sequence of SEQ ID NO:339 shown in Figure 339.

[0384] Figure 341 shows a nucleotide sequence (SEQ ID NO:341).

[0385] Figure 342 shows the amino acid sequence (SEQ ID NO:342) derived from the coding sequence of SEQ ID NO:341 shown in Figure 341.

[0386] Figure 343 shows a nucleotide sequence (SEQ ID NO:343).

[0387] Figure 344 shows the amino acid sequence (SEQ ID NO:344) derived from the coding sequence of SEQ ID NO:343 shown in Figure 343.

[0388] Figure 345 shows a nucleotide sequence (SEQ ID NO:345).

[0389] Figure 346 shows the amino acid sequence (SEQ ID NO:346) derived from the coding sequence of SEQ ID NO:345 shown in Figure 345.

[0390] Figure 347 shows a nucleotide sequence (SEQ ID NO:347).

[0391] Figure 348 shows the amino acid sequence (SEQ ID NO:348) derived from the coding sequence of SEQ ID NO:347 shown in Figure 347.

[0392] Figure 349 shows a nucleotide sequence (SEQ ID NO:349).

[0393] Figure 350 shows the amino acid sequence (SEQ ID NO:350) derived from the coding sequence of SEQ ID NO:349 shown in Figure 349.

[0394] Figure 351 shows a nucleotide sequence (SEQ ID NO:351).

[0395] Figure 352 shows the amino acid sequence (SEQ ID NO:352) derived from the coding sequence of SEQ ID NO:3 51 shown in Figure 351.

[0396] Figure 353 shows a nucleotide sequence (SEQ ID NO:353).

[0397] Figure 354 shows the amino acid sequence (SEQ ID NO:354) derived from the coding sequence of SEQ ID NO:353 shown in Figure 353.

[0398] Figure 355 shows a nucleotide sequence (SEQ ID NO:355).

[0399] Figure 356 shows the amino acid sequence (SEQ ID NO:356) derived from the coding sequence of SEQ ID NO:355 shown in Figure 355.

[0400] Figure 357 shows a nucleotide sequence (SEQ ID NO:357).

[0401] Figure 358 shows the amino acid sequence (SEQ ID NO:358) derived from the coding sequence of SEQ ID NO:357 shown in Figure 357.

[0402] Figure 359 shows a nucleotide sequence (SEQ ID NO:359).

[0403] Figure 360 shows the amino acid sequence (SEQ ID NO:360) derived from the coding sequence of SEQ ID NO:359 shown in Figure 359.

[0404] Figure 361 shows a nucleotide sequence (SEQ ID NO:361).

[0405] Figure 362 shows the amino acid sequence (SEQ ID NO:362) derived from the coding sequence of SEQ ID NO:361 shown in Figure 361.

[0406] Figure 363 shows a nucleotide sequence (SEQ ID NO:363).

[0407] Figure 364 shows the amino acid sequence (SEQ ID NO:364) derived from the coding sequence of SEQ ID NO:363 shown in Figure 363.

[0408] Figure 365 shows a nucleotide sequence (SEQ ID NO:365).

[0409] Figure 366 shows the amino acid sequence (SEQ ID NO:366) derived from the coding sequence of SEQ ID NO:365 shown in Figure 365.

[0410] Figure 367 shows a nucleotide sequence (SEQ ID NO:367).

[0411] Figure 368 shows the amino acid sequence (SEQ ID NO:368) derived from the coding sequence of SEQ ID NO:367 shown in Figure 367.

[0412] Figure 369 shows a nucleotide sequence (SEQ ID NO:369).

[0413] Figure 370 shows the amino acid sequence (SEQ ID NO:370) derived from the coding sequence of SEQ ID NO:369 shown in Figure 369.

[0414] Figure 371 shows a nucleotide sequence (SEQ ID NO:371).

[0415] Figure 372 shows the amino acid sequence (SEQ ID NO:372) derived from the coding sequence of SEQ ID NO:371 shown in Figure 371.

[0416] Figure 373 shows a nucleotide sequence (SEQ ID NO:373).

[0417] Figure 374 shows the amino acid sequence (SEQ ID NO:374) derived from the coding sequence of SEQ ID NO:373 shown in Figure 373.

[0418] Figure 375 shows a nucleotide sequence (SEQ ID NO:375).

[0419] Figure 376 shows the amino acid sequence (SEQ ID NO:376) derived from the coding sequence of SEQ ID NO:375 shown in Figure 375.

[0420] Figure 377 shows a nucleotide sequence (SEQ ID NO:377).

[0421] Figure 378 shows the amino acid sequence (SEQ ID NO:378) derived from the coding sequence of SEQ ID NO:377 shown in Figure 377.

[0422] Figure 379 shows a nucleotide sequence (SEQ ID NO:379).

[0423] Figure 380 shows the amino acid sequence (SEQ ID NO:380) derived from the coding sequence of SEQ ID NO:379 shown in Figure 379.

[0424] Figure 381 shows a nucleotide sequence (SEQ ID NO:381).

[0425] Figure 382 shows the amino acid sequence (SEQ ID NO:382) derived from the coding sequence of SEQ ID NO:381 shown in Figure 381.

[0426] Figure 383 shows a nucleotide sequence (SEQ ID NO:383).

[0427] Figure 384 shows the amino acid sequence (SEQ ID NO:384) derived from the coding sequence of SEQ ID NO:383 shown in Figure 383.

[0428] Figure 385 shows a nucleotide sequence (SEQ ID NO:385).

[0429] Figure 386 shows the amino acid sequence (SEQ ID NO:386) derived from the coding sequence of SEQ ID NO:385 shown in Figure 385.

[0430] Figure 387 shows a nucleotide sequence (SEQ ID NO:387).

[0431] Figure 388 shows the amino acid sequence (SEQ ID NO:388) derived from the coding sequence of SEQ ID NO:387 shown in Figure 387.

[0432] Figure 389 shows a nucleotide sequence (SEQ ID NO:389).

[0433] Figure 390 shows the amino acid sequence (SEQ ID NO:390) derived from the coding sequence of SEQ ID NO:389 shown in Figure 389.

[0434] Figure 391 shows a nucleotide sequence (SEQ ID NO:391).

[0435] Figure 392 shows the amino acid sequence (SEQ ID NO:392) derived from the coding sequence of SEQ ID NO:391 shown in Figure 391.

[0436] Figure 393 shows a nucleotide sequence (SEQ ID NO:393).

[0437] Figure 394 shows the amino acid sequence (SEQ ID NO:394) derived from the coding sequence of SEQ ID NO:393 shown in Figure 393.

[0438] Figure 395 shows a nucleotide sequence (SEQ ID NO:395).

[0439] Figure 396 shows the amino acid sequence (SEQ ID NO:396) derived from the coding sequence of SEQ ID NO:395 shown in Figure 395.

[0440] Figure 397 shows a nucleotide sequence (SEQ ID NO:397).

[0441] Figure 398 shows the amino acid sequence (SEQ ID NO:398) derived from the coding sequence of SEQ ID NO:397 shown in Figure 397.

[0442] Figure 399 shows a nucleotide sequence (SEQ ID NO:399).

[0443] Figure 400 shows the amino acid sequence (SEQ ID NO:400) derived from the coding sequence of SEQ ID NO:399 shown in Figure 399.

[0444] Figure 401 shows a nucleotide sequence (SEQ ID NO:401).

[0445] Figure 402 shows the amino acid sequence (SEQ ID NO:402) derived from the coding sequence of SEQ ID NO:401 shown in Figure 401.

[0446] Figure 403 shows a nucleotide sequence (SEQ ID NO:403).

[0447] Figure 404 shows the amino acid sequence (SEQ ID NO:404) derived from the coding sequence of SEQ ID NO:403 shown in Figure 403.

[0448] Figure 405 shows a nucleotide sequence (SEQ ID NO:405).

[0449] Figure 406 shows the amino acid sequence (SEQ ID NO:406) derived from the coding sequence of SEQ ID NO:405 shown in Figure 405.

[0450] Figure 407 shows a nucleotide sequence (SEQ ID NO:407).

[0451] Figure 408 shows the amino acid sequence (SEQ ID NO:408) derived from the coding sequence of SEQ ID NO:407 shown in Figure 407.

[0452] Figure 409 shows a nucleotide sequence (SEQ ID NO:409).

[0453] Figure 410 shows the amino acid sequence (SEQ ID NO:410) derived from the coding sequence of SEQ ID NO:409 shown in Figure 409.

[0454] Figure 411 shows a nucleotide sequence (SEQ ID NO:411).

[0455] Figure 412 shows the amino acid sequence (SEQ ID NO:412) derived from the coding sequence of SEQ ID NO:411 shown in Figure 411.

[0456] Figure 413 shows a nucleotide sequence (SEQ ID NO:413).

[0457] Figure 414 shows the amino acid sequence (SEQ ID NO:414) derived from the coding sequence of SEQ ID NO:413 shown in Figure 413.

[0458] Figure 415 shows a nucleotide sequence (SEQ ID NO:415).

[0459] Figure 416 shows the amino acid sequence (SEQ ID NO:416) derived from the coding sequence of SEQ ID NO:415 shown in Figure 415.

[0460] Figure 417 shows a nucleotide sequence (SEQ ID NO:417).

[0461] Figure 418 shows the amino acid sequence (SEQ ID NO:418) derived from the coding sequence of SEQ ID NO:417 shown in Figure 417.

[0462] Figure 419 shows a nucleotide sequence (SEQ ID NO:419).

[0463] Figure 420 shows the amino acid sequence (SEQ ID NO:420) derived from the coding sequence of SEQ ID NO:419 shown in Figure 419.

[0464] Figure 421 shows a nucleotide sequence (SEQ ID NO:421).

[0465] Figure 422 shows the amino acid sequence (SEQ ID NO:422) derived from the coding sequence of SEQ ID NO:421 shown in Figure 421.

[0466] Figure 423 shows a nucleotide sequence (SEQ ID NO:423).

[0467] Figure 424 shows the amino acid sequence (SEQ ID NO:424) derived from the coding sequence of SEQ ID NO:423 shown in Figure 423.

[0468] Figure 425 shows a nucleotide sequence (SEQ ID NO:425).

[0469] Figure 426 shows the amino acid sequence (SEQ ID NO:426) derived from the coding sequence of SEQ ID NO:425 shown in Figure 425.

Detailed Description of the Preferred Embodiment

A. Definitions

[0470] Unless defined otherwise, technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. Singleton et *al.*, Dictionary of Microbiology and Molecular Biology 2nd ed., J. Wiley & Sons (New York, NY 1994), and March, Advanced Organic Chemistry Reactions, Mechanisms and Structure 4th ed., John Wiley & Sons (New York, NY 1992), provide one skilled in the art with a general guide to many of the terms used in the present application.

[0471] One skilled in the art will recognize many methods and materials similar or equivalent to those described herein, which could be used in the practice of the present invention. Indeed, the present invention is in no way limited to the methods and materials described. For purposes of the present invention, the following terms are defined below.

[0472] The term "inflammatory bowel disease" or "IBD" is used as a collective term for ulcerative colitis and Crohn's disease. Although the two diseases are generally considered as two different entities, their common characteristics, such as patchy necrosis of the surface epithelium, focal accumulations of leukocytes adjacent to glandular crypts, and an increased number of intraepithelial lymphocytes (IEL) and certain macrophage subsets, justify their treatment as a single disease group.

[0473] The term "Crohn's disease" or "CD" is used herein to refer to a condition involving chronic inflammation of the gastrointestinal tract. Crohn's-related inflammation usually affects the intestines, but may occur anywhere from the mouth to the anus. CD differs from UC in that the inflammation extends through all layers of the intestinal wall and involves mesentery as well as lymph nodes. The disease is often discontinuous, i.e., severely diseased segments of bowel are separated from apparently disease-free areas. In CD, the bowel wall also thickens which can lead to obstructions, and the development of fistulas and fissures are not uncommon. As used herein, CD may be one or more of several types of CD, including without limitation, ileocolitis (affects the ileum and the large intestine); ileitis (affects the ileum); gastroduodenal CD (inflammation in the stomach and the duodenum); jejunoileitis (spotty patches of inflammation in the jejunum); and Crohn's (granulomatous) colitis (only affects the large intestine).

[0474] The term "ulcerative colitis" or "UC" is used herein to refer to a condition involving inflammation of the large intestine and rectum. In patients with UC, there is an inflammatory reaction primarily involving the colonic mucosa. The inflammation is typically uniform and continuous with no intervening areas of normal mucosa. Surface mucosal cells as well as crypt epithelium and submucosa are involved in an inflammatory reaction with neutrophil infiltration. Ultimately, this reaction typically progresses to epithelial damage and loss of epithelial cells resulting in multiple ulcerations, fibrosis, dysplasia and longitudinal retraction of the colon.

[0475] The term "inactive" IBD is used herein to mean an IBD that was previously diagnosed in an individual but is currently in remission. This is in contrast to an "active" IBD in which an individual has been diagnosed with and IBD but has not undergone treatment. In addition, the active IBD may be a recurrence of a previously diagnosed and treated IBD that had gone into remission (i.e. become an inactive IBD). Such recurrences may also be referred to herein as "flare-ups" of an IBD. Mammalian subjects having an active autoimmune disease, such as an IBD, may be subject to a flare-up, which is a period of heightened disease activity or a return of corresponding symptoms. Flare-ups may occur in response to severe infection, allergic reactions, physical stress, emotional trauma, surgery, or environmental factors.

[0476] The term "modulate" is used herein to mean that the expression of the gene, or level of RNA molecule or equivalent RNA molecules encoding one or more proteins or protein subunits, or activity of one or more proteins or protein subunits is up

regulated or down regulated, such that expression, level, or activity is greater than or less than that observed in the absence of the modulator.

[0477] The terms "inhibit", "down-regulate", "underexpress" and "reduce" are used interchangeably and mean that the expression of a gene, or level of RNA molecules or equivalent RNA molecules encoding one or more proteins or protein subunits, or activity of one or more proteins or protein subunits, is reduced relative to one or more controls, such as, for example, one or more positive and/or negative controls.

[0478] The term "up-regulate" or "overexpress" is used to mean that the expression of a gene, or level of RNA molecules or equivalent RNA molecules encoding one or more proteins or protein subunits, or activity of one or more proteins or protein subunits, is elevated relative to one or more controls, such as, for example, one or more positive and/or negative controls.

[0479] The term "diagnosis" is used herein to refer to the identification of a molecular or pathological state, disease or condition, such as the identification of IBD.

[0480] The term "prognosis" is used herein to refer to the prediction of the likelihood of IBD development or progression, including autoimmune flare-ups and recurrences following surgery. Prognostic factors are those variables related to the natural history of IBD, which influence the recurrence rates and outcome of patients once they have developed IBD. Clinical parameters that may be associated with a worse prognosis include, for example, an abdominal mass or tenderness, skin rash, swollen joints, mouth ulcers, and borborygmus (gurgling or splashing sound over the intestine). Prognostic factors may be used to categorize patients into subgroups with different baseline recurrence risks.

[0481] The "pathology" of an IBD includes all phenomena that compromise the well-being of the patient. IBD pathology is primarily attributed to abnormal activation of the immune system in the intestines that can lead to chronic or acute inflammation in the absence of any known foreign antigen, and subsequent ulceration. Clinically, IBD is characterized by diverse manifestations often resulting in a chronic, unpredictable course. Bloody diarrhea and abdominal pain are often accompanied by fever and weight loss. Anemia is not uncommon, as is severe fatigue. Joint manifestations ranging from arthralgia to acute arthritis as well as abnormalities in liver function are commonly associated with IBD. During acute "attacks" of IBD, work and other normal activity are usually impossible, and often a patient is hospitalized.

[0482] The aetiology of these diseases is unknown and the initial lesion has not been clearly defined; however, patchy necrosis of the surface epithelium, focal accumulations of leukocytes adjacent to glandular crypts, and an increased number of intraepithelial lymphocytes and certain macrophage subsets have been described as putative early changes, especially in Crohn's disease.

[0483] The term "treatment" refers to both therapeutic treatment and prophylactic or preventative measures for IBD, wherein the object is to prevent or slow down (lessen) the targeted pathologic condition or disorder. Those in need of treatment include those already with an IBD as well as those prone to have an IBD or those in whom the IBD is to be prevented. Once the diagnosis of an IBD has been made by the methods disclosed herein, the goals of therapy are to induce and maintain a remission.

[0484] Various agents that are suitable for use as an "IBD therapeutic agent" are known to those of ordinary skill in the art. As described herein, such agents include without limitation, aminosalicylates, corticosteroids, and immunosuppressive agents.

[0485] The term "test sample" refers to a sample from a mammalian subject suspected of having an IBD, known to have an IBD, or known to be in remission from an IBD. The test sample may originate from various sources in the mammalian subject including, without limitation, blood, semen, serum, urine, bone marrow, mucosa, tissue, etc. The test sample may also be derived from a tissue biopsy.

[0486] The term "control" or "control sample" refers a negative control in which a negative result is expected to help correlate a positive result in the test sample. Controls that are suitable for the present invention include, without limitation, a sample known to have normal levels of gene expression, a sample obtained from a mammalian subject known not to have an IBD, and a sample obtained from a mammalian subject known to be normal. A control may also be a sample obtained from a subject previously diagnosed and treated for an IBD who is currently in remission; and such a control is useful in determining any recurrence of an IBD in a subject who is in remission. In addition, the control may be a sample containing normal cells that have the same origin as cells contained in the test sample. Those of skill in the art will appreciate other controls suitable for use in the present invention.

[0487] The term "microarray" refers to an ordered arrangement of hybridizable array elements, preferably polynucleotide probes, on a substrate.

[0488] The term "polynucleotide," when used in singular or plural, generally refers to any polyribonucleotide or polydeoxribonucleotide, which may be unmodified

RNA or DNA or modified RNA or DNA. Thus, for instance, polynucleotides as defined herein include, without limitation, single- and double-stranded DNA, DNA including single- and double-stranded regions, single- and double-stranded RNA, and RNA including single- and double-stranded regions, hybrid molecules comprising DNA and RNA that may be single-stranded or, more typically, double-stranded or include single- and double-stranded regions. In addition, the term "polynucleotide" as used herein refers to triple-stranded regions comprising RNA or DNA or both RNA and DNA. The strands in such regions may be from the same molecule or from different molecules. The regions may include all of one or more of the molecules, but more typically involve only a region of some of the molecules. One of the molecules of a triple-helical region often is an oligonucleotide. The term "polynucleotide" specifically includes cDNAs. The term includes DNAs (including cDNAs) and RNAs that contain one or more modified bases. Thus, DNAs or RNAs with backbones modified for stability or for other reasons are "polynucleotides" as that term is intended herein. Moreover, DNAs or RNAs comprising unusual bases, such as inosine, or modified bases, such as tritiated bases, are included within the term "polynucleotides" as defined herein. In general, the term "polynucleotide" embraces all chemically, enzymatically and/or metabolically modified forms of unmodified polynucleotides, as well as the chemical forms of DNA and RNA characteristic of viruses and cells, including simple and complex cells.

[0489] The term "oligonucleotide" refers to a relatively short polynucleotide, including, without limitation, single-stranded deoxyribonucleotides, single- or double-stranded ribonucleotides, RNA:DNA hybrids and double-stranded DNAs. Oligonucleotides, such as single-stranded DNA probe oligonucleotides, are often synthesized by chemical methods, for example using automated oligonucleotide synthesizers that are commercially available. However, oligonucleotides can be made by a variety of other methods, including *in vitro* recombinant DNA-mediated techniques and by expression of DNAs in cells and organisms.

[0490] The terms "differentially expressed gene," "differential gene expression" and their synonyms, which are used interchangeably, refer to a gene whose expression is activated to a higher or lower level in a subject suffering from a disease, specifically an IBD, such as UC or CD, relative to its expression in a normal or control subject. The terms also include genes whose expression is activated to a higher or lower level at different stages of the same disease. It is also understood that a differentially expressed gene may be either activated or inhibited at the nucleic acid level or protein

level, or may be subject to alternative splicing to result in a different polypeptide product. Such differences may be evidenced by a change in mRNA levels, surface expression, secretion or other partitioning of a polypeptide, for example. Differential gene expression may include a comparison of expression between two or more genes or their gene products, or a comparison of the ratios of the expression between two or more genes or their gene products, or even a comparison of two differently processed products of the same gene, which differ between normal subjects and subjects suffering from a disease, specifically an IBD, or between various stages of the same disease. Differential expression includes both quantitative, as well as qualitative, differences in the temporal or cellular expression pattern in a gene or its expression products among, for example, normal and diseased cells, or among cells which have undergone different disease events or disease stages. For the purpose of this invention, "differential gene expression" is considered to be present when there is at least an about two-fold, preferably at least about four-fold, more preferably at least about six-fold, most preferably at least about ten-fold difference between the expression of a given gene in normal and diseased subjects, or in various stages of disease development in a diseased subject.

[0491] The term "over-expression" with regard to an RNA transcript is used to refer to the level of the transcript determined by normalization to the level of reference mRNAs, which might be all transcripts detected in the specimen or a particular reference set of mRNAs.

[0492] The phrase "gene amplification" refers to a process by which multiple copies of a gene or gene fragment are formed in a particular cell or cell line. The duplicated region (a stretch of amplified DNA) is often referred to as "amplicon." Usually, the amount of the messenger RNA (mRNA) produced, i.e., the level of gene expression, also increases in the proportion of the number of copies made of the particular gene expressed.

[0493] In general, the term "marker" or "biomarker" or refers to an identifiable physical location on a chromosome, such as a restriction endonuclease recognition site or a gene, whose inheritance can be monitored. The marker may be an expressed region of a gene referred to as a "gene expression marker", or some segment of DNA with no known coding function. An "IBD marker" as used herein refers to one or more of the molecules shown as SEQ ID NOS:1-426.

[0494] "Stringency" of hybridization reactions is readily determinable by one of ordinary skill in the art, and generally is an empirical calculation dependent upon probe

length, washing temperature, and salt concentration. In general, longer probes require higher temperatures for proper annealing, while shorter probes need lower temperatures. Hybridization generally depends on the ability of denatured DNA to reanneal when complementary strands are present in an environment below their melting temperature. The higher the degree of desired homology between the probe and hybridizable sequence, the higher the relative temperature which can be used. As a result, it follows that higher relative temperatures would tend to make the reaction conditions more stringent, while lower temperatures less so. For additional details and explanation of stringency of hybridization reactions, see Ausubel et al., Current Protocols in Molecular Biology, Wiley Interscience Publishers, (1995).

[0495] "Stringent conditions" or "high stringency conditions", as defined herein, typically: (1) employ low ionic strength and high temperature for washing, for example 0.015 M sodium chloride/0.0015 M sodium citrate/0.1% sodium dodecyl sulfate at 50°C; (2) employ during hybridization a denaturing agent, such as formamide, for example, 50% (v/v) formamide with 0.1% bovine serum albumin/0.1% Ficoll/0.1% polyvinylpyrrolidone/50mM sodium phosphate buffer at pH 6.5 with 750 mM sodium chloride, 75 mM sodium citrate at 42°C; or (3) employ 50% formamide, 5 x SSC (0.75 M NaCl, 0.075 M sodium citrate), 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5 x Denhardt's solution, sonicated salmon sperm DNA (50 μg/ml), 0.1% SDS, and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2 x SSC (sodium chloride/sodium citrate) and 50% formamide, followed by a high-stringency wash consisting of 0.1 x SSC containing EDTA at 55°C.

[0496] "Moderately stringent conditions" may be identified as described by Sambrook et al., Molecular Cloning: A Laboratory Manual, New York: Cold Spring Harbor Press, 1989, and include the use of washing solution and hybridization conditions (e.g., temperature, ionic strength and %SDS) less stringent that those described above. An example of moderately stringent conditions is overnight incubation at 37°C in a solution comprising: 20% formamide, 5 x SSC (150 mM NaCl, 15 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5 x Denhardt's solution, 10% dextran sulfate, and 20 mg/ml denatured sheared salmon sperm DNA, followed by washing the filters in 1 x SSC at about 37-50°C. The skilled artisan will recognize how to adjust the temperature, ionic strength, etc. as necessary to accommodate factors such as probe length and the like.

[0497] In the context of the present invention, reference to "at least one," "at least two," "at least five," etc. of the nucleic acids encoding a polypeptide described herein (or genes) listed in any particular gene set means any one or any and all combinations of the genes listed.

[0498] The terms "splicing" and "RNA splicing" are used interchangeably and refer to RNA processing that removes introns and joins exons to produce mature mRNA with continuous coding sequence that moves into the cytoplasm of an eukaryotic cell.

[0499] In theory, the term "exon" refers to any segment of an interrupted gene that is represented in the mature RNA product (B. Lewin. *Genes IV* Cell Press, Cambridge Mass. 1990). In theory the term "intron" refers to any segment of DNA that is transcribed but removed from within the transcript by splicing together the exons on either side of it. Operationally, exon sequences occur in the mRNA sequence of a gene as defined by Ref. SEQ ID numbers. Operationally, intron sequences are the intervening sequences within the genomic DNA of a gene, bracketed by exon sequences and having GT and AG splice consensus sequences at their 5' and 3' boundaries.

[0500] An "interfering RNA" or "small interfering RNA (siRNA)" is a double stranded RNA molecule usually less than about 30 nucleotides in length that reduces expression of a target gene. Interfering RNAs may be identified and synthesized using known methods (Shi Y., *Trends in Genetics* 19(1):9-12 (2003), WO/2003056012 and WO2003064621), and siRNA libraries are commercially available, for example from Dharmacon, Lafayette, Colorado.

[0501] A "native sequence" polypeptide is one which has the same amino acid sequence as a polypeptide derived from nature, including naturally occurring or allelic variants. Such native sequence polypeptides can be isolated from nature or can be produced by recombinant or synthetic means. Thus, a native sequence polypeptide can have the amino acid sequence of naturally occurring human polypeptide, murine polypeptide, or polypeptide from any other mammalian species.

[0502] The term "antibody" herein is used in the broadest sense and specifically covers monoclonal antibodies, polyclonal antibodies, multispecific antibodies (*e.g.* bispecific antibodies), and antibody fragments, so long as they exhibit the desired biological activity. The present invention particularly contemplates antibodies against one or more of the IBD markers disclosed herein. Such antibodies may be referred to as "anti-IBD marker antibodies".

[0503] The term "monoclonal antibody" as used herein refers to an antibody from a population of substantially homogeneous antibodies, *i.e.*, the individual antibodies comprising the population are identical and/or bind the same epitope(s), except for possible variants that may arise during production of the monoclonal antibody, such variants generally being present in minor amounts. Such monoclonal antibody typically includes an antibody comprising a polypeptide sequence that binds a target, wherein the target-binding polypeptide sequence was obtained by a process that includes the selection of a single target binding polypeptide sequence from a plurality of polypeptide sequences.

[0504] The monoclonal antibodies herein specifically include "chimeric" antibodies in which a portion of the heavy and/or light chain is identical with or homologous to corresponding sequences in antibodies derived from a particular species or belonging to a particular antibody class or subclass, while the remainder of the chain(s) is identical with or homologous to corresponding sequences in antibodies derived from another species or belonging to another antibody class or subclass, as well as fragments of such antibodies, so long as they exhibit the desired biological activity (U.S. Patent No. 4,816,567; and Morrison *et al., Proc. Natl. Acad. Sci. USA*, 81:6851-6855 (1984)). Chimeric antibodies of interest herein include "primatized" antibodies comprising variable domain antigen-binding sequences derived from a non-human primate (*e.g.* Old World Monkey, Ape etc) and human constant region sequences, as well as "humanized" antibodies.

[0505] "Humanized" forms of non-human (*e.g.,* rodent) antibodies are chimeric antibodies that contain minimal sequence derived from non-human immunoglobulin. For the most part, humanized antibodies are human immunoglobulins (recipient antibody) in which residues from a hypervariable region of the recipient are replaced by residues from a hypervariable region of a non-human species (donor antibody) such as mouse, rat, rabbit or nonhuman primate having the desired specificity, affinity, and capacity.

[0506] An "intact antibody" herein is one which comprises two antigen binding regions, and an Fc region. Preferably, the intact antibody has a functional Fc region.

[0507] "Antibody fragments" comprise a portion of an intact antibody, preferably comprising the antigen binding region thereof. Examples of antibody fragments include Fab, Fab', $F(ab')_2$, and Fv fragments; diabodies; linear antibodies;

single-chain antibody molecules; and multispecific antibodies formed from antibody fragment(s).

[0508] "Native antibodies" are usually heterotetrameric glycoproteins of about 150,000 daltons, composed of two identical light (L) chains and two identical heavy (H) chains. Each light chain is linked to a heavy chain by one covalent disulfide bond, while the number of disulfide linkages varies among the heavy chains of different immunoglobulin isotypes. Each heavy and light chain also has regularly spaced intrachain disulfide bridges. Each heavy chain has at one end a variable domain (V_H) followed by a number of constant domains. Each light chain has a variable domain at one end (V_L) and a constant domain at its other end. The constant domain of the light chain is aligned with the first constant domain of the heavy chain, and the light-chain variable domain is aligned with the variable domain of the heavy chain. Particular amino acid residues are believed to form an interface between the light chain and heavy chain variable domains.

[0509] The term "variable" refers to the fact that certain portions of the variable domains differ extensively in sequence among antibodies and are used in the binding and specificity of each particular antibody for its particular antigen. However, the variability is not evenly distributed throughout the variable domains of antibodies. It is concentrated in three segments called hypervariable regions both in the light chain and the heavy chain variable domains. The more highly conserved portions of variable domains are called the framework regions (FRs). The variable domains of native heavy and light chains each comprise four FRs, largely adopting a β-sheet configuration, connected by three hypervariable regions, which form loops connecting, and in some cases forming part of, the β-sheet structure. The hypervariable regions in each chain are held together in close proximity by the FRs and, with the hypervariable regions from the other chain, contribute to the formation of the antigen-binding site of antibodies (see Kabat *et al., Sequences of Proteins of Immunological Interest*, 5th Ed. Public Health Service, National Institutes of Health, Bethesda, MD. (1991)).

[0510] The term "hypervariable region" when used herein refers to the amino acid residues of an antibody which are responsible for antigen-binding. The hypervariable region generally comprises amino acid residues from a "complementarity determining region" or "CDR" (*e.g.* residues 24-34 (L1), 50-56 (L2) and 89-97 (L3) in the light chain variable domain and 31-35 (H1), 50-65 (H2) and 95-102 (H3) in the heavy chain variable domain; Kabat *et al., Sequences of Proteins of Immunological Interest*, 5th Ed. Public Health Service, National Institutes of Health, Bethesda, MD. (1991)) and/or those residues

from a "hypervariable loop" (*e.g.* residues 26-32 (L1), 50-52 (L2) and 91-96 (L3) in the light chain variable domain and 26-32 (H1), 53-55 (H2) and 96-101 (H3) in the heavy chain variable domain; Chothia and Lesk *J. Mol. Biol.* 196:901-917 (1987)). "Framework Region" or "FR" residues are those variable domain residues other than the hypervariable region residues as herein defined.

[0511] Papain digestion of antibodies produces two identical antigen-binding fragments, called "Fab" fragments, each with a single antigen-binding site, and a residual "Fc" fragment, whose name reflects its ability to crystallize readily. Pepsin treatment yields an $F(ab')_2$ fragment that has two antigen-binding sites and is still capable of cross-linking antigen.

[0512] "Fv" is the minimum antibody fragment which contains a complete antigen-recognition and antigen-binding site. This region consists of a dimer of one heavy chain and one light chain variable domain in tight, non-covalent association. It is in this configuration that the three hypervariable regions of each variable domain interact to define an antigen-binding site on the surface of the V_H-V_L dimer. Collectively, the six hypervariable regions confer antigen-binding specificity to the antibody. However, even a single variable domain (or half of an Fv comprising only three hypervariable regions specific for an antigen) has the ability to recognize and bind antigen, although at a lower affinity than the entire binding site.

[0513] The Fab fragment also contains the constant domain of the light chain and the first constant domain (CH1) of the heavy chain. Fab=fragments differ from Fab fragments by the addition of a few residues at the carboxy terminus of the heavy chain CH1 domain including one or more cysteines from the antibody hinge region. Fab'-SH is the designation herein for Fab' in which the cysteine residue(s) of the constant domains bear at least one free thiol group. $F(ab')_2$ antibody fragments originally were produced as pairs of Fab' fragments which have hinge cysteines between them. Other chemical couplings of antibody fragments are also known.

[0514] The "light chains" of antibodies from any vertebrate species can be assigned to one of two clearly distinct types, called kappa (κ) and lambda (λ), based on the amino acid sequences of their constant domains.

[0515] The term "Fc region" herein is used to define a C-terminal region of an immunoglobulin heavy chain, including native sequence Fc regions and variant Fc regions. Although the boundaries of the Fc region of an immunoglobulin heavy chain

might vary, the human IgG heavy chain Fc region is usually defined to stretch from an amino acid residue at position Cys226, or from Pro230, to the carboxyl-terminus thereof. The C-terminal lysine (residue 447 according to the EU numbering system) of the Fc region may be removed, for example, during production or purification of the antibody, or by recombinantly engineering the nucleic acid encoding a heavy chain of the antibody. Accordingly, a composition of intact antibodies may comprise antibody populations with all K447 residues removed, antibody populations with no K447 residues removed, and antibody populations having a mixture of antibodies with and without the K447 residue.

[0516] Unless indicated otherwise, herein the numbering of the residues in an immunoglobulin heavy chain is that of the EU index as in Kabat et al., Sequences of Proteins of Immunological Interest, 5th Ed. Public Health Service, National Institutes of Health, Bethesda, MD (1991), expressly incorporated herein by reference. The "EU index as in Kabat" refers to the residue numbering of the human IgG1 EU antibody.

[0517] A "native sequence Fc region" comprises an amino acid sequence identical to the amino acid sequence of an Fc region found in nature. Native sequence human Fc regions include a native sequence human IgG1 Fc region (non-A and A allotypes); native sequence human IgG2 Fc region; native sequence human IgG3 Fc region; and native sequence human IgG4 Fc region as well as naturally occurring variants thereof.

[0518] A "variant Fc region" comprises an amino acid sequence which differs from that of a native sequence Fc region by virtue of at least one amino acid modification, preferably one or more amino acid substitution(s). Preferably, the variant Fc region has at least one amino acid substitution compared to a native sequence Fc region or to the Fc region of a parent polypeptide, *e.g.* from about one to about ten amino acid substitutions, and preferably from about one to about five amino acid substitutions in a native sequence Fc region or in the Fc region of the parent polypeptide. The variant Fc region herein will preferably possess at least about 80% homology with a native sequence Fc region and/or with an Fc region of a parent polypeptide, and most preferably at least about 90% homology therewith, more preferably at least about 95% homology therewith.

[0519] Depending on the amino acid sequence of the constant domain of their heavy chains, intact antibodies can be assigned to different "classes". There are five major classes of intact antibodies: IgA, IgD, IgE, IgG, and IgM, and several of these may be further divided into "subclasses" (isotypes), *e.g.*, IgG1, IgG2, IgG3, IgG4, IgA, and IgA2. The heavy-chain constant domains that correspond to the different classes of antibodies

are called α, δ, ε, γ, and μ, respectively. The subunit structures and three-dimensional configurations of different classes of immunoglobulins are well known.

[0520] "Single-chain Fv" or "scFv" antibody fragments comprise the V_H and V_L domains of antibody, wherein these domains are present in a single polypeptide chain. Preferably, the Fv polypeptide further comprises a polypeptide linker between the V_H and V_L domains which enables the scFv to form the desired structure for antigen binding. For a review of scFv see Plückthun in *The Pharmacology of Monoclonal Antibodies*, vol. 113, Rosenburg and Moore eds., Springer-Verlag, New York, pp. 269-315 (1994).

[0521] The term "diabodies" refers to small antibody fragments with two antigen-binding sites, which fragments comprise a variable heavy domain (V_H) connected to a variable light domain (V_L) in the same polypeptide chain (V_H - V_L). By using a linker that is too short to allow pairing between the two domains on the same chain, the domains are forced to pair with the complementary domains of another chain and create two antigen-binding sites. Diabodies are described more fully in, for example, EP 404,097; WO 93/11161; and Hollinger *et al., Proc. Natl. Acad. Sci. USA*, 90:6444-6448 (1993).

[0522] A "naked antibody" is an antibody that is not conjugated to a heterologous molecule, such as a small molecule or radiolabel.

[0523] An "isolated" antibody is one which has been identified and separated and/or recovered from a component of its natural environment. Contaminant components of its natural environment are materials which would interfere with diagnostic or therapeutic uses for the antibody, and may include enzymes, hormones, and other proteinaceous or nonproteinaceous solutes. In preferred embodiments, the antibody will be purified (1) to greater than 95% by weight of antibody as determined by the Lowry method, and most preferably more than 99% by weight, (2) to a degree sufficient to obtain at least 15 residues of N-terminal or internal amino acid sequence by use of a spinning cup sequenator, or (3) to homogeneity by SDS-PAGE under reducing or nonreducing conditions using Coomassie blue or, preferably, silver stain. Isolated antibody includes the antibody *in situ* within recombinant cells since at least one component of the antibody's natural environment will not be present. Ordinarily, however, isolated antibody will be prepared by at least one purification step.

[0524] An "affinity matured" antibody is one with one or more alterations in one or more hypervariable regions thereof which result an improvement in the affinity of the antibody for antigen, compared to a parent antibody which does not possess those alteration(s). Preferred affinity matured antibodies will have nanomolar or even picomolar

affinities for the target antigen. Affinity matured antibodies are produced by procedures known in the art. Marks *et al. Bio/Technology* 10:779-783 (1992) describes affinity maturation by VH and VL domain shuffling. Random mutagenesis of CDR and/or framework residues is described by: Barbas *et al. Proc Nat. Acad. Sci, USA* 91:3809-3813 (1994); Schier *et al. Gene* 169:147-155 (1995); Yelton *et al. J. Immunol.* 155:1994-2004 (1995); Jackson *et al., J. Immunol.* 154(7):3310-9 (1995); and Hawkins *et al, J. Mol. Biol.* 226:889-896 (1992).

[0525] An "amino acid sequence variant" antibody herein is an antibody with an amino acid sequence which differs from a main species antibody. Ordinarily, amino acid sequence variants will possess at least about 70% homology with the main species antibody, and preferably, they will be at least about 80%, more preferably at least about 90% homologous with the main species antibody. The amino acid sequence variants possess substitutions, deletions, and/or additions at certain positions within or adjacent to the amino acid sequence of the main species antibody. Examples of amino acid sequence variants herein include an acidic variant (*e.g.* deamidated antibody variant), a basic variant, an antibody with an amino-terminal leader extension (*e.g.* VHS-) on one or two light chains thereof, an antibody with a C-terminal lysine residue on one or two heavy chains thereof, etc., and includes combinations of variations to the amino acid sequences of heavy and/or light chains. The antibody variant of particular interest herein is the antibody comprising an amino-terminal leader extension on one or two light chains thereof, optionally further comprising other amino acid sequence and/or glycosylation differences relative to the main species antibody.

[0526] A "glycosylation variant" antibody herein is an antibody with one or more carbohydrate moieities attached thereto which differ from one or more carbohydrate moieties attached to a main species antibody. Examples of glycosylation variants herein include antibody with a G1 or G2 oligosaccharide structure, instead a G0 oligosaccharide structure, attached to an Fc region thereof, antibody with one or two carbohydrate moieties attached to one or two light chains thereof, antibody with no carbohydrate attached to one or two heavy chains of the antibody, etc., and combinations of glycosylation alterations.

[0527] Where the antibody has an Fc region, an oligosaccharide structure may be attached to one or two heavy chains of the antibody, e.g. at residue 299 (298, Eu numbering of residues). For pertuzumab, G0 was the predominant oligosaccharide structure, with other oligosaccharide structures such as G0-F, G-1, Man5, Man6, G1-1, G1(1-6), G1(1-3) and G2 being found in lesser amounts in the pertuzumab composition.

[0528] Unless indicated otherwise, a "G1 oligosaccharide structure" herein includes G-1, G1-1, G1(1-6) and G1(1-3) structures.

[0529] An "amino-terminal leader extension" herein refers to one or more amino acid residues of the amino-terminal leader sequence that are present at the amino-terminus of any one or more heavy or light chains of an antibody. An exemplary amino-terminal leader extension comprises or consists of three amino acid residues, VHS, present on one or both light chains of an antibody variant.

[0530] A "deamidated" antibody is one in which one or more asparagine residues thereof has been derivatized, *e.g.* to an aspartic acid, a succinimide, or an iso-aspartic acid.

B.1 General Description of the Invention

[0531] The practice of the present invention will employ, unless otherwise indicated, conventional techniques of molecular biology (including recombinant techniques), microbiology, cell biology, and biochemistry, which are within the skill of the art. Such techniques are explained fully in the literature, such as, "Molecular Cloning: A Laboratory Manual", 2nd edition (Sambrook et al., 1989); "Oligonucleotide Synthesis" (M.J. Gait, ed., 1984); "Animal Cell Culture" (R.I. Freshney, ed., 1987); "Methods in Enzymology" (Academic Press, Inc.); "Handbook of Experimental Immunology", 4th edition (D.M. Weir & C.C. Blackwell, eds., Blackwell Science Inc., 1987); "Gene Transfer Vectors for Mammalian Cells" (J.M. Miller & M.P. Calos, eds., 1987); "Current Protocols in Molecular Biology" (F.M. Ausubel et al., eds., 1987); and "PCR: The Polymerase Chain Reaction", (Mullis et al., eds., 1994).

[0532] As discussed above, the detection or diagnosis of IBD is currently obtained by various classification systems that rely on a number of variables observed in a patient. The present invention is based on the identification of genes that are associated with IBD. Accordingly, the expression levels of such genes can serve as diagnostic markers to identify patients with IBD. As described in the Examples, the differential expression of a number of genes in IBD patients has been observed. Thus, according to the present invention, the molecules listed in SEQ ID NOS: 1-426 have been identified as differentially expressed in IBD. SEQ ID NOS: 1-316 are upregulated in IBD, while SEQ ID NOS: 317-426 are downregulated in IBD.

a. *Biomarkers of the Invention*

[0533] The present invention provides numerous gene expression markers or biomarkers for IBD shown as SEQ ID NOS: 1-426. Table 1 above provides a list of polypeptides and their encoding nucleic acids that are up- or down-regulated in Crohn's disease. Each nucleotide sequence is indicated by an odd numbered SEQ ID NO and corresponding Figure, which is immediately followed by an even numbered SEQ ID NO and corresponding Figure which shows the polypeptide encoded by the previous SEQ ID NO. For example, the nucleotide sequence of SEQ ID NO:1 encodes the polypeptide shown as SEQ ID NO:2.

Table 1

Gene name	SEQ ID NO	Figure
C6orf32	1	1
C6orf32	2	2
ECGF1	3	3
ECGF1	4	4
JAK2	5	5
JAK2	6	6
S100A8	7	7
S100A8	8	8
CXCL2	9	9
CXCL2	10	10
BIRC3	11	11
BIRC3	12	12
CASP5	13	13
CASP5	14	14
GBP1	15	15
GBP1	16	16
STAT1	17	17
STAT1	18	18
PIM3	19	19
PIM3	20	20
GBP2	21	21

Gene name	SEQ ID NO	Figure
GBP2	22	22
S100A9	23	23
S100A9	24	24
TRIM40	25	25
TRIM40	26	26
PAPLN	27	27
PAPLN	28	28
TAP1	29	29
TAP1	30	30
SAMD9	31	31
SAMD9	32	32
PARP14	33	33
PARP14	34	34
KRT81	35	35
KRT81	36	36
IFIT2	37	37
IFIT2	38	38
UBD	39	39
UBD	40	40
MNDA	41	41
MNDA	42	42
CASP1	43	43
CASP1	44	44
C10orf63	45	45
C10orf63	46	46
DHX57	47	47
DHX57	48	48
BHLHB5	49	49
BHLHB5	50	50
SAA1	51	51
SAA1	52	52
ACP5	53	53
ACP5	54	54

Gene name	SEQ ID NO	Figure
CCDC88	55	55
CCDC88	56	56
PARP8	57	57
PARP8	58	58
ZBP1	59	59
ZBP1	60	60
ZBTB32	61	61
ZBTB32	62	62
TNIP3	63	63
TNIP3	64	64
ZC3H12A	65	65
ZC3H12A	66	66
XAF1	67	67
XAF1	68	68
SAMD9L	69	69
SAMD9L	70	70
PARP9	71	71
PARP9	72	72
PSCD4	73	73
PSCD4	74	74
TNFAIP2	75	75
TNFAIP2	76	76
S100P	77	77
S100P	78	78
p67-phox	79	79
p67-phox	80	80
AIM2	81	81
AIM2	82	82
SP140	83	83
SP140	84	84
P47	85	85
P47	86	86
INDO	87	87

Gene name	SEQ ID NO	Figure
INDO	88	88
Staf50	89	89
Staf50	90	90
GBP4	91	91
GBP4	92	92
EPSTI1	93	93
EPSTI1	94	94
PRODH2	95	95
PRODH2	96	96
cathepsin O	97	97
cathepsin O	98	98
HOXB4	99	99
HOXB4	100	100
MAP3K8	101	101
MAP3K8	102	102
TLK1	103	103
TLK1	104	104
PLA2G2A	105	105
PLA2G2A	106	106
HLA-DMA	107	107
HLA-DMA	108	108
HLA-F	109	109
HLA-F	110	110
HLA-E	111	111
HLA-E	112	112
LOC732037	113	113
LOC732037	114	114
HLA-DRB1	115	115
HLA-DRB1	116	116
HLA-DPA1	117	117
HLA-DPA1	118	118
HLA-H	119	119
HLA-H	120	120

Gene name	SEQ ID NO	Figure
CD74	121	121
CD74	122	122
TNFRSF6B	123	123
TNFRSF6B	124	124
LTA	125	125
LTA	126	126
TNFRSF4	127	127
TNFRSF4	128	128
TLR2	129	129
TLR2	130	130
LYPD5	131	131
LYPD5	132	132
IGHG1	133	133
IGHG1	134	134
FCRL5	135	135
FCRL5	136	136
IGHM	137	137
IGHM	138	138
FAM26F	139	139
FAM26F	140	140
IGSF6	141	141
IGSF6	142	142
IFI44	143	143
IFI44	144	144
LILRB1	145	145
LILRB1	146	146
FCGR3B	147	147
FCGR3B	148	148
HM74	149	149
HM74	150	150
CLEC4E	151	151
CLEC4E	152	152
AQP9	153	153

Gene name	SEQ ID NO	Figure
AQP9	154	154
IFITM1	155	155
IFITM1	156	156
SLAMF7	157	157
SLAMF7	158	158
ITGB2	159	159
ITGB2	160	160
SELL	161	161
SELL	162	162
SELE	163	163
SELE	164	164
PCDH17	165	165
PCDH17	166	166
DUOX2	167	167
DUOX2	168	168
ADCY4	169	169
ADCY4	170	170
SLC8A1	171	171
SLC8A1	172	172
CD55	173	173
CD55	174	174
MUC1	175	175
MUC1	176	176
GPR110	177	177
GPR110	178	178
MALT1	179	179
MALT1	180	180
SLC40A1	181	181
SLC40A1	182	182
PDZK1IP1	183	183
PDZK1IP1	184	184
IFITM3	185	185
IFITM3	186	186

Gene name	SEQ ID NO	Figure
FGF5	187	187
FGF5	188	188
TMC5	189	189
TMC5	190	190
KCND3	191	191
KCND3	192	192
EBI2	193	193
EBI2	194	194
SLC6A14	195	195
SLC6A14	196	196
CMKLR1	197	197
CMKLR1	198	198
IL23A	199	199
IL23A	200	200
BLR1	201	201
BLR1	202	202
IL2RA	203	203
IL2RA	204	204
IL3RA	205	205
IL3RA	206	206
CXCL1	207	207
CXCL1	208	208
CXCL6	209	209
CXCL6	210	210
IFNG	211	211
IFNG	212	212
CXCL13	213	213
CXCL13	214	214
CXCL11	215	215
CXCL11	216	216
CXCL3	217	217
CXCL3	218	218
IL1B	219	219

Gene name	SEQ ID NO	Figure
IL1B	220	220
CXCL11	221	221
CXCL11	222	222
CXCL12	223	223
CXCL12	224	224
IL8	225	225
IL8	226	226
CXCL10	227	227
CXCL10	228	228
CXCL9	229	229
CXCL9	230	230
CCL20	231	231
CCL20	232	232
MDK	233	233
MDK	234	234
CCL11	235	235
CCL11	236	236
MMP3	237	237
MMP3	238	238
MMP7	239	239
MMP7	240	240
MMP9	241	241
MMP9	242	242
MMP12	243	243
MMP12	244	244
DEFA5	245	245
DEFA5	246	246
DEFA6	247	247
DEFA6	248	248
REG1A	249	249
REG1A	250	250
REG4	251	251
REG4	252	252

Gene name	SEQ ID NO	Figure
REG3G	253	253
REG3G	254	254
REG1B	255	255
REG1B	256	256
REG3A	257	257
REG3A	258	258
SAA2	259	259
SAA2	260	260
PROK2	261	261
PROK2	262	262
B2M	263	263
B2M	264	264
CHI3L1	265	265
CHI3L1	266	266
NLRC5	267	267
NLRC5	268	268
ANGPTL4	269	269
ANGPTL4	270	270
NOD27	271	271
NOD27	272	272
LCN2	273	273
LCN2	274	274
PLA2G7	275	275
PLA2G7	276	276
SEPP1	277	277
SEPP1	278	278
UBR1	279	279
UBR1	280	280
ANGPT2	281	281
ANGPT2	282	282
UNC5CL	283	283
UNC5CL	284	284
OLFM4	285	285

Gene name	SEQ ID NO	Figure
OLFM4	286	286
SPON2	287	287
SPON2	288	288
LST1	289	289
LST1	290	290
DMBT1	291	291
DMBT1	292	292
CHRDL2	293	293
CHRDL2	294	294
ADM	295	295
ADM	296	296
C4BPA	297	297
C4BPA	298	298
C3	299	299
C3	300	300
C1QB	301	301
C1QB	302	302
C1S	303	303
C1S	304	304
CFB	305	305
CFB	306	306
IGJ	307	307
IGJ	308	308
PCK1	309	309
PCK1	310	310
CHP2	311	311
CHP2	312	312
TNNC2	313	313
TNNC2	314	314
FRMD1	315	315
FRMD1	316	316
ADH1C	317	317
ADH1C	318	318

Gene name	SEQ ID NO	Figure
HMGCS2	319	319
HMGCS2	320	320
CA2	321	321
CA2	322	322
AKR1B10	323	323
AKR1B10	324	324
ADH1A	325	325
ADH1A	326	326
CDKN2B	327	327
CDKN2B	328	328
LOC340888	329	329
LOC340888	330	330
PHLPPL	331	331
PHLPPL	332	332
CES2	333	333
CES2	334	334
TCEA3	335	335
TCEA3	336	336
FABP5	337	337
FABP5	338	338
ARRDC4	339	339
ARRDC4	340	340
HIGD1A	341	341
HIG1	342	342
SAMD13	343	343
SAMD13	344	344
PPARG	345	345
PPARG	346	346
ZNF575	347	347
ZNF575	348	348
ETFDH	349	349
ETFDH	350	350
TLN2	351	351

Gene name	SEQ ID NO	Figure
TLN2	352	352
NFKBIL2	353	353
NFKBIL2	354	354
KLF5	355	355
KLF5	356	356
PLCE1	357	357
PLCE1	358	358
ANKRD15	359	359
ANKRD15	360	360
CYP2J2	361	361
CYP2J2	362	362
MAOA	363	363
MAOA	364	364
UGT2A3	365	365
UGT2A3	366	366
PDE6A	367	367
PDE6A	368	368
HSD17B2	369	369
HSD17B2	370	370
NEU4	371	371
NEU4	372	372
UGT1A6	373	373
UGT1A6	374	374
GBA3	375	375
GBA3	376	376
CA12	377	377
CA12	378	378
RDH5	379	379
RDH5	380	380
IL1R2	381	381
IL1R2	382	382
SLC38A4	383	383
SLC38A4	384	384

Gene name	SEQ ID NO	Figure
SLC16A9	385	385
SLC16A9	386	386
AQP8	387	387
AQP8	388	388
ABCG2	389	389
ABCG2	390	390
SLC4A4	391	391
SLC4A4	392	392
SLITRK6	393	393
SLITRK6	394	394
SLC22A5	395	395
SLC22A5	396	396
SLC16A5	397	397
SLC16A5	398	398
SLC39A5	399	399
SLC39A5	400	400
GJB1	401	401
GJB1	402	402
DISP2	403	403
DISP2	404	404
TRPM4	405	405
TRPM4	406	406
MCOLN2	407	407
MCOLN2	408	408
SLC26A2	409	409
SLC26A2	410	410
HHLA2	411	411
HHLA2	412	412
CNTN4	413	413
CNTN4	414	414
ANPEP	415	415
ANPEP	416	416
GUCA2A	417	417

Gene name	SEQ ID NO	Figure
GUCA2A	418	418
SPON1	419	419
SPON1	420	420
RHOU	421	421
RHOU	422	422
ANKRD9	423	423
ANKRD9	424	424
AATK	425	425
AATK	426	426

[0534] As described in Example 1, the molecules shown in SEQ ID NOS:1-316 were found to be up-regulated in Crohn's disease and the molecules shown in SEQ ID NOS:317-426 were found to be down-regulated in Crohn's disease. In one embodiment of the present invention, the biomarkers are suitable for use in a panel of markers (as described herein). Such panels may include one or more markers from SEQ ID NOS:1-426; one or more markers from SEQ ID NOS:1-316; and one or more markers from SEQ ID NOS:317-426. Those of ordinary skill in the art will appreciate the various combinations of biomarkers from SEQ ID NOS:1-426 that are suitable for use in the panels described herein.

[0535] In one embodiment of the present invention, a preferred set of IBD markers identified by microarray analysis, includes markers that are upregulated in an IBD. Preferably, the set of upregulated markers includes S100 calcium binding protein A (calgranulin A) (SEQ ID NO:8); S100 calcium binding protein A9 (calgranulin B) (SEQ ID NO:24); CD74 molecule, major histocompatibility complex, class II invariant chain (SEQ ID NO:122); tumor necrosis factor receptor superfamily, member 4 (SEQ ID NO:128); toll-like receptor 2 (SEQ ID NO:130); Fc receptor-like 5 (SEQ ID NO:136); mitogen-activated protein kinase kinase kinase 8 (SEQ ID NO:102); C-type lectin domain family 4, member E (SEQ ID NO:152); lipocalin 2 (oncogene 24p3) (SEQ ID NO:274); complement component 4 binding protein, alpha (SEQ ID NO:298); complement component 3 (SEQ ID NO:300); complement component 1, q subcomponent, B chain (SEQ ID NO:302); complement component 1, s subcomponent (SEQ ID NO:304); and complement factor B (SEQ ID NO:306). A panel of biomarkers as described herein may include one of , more than one of, or all of these markers.

[0536] The nucleotide and/or amino acid sequences provided herein, as single markers or in any combination, are preferred for use in prognostic and diagnostic assays of the present invention. The IBD markers of the present invention are differentially expressed nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS:2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 (or genes or regions of genes). A differential level of expression of one or more markers in a test sample from a mammalian subject relative to a control can determined from the level of expression of such nucleic acids (or RNA transcripts or expression products) detected by one or more of the methods described in further detail below.

[0537] Based on evidence of such differential expression in cells from a mammalian subject having IBD relative to normal cells, the present invention provides gene markers for IBD. The IBD markers and associated information provided by the present invention allow physicians to make more intelligent treatment decisions, and to customize the treatment of IBD to the needs of individual patients, thereby maximizing the benefit of treatment and minimizing the exposure of patients to unnecessary treatments, which do not provide any significant benefits and often carry serious risks due to toxic side-effects.

[0538] Multi-analyte gene expression tests can measure the expression level of one or more genes involved in each of several relevant physiologic processes or component cellular characteristics. In some instances the predictive power of the test, and therefore its utility, can be improved by using the expression values obtained for individual genes to calculate a score which is more highly correlated with outcome than is the expression value of the individual genes. For example, the calculation of a quantitative score (recurrence score) that predicts the likelihood of recurrence in estrogen

receptor-positive, node-negative breast cancer is describe in U.S. Patent application (Publication Number 20050048542). The equation used to calculate such a recurrence score may group genes in order to maximize the predictive value of the recurrence score. The grouping of genes may be performed at least in part based on knowledge of their contribution to physiologic functions or component cellular characteristics such as discussed above. The formation of groups, in addition, can facilitate the mathematical weighting of the contribution of various expression values to the recurrence score. The weighting of a gene group representing a physiological process or component cellular characteristic can reflect the contribution of that process or characteristic to the pathology of the IBD and clinical outcome. Accordingly, in an important aspect, the present invention also provides specific groups of the genes identified herein, that together are more reliable and powerful predictors of outcome than the individual genes or random combinations of the genes identified.

[0539] In addition, based on the determination of a recurrence score, one can choose to partition patients into subgroups at any particular value(s) of the recurrence score, where all patients with values in a given range can be classified as belonging to a particular risk group. Thus, the values chosen will define subgroups of patients with respectively greater or lesser risk.

[0540] The utility of a gene marker in predicting the development or progression of an IBD may not be unique to that marker. An alternative marker having a expression pattern that is closely similar to a particular test marker may be substituted for or used in addition to a test marker and have little impact on the overall predictive utility of the test. The closely similar expression patterns of two genes may result from involvement of both genes in a particular process and/or being under common regulatory control. The present invention specifically includes and contemplates the use of such substitute genes or gene sets in the methods of the present invention.

[0541] The markers and associated information provided by the present invention predicting the development and/or progression of an IBD also have utility in screening patients for inclusion in clinical trials that test the efficacy of drug compounds for the treatment of patients with IBD.

[0542] The markers and associated information provided by the present invention predicting the presence, development and/or progression of an IBD are useful as criterion for determing whether IBD treatment is appropriate. For example, IBD treatment may be appropriate where the results of the test indicate that an IBD marker is

differentially expressed in a test sample from an individual relative to a control sample. The individual may be an individual not known to have an IBD, an individual known to have an IBD, an individual previously diagnosed with an IBD undergoing treatment for the IBD, or an individual previously diagnosed with an IBD and having had surgery to address the IBD. In addition, the present invention contemplates methods of treating an IBD. As described below, the diagnostic methods of the present invention may further comprise the step of administering an IBD therapeutic agent to the mammalian subject that provided the test sample in which the differential expression of one or more IBD markers was observed relative to a control. Such methods of treatment would therefore comprise (a) determining the presence of an IBD in a mammalian subject, and (b) administering an IBD therapeutic agent to the mammalian subject.

[0543] In another embodiment, the IBD markers and associated information are used to design or produce a reagent that modulates the level or activity of the gene's transcript or its expression product. Said reagents may include but are not limited to an antisense RNA, a small inhibitory RNA (siRNA), a ribozyme, a monoclonal or polyclonal antibody. In a further embodiment, said gene or its transcript, or more particularly, an expression product of said transcript is used in an (screening) assay to identify a drug compound, wherein said drug compounds is used in the development of a drug to treat an IBD.

[0544] In various embodiments of the inventions, various technological approaches described below are available for determination of expression levels of the disclosed genes.. In particular embodiments, the expression level of each gene may be determined in relation to various features of the expression products of the gene including exons, introns, protein epitopes and protein activity. In other embodiments, the expression level of a gene may be inferred from analysis of the structure of the gene, for example from the analysis of the methylation pattern of gene's promoter(s).

b. *Diagnostic Methods of the Invention*

[0545] The present invention provides methods of detecting or diagnosing an IBD in a mammalian subject based on differential expression of an IBD marker. In one embodiment, the methods comprise the use of a panel of IBD markers as discussed above. The panels may include one or more IBD markers selected from SEQ ID NOS:1-426. In some embodiments, the panel of IBD markers will include at least 1 IBD marker, at least two IBD markers, at least three IBD markers, at least 4 IBD markers, at least five IBD markers, at least 6 IBD markers, at least 7 IBD marker, at least 8 IBD markers, at least 9

IBD markers, at least 10 IBD markers, at least 11 IBD markers, at least 12 IBD markers, at least 13 IBD markers, at least 14 IBD markers, at least 15 IBD markers, at least 16 IBD markers, at least 17 IBD markers, at least 18 IBD markers, at least 19 IBD markers, or at least 20 IBD markers. In one embodiment, the panel includes markers in increments of five. In another embodiment, the panel includes markers in increments of ten. The panel may include an IBD marker that is overexpressed in IBD relative to a control, an IBD marker that is underexpressed in IBD relative to a control, or IBD markers that are both overexpressed and underexpressed in IBD relative to a control. In a preferred embodiment, the panel includes one or more markers that are upregulated in CD and one or more markers that are downregulated in CD.

[0546] In another embodiment, the panels of the present invention may include an IBD marker that is overexpressed in an active IBD relative to a control, underexpressed in an active IBD relative to a control, or IBD markers that are both overexpressed and underexpressed in an active IBD relative to a control. In another embodiment, the panels of the present invention may include an IBD marker that is overexpressed in an inactive IBD relative to a control, underexpressed in an inactive IBD relative to a control, or IBD markers that are both overexpressed and underexpressed in an inactive IBD relative to a control. In a preferred embodiment, the active IBD is CD. In another preferred embodiment, the inactive IBD is CD.

[0547] In a preferred embodiment, the methods of diagnosing or detecting the presence of an IBD in a mammalian subject comprise determining a differential expression level of RNA transcripts or expression products thereof from a panel of IBD markers in a test sample obtained from the subject relative to the level of expression in a control, wherein the differential level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained. The differential expression in the test sample may be higher and/or lower relative to a control as discussed herein.

[0548] Differential expression or activity of one or more of the nucleic acids encoding a polypeptide described herein (or genes or the corresponding RNA molecules) in a biological sample obtained from the patient, relative to control, indicates the presence of an IBD in the patient. The control can, for example, be a gene, present in the same cell, which is known to be up-regulated (or down-regulated) in an IBD patient (positive control). Alternatively, or in addition, the control can be the expression level of the same gene in a normal cell of the same cell type (negative control). Expression levels can also be normalized, for example, to the expression levels of housekeeping genes, such as

glyceraldehyde-3-phosphate-dehydrogenase (GAPDH) and/or β-actin, or to the expression levels of all genes in the sample tested. In one embodiment, expression of one or more of the above noted genes is deemed positive expression if it is at the median or above, *e.g.* compared to other samples of the same type. The median expression level can be determined essentially contemporaneously with measuring gene expression, or may have been determined previously. These and other methods are well known in the art, and are apparent to those skilled in the art.

[0549] Methods for identifying IBD patients are provided herein. Of this patient population, patients with an IBD can be identified by determining the expression level of one or more of the genes, the corresponding RNA molecules or encoded proteins in a biological sample comprising cells obtained from the patient. The biological sample can, for example, be a tissue biopsy as described herein.

[0550] The methods of the present invention concern IBD diagnostic assays, and imaging methodologies. In one embodiment, the assays are performed using antibodies as described herein. The invention also provides various immunological assays useful for the detection and quantification of proteins. These assays are performed within various immunological assay formats well known in the art, including but not limited to various types of radioimmunoassays, enzyme-linked immunosorbent assays (ELISA), enzyme-linked immunofluorescent assays (ELIFA), and the like. In addition, immunological imaging methods capable of detecting an IBD characterized by expression of a molecule described herein are also provided by the invention, including but not limited to radioscintigraphic imaging methods using labeled antibodies. Such assays are clinically useful in the detection, monitoring, diagnosis and prognosis of IBD characterized by expression of one or more molecules described herein.

[0551] Another aspect of the present invention relates to methods for identifying a cell that expresses a molecule described herein. The expression profile of a molecule(s) described herein make it a diagnostic marker for IBD. Accordingly, the status of the expression of the molecule(s) provides information useful for predicting a variety of factors including susceptibility to advanced stages of disease, rate of progression, and/or sudden and severe onset of symptoms in an active inactive IBD, i.e. flare-ups.

[0552] In one embodiment, the present invention provides methods of detecting an IBD. A test sample from a mammalian subject and a control sample from a known normal mammal are each contacted with an anti-IBD marker antibody or a

fragment thereof. The level of IBD marker expression is measured and a differential level of expression in the test sample relative to the control sample is indicative of an IBD in the mammalian subject from which the test sample was obtained. In some embodiments, the level of IBD marker expression in the test sample is determined to be higher than the level of expression in the control, wherein the higher level of expression indicates the presence of an IBD in the subject from which the test sample was obtained. In another embodiments, the level of IBD marker expression in the test sample is determined to be lower than the level of expression in the control, wherein the lower level of expression indicates the presence of an IBD in the subject from which the test sample was obtained.

[0553] In another embodiment, the IBD detected by the methods of the present invention is the recurrence or flareup of an IBD in the mammalian subject.

[0554] In preferred embodiments, the methods are employed to detect the flare-up of an IBD or a recurrence of an IBD in a mammalian subject previously determined to have an IBD who underwent treatment for the IBD, such as drug therapy or a surgical procedure. Following initial detection of an IBD, additional test samples may be obtained from the mammalian subject found to have an IBD. The additional sample may be obtained hours, days, weeks, or months after the initial sample was taken. Those of skill in the art will appreciate the appropriate schedule for obtaining such additional samples, which may include second, third, fourth, fifth, sixth, etc. test samples. The intial test sample and the additional sample (and alternately a control sample as described herein) are contacted with an anti-IBD marker antibody. The level of IBD marker expression is measured and a differential level of expression in the additional test sample as compared to the initial test sample is indicative of a flare-up in or a recurrence of an IBD in the mammalian subject from which the test sample was obtained.

[0555] In one aspect, the methods of the present invention are directed to a determining step. In one embodiment, the determining step comprises measuring the level of expression of one or more IBD markers in a test sample relative to a control. Typically, measuring the level of IBD marker expression, as described herein, involves analyzing a test sample for differential expression of an IBD marker relative to a control by performing one or more of the techniques described herein. The expression level data obtained from a test sample and a control are compared for differential levels of expression. In another embodiment, the determining step further comprises an examination of the test sample and control expression data to assess whether an IBD is present in the subject from which the test sample was obtained.

[0556] In some embodiments, the determining step comprises the use of a software program executed by a suitable processor for the purpose of (i) measuring the differential level of IBD marker expression in a test sample and a control; and/or (ii) analyzing the data obtained from measuring differential level of IBD marker expression in a test sample and a control. Suitable software and processors are well known in the art and are commercially available. The program may be embodied in software stored on a tangible medium such as CD-ROM, a floppy disk, a hard drive, a DVD, or a memory associated with the processor, but persons of ordinary skill in the art will readily appreciate that the entire program or parts thereof could alternatively be executed by a device other than a processor, and/or embodied in firmware and/or dedicated hardware in a well known manner.

[0557] Following the determining step, the measurement results, findings, diagnoses, predictions and/or treatment recommendations are typically recorded and communicated to technicians, physicians and/or patients, for example. In certain embodiments, computers will be used to communicate such information to interested parties, such as, patients and/or the attending physicians. In some embodiments, the assays will be performed or the assay results analyzed in a country or jurisdiction which differs from the country or jurisdiction to which the results or diagnoses are communicated.

[0558] In a preferred embodiment, a diagnosis, prediction and/or treatment recommendation based on the level of expression of one or more IBD markers disclosed herein measured in a test subject of having one or more of the IBD markers herein is communicated to the subject as soon as possible after the assay is completed and the diagnosis and/or prediction is generated. The results and/or related information may be communicated to the subject by the subject's treating physician. Alternatively, the results may be communicated directly to a test subject by any means of communication, including writing, electronic forms of communication, such as email, or telephone. Communication may be facilitated by use of a computer, such as in case of email communications. In certain embodiments, the communication containing results of a diagnostic test and/or conclusions drawn from and/or treatment recommendations based on the test, may be generated and delivered automatically to the subject using a combination of computer hardware and software which will be familiar to artisans skilled in telecommunications. One example of a healthcare-oriented communications system is described in U.S. Pat. No. 6,283,761; however, the present invention is not limited to methods which utilize this particular communications system. In certain embodiments of the methods of the

invention, all or some of the method steps, including the assaying of samples, diagnosing of diseases, and communicating of assay results or diagnoses, may be carried out in diverse (e.g., foreign) jurisdictions.

[0559] The invention provides assays for detecting the differential expression of an IBD marker in tissues associated with the gastrointestinal tract including, without limitation, ascending colon tissue, descending colon tissue, sigmoid colon tissue, and terminal ileum tissue; as well expression in other biological samples such as serum, semen, bone, prostate, urine, cell preparations, and the like. Methods for detecting differential expression of an IBD marker are also well known and include, for example, immunoprecipitation, immunohistochemical analysis, Western blot analysis, molecular binding assays, ELISA, ELIFA and the like. For example, a method of detecting the differential expression of an IBD marker in a biological sample comprises first contacting the sample with an anti-IBD marker antibody, an IBD marker-reactive fragment thereof, or a recombinant protein containing an antigen-binding region of an anit-IBD marker antibody; and then detecting the binding of an IBD marker protein in the sample.

[0560] In various embodiments of the inventions, various technological approaches are available for determination of expression levels of the disclosed genes, including, without limitation, RT-PCR, microarrays, serial analysis of gene expression (SAGE) and Gene Expression Analysis by Massively Parallel Signature Sequencing (MPSS), which will be discussed in detail below. In particular embodiments, the expression level of each gene may be determined in relation to various features of the expression products of the gene including exons, introns, protein epitopes and protein activity. In other embodiments, the expression level of a gene may be inferred from analysis of the structure of the gene, for example from the analysis of the methylation pattern of gene's promoter(s).

c. *Therapeutic Methods of the Invention*

[0561] The present invention provides therapeutic methods of treating an IBD in a subject in need that comprise detecting the presence of an IBD in a mammalian subject by the diagnostic methods described herein and then administering to the mammalian subject an IBD therapeutic agent. Those of ordinary skill in the art will appreciate the various IBD therapeutic agents that may be suitable for use in the present invention (see St Clair Jones, Hospital Pharmacist, May 2006, Vol. 13; pages 161-166, hereby incorporated by reference in its entirety). The present invention contemplates methods of IBD treatment in which one or more IBD therapeutic agents are administered

to a subject in need. In one embodiment, the IBD therapeutic agent is one or more of an aminosalicylate, a corticosteroid, and an immunosuppressive agent. In a preferred embodiment, the aminosalicylate is one of sulfasalazine, olsalazine, mesalamine, balsalazide, and asacol. In another preferred embodiment, multiple aminosalicylates are co-administered, such as a combination of sulfasalazine and olsalazine. In other preferred embodiments, the corticosteroid may be budesonide, prednisone, prednisolone, methylprednisolone, 6-mercaptopurine (6-MP), azathioprine, methotrexate, and cyclosporin. In other preferred embodiments, the IBD therapeutic agent may an antibiotic, such as ciprofloxacin and/or metronidazole; or an antibody-based agent such as infliximab (Remicade®).

[0562] The least toxic IBD therapeutic agents which patients are typically treated with are the aminosalicylates. Sulfasalazine (Azulfidine), typically administered four times a day, consists of an active molecule of aminosalicylate (5-ASA) which is linked by an azo bond to a sulfapyridine. Anaerobic bacteria in the colon split the azo bond to release active 5-ASA. However, at least 20% of patients cannot tolerate sulfapyridine because it is associated with significant side-effects such as reversible sperm abnormalities, dyspepsia or allergic reactions to the sulpha component. These side effects are reduced in patients taking olsalazine. However, neither sulfasalazine nor olsalazine are effective for the treatment of small bowel inflammation. Other formulations of 5-ASA have been developed which are released in the small intestine (e.g. mesalamine and asacol). Normally it takes 6-8 weeks for 5-ASA therapy to show full efficacy. Patients who do not respond to 5-ASA therapy, or who have a more severe disease, are prescribed corticosteroids. Clinical remission is achieved with corticosteroids within 2-4 weeks. however the side effects include Cushing goldface, facial hair, severe mood swings and sleeplessness. The response to sulfasalazine and 5-aminosalicylate preparations may be poor in CD, fair to mild in early ulcerative colitis and poor in severe UC. If these agents fail, powerful immunosuppressive agents such as cyclosporine, prednisone, 6-mercaptopurine or azathioprine (converted in the liver to 6-mercaptopurine) are typically tried. For CD patients, the use of corticosteroids and other immunosuppressives must be carefully monitored because of the high risk of intra-abdominal sepsis originating in the fistulas and abscesses common in this disease. Approximately 25% of IBD patients will require surgery (colectomy) during the course of the disease.

[0563] Treatment of an IBD may include a surgical procedure, including without limitation, a bowel resection, anastomosis, a colectomy, a proctocolectomy, and an ostomy, or any combination thereof.

[0564] In addition to pharmaceutical medicine and surgery, nonconventional treatments for IBD such as nutritional therapy have also been attempted. For example, Flexical®, a semi-elemental formula, has been shown to be as effective as the steroid prednisolone. Sanderson *et al.*, *Arch. Dis. Child.* 51:123-7 (1987). However, semi-elemental formulas are relatively expensive and are typically unpalatable - thus their use has been restricted. Nutritional therapy incorporating whole proteins has also been attempted to alleviate the symptoms of IBD. Giafer *et al.*, *Lancet* 335: 816-9 (1990). U.S. Patent No. 5,461,033 describes the use of acidic casein isolated from bovine milk and TGF- 2. Beattie *et al.*, *Aliment. Pharmacol. Ther.* 8: 1-6 (1994) describes the use of casein in infant formula in children with IBD. U.S.P. 5,952,295 describes the use of casein in an enteric formulation for the treatment of IBD. However, while nutrional therapy is non-toxic, it is a palliative treatment and does not treat the underlying cause of the disease.

[0565] The present invention contemplates methods of IBD treatment, including for example, in vitro, ex vivo and in vivo therapeutic methods. The invention provides methods useful for treating an IBD in a subject in need upon the detection of an IBD disease state in the subject associated with the expression of one or more IBD markers disclosed herein, such as increased and/or decreased IBD marker expression. In one preferred embodiment, the method comprises (a) determining that a differential level of expression of one or more nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS:2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 in a test sample obtained from said subject relative to the level of

expression in a control, wherein said differential level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained; and (b) administering to said subject an effective amount of an IBD therapeutic agent. The determining step (a) may comprise the measurement of the expression of multiple IBD marker. Where the differential level of expression is higher relative to a control, the expression level of one or more nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS:2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316 is determined. Where the differential level of expression is lower relative to a control, the expression level of one or more nucleic acids encoding a polypeptide shown as any one of SEQ ID NOS:318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 is determined.

[0566] The method of treatment comprises detecting the IBD and administering an effective amount of an IBD therapeutic agent to a subject in need of such treatment. In some embodiments, the IBD disease state is associated with an increased and/or decrease in expression of one or more IBD markers.

[0567] In one aspect, the invention provides methods for treating or preventing an IBD, the methods comprising detecting the presence of an IBD in a subject and administering an effective amount of an IBD therapeutic agent to the subject. It is understood that any suitable IBD therapeutic agent may be used in the methods of treatment, including aminosalicylates, corticosteroids, and immunosuppressive agents as discussed herein.

[0568] In any of the methods herein, one may administer to the subject or patient along with a single IBD therapeutic agent discussed herein an effective amount of a second medicament (where the single IBD therapeutic agent herein is a first medicament), which is another active agent that can treat the condition in the subject that

requires treatment. For instance, an aminosalicylate may be co-administered with a corticosteroid, an immunsuppressive agent, or another aminosalicylate. The type of such second medicament depends on various factors, including the type of IBD, its severity, the condition and age of the patient, the type and dose of first medicament employed, etc.

[0569] Such treatments using first and second medicaments include combined administration (where the two or more agents are included in the same or separate formulations), and separate administration, in which case, administration of the first medicament can occur prior to, and/or following, administration of the second medicament. In general, such second medicaments may be administered within 48 hours after the first medicaments are administered, or within 24 hours, or within 12 hours, or within 3-12 hours after the first medicament, or may be administered over a pre-selected period of time, which is preferably about 1 to 2 days, about 2 to 3 days, about 3 to 4 days, about 4 to 5 days, about 5 to 6 days, or about 6 to 7 days.

[0570] The first and second medicaments can be administered concurrently, sequentially, or alternating with the first and second medicament or upon non-responsiveness with other therapy. Thus, the combined administration of a second medicament includes co-administration (concurrent administration), using separate formulations or a single pharmaceutical formulation, and consecutive administration in either order, wherein preferably there is a time period while both (or all) medicaments simultaneously exert their biological activities. All these second medicaments may be used in combination with each other or by themselves with the first medicament, so that the express "second medicament" as used herein does not mean it is the only medicament besides the first medicament, respectively. Thus, the second medicament need not be one medicament, but may constitute or comprise more than one such drug. These second medicaments as set forth herein are generally used in the same dosages and with administration routes as the first medicaments, or about from 1 to 99% of the dosages of the first medicaments. If such second medicaments are used at all, preferably, they are used in lower amounts than if the first medicament were not present, especially in subsequent dosings beyond the initial dosing with the first medicament, so as to eliminate or reduce side effects caused thereby.

[0571] Where the methods of the present invention comprise administering one or more IBD therapeutic agent to treat or prevent an IBD, it may be particularly desirable to combine the administering step with a surgical procedure that is also performed to treat or prevent the IBD. The IBD surgical procedures contemplated by the present invention

include, without limitation, a bowel resection, anastomosis, a colectomy, a proctocolectomy, and an ostomy, or any combination thereof. For instance, an IBD therapeutic agent described herein may be combined with a colectomy in a treatment scheme, e.g. in treating an IBD. Such combined therapies include and separate administration, in which case, administration of the IBD therapeutic agent can occur prior to, and/or following, the surgical procedure.

[0572] Treatment with a combination of one or more IBD therapeutic agents; or a combination of one or more IBD therapeutic agents and a surgical procedure described herein preferably results in an improvement in the signs or symptoms of an IBD. For instance, such therapy may result in an improvement in the subject receiving the IBD therapeutic agent treatment regimen and a surgical procedure, as evidenced by a reduction in the severity of the pathology of the IBD.

[0573] The IBD therapeutic agent(s) is/are administered by any suitable means, including topical, parenteral, subcutaneous, intraperitoneal, intrapulmonary, and intranasal, and, if desired for local treatment, intralesional administration. Parenteral infusions include intramuscular, intravenous, intraarterial, intraperitoneal, or subcutaneous administration. Dosing can be by any suitable route, e.g. by injections, such as intravenous or subcutaneous injections, depending in part on whether the administration is brief or chronic.

[0574] The IBD therapeutic agent(s) compositions administered according to the methods of the invention will be formulated, dosed, and administered in a fashion consistent with good medical practice. Factors for consideration in this context include the particular disorder being treated, the particular mammal being treated, the clinical condition of the individual patient, the cause of the disorder, the site of delivery of the agent, the method of administration, the scheduling of administration, and other factors known to medical practitioners. The first medicament(s) need not be, but is optionally formulated with one or more additional medicament(s) (e.g. second, third, fourth, etc. medicaments) described herein. The effective amount of such additional medicaments depends on the amount of the first medicament present in the formulation, the type of disorder or treatment, and other factors discussed above. These are generally used in the same dosages and with administration routes as used hereinbefore or about from 1 to 99% of the heretofore employed dosages.

[0575] For the prevention or treatment of an IBD, the appropriate dosage of an IBD therapeutic agent (when used alone or in combination with other agents) will depend

on the type of disease to be treated, the type of IBD therapeutic agent(s), the severity and course of the disease, whether the IBD therapeutic agent is administered for preventive or therapeutic purposes, previous therapy, the patient's clinical history and response to the IBD therapeutic agent, and the discretion of the attending physician. The IBD therapeutic agent is suitably administered to the patient at one time or over a series of treatments. Depending on the type and severity of the disease, about 1 ug/kg to 15 mg/kg (e.g. 0.1 mg/kg-10 mg/kg) of IBD therapeutic agent is an initial candidate dosage for administration to the patient, whether, for example, by one or more separate administrations, or by continuous infusion. One typical daily dosage might range from about 1 ug/kg to 100 mg/kg or more, depending on the factors mentioned above. For repeated administrations over several days or longer, depending on the condition, the treatment is sustained until a desired suppression of disease symptoms occurs. One exemplary dosage of the IBD therapeutic agent would be in the range from about 0.05 mg/kg to about 10 mg/kg. Thus, one or more doses of about 0.5 mg/kg, 2.0 mg/kg, 4.0 mg/kg or 10 mg/kg (or any combination thereof) may be administered to the patient. Such doses may be administered intermittently, e.g. every week or every three weeks (e.g. such that the patient receives from about two to about twenty, e.g. about six doses of the IBD therapeutic agent). An initial higher loading dose, followed by one or more lower doses may be administered. An exemplary dosing regimen comprises administering an initial loading dose of about 4 mg/kg, followed by a weekly maintenance dose of about 2 mg/kg of the IBD therapeutic agent. However, other dosage regimens may be useful. The progress of this therapy is easily monitored by conventional techniques and assays.

B.2. Gene Expression Profiling

[0576] In general, methods of gene expression profiling can be divided into two large groups: methods based on hybridization analysis of polynucleotides, and other methods based on biochemical detection or sequencing of polynucleotides. The most commonly used methods known in the art for the quantification of mRNA expression in a sample include northern blotting and *in situ* hybridization (Parker & Barnes, *Methods in Molecular Biology* 106:247-283 (1999)); RNAse protection assays (Hod, *Biotechniques* 13:852-854 (1992)); and reverse transcription polymerase chain reaction (RT-PCR) (Weis *et al., Trends in Genetics* 8:263-264 (1992)). Alternatively, antibodies may be employed that can recognize specific duplexes, including DNA duplexes, RNA duplexes, and DNA-RNA hybrid duplexes or DNA-protein duplexes. Various methods for determining expression of mRNA or protein include, but are not limited to, gene expression profiling,

polymerase chain reaction (PCR) including quantitative real time PCR (qRT-PCR), microarray analysis that can be performed by commercially available equipment, following manufacturer's protocols, such as by using the Affymetrix GenChip technology, serial analysis of gene expression (SAGE) (Velculescu *et al., Science* 270:484-487 (1995); and Velculescu *et al., Cell* 88:243-51 (1997)), MassARRAY, Gene Expression Analysis by Massively Parallel Signature Sequencing (MPSS) (Brenner *et al., Nature Biotechnology* 18:630-634 (2000)), proteomics, immunohistochemistry (IHC), etc. Preferably mRNA is quantified. Such mRNA analysis is preferably performed using the technique of polymerase chain reaction (PCR), or by microarray analysis. Where PCR is employed, a preferred form of PCR is quantitative real time PCR (qRT-PCR).

a. *Reverse Transcriptase PCR (RT-PCR)*

[0577] Of the techniques listed above, the most sensitive and most flexible quantitative method is RT-PCR, which can be used to compare mRNA levels in different sample populations, in normal and test sample tissues, to characterize patterns of gene expression, to discriminate between closely related mRNAs, and to analyze RNA structure.

[0578] The first step is the isolation of mRNA from a target sample. The starting material is typically total RNA isolated from colonic tissue biopsies. Thus, RNA can be isolated from a variety of tissues, including without limitation, the terminal ileum, the ascending colon, the descending colon, and the sigmoid colon. In addition, the colonic tissue from which a biopsy is obtained may be from an inflamed and/or a non-inflamed colonic area.

[0579] In one embodiment, the mRNA is obtained from a biopsy as defined above wherein the biopsy is obtained from the left colon or from the right colon. As used herein, the "left colon" refers to the sigmoideum and rectosigmoideum and the "right colon" refers to the cecum.

[0580] General methods for mRNA extraction are well known in the art and are disclosed in standard textbooks of molecular biology, including Ausubel *et al.*, Current Protocols of Molecular Biology, John Wiley and Sons (1997). In particular, RNA isolation can be performed using purification kit, buffer set and protease from commercial manufacturers, such as Qiagen, according to the manufacturer's instructions. Total RNA from tissue samples can be isolated using RNA Stat-60 (Tel-Test). RNA prepared from a biopsy can be isolated, for example, by cesium chloride density gradient centrifugation.

[0581] As RNA cannot serve as a template for PCR, the first step in gene expression profiling by RT-PCR is the reverse transcription of the RNA template into cDNA, followed by its exponential amplification in a PCR reaction. The two most commonly used reverse transcriptases are avilo myeloblastosis virus reverse transcriptase (AMV-RT) and Moloney murine leukemia virus reverse transcriptase (MMLV-RT). The reverse transcription step is typically primed using specific primers, random hexamers, or oligo-dT primers, depending on the circumstances and the goal of expression profiling. For example, extracted RNA can be reverse-transcribed using a GeneAmp RNA PCR kit (Perkin Elmer, CA, USA), following the manufacturer's instructions. The derived cDNA can then be used as a template in the subsequent PCR reaction.

[0582] Although the PCR step can use a variety of thermostable DNA-dependent DNA polymerases, it typically employs the Taq DNA polymerase, which has a 5'-3' nuclease activity but lacks a 3'-5' proofreading endonuclease activity. Thus, TaqMan® PCR typically utilizes the 5'-nuclease activity of Taq or Tth polymerase to hydrolyze a hybridization probe bound to its target amplicon, but any enzyme with equivalent 5' nuclease activity can be used. Two oligonucleotide primers are used to generate an amplicon typical of a PCR reaction. A third oligonucleotide, or probe, is designed to detect nucleotide sequence located between the two PCR primers. The probe is non-extendible by Taq DNA polymerase enzyme, and is labeled with a reporter fluorescent dye and a quencher fluorescent dye. Any laser-induced emission from the reporter dye is quenched by the quenching dye when the two dyes are located close together as they are on the probe. During the amplification reaction, the Taq DNA polymerase enzyme cleaves the probe in a template-dependent manner. The resultant probe fragments disassociate in solution, and signal from the released reporter dye is free from the quenching effect of the second fluorophore. One molecule of reporter dye is liberated for each new molecule synthesized, and detection of the unquenched reporter dye provides the basis for quantitative interpretation of the data.

[0583] TaqMan® RT-PCR can be performed using commercially available equipment, such as, for example, ABI PRISM 7700TM Sequence Detection SystemTM (Perkin-Elmer-Applied Biosystems, Foster City, CA, USA), or Lightcycler (Roche Molecular Biochemicals, Mannheim, Germany). In a preferred embodiment, the 5' nuclease procedure is run on a real-time quantitative PCR device such as the ABI PRISM 7700TM Sequence Detection SystemTM. The system consists of a thermocycler, laser, charge-coupled device (CCD), camera and computer. The system amplifies samples in a

96-well format on a thermocycler. During amplification, laser-induced fluorescent signal is collected in real-time through fiber optics cables for all 96 wells, and detected at the CCD. The system includes software for running the instrument and for analyzing the data.

[0584] 5'-Nuclease assay data are initially expressed as Ct, or the threshold cycle. As discussed above, fluorescence values are recorded during every cycle and represent the amount of product amplified to that point in the amplification reaction. The point when the fluorescent signal is first recorded as statistically significant is the threshold cycle (C_t).

[0585] To minimize errors and the effect of sample-to-sample variation, RT-PCR is usually performed using an internal standard. The ideal internal standard is expressed at a constant level among different tissues, and is unaffected by the experimental treatment. RNAs most frequently used to normalize patterns of gene expression are mRNAs for the housekeeping genes glyceraldehyde-3-phosphate-dehydrogenase (GAPDH) and β-actin.

[0586] A more recent variation of the RT-PCR technique is the real time quantitative PCR, which measures PCR product accumulation through a dual-labeled fluorigenic probe (i.e., TaqMan® probe). Real time PCR is compatible both with quantitative competitive PCR, where internal competitor for each target sequence is used for normalization, and with quantitative comparative PCR using a normalization gene contained within the sample, or a housekeeping gene for RT-PCR. For further details see, e.g. Held *et al., Genome Research* 6:986-994 (1996).

[0587] According to one aspect of the present invention, PCR primers and probes are designed based upon intron sequences present in the gene to be amplified. In this embodiment, the first step in the primer/probe design is the delineation of intron sequences within the genes. This can be done by publicly available software, such as the DNA BLAT software developed by Kent, W.J., Genome Res. 12(4):656-64 (2002), or by the BLAST software including its variations. Subsequent steps follow well established methods of PCR primer and probe design.

[0588] In order to avoid non-specific signals, it is important to mask repetitive sequences within the introns when designing the primers and probes. This can be easily accomplished by using the Repeat Masker program available on-line through the Baylor College of Medicine, which screens DNA sequences against a library of repetitive elements and returns a query sequence in which the repetitive elements are masked. The

masked intron sequences can then be used to design primer and probe sequences using any commercially or otherwise publicly available primer/probe design packages, such as Primer Express (Applied Biosystems); MGB assay-by–design (Applied Biosystems); Primer3 (Steve Rozen and Helen J. Skaletsky (2000) Primer3 on the WWW for general users and for biologist programmers. In: Krawetz S, Misener S (eds) *Bioinformatics Methods and Protocols: Methods in Molecular Biology.* Humana Press, Totowa, NJ, pp 365-386).

[0589] The most important factors considered in PCR primer design include primer length, melting temperature (Tm), and G/C content, specificity, complementary primer sequences, and 3'-end sequence. In general, optimal PCR primers are generally 17-30 bases in length, and contain about 20-80%, such as, for example, about 50-60% G+C bases. Tm's between 50 and 80 °C, e.g. about 50 to 70 °C are typically preferred.

[0590] For further guidelines for PCR primer and probe design see, e.g. Dieffenbach, C.W. et al., "General Concepts for PCR Primer Design" in: PCR Primer, A Laboratory Manual, Cold Spring Harbor Laboratory Press, New York, 1995, pp. 133-155; Innis and Gelfand, "Optimization of PCRs" in: *PCR Protocols, A Guide to Methods and Applications,* CRC Press, London, 1994, pp. 5-11; and Plasterer, T.N. Primerselect: Primer and probe design. *Methods Mol. Biol.* 70:520-527 (1997), the entire disclosures of which are hereby expressly incorporated by reference.

[0591] Further PCR-based techniques include, for example, differential display (Liang and Pardee, Science 257:967-971 (1992)); amplified fragment length polymorphism (iAFLP) (Kawamoto et al., Genome Res. 12:1305-1312 (1999)); BeadArray™ technology (Illumina, San Diego, CA; Oliphant et al., Discovery of Markers for Disease (Supplement to Biotechniques), June 2002; Ferguson et al., Analytical Chemistry 72:5618 (2000)); BeadsArray for Detection of Gene Expression (BADGE), using the commercially available Luminex100 LabMAP system and multiple color-coded microspheres (Luminex Corp., Austin, TX) in a rapid assay for gene expression (Yang et al., Genome Res. 11:1888-1898 (2001)); and high coverage expression profiling (HiCEP) analysis (Fukumura et al., Nucl. Acids. Res. 31(16) e94 (2003)).

b. *Microarrays*

[0592] Differential gene expression can also be identified, or confirmed using the microarray technique. Thus, the expression profile of IBD-associated genes can be measured in either fresh or paraffin-embedded tissue, using microarray technology. In this

method, polynucleotide sequences of interest (including cDNAs and oligonucleotides) are plated, or arrayed, on a microchip substrate. The arrayed sequences are then hybridized with specific DNA probes from cells or tissues of interest. Just as in the RT-PCR method, the source of mRNA typically is total RNA isolated from biopsy tissue or cell lines derived from cells obtained from a subject having an IBD, and corresponding normal tissues or cell lines. Thus RNA can be isolated from a variety of colonic tissues or colonic tissue-based cell lines.

[0593] In a specific embodiment of the microarray technique, PCR amplified inserts of cDNA clones are applied to a substrate in a dense array. Preferably at least 10,000 nucleotide sequences are applied to the substrate. The microarrayed genes, immobilized on the microchip at 10,000 elements each, are suitable for hybridization under stringent conditions. Fluorescently labeled cDNA probes may be generated through incorporation of fluorescent nucleotides by reverse transcription of RNA extracted from tissues of interest. Labeled cDNA probes applied to the chip hybridize with specificity to each spot of DNA on the array. After stringent washing to remove non-specifically bound probes, the chip is scanned by confocal laser microscopy or by another detection method, such as a CCD camera. Quantitation of hybridization of each arrayed element allows for assessment of corresponding mRNA abundance. With dual color fluorescence, separately labeled cDNA probes generated from two sources of RNA are hybridized pairwise to the array. The relative abundance of the transcripts from the two sources corresponding to each specified gene is thus determined simultaneously. The miniaturized scale of the hybridization affords a convenient and rapid evaluation of the expression pattern for large numbers of genes. Such methods have been shown to have the sensitivity required to detect rare transcripts, which are expressed at a few copies per cell, and to reproducibly detect at least approximately two-fold differences in the expression levels (Schena *et al., Proc. Natl. Acad. Sci. USA* 93(2):106-149 (1996)). Microarray analysis can be performed by commercially available equipment, following manufacturer's protocols, such as by using the Affymetrix GenChip technology, or Incyte's microarray technology, or Agilent's Whole Human Genome microarray technology.

c. *Serial Analysis of Gene Expression (SAGE)*

[0594] Serial analysis of gene expression (SAGE) is a method that allows the simultaneous and quantitative analysis of a large number of gene transcripts, without the need of providing an individual hybridization probe for each transcript. First, a short sequence tag (about 10-14 bp) is generated that contains sufficient information to uniquely

identify a transcript, provided that the tag is obtained from a unique position within each transcript. Then, many transcripts are linked together to form long serial molecules, that can be sequenced, revealing the identity of the multiple tags simultaneously. The expression pattern of any population of transcripts can be quantitatively evaluated by determining the abundance of individual tags, and identifying the gene corresponding to each tag. For more details see, e.g. Velculescu *et al., Science* 270:484-487 (1995); and Velculescu *et al., Cell* 88:243-51 (1997).

d. *MassARRAY Technology*

[0595] In the MassARRAY-based gene expression profiling method, developed by Sequenom, Inc. (San Diego, CA) following the isolation of RNA and reverse transcription, the obtained cDNA is spiked with a synthetic DNA molecule (competitor), which matches the targeted cDNA region in all positions, except a single base, and serves as an internal standard. The cDNA/competitor mixture is PCR amplified and is subjected to a post-PCR shrimp alkaline phosphatase (SAP) enzyme treatment, which results in the dephosphorylation of the remaining nucleotides. After inactivation of the alkaline phosphatase, the PCR products from the competitor and cDNA are subjected to primer extension, which generates distinct mass signals for the competitor- and cDNA-derives PCR products. After purification, these products are dispensed on a chip array, which is pre-loaded with components needed for analysis with matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) analysis. The cDNA present in the reaction is then quantified by analyzing the ratios of the peak areas in the mass spectrum generated. For further details see, e.g. Ding and Cantor, Proc. Natl. Acad. Sci. USA 100:3059-3064 (2003).

e. *Gene Expression Analysis by Massively Parallel Signature Sequencing (MPSS)*

[0596] This method, described by Brenner *et al., Nature Biotechnology* 18:630-634 (2000), is a sequencing approach that combines non-gel-based signature sequencing with *in vitro* cloning of millions of templates on separate 5 μm diameter microbeads. First, a microbead library of DNA templates is constructed by *in vitro* cloning. This is followed by the assembly of a planar array of the template-containing microbeads in a flow cell at a high density (typically greater than 3 x 10^6 microbeads/cm^2). The free ends of the cloned templates on each microbead are analyzed simultaneously, using a fluorescence-based signature sequencing method that does not require DNA

fragment separation. This method has been shown to simultaneously and accurately provide, in a single operation, hundreds of thousands of gene signature sequences from a yeast cDNA library.

[0597] The steps of a representative protocol for profiling gene expression using fixed, paraffin-embedded tissues as the RNA source, including mRNA isolation, purification, primer extension and amplification are given in various published journal articles (for example: Godfrey *et al. J. Molec. Diagnostics* 2: 84-91 (2000); Specht *et al., Am. J. Pathol.* 158: 419-29 (2001)). Briefly, a representative process starts with cutting about 10 microgram thick sections of paraffin-embedded tissue samples. The mRNA is then extracted, and protein and DNA are removed. General methods for mRNA extraction are well known in the art and are disclosed in standard textbooks of molecular biology, including Ausubel *et al.*, Current Protocols of Molecular Biology, John Wiley and Sons (1997). Methods for RNA extraction from paraffin embedded tissues are disclosed, for example, in Rupp and Locker, *Lab Invest.* 56:A67 (1987), and De Andrés *et al., BioTechniques* 18:42044 (1995). In particular, RNA isolation can be performed using purification kit, buffer set and protease from commercial manufacturers, such as Qiagen, according to the manufacturer's instructions. For example, total RNA from cells in culture can be isolated using Qiagen RNeasy mini-columns. Other commercially available RNA isolation kits include MasterPure™ Complete DNA and RNA Purification Kit (EPICENTRE®, Madison, WI), and Paraffin Block RNA Isolation Kit (Ambion, Inc.). Total RNA from tissue samples can be isolated using RNA Stat-60 (Tel-Test). RNA prepared from tissues can be isolated, for example, by cesium chloride density gradient centrifugation. After analysis of the RNA concentration, RNA repair and/or amplification steps may be included, if necessary, and RNA is reverse transcribed using gene specific promoters followed by PCR. Peferably, real time PCR is used, which is compatible both with quantitative competitive PCR, where internal competitor for each target sequence is used for normalization, and with quantitative comparative PCR using a normalization gene contained within the sample, or a housekeeping gene for RT-PCR. For further details see, e.g. "PCR: The Polymerase Chain Reaction", Mullis et al., eds., 1994; and Held *et al., Genome Research* 6:986-994 (1996). Finally, the data are analyzed to identify the best treatment option(s) available to the patient on the basis of the characteristic gene expression pattern identified in the sample examined.

f. *Immunohistochemistry*

[0598] Immunohistochemistry methods are also suitable for detecting the expression levels of the IBD markers of the present invention. Thus, antibodies or antisera, preferably polyclonal antisera, and most preferably monoclonal antibodies specific for each marker are used to detect expression. The antibodies can be detected by direct labeling of the antibodies themselves, for example, with radioactive labels, fluorescent labels, hapten labels such as, biotin, or an enzyme such as horse radish peroxidase or alkaline phosphatase. Alternatively, unlabeled primary antibody is used in conjunction with a labeled secondary antibody, comprising antisera, polyclonal antisera or a monoclonal antibody specific for the primary antibody. Immunohistochemistry protocols and kits are well known in the art and are commercially available.

[0599] Expression levels can also be determined at the protein level, for example, using various types of immunoassays or proteomics techniques.

[0600] In immunoassays, the target diagnostic protein marker is detected by using an antibody specifically binding to the markes. The antibody typically will be labeled with a detectable moiety. Numerous labels are available which can be generally grouped into the following categories:

[0601] Radioisotopes, such as ^{35}S, ^{14}C, ^{125}I, ^{3}H, and ^{131}I. The antibody can be labeled with the radioisotope using the techniques described in *Current Protocols in Immunology*, Volumes 1 and 2, Coligen et al. (1991) Ed. Wiley-Interscience, New York, New York, Pubs. for example and radioactivity can be measured using scintillation counting.

[0602] Fluorescent labels such as rare earth chelates (europium chelates) or fluorescein and its derivatives, rhodamine and its derivatives, dansyl, Lissamine, phycoerythrin and Texas Red are available. The fluorescent labels can be conjugated to the antibody using the techniques disclosed in Current Protocols in Immunology, supra, for example. Fluorescence can be quantified using a fluorimeter.

[0603] Various enzyme-substrate labels are available and U.S. Patent No. 4,275,149 provides a review of some of these. The enzyme generally catalyzes a chemical alteration of the chromogenic substrate which can be measured using various techniques. For example, the enzyme may catalyze a color change in a substrate, which can be measured spectrophotometrically. Alternatively, the enzyme may alter the fluorescence or chemiluminescence of the substrate. Techniques for quantifying a change in fluorescence are described above. The chemiluminescent substrate becomes electronically excited by a chemical reaction and may then emit light which can be measured (using a

chemiluminometer, for example) or donates energy to a fluorescent acceptor. Examples of enzymatic labels include luciferases (*e.g.,* firefly luciferase and bacterial luciferase; U.S. Patent No. 4,737,456), luciferin, 2,3-dihydrophthalazinediones, malate dehydrogenase, urease, peroxidase such as horseradish peroxidase (HRPO), alkaline phosphatase, β-galactosidase, glucoamylase, lysozyme, saccharide oxidases (*e.g.*, glucose oxidase, galactose oxidase, and glucose-6-phosphate dehydrogenase), heterocyclic oxidases (such as uricase and xanthine oxidase), lactoperoxidase, microperoxidase, and the like. Techniques for conjugating enzymes to antibodies are described in O'Sullivan et al. (1981) Methods for the Preparation of Enzyme-Antibody Conjugates for use in Enzyme Immunoassay, in *Methods in Enzym.* (ed J. Langone & H. Van Vunakis), Academic press, New York 73:147-166.

[0604] Examples of enzyme-substrate combinations include, for example: horseradish peroxidase (HRPO) with hydrogen peroxidase as a substrate, wherein the hydrogen peroxidase oxidizes a dye precursor (*e.g.,*orthophenylene diamine (OPD) or 3,3',5,5'-tetramethyl benzidine hydrochloride (TMB)); alkaline phosphatase (AP) with para-Nitrophenyl phosphate as chromogenic substrate; and β-D-galactosidase (β-D-Gal) with a chromogenic substrate (*e.g.,* p-nitrophenyl-β-D-galactosidase) or fluorogenic substrate 4-methylumbelliferyl-β-D-galactosidase.

[0605] Numerous other enzyme-substrate combinations are available to those skilled in the art. For a general review of these, see U.S. Patent Nos. 4,275,149 and 4,318,980.

[0606] Sometimes, the label is indirectly conjugated with the antibody. The skilled artisan will be aware of various techniques for achieving this. For example, the antibody can be conjugated with biotin and any of the three broad categories of labels mentioned above can be conjugated with avidin, or *vice versa*. Biotin binds selectively to avidin and thus, the label can be conjugated with the antibody in this indirect manner. Alternatively, to achieve indirect conjugation of the label with the antibody, the antibody is conjugated with a small hapten (*e.g.,* digoxin) and one of the different types of labels mentioned above is conjugated with an anti-hapten antibody (*e.g.,* anti-digoxin antibody). Thus, indirect conjugation of the label with the antibody can be achieved.

[0607] In other versions of immunoassay techniques, the antibody need not be labeled, and the presence thereof can be detected using a labeled antibody which binds to the antibody.

[0608] Thus, the diagnostic immunoassays herein may be in any assay format, including, for example, competitive binding assays, direct and indirect sandwich assays, and immunoprecipitation assays. Zola, *Monoclonal Antibodies: A Manual of Techniques*, pp.147-158 (CRC Press, Inc. 1987).

[0609] Competitive binding assays rely on the ability of a labeled standard to compete with the test sample analyze for binding with a limited amount of antibody. The amount of antigen in the test sample is inversely proportional to the amount of standard that becomes bound to the antibodies. To facilitate determining the amount of standard that becomes bound, the antibodies generally are insolubilized before or after the competition, so that the standard and analyze that are bound to the antibodies may conveniently be separated from the standard and analyze which remain unbound.

[0610] Sandwich assays involve the use of two antibodies, each capable of binding to a different immunogenic portion, or epitope, of the protein to be detected. In a sandwich assay, the test sample analyze is bound by a first antibody which is immobilized on a solid support, and thereafter a second antibody binds to the analyze, thus forming an insoluble three-part complex. See, *e.g.*, U.S. Pat No. 4,376,110. The second antibody may itself be labeled with a detectable moiety (direct sandwich assays) or may be measured using an anti-immunoglobulin antibody that is labeled with a detectable moiety (indirect sandwich assay). For example, one type of sandwich assay is an ELISA assay, in which case the detectable moiety is an enzyme.

g. *Proteomics*

[0611] The term "proteome" is defined as the totality of the proteins present in a sample (e.g. tissue, organism, or cell culture) at a certain point of time. Proteomics includes, among other things, study of the global changes of protein expression in a sample (also referred to as "expression proteomics"). Proteomics typically includes the following steps: (1) separation of individual proteins in a sample by 2-D gel electrophoresis (2-D PAGE); (2) identification of the individual proteins recovered from the gel, e.g. my mass spectrometry or N-terminal sequencing, and (3) analysis of the data using bioinformatics. Proteomics methods are valuable supplements to other methods of gene expression profiling, and can be used, alone or in combination with other methods, to detect the products of the markers of the present invention.

h. *5'-multiplexed Gene Specific Priming of Reverse Transcription*

[0612] RT-PCR requires reverse transcription of the test RNA population as a first step. The most commonly used primer for reverse transcription is oligo-dT, which

works well when RNA is intact. However, this primer will not be effective when RNA is highly fragmented.

[0613] The present invention includes the use of gene specific primers, which are roughly 20 bases in length with a Tm optimum between about 58 °C and 60 °C. These primers will also serve as the reverse primers that drive PCR DNA amplification.

[0614] An alternative approach is based on the use of random hexamers as primers for cDNA synthesis. However, we have experimentally demonstrated that the method of using a multiplicity of gene-specific primers is superior over the known approach using random hexamers.

i. *Promoter Methylation Analysis*

[0615] A number of methods for quantization of RNA transcripts (gene expression analysis) or their protein translation products are discussed herein. The expression level of genes may also be inferred from information regarding chromatin structure, such as for example the methylation status of gene promoters and other regulatory elements and the acetylation status of histones.

[0616] In particular, the methylation status of a promoter influences the level of expression of the gene regulated by that promoter. Aberrant methylation of particular gene promoters has been implicated in expression regulation, such as for example silencing of tumor suppressor genes. Thus, examination of the methylation status of a gene's promoter can be utilized as a surrogate for direct quantization of RNA levels.

[0617] Several approaches for measuring the methylation status of particular DNA elements have been devised, including methylation-specific PCR (Herman J.G. et al. (1996) Methylation-specific PCR: a novel PCR assay for methylation status of CpG islands. Proc. Natl Acad. Sci. USA. **93**, 9821–9826.) and bisulfite DNA sequencing (Frommer M. et al. (1992) A genomic sequencing protocol that yields a positive display of 5-methylcytosine residues in individual DNA strands. Proc. Natl Acad. Sci. USA. **89**, 1827–1831.). More recently, microarray-based technologies have been used to characterize promoter methylation status (Chen C.M. (2003) Methylation target array for rapid analysis of CpG island hypermethylation in multiple tissue genomes. Am. J. Pathol. **163**, 37–45.).

j. *Coexpression of Genes*

[0618] A further aspect of the invention is the identification of gene expression clusters. Gene expression clusters can be identified by analysis of expression data using

statistical analyses known in the art, including pairwise analysis of correlation based on Pearson correlation coefficients (Pearson K. and Lee A. (1902) Biometrika 2, 357).

[0619] In one embodiment, an expression cluster identified herein includes genes upregulated in the left colon (Fig. 1).

[0620] In another embodiment, an expression cluster identified herein includes genes upregulated in the right colon (Fig. 1).

[0621] In one other embodiment, an expression cluster identified herein includes genes upregulated in the terminal ileum (Fig. 1).

[0622] In other embodiments, the expression cluster identified herein includes genes in the IBD2 locus (Table 7); or in the IBD5 locus (Table 8).

[0623] In some embodiments, the expression cluster identified herein includes genes classified under an immune response.

[0624] In other embodiments, the expression cluster identified herein includes genes classified under a response to wounding.

k. *Design of Intron-Based PCR Primers and Probes*

[0625] According to one aspect of the present invention, PCR primers and probes are designed based upon intron sequences present in the gene to be amplified. Accordingly, the first step in the primer/probe design is the delineation of intron sequences within the genes. This can be done by publicly available software, such as the DNA BLAT software developed by Kent, W.J., *Genome Res.* 12(4):656-64 (2002), or by the BLAST software including its variations. Subsequent steps follow well established methods of PCR primer and probe design.

[0626] In order to avoid non-specific signals, it is important to mask repetitive sequences within the introns when designing the primers and probes. This can be easily accomplished by using the Repeat Masker program available on-line through the Baylor College of Medicine, which screens DNA sequences against a library of repetitive elements and returns a query sequence in which the repetitive elements are masked. The masked intron sequences can then be used to design primer and probe sequences using any commercially or otherwise publicly available primer/probe design packages, such as Primer Express (Applied Biosystems); MGB assay-by–design (Applied Biosystems); Primer3 (Steve Rozen and Helen J. Skaletsky (2000) Primer3 on the WWW for general users and for biologist programmers. In: Krawetz S, Misener S (eds) *Bioinformatics Methods and Protocols: Methods in Molecular Biology.* Humana Press, Totowa, NJ, pp 365-386).

[0627] The most important factors considered in PCR primer design include primer length, melting temperature (Tm), and G/C content, specificity, complementary primer sequences, and 3'-end sequence. In general, optimal PCR primers are generally 17-30 bases in length, and contain about 20-80%, such as, for example, about 50-60% G+C bases. Tm's between 50 and 80 °C, e.g. about 50 to 70 °C are typically preferred.

[0628] For further guidelines for PCR primer and probe design see, e.g. Dieffenbach, C.W. *et al.*, "General Concepts for PCR Primer Design" in: *PCR Primer, A Laboratory Manual*, Cold Spring Harbor Laboratory Press, New York, 1995, pp. 133-155; Innis and Gelfand, "Optimization of PCRs" in: *PCR Protocols, A Guide to Methods and Applications,* CRC Press, London, 1994, pp. 5-11; and Plasterer, T.N. Primerselect: Primer and probe design. *Methods Mol. Biol.* 70:520-527 (1997), the entire disclosures of which are hereby expressly incorporated by reference.

l. *IBD Gene Set, Assayed Gene Subsequences, and Clinical Application of Gene Expression Data*

[0629] An important aspect of the present invention is to use the measured expression of certain genes by colonic issue to provide diagnostic information. For this purpose it is necessary to correct for (normalize away) both differences in the amount of RNA assayed and variability in the quality of the RNA used. Therefore, the assay typically measures and incorporates the expression of certain normalizing genes, including well known housekeeping genes, such as GAPDH and Cyp1. Alternatively, normalization can be based on the mean or median signal (Ct) of all of the assayed genes or a large subset thereof (global normalization approach). On a gene-by-gene basis, measured normalized amount of a patient colonic tissue mRNA is compared to the amount found in an appropriate tissue reference set. The number (N) of tissues in this reference set should be sufficiently high to ensure that different reference sets (as a whole) behave essentially the same way. If this condition is met, the identity of the individual colonic tissues present in a particular set will have no significant impact on the relative amounts of the genes assayed. Usually, the tissue reference set consists of at least about 30, preferably at least about 40 different IBD tissue specimens. Unless noted otherwise, normalized expression levels for each mRNA/tested tissue/patient will be expressed as a percentage of the expression level measured in the reference set. More specifically, the reference set of a sufficiently high number (e.g. 40) of IBD samples yields a distribution of normalized levels of each mRNA species. The level measured in a particular sample to be analyzed falls at some percentile within this range, which can be determined by methods well

known in the art. Below, unless noted otherwise, reference to expression levels of a gene assume normalized expression relative to the reference set although this is not always explicitly stated.

m. *Production of antibodies*

[0630] The present invention further provides anti-IBD marker antibodies. Exemplary antibodies include polyclonal, monoclonal, humanized, bispecific, and heteroconjugate antibodies. As discussed herein, the antibodies may be used in the diagnostic methods for IBD, and in some cases in methods of treatment of IBD.

(1) Polyclonal antibodies

[0631] Polyclonal antibodies are preferably raised in animals by multiple subcutaneous (sc) or intraperitoneal (ip) injections of the relevant antigen and an adjuvant. It may be useful to conjugate the relevant antigen to a protein that is immunogenic in the species to be immunized, *e.g.*, keyhole limpet hemocyanin, serum albumin, bovine thyroglobulin, or soybean trypsin inhibitor using a bifunctional or derivatizing agent, for example, maleimidobenzoyl sulfosuccinimide ester (conjugation through cysteine residues), N-hydroxysuccinimide (through lysine residues), glutaraldehyde, succinic anhydride, $SOCl_2$, or $R^1N=C=NR$, where R and R^1 are different alkyl groups.

[0632] Animals are immunized against the antigen, immunogenic conjugates, or derivatives by combining, *e.g.*, 100 μg or 5 μg of the protein or conjugate (for rabbits or mice, respectively) with 3 volumes of Freund's complete adjuvant and injecting the solution intradermally at multiple sites. One month later the animals are boosted with 1/5 to 1/10 the original amount of peptide or conjugate in Freund's complete adjuvant by subcutaneous injection at multiple sites. Seven to 14 days later the animals are bled and the serum is assayed for antibody titer. Animals are boosted until the titer plateaus. Preferably, the animal is boosted with the conjugate of the same antigen, but conjugated to a different protein and/or through a different cross-linking reagent. Conjugates also can be made in recombinant cell culture as protein fusions. Also, aggregating agents such as alum are suitably used to enhance the immune response.

(2) Monoclonal antibodies

[0633] Various methods for making monoclonal antibodies herein are available in the art. For example, the monoclonal antibodies may be made using the hybridoma method first described by Kohler et al., Nature, 256:495 (1975), by recombinant DNA methods (U.S. Patent No. 4,816,567).

[0634] In the hybridoma method, a mouse or other appropriate host animal, such as a hamster, is immunized as hereinabove described to elicit lymphocytes that produce or are capable of producing antibodies that will specifically bind to the protein used for immunization. Alternatively, lymphocytes may be immunized *in vitro*. Lymphocytes then are fused with myeloma cells using a suitable fusing agent, such as polyethylene glycol, to form a hybridoma cell (Goding, *Monoclonal Antibodies: Principles and Practice*, pp.59-103 (Academic Press, 1986)).

[0635] The hybridoma cells thus prepared are seeded and grown in a suitable culture medium that preferably contains one or more substances that inhibit the growth or survival of the unfused, parental myeloma cells. For example, if the parental myeloma cells lack the enzyme hypoxanthine guanine phosphoribosyl transferase (HGPRT or HPRT), the culture medium for the hybridomas typically will include hypoxanthine, aminopterin, and thymidine (HAT medium), which substances prevent the growth of HGPRT-deficient cells.

[0636] Preferred myeloma cells are those that fuse efficiently, support stable high-level production of antibody by the selected antibody-producing cells, and are sensitive to a medium such as HAT medium. Among these, preferred myeloma cell lines are murine myeloma lines, such as those derived from MOPC-21 and MPC-11 mouse tumors available from the Salk Institute Cell Distribution Center, San Diego, California USA, and SP-2 or X63-Ag8-653 cells available from the American Type Culture Collection, Rockville, Maryland USA. Human myeloma and mouse-human heteromyeloma cell lines also have been described for the production of human monoclonal antibodies (Kozbor, *J. Immunol.*, 133:3001 (1984); and Brodeur *et al.*, *Monoclonal Antibody Production Techniques and Applications*, pp. 51-63 (Marcel Dekker, Inc., New York, 1987)).

[0637] Culture medium in which hybridoma cells are growing is assayed for production of monoclonal antibodies directed against the antigen. Preferably, the binding specificity of monoclonal antibodies produced by hybridoma cells is determined by immunoprecipitation or by an in vitro binding assay, such as radioimmunoassay (RIA) or enzyme-linked immunoabsorbent assay (ELISA).

[0638] The binding affinity of the monoclonal antibody can, for example, be determined by the Scatchard analysis of Munson *et al.*, *Anal. Biochem.*, 107:220 (1980).

[0639] After hybridoma cells are identified that produce antibodies of the desired specificity, affinity, and/or activity, the clones may be subcloned by limiting

dilution procedures and grown by standard methods (Goding, *Monoclonal Antibodies: Principles and Practice*, pp.59-103 (Academic Press, 1986)). Suitable culture media for this purpose include, for example, D-MEM or RPMI-1640 medium. In addition, the hybridoma cells may be grown *in vivo* as ascites tumors in an animal.

[0640] The monoclonal antibodies secreted by the subclones are suitably separated from the culture medium, ascites fluid, or serum by conventional antibody purification procedures such as, for example, protein A-Sepharose, hydroxylapatite chromatography, gel electrophoresis, dialysis, or affinity chromatography.

[0641] DNA encoding the monoclonal antibodies is readily isolated and sequenced using conventional procedures (e.g., by using oligonucleotide probes that are capable of binding specifically to genes encoding the heavy and light chains of murine antibodies). The hybridoma cells serve as a preferred source of such DNA. Once isolated, the DNA may be placed into expression vectors, which are then transfected into host cells such as *E. coli* cells, simian COS cells, Chinese Hamster Ovary (CHO) cells, or myeloma cells that do not otherwise produce antibody protein, to obtain the synthesis of monoclonal antibodies in the recombinant host cells. Review articles on recombinant expression in bacteria of DNA encoding the antibody include Skerra *et al., Curr. Opinion in Immunol.*, 5:256-262 (1993) and Plückthun, *Immunol. Revs.*, 130:151-188 (1992).

[0642] In a further embodiment, monoclonal antibodies or antibody fragments can be isolated from antibody phage libraries generated using the techniques described in McCafferty et al., Nature, 348:552-554 (1990). Clackson et al., Nature, 352:624-628 (1991) and Marks et al., J. Mol. Biol., 222:581-597 (1991) describe the isolation of murine and human antibodies, respectively, using phage libraries. Subsequent publications describe the production of high affinity (nM range) human antibodies by chain shuffling (Marks et al., Bio/Technology, 10:779-783 (1992)), as well as combinatorial infection and in vivo recombination as a strategy for constructing very large phage libraries (Waterhouse et al., Nuc. Acids. Res., 21:2265-2266 (1993)). Thus, these techniques are viable alternatives to traditional monoclonal antibody hybridoma techniques for isolation of monoclonal antibodies.

[0643] The DNA also may be modified, for example, by substituting the coding sequence for human heavy chain and light chain constant domains in place of the homologous murine sequences (U.S. Patent No. 4,816,567; and Morrison, *et al., Proc.* Natl *Acad. Sci. USA*, 81:6851 (1984)), or by covalently joining to the immunoglobulin coding sequence all or part of the coding sequence for a non-immunoglobulin polypeptide.

[0644] Typically such non-immunoglobulin polypeptides are substituted for the constant domains of an antibody, or they are substituted for the variable domains of one antigen-combining site of an antibody to create a chimeric bivalent antibody comprising one antigen-combining site having specificity for an antigen and another antigen-combining site having specificity for a different antigen.

(4) Humanized antibodies

[0645] Methods for humanizing non-human antibodies have been described in the art. Preferably, a humanized antibody has one or more amino acid residues introduced into it from a source which is non-human. These non-human amino acid residues are often referred to as "import" residues, which are typically taken from an "import" variable domain. Humanization can be essentially performed following the method of Winter and co-workers (Jones *et al., Nature*, 321:522-525 (1986); Riechmann *et al., Nature*, 332:323-327 (1988); Verhoeyen *et al., Science*, 239:1534-1536 (1988)), by substituting hypervariable region sequences for the corresponding sequences of a human antibody. Accordingly, such "humanized" antibodies are chimeric antibodies (U.S. Patent No. 4,816,567) wherein substantially less than an intact human variable domain has been substituted by the corresponding sequence from a non-human species. In practice, humanized antibodies are typically human antibodies in which some hypervariable region residues and possibly some FR residues are substituted by residues from analogous sites in rodent antibodies. An example of a humanized antibody used to treat IBD is infliximab (Remicade®), an engineered murine-human chimeric monoclonal antibody. The antibody binds the cytokine TNF-alpha and prevents it from binding its receptors to trigger and sustain an inflammatory response. Infliximab is used to treat both CD and UC.

[0646] The choice of human variable domains, both light and heavy, to be used in making the humanized antibodies is very important to reduce antigenicity. According to the so-called "best-fit" method, the sequence of the variable domain of a rodent antibody is screened against the entire library of known human variable-domain sequences. The human sequence which is closest to that of the rodent is then accepted as the human framework region (FR) for the humanized antibody (Sims *et al., J. Immunol.*, 151:2296 (1993); Chothia *et al., J. Mol. Biol.*, 196:901 (1987)). Another method uses a particular framework region derived from the consensus sequence of all human antibodies of a particular subgroup of light or heavy chains. The same framework may be used for several different humanized antibodies (Carter *et al., Proc. Natl. Acad. Sci. USA*, 89:4285 (1992); Presta *et al., J. Immunol.*, 151:2623 (1993)).

[0647] It is further important that antibodies be humanized with retention of high affinity for the antigen and other favorable biological properties. To achieve this goal, according to a preferred method, humanized antibodies are prepared by a process of analysis of the parental sequences and various conceptual humanized products using three-dimensional models of the parental and humanized sequences. Three-dimensional immunoglobulin models are commonly available and are familiar to those skilled in the art. Computer programs are available which illustrate and display probable three-dimensional conformational structures of selected candidate immunoglobulin sequences. Inspection of these displays permits analysis of the likely role of the residues in the functioning of the candidate immunoglobulin sequence, *i.e.*, the analysis of residues that influence the ability of the candidate immunoglobulin to bind its antigen. In this way, FR residues can be selected and combined from the recipient and import sequences so that the desired antibody characteristic, such as increased affinity for the target antigen(s), is achieved. In general, the hypervariable region residues are directly and most substantially involved in influencing antigen binding.

[0648] Various forms of the humanized antibody are contemplated. For example, the humanized antibody may be an antibody fragment, such as a Fab, which is optionally conjugated with one or more cytotoxic agent(s) in order to generate an immunoconjugate. Alternatively, the humanized antibody may be an intact antibody, such as an intact IgG1 antibody.

(5) Human antibodies

[0649] As an alternative to humanization, human antibodies can be generated. For example, it is now possible to produce transgenic animals (*e.g.*, mice) that are capable, upon immunization, of producing a full repertoire of human antibodies in the absence of endogenous immunoglobulin production. For example, it has been described that the homozygous deletion of the antibody heavy-chain joining region (J_H) gene in chimeric and germ-line mutant mice results in complete inhibition of endogenous antibody production. Transfer of the human germ-line immunoglobulin gene array in such germ-line mutant mice will result in the production of human antibodies upon antigen challenge. See, *e.g.*, Jakobovits *et al., Proc. Natl. Acad. Sci. USA*, 90:2551 (1993); Jakobovits *et al., Nature*, 362:255-258 (1993); Bruggermann *et al., Year in Immuno.*, 7:33 (1993); and U.S. Patent Nos. 5,591,669, 5,589,369 and 5,545,807. Alternatively, phage display technology (McCafferty *et al.*, *Nature* 348:552-553 (1990)) can be used to produce human antibodies and antibody fragments *in vitro*, from immunoglobulin variable (V) domain gene

repertoires from unimmunized donors. According to this technique, antibody V domain genes are cloned in-frame into either a major or minor coat protein gene of a filamentous bacteriophage, such as M13 or fd, and displayed as functional antibody fragments on the surface of the phage particle. Because the filamentous particle contains a single-stranded DNA copy of the phage genome, selections based on the functional properties of the antibody also result in selection of the gene encoding the antibody exhibiting those properties. Thus, the phage mimics some of the properties of the B-cell. Phage display can be performed in a variety of formats; for their review see, *e.g.*, Johnson, Kevin S. and Chiswell, David J., *Current Opinion in Structural Biology* 3:564-571 (1993). Several sources of V-gene segments can be used for phage display. Clackson *et al.*, *Nature*, 352:624-628 (1991) isolated a diverse array of anti-oxazolone antibodies from a small random combinatorial library of V genes derived from the spleens of immunized mice. A repertoire of V genes from unimmunized human donors can be constructed and antibodies to a diverse array of antigens (including self-antigens) can be isolated essentially following the techniques described by Marks *et al.*, *J. Mol. Biol.* 222:581-597 (1991), or Griffith *et al.*, *EMBO J.* 12:725-734 (1993). See, also, U.S. Patent Nos. 5,565,332 and 5,573,905.

[0650] As discussed above, human antibodies may also be generated by in vitro activated B cells (see U.S. Patents 5,567,610 and 5,229,275).

(6) Antibody fragments

[0651] Various techniques have been developed for the production of antibody fragments comprising one or more antigen binding regions. Traditionally, these fragments were derived via proteolytic digestion of intact antibodies (see, *e.g.*, Morimoto *et al.*, *Journal of Biochemical and Biophysical Methods* 24:107-117 (1992); and Brennan *et al.*, *Science*, 229:81 (1985)). However, these fragments can now be produced directly by recombinant host cells. For example, the antibody fragments can be isolated from the antibody phage libraries discussed above. Alternatively, Fab'-SH fragments can be directly recovered from *E. coli* and chemically coupled to form $F(ab')_2$ fragments (Carter *et al.*, Bio/Technology 10:163-167 (1992)). According to another approach, $F(ab')_2$ fragments can be isolated directly from recombinant host cell culture. Other techniques for the production of antibody fragments will be apparent to the skilled practitioner. In other embodiments, the antibody of choice is a single chain Fv fragment (scFv). See WO 93/16185; U.S. Patent No. 5,571,894; and U.S. Patent No. 5,587,458. The antibody

fragment may also be a Alinear antibody@, *e.g.*, as described in U.S. Patent 5,641,870 for example. Such linear antibody fragments may be monospecific or bispecific.

(6) Bispecific antibodies

[0652] Bispecific antibodies are antibodies that have binding specificities for at least two different epitopes. Exemplary bispecific antibodies may bind to two different epitopes of an IBD marker protein. Bispecific antibodies may also be used to localize agents to cells which express an IBD marker protein.

[0653] These antibodies possess an IBD marker-binding arm and an arm which binds an agent (e.g. an aminosalicylate). Bispecific antibodies can be prepared as full length antibodies or antibody fragments (e.g. F(ab')2 bispecific antibodies).

[0654] Methods for making bispecific antibodies are known in the art. Traditional production of full length bispecific antibodies is based on the coexpression of two immunoglobulin heavy chain-light chain pairs, where the two chains have different specificities (Millstein *et al., Nature*, 305:537-539 (1983)). Because of the random assortment of immunoglobulin heavy and light chains, these hybridomas (quadromas) produce a potential mixture of 10 different antibody molecules, of which only one has the correct bispecific structure. Purification of the correct molecule, which is usually done by affinity chromatography steps, is rather cumbersome, and the product yields are low. Similar procedures are disclosed in WO 93/08829, and in Traunecker *et al., EMBO J.*, 10:3655-3659 (1991).

[0655] According to a different approach, antibody variable domains with the desired binding specificities (antibody-antigen combining sites) are fused to immunoglobulin constant domain sequences. The fusion preferably is with an immunoglobulin heavy chain constant domain, comprising at least part of the hinge, CH2, and CH3 regions. It is preferred to have the first heavy-chain constant region (CH1) containing the site necessary for light chain binding, present in at least one of the fusions. DNAs encoding the immunoglobulin heavy chain fusions and, if desired, the immunoglobulin light chain, are inserted into separate expression vectors, and are co-transfected into a suitable host organism. This provides for great flexibility in adjusting the mutual proportions of the three polypeptide fragments in embodiments when unequal ratios of the three polypeptide chains used in the construction provide the optimum yields. It is, however, possible to insert the coding sequences for two or all three polypeptide

chains in one expression vector when the expression of at least two polypeptide chains in equal ratios results in high yields or when the ratios are of no particular significance.

[0656] In a preferred embodiment of this approach, the bispecific antibodies are composed of a hybrid immunoglobulin heavy chain with a first binding specificity in one arm, and a hybrid immunoglobulin heavy chain-light chain pair (providing a second binding specificity) in the other arm. It was found that this asymmetric structure facilitates the separation of the desired bispecific compound from unwanted immunoglobulin chain combinations, as the presence of an immunoglobulin light chain in only one half of the bispecific molecule provides for a facile way of separation. This approach is disclosed in WO 94/04690. For further details of generating bispecific antibodies see, for example, Suresh *et al., Methods in Enzymology*, 121:210 (1986).

[0657] According to another approach described in U.S. Patent No. 5,731,168, the interface between a pair of antibody molecules can be engineered to maximize the percentage of heterodimers which are recovered from recombinant cell culture. The preferred interface comprises at least a part of the C_H3 domain of an antibody constant domain. In this method, one or more small amino acid side chains from the interface of the first antibody molecule are replaced with larger side chains (*e.g.* tyrosine or tryptophan). Compensatory "cavities" of identical or similar size to the large side chain(s) are created on the interface of the second antibody molecule by replacing large amino acid side chains with smaller ones (*e.g.* alanine or threonine). This provides a mechanism for increasing the yield of the heterodimer over other unwanted end-products such as homodimers.

[0658] Bispecific antibodies include cross-linked or "heteroconjugate" antibodies. For example, one of the antibodies in the heteroconjugate can be coupled to avidin, the other to biotin. Such antibodies have, for example, been proposed to target immune system cells to unwanted cells (U.S. Patent No. 4,676,980), and for treatment of HIV infection (WO 91/00360, WO 92/200373, and EP 03089). Heteroconjugate antibodies may be made using any convenient cross-linking methods. Suitable cross-linking agents are well known in the art, and are disclosed in U.S. Patent No. 4,676,980, along with a number of cross-linking techniques.

[0659] Techniques for generating bispecific antibodies from antibody fragments have also been described in the literature. For example, bispecific antibodies can be prepared using chemical linkage. Brennan *et al., Science*, 229: 81 (1985) describe a procedure wherein intact antibodies are proteolytically cleaved to generate $F(ab')_2$

fragments. These fragments are reduced in the presence of the dithiol complexing agent sodium arsenite to stabilize vicinal dithiols and prevent intermolecular disulfide formation. The Fab' fragments generated are then converted to thionitrobenzoate (TNB) derivatives. One of the Fab'-TNB derivatives is then reconverted to the Fab'-thiol by reduction with mercaptoethylamine and is mixed with an equimolar amount of the other Fab'-TNB derivative to form the bispecific antibody. The bispecific antibodies produced can be used as agents for the selective immobilization of enzymes.

[0660] Various techniques for making and isolating bispecific antibody fragments directly from recombinant cell culture have also been described. For example, bispecific antibodies have been produced using leucine zippers. Kostelny *et al.*, *J. Immunol.*, 148(5):1547-1553 (1992). The leucine zipper peptides from the Fos and Jun proteins were linked to the Fab' portions of two different antibodies by gene fusion. The antibody homodimers were reduced at the hinge region to form monomers and then re-oxidized to form the antibody heterodimers. This method can also be utilized for the production of antibody homodimers. The "diabody" technology described by Hollinger *et al., Proc. Natl. Acad. Sci. USA*, 90:6444-6448 (1993) has provided an alternative mechanism for making bispecific antibody fragments. The fragments comprise a heavy-chain variable domain (V_H) connected to a light-chain variable domain (V_L) by a linker which is too short to allow pairing between the two domains on the same chain. Accordingly, the V_H and V_L domains of one fragment are forced to pair with the complementary V_L and V_H domains of another fragment, thereby forming two antigen-binding sites. Another strategy for making bispecific antibody fragments by the use of single-chain Fv (sFv) dimers has also been reported. See Gruber *et al., J. Immunol.*, 152:5368 (1994).

[0661] Antibodies with more than two valencies are contemplated. For example, trispecific antibodies can be prepared. Tutt *et al. J. Immunol.* 147: 60 (1991).

(7) Other amino acid sequence modifications

[0662] Amino acid sequence modification(s) of the antibodies described herein are contemplated. For example, it may be desirable to improve the binding affinity and/or other biological properties of the antibody. Amino acid sequence variants of the antibody are prepared by introducing appropriate nucleotide changes into the antibody nucleic acid, or by peptide synthesis. Such modifications include, for example, deletions from, and/or insertions into and/or substitutions of, residues within the amino acid sequences of the antibody. Any combination of deletion, insertion, and substitution is made to arrive at the

final construct, provided that the final construct possesses the desired characteristics. The amino acid changes also may alter post-translational processes of the antibody, such as changing the number or position of glycosylation sites.

[0663] A useful method for identification of certain residues or regions of the antibody that are preferred locations for mutagenesis is called "alanine scanning mutagenesis" as described by Cunningham and Wells *Science*, 244:1081-1085 (1989). Here, a residue or group of target residues are identified (*e.g.*, charged residues such as arg, asp, his, lys, and glu) and replaced by a neutral or negatively charged amino acid (most preferably alanine or polyalanine) to affect the interaction of the amino acids with antigen. Those amino acid locations demonstrating functional sensitivity to the substitutions then are refined by introducing further or other variants at, or for, the sites of substitution. Thus, while the site for introducing an amino acid sequence variation is predetermined, the nature of the mutation *per se* need not be predetermined. For example, to analyze the performance of a mutation at a given site, ala scanning or random mutagenesis is conducted at the target codon or region and the expressed antibody variants are screened for the desired activity.

[0664] Amino acid sequence insertions include amino- and/or carboxyl-terminal fusions ranging in length from one residue to polypeptides containing a hundred or more residues, as well as intrasequence insertions of single or multiple amino acid residues. Examples of terminal insertions include antibody with an N-terminal methionyl residue or the antibody fused to a cytotoxic polypeptide. Other insertional variants of the antibody molecule include the fusion to the N- or C-terminus of the antibody to an enzyme (e.g. for ADEPT) or a polypeptide which increases the serum half-life of the antibody.

[0665] Another type of variant is an amino acid substitution variant. These variants have at least one amino acid residue in the antibody molecule replaced by a different residue. The sites of greatest interest for substitutional mutagenesis include the hypervariable regions, but FR alterations are also contemplated. Conservative substitutions are shown in Table 1 under the heading of "preferred substitutions". If such substitutions result in a change in biological activity, then more substantial changes, denominated "exemplary substitutions" in the following table, or as further described below in reference to amino acid classes, may be introduced and the products screened.

Original Residue	Exemplary Substitutions	Preferred Substitutions
Ala (A)	val; leu; ile	val
Arg (R)	lys; gln; asn	lys
Asn (N)	gln; his; lys; arg	gln
Asp (D)	glu	glu
Cys (C)	ser	ser
Gln (Q)	asn	asn
Glu (E)	asp	asp
Gly (G)	pro; ala	ala
His (H)	asn; gln; lys; arg	arg
Ile (I)	leu; val; met; ala; phe; norleucine	leu
Leu (L)	norleucine; ile; val; met; ala; phe	ile
Lys (K)	arg; gln; asn	arg
Met (M)	leu; phe; ile	leu
Phe (F)	leu; val; ile; ala; tyr	leu
Pro (P)	ala	ala
Ser (S)	thr	thr
Thr (T)	ser	ser
Trp (W)	tyr; phe	tyr
Tyr (Y)	trp; phe; thr; ser	phe
Val (V)	ile; leu; met; phe; ala; norleucine	leu

[0666] Substantial modifications in the biological properties of the antibody are accomplished by selecting substitutions that differ significantly in their effect on maintaining (a) the structure of the polypeptide backbone in the area of the substitution, for example, as a sheet or helical conformation, (b) the charge or hydrophobicity of the molecule at the target site, or (c) the bulk of the side chain. Amino acids may be grouped according to similarities in the properties of their side chains (in A. L. Lehninger, in *Biochemistry*, second ed., pp. 73-75, Worth Publishers, New York (1975)): non-polar: Ala

(A), Val (V), Leu (L), Ile (I), Pro (P), Phe (F), Trp (W), Met (M); uncharged polar: Gly (G), Ser (S), Thr (T), Cys (C), Tyr (Y), Asn (N), Gln (Q); acidic: Asp (D), Glu (E); and basic: Lys (K), Arg (R), His(H).

[0667] Alternatively, naturally occurring residues may be divided into groups based on common side-chain properties: hydrophobic : Norleucine, Met, Ala, Val, Leu, Ile; neutral hydrophilic: Cys, Ser, Thr, Asn, Gln; acidic: Asp, Glu; basic: His, Lys, Arg; residues that influence chain orientation: Gly, Pro; and aromatic: Trp, Tyr, Phe.

[0668] Non-conservative substitutions will entail exchanging a member of one of these classes for another class.

[0669] Any cysteine residue not involved in maintaining the proper conformation of the antibody also may be substituted, generally with serine, to improve the oxidative stability of the molecule and prevent aberrant crosslinking. Conversely, cysteine bond(s) may be added to the antibody to improve its stability (particularly where the antibody is an antibody fragment such as an Fv fragment).

[0670] A particularly preferred type of substitutional variant involves substituting one or more hypervariable region residues of a parent antibody (e.g. a humanized or human antibody). Generally, the resulting variant(s) selected for further development will have improved biological properties relative to the parent antibody from which they are generated. A convenient way for generating such substitutional variants involves affinity maturation using phage display. Briefly, several hypervariable region sites (*e.g.* 6-7 sites) are mutated to generate all possible amino substitutions at each site. The antibody variants thus generated are displayed in a monovalent fashion from filamentous phage particles as fusions to the gene III product of M13 packaged within each particle. The phage-displayed variants are then screened for their biological activity (*e.g.* binding affinity) as herein disclosed. In order to identify candidate hypervariable region sites for modification, alanine scanning mutagenesis can be performed to identify hypervariable region residues contributing significantly to antigen binding. Alternatively, or additionally, it may be beneficial to analyze a crystal structure of the antigen-antibody complex to identify contact points between the antibody and an IBD marker protein. Such contact residues and neighboring residues are candidates for substitution according to the techniques elaborated herein. Once such variants are generated, the panel of variants is subjected to screening as described herein and antibodies with superior properties in one or more relevant assays may be selected for further development.

[0671] Engineered antibodies with three or more (preferably four) functional antigen binding sites are also contemplated (US Appln. No. US2002/0004587 A1, Miller et al.).

[0672] Nucleic acid molecules encoding amino acid sequence variants of the antibody are prepared by a variety of methods known in the art. These methods include, but are not limited to, isolation from a natural source (in the case of naturally occurring amino acid sequence variants) or preparation by oligonucleotide-mediated (or site-directed) mutagenesis, PCR mutagenesis, and cassette mutagenesis of an earlier prepared variant or a non-variant version of the antibody.

B.3 Kits of the invention

[0673] The materials for use in the methods of the present invention are suited for preparation of kits produced in accordance with well known procedures. The invention thus provides kits comprising agents, which may include gene-specific or gene-selective probes and/or primers, for quantitating the expression of the disclosed genes for IBD. Such kits may optionally contain reagents for the extraction of RNA from samples, in particular fixed paraffin-embedded tissue samples and/or reagents for RNA amplification. In addition, the kits may optionally comprise the reagent(s) with an identifying description or label or instructions relating to their use in the methods of the present invention. The kits may comprise containers (including microtiter plates suitable for use in an automated implementation of the method), each with one or more of the various reagents (typically in concentrated form) utilized in the methods, including, for example, pre-fabricated microarrays, buffers, the appropriate nucleotide triphosphates (e.g., dATP, dCTP, dGTP and dTTP; or rATP, rCTP, rGTP and UTP), reverse transcriptase, DNA polymerase, RNA polymerase, and one or more probes and primers of the present invention (e.g., appropriate length poly(T) or random primers linked to a promoter reactive with the RNA polymerase).

B.4 Reports of the invention

[0674] The methods of this invention, when practiced for commercial diagnostic purposes generally produce a report or summary of the normalized expression levels of one or more of the selected genes. The methods of this invention will produce a report comprising a prediction of the clinical outcome of a subject diagnosed with an IBD before and after any surgical procedure to treat the IBD. The methods and reports of this

invention can further include storing the report in a database. Alternatively, the method can further create a record in a database for the subject and populate the record with data. In one embodiment the report is a paper report, in another embodiment the report is an auditory report, in another embodiment the report is an electronic record. It is contemplated that the report is provided to a physician and/or the patient. The receiving of the report can further include establishing a network connection to a server computer that includes the data and report and requesting the data and report from the server computer.

[0675] The methods provided by the present invention may also be automated in whole or in part.

[0676] All aspects of the present invention may also be practiced such that a limited number of additional genes that are co-expressed with the disclosed genes, for example as evidenced by high Pearson correlation coefficients, are included in a prognostic or predictive test in addition to and/or in place of disclosed genes.

[0677] Having described the invention, the same will be more readily understood through reference to the following Example, which is provided by way of illustration, and is not intended to limit the invention in any way.

Examples

Example 1 - Microarray analysis

[0678] Clinically, IBD is characterized by diverse manifestations often resulting in a chronic, unpredictable course. Bloody diarrhea and abdominal pain are often accompanied by fever and weight loss. Anemia is common, as is severe fatigue. Joint manifestations ranging from arthralgia to acute arthritis as well as abnormalities in liver function are commonly associated with IBD. Patients with IBD also have an increased risk of colon carcinomas compared to the general population. During acute "attacks" of IBD, work and other normal activity are usually impossible, and often a patient is hospitalized.

[0679] Although the cause of IBD remains unknown, several factors such as genetic, infectious and immunologic susceptibility have been implicated. IBD is much more common in Caucasians, especially those of Jewish descent. The chronic inflammatory nature of the condition has prompted an intense search for a possible infectious cause. Although agents have been found which stimulate acute inflammation, none has been found to cause the chronic inflammation associated with IBD. The

hypothesis that IBD is an autoimmune disease is supported by the previously mentioned extraintestinal manifestation of IBD as joint arthritis, and the known positive response to IBD by treatment with therapeutic agents such as adrenal glucocorticoids, cyclosporine and azathioprine, which are known to suppress immune response. In addition, the GI tract, more than any other organ of the body, is continuously exposed to potential antigenic substances such as proteins from food, bacterial byproducts (LPS), etc. The subtypes of IBD are UC and CD.

[0680] CD differs from UC in that the inflammation extends through all layers of the intestinal wall and involves mesentery as well as lymph nodes. CD may affect any part of the alimentary canal from mouth to anus. The disease is often discontinuous, i.e., severely diseased segments of bowel are separated from apparently disease-free areas. In CD, the bowel wall also thickens which can lead to obstructions. In addition, fistulas and fissures are not uncommon.

[0681] Both UC and CD are typically diagnosed by endoscopy, which shows the afflicted areas. However, the use of microarray technology has shed light on the molecular pathology of UC. A study published in 2000 used microarray technology to analyze eight UC patients. (Dieckgraefe et al., Physiol. Genomics 2000; 4:1-11). 6500 genes were analyzed in this study and the results confirmed increased expression of genes previously implicated in UC pathogenesis, namely IL-1, IL-1RA and IL-8. Endoscopic diagnosis coupled with the ability to take pinch mucosal biopsies have allowed investigators to further diagnose UC using microarray analysis, and allowed investigators to analyze afflicted tissue against normal tissue and to analyze tissue from a larger range of patients with varying degrees of severity. Biopsies of macroscopically unaffected areas of the colon and terminal ileum were microarrayed. (Langman et al., Gastroent. 2004; 127:26-40). Langman analyzed 22,283 genes and found that genes involved in cellular detoxification, such as pregnane X receptor and MDR1 were significantly downregulated in the colon of patients with UC, but there was no change in expression of these genes in CD patients.

[0682] Nucleic acid microarrays, often containing thousands of gene sequences, are useful for identifying differentially expressed genes in diseased tissues as compared to their normal counterparts. Using nucleic acid microarrays, test and control mRNA samples from test and control tissue samples are reverse transcribed and labeled to generate cDNA probes. The cDNA probes are then hybridized to an array of nucleic acids immobilized on a solid support. The array is configured such that the sequence and

position of each member of the array is known. For example, a selection of genes known to be expressed in certain disease states may be arrayed on a solid support. Hybridization of a labeled probe with a particular array member indicates that the sample from which the probe was derived expresses that gene. If the hybridization signal of a probe from a test (for example, disease tissue) sample is greater than hybridization signal of a probe from a control, normal tissue sample, the gene or genes overexpressed in the disease tissue are identified. The implication of this result is that an overexpressed protein in a disease tissue is useful not only as a diagnostic marker for the presence of the disease condition, but also as a therapeutic target for treatment of the disease condition.

[0683] The methodology of hybridization of nucleic acids and microarray technology is well known in the art. In one example, the specific preparation of nucleic acids for hybridization and probes, slides, and hybridization conditions are all detailed in PCT Patent Application Serial No. PCT/US01/10482, filed on March 30, 2001 and which is herein incorporated by reference.

[0684] Microarray analysis was used to find genes that are overexpressed in CD as compared to normal bowel tissue. For this study, sixty seven patients with CD and thirty-one control patients undergoing colonoscopy were recruited. Patient symptoms were evaluated at the time of colonoscopy using the simple clinical colitis activity index (SCCAI). (Walmsley et al., Gut. 1998; 43:29-32). Quiescent disease showing no histological inflammation was defined as a SCCAI of 2 or less. Active disease with histologially acute or chronic inflammation was defined as a SCCAI of greater than 2. The severity of the CD itself was determined by the criteria of Leonard-Jones. (Lennard-Jones Scand. J. Gastroent. 1989; 170:2-6). The CD patients provided well phenotyped biopsies for analysis of inflammatory pathways of CD at the molecular level, thus identifying novel candidate genes and potential pathways for therapeutic intervention. Paired biopsies were taken from each anatomical location.

[0685] All biopsies were stored at -70°C until ready for RNA isolation. The biopsies were homogenized in 600µl of RLT buffer (+ BME) and RNA was isolated using Qiagen™ Rneasy Mini columns (Qiagen) with on-column DNase treatment following the manufacturer's guidelines. Following RNA isolation, RNA was quantitated using RiboGreen™ (Molecular Probes) following the manufacturer's guidelines and checked on agarose gels for integrity. Appropriate amounts of RNA were labeled for microarray analysis and samples were run on proprietary Genentech microarray and Affymetrics™ microarrays. Genes were compared whose expression was upregulated in UC tissue vs

normal bowel, matching biopsies from normal bowel and CD tissue from the same patient. The results of this experiment showed that the nucleic acids as shown in SEQ ID NOS: 1-426 are differentially expressed in CD tissue in comparison to normal tissue. More specifically, SEQ ID NOS:1-316 represent polynucleotides and their encoded polypeptide which are significantly up-regulated/overexpressed in CD. SEQ ID NO:317-426 represent polynucleotides and their encoded polypeptide which are significantly down-regulated/under-expressed in CD.

WHAT IS CLAIMED IS:

1. A method of diagnosing the presence of an inflammatory bowel disease (IBD) in a mammalian subject, comprising determining that the level of expression of a nucleic acid encoding a polypeptide shown as any one of SEQ ID NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, and 316 in a test sample obtained from said subject is higher relative to the level of expression in a control, wherein said higher level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained.

2. A method of diagnosing the presence of an inflammatory bowel disease (IBD) in a mammalian subject, comprising determining that the level of expression of a nucleic acid encoding a polypeptide shown as any one of SEQ ID NOS: 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 in a test sample obtained from said subject is lower relative to the level of expression in a control, wherein said lower level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained.

3. The method of claim 1 or 2 wherein said mammalian subject is a human patient.

4. The method of claim 3 wherein evidence of said expression level is obtained by a method of gene expression profiling.

5. The method of claim 3 wherein said method is a PCR-based method.

6. The method of claim 4 wherein said expression levels are normalized relative to the expression levels of one or more reference genes, or their expression products.

7. The method of claim 1 or 2 comprising determining evidence of the expression levels of at least two of said nucleic acids.

8. The method of claim 1 or 2 comprising determining evidence of the expression levels of at least three of said nucleic acids.

9. The method of claim 1 or 2 comprising determining evidence of the expression levels of at least four of said nucleic acids.

10. The method of claim 1 or 2 comprising determining evidence of the expression levels of at least five of said nucleic acids.

11. The method of claim 1 or 2 further comprising the step of creating a report summarizing said IBD detection.

12. The method of claim 1 or 2, wherein said IBD is Crohn's disease.

13. The method of claim 1 or 2, wherein said test sample is from a colonic tissue biopsy.

14. The method of claim 13, wherein said biopsy is from a tissue selected from the group consisting of the ascending colon, the descending colon, and the sigmoid colon.

15. The method of claim 13, wherein said biopsy is from an inflamed colonic area.

16. The method of claim 13, wherein said biopsy is from a non-inflamed colonic area.

17. The method of claim 1 or 2, wherein said determining step is indicative of a recurrence of an IBD in said mammalian subject, and wherein said mammalian subject was previously diagnosed with an IBD and treated for said previously diagnosed IBD.

18. The method of claim 17, wherein said treatment comprised surgery.

19. The method of claim 17, wherein said recurrence is a flare-up of an inactive IBD in said mammalian subject.

20. A method of treating an inflammatory bowel disorder (IBD) in a mammalian subject in need thereof, the method comprising the steps of

(a) determining that the level of expression of a nucleic acid encoding the polypeptide shown as any one of SEQ ID NOS:SEQ ID NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66,

68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, and 316 in a test sample obtained from said subject is higher relative to the level of expression in a control, wherein said higher level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained; and

(b) administering to said subject an effective amount of an IBD therapeutic agent.

21. A method of treating an inflammatory bowel disorder (IBD) in a mammalian subject in need thereof, the method comprising the steps of

(a) determining that the level of expression of a nucleic acid encoding the polypeptide shown as any one of SEQ ID NOS:SEQ ID NOS: 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, and 426 in a test sample obtained from said subject is lower relative to the level of expression in a control, wherein said lower level of expression is indicative of the presence of an IBD in the subject from which the test sample was obtained; and

(b) administering to said subject an effective amount of an IBD therapeutic agent.

22. The method of claim 20 or 21 wherein said mammalian subject is a human patient.

23. The method of claim 22 wherein evidence of said expression level is obtained by a method of gene expression profiling.

24. The method of claim 22 wherein said method is a PCR-based method.

25. The method of claim 23 wherein said expression levels are normalized relative to the expression levels of one or more reference genes, or their expression products.

26. The method of claim 20 or 21 comprising determining evidence of the expression levels of at least two of said nucleic acids.

27. The method of claim 20 or 21 comprising determining evidence of the expression levels of at least three of said nucleic acids.

28. The method of claim 20 or 21 comprising determining evidence of the expression levels of at least four of said nucleic acids.

29. The method of claim 20 or 21 comprising determining evidence of the expression levels of at least five of said nucleic acids.

30. The method of claim 20 or 21 further comprising the step of creating a report summarizing said IBD detection.

31. The method of claim 20 or 21, wherein said IBD is Crohn's disease.

32. The method of claim 20 or 21, wherein said test sample is from a colonic tissue biopsy.

33. The method of claim 32, wherein said biopsy is from a tissue selected from the group consisting of the terminal ileum, the ascending colon, the descending colon, and the sigmoid colon.

34. The method of claim 32, wherein said biopsy is from an inflamed colonic area.

35. The method of claim 32, wherein said biopsy is from a non-inflamed colonic area.

36. The method of claim 20 or 21, wherein said determining step is indicative of a recurrence of an IBD in said mammalian subject, and wherein said mammalian subject was previously diagnosed with an IBD and treated for said previously diagnosed IBD.

37. The method of claim 36, wherein said treatment comprised surgery.

38. The method of claim 20 or 21, wherein said determining step is indicative of a flare-up of said IBD in said mammalian subject.

39. The method of claim 20 or 21, wherein said IBD therapeutic agent is an aminosalicylate.

40. The method of claim 20 or 21, wherein said IBD therapeutic agent is a corticosteroid.

41. The method of claim 20 or 21, wherein said IBD therapeutic agent is an immunosuppressive agent.

tgccttcctt gctgagctgc ttcgcgtacg tttgaggaag gtctagtgaa attggtcttt ccattacatc tggatgtact accagagagt tctgctgctg ttgtttttt taagctttc tttctttgag tctttaaagg gcaattgtcg acactctgca aacataccga tttgttgtct gcccactttg gagtcttcaa tctgggcagt aactatttac ccttttcct gctagcctgt ccccctctct ggattgaagt cacctgctaa gacaatggac taccgaccag actcccggaa atcatgttgg taggatccca gtctttttcg cctggaggcg ccaatgggat cattagaagc cagtcctttg cgggtttcag cggcctccag gaaaggcgat ccaggtgtaa ctccttcatt gaaaattcct ccgctctcaa gaagcctcag gcaaactgaa gaaaatgcac aatttaggcc acaaaaacaa caatcccccc aaagagcctc agcctaaaag ggtggaagaa gtctacaggg ccttgaaaaa tggacttgat gaatatctgg aggttcacca gacggagctg gacaagttga cagctcagtt aaaagatatg aaaagaaact ctcgcctggg tgtactgtat gacctagaca agcaaattaa aacaattgaa agatacatga gacgcctgga gtttcatata agtaaggtag atgaactcta tgaagcttat tgtatccagc gacgcctcca ggatggtgcc agcaaaatga agcaagcctt cgcaacatcc cctgccagca aagctgcccg ggagagtctg acagagatca atcggagctt caaggagtac acagagaata tgtgcaccat tgaagtggag ctagagaatc tgctgggaga attctccatc aagatgaaag gtctggctgg ctttgcacgc ctctgtcctg gagatcaata tgaaattttc atgaagtatg gccggcagcg gtggaaactg aaaggcaaaa tagaagtaaa tggcaagcag agctgggatg gagaagaaac agtttttctg cccctgatag ttgggttcat ctccatcaag gtcacggagc tcaaagggct agcaactcac atcctggtag gtagcgtgac ctgtgagacc aaagagctgt ttgcagcccg acctcaggta gtggctgtcg acatcaatga ccttggtacc atcaaactga acctggaaat cacctggtat ccatttgacg tggaggacat gaccgcatcc tcaggcgctg ggaacaaggc agcagccctt cagaggagaa tgtccatgta cagccagggt accccggaaa cgcccacctt caaagaccac tccttctttt caaatctacc tgatgacatc tttgaaaatg gaaaggcagc cgaggagaaa atgccactgt cgctcagctt cagtgacctg ccaacggact gcgccctcac ctcccactca acaggctccc cttccaactc aacaaatcca gaaattacca tcacccctgc ggagtttaac ctcagcagct tggcctccca gaatgagggt atggatgaca ccagctcagc atcttccagg aactccctgg gagaaggcca agagccaaag tcacacctga aggaggaaga cccagaggag cccagaaaac ctgcctcggc cccatctgag gcttgccgcc gacagtcctc aggtgctggg gctgagcacc tgttccttga gaatgatgtt gcagaagcac ttctgcaaga gtctgaggag gcctctgagc tcaagcctgt ggaactggac acttcggaag gaaacatcac aaagcagctg gtcaagaggc tcacatctgc agaggtgcca atggccacag acaggctgct ctctgagggt tctgttggtg gagaatctga aggctgcaga tcctttctag atggaagctt agaggatgct tttaatgggc ttttacttgc attagaacca cataaagagc agtataaaga gtttcaggat ctgaaccaag aagtcatgaa tttggatgat attctaaaaa agtagagaag attcctctaa tggatcccag tgtgcccatc cctcaacctc ctcagtgatc aactcatggc caatcttgtt tcctattctt caacctgctg acttccctct ggattcttct gcaaccagtc ccagatattg tgccatttta tccatggttg tacttctttt ttggatataa agatttttaa atgcattttt taaatgctgc ggccg

FIGURE 1

Met His Asn Leu Gly His Lys Asn Asn Asn Pro Pro Lys Glu Pro Gln Pro Lys Arg Val Glu Glu Val Tyr Arg Ala Leu Lys Asn Gly Leu Asp Glu Tyr Leu Glu Val His Gln Thr Glu Leu Asp Lys Leu Thr Ala Gln Leu Lys Asp Met Lys Arg Asn Ser Arg Leu Gly Val Leu Tyr Asp Leu Asp Lys Gln Ile Lys Thr Ile Glu Arg Tyr Met Arg Arg Leu Glu Phe His Ile Ser Lys Val Asp Glu Leu Tyr Glu Ala Tyr Cys Ile Gln Arg Arg Leu Gln Asp Gly Ala Ser Lys Met Lys Gln Ala Phe Ala Thr Ser Pro Ala Ser Lys Ala Ala Arg Glu Ser Leu Thr Glu Ile Asn Arg Ser Phe Lys Glu Tyr Thr Glu Asn Met Cys Thr Ile Glu Val Glu Leu Glu Asn Leu Leu Gly Glu Phe Ser Ile Lys Met Lys Gly Leu Ala Gly Phe Ala Arg Leu Cys Pro Gly Asp Gln Tyr Glu Ile Phe Met Lys Tyr Gly Arg Gln Arg Trp Lys Leu Lys Gly Lys Ile Glu Val Asn Gly Lys Gln Ser Trp Asp Gly Glu Glu Thr Val Phe Leu Pro Leu Ile Val Gly Phe Ile Ser Ile Lys Val Thr Glu Leu Lys Gly Leu Ala Thr His Ile Leu Val Gly Ser Val Thr Cys Glu Thr Lys Glu Leu Phe Ala Ala Arg Pro Gln Val Val Ala Val Asp Ile Asn Asp Leu Gly Thr Ile Lys Leu Asn Leu Glu Ile Thr Trp Tyr Pro Phe Asp Val Glu Asp Met Thr Ala Ser Ser Gly Ala Gly Asn Lys Ala Ala Ala Leu Gln Arg Arg Met Ser Met Tyr Ser Gln Gly Thr Pro Glu Thr Pro Thr Phe Lys Asp His Ser Phe Phe Ser Asn Leu Pro Asp Asp Ile Phe Glu Asn Gly Lys Ala Ala Glu Glu Lys Met Pro Leu Ser Leu Ser Phe Ser Asp Leu Pro Thr Asp Cys Ala Leu Thr Ser His Ser Thr Gly Ser Pro Ser Asn Ser Thr Asn Pro Glu Ile Thr Ile Thr Pro Ala Glu Phe Asn Leu Ser Ser Leu Ala Ser Gln Asn Glu Gly Met Asp Asp Thr Ser Ser Ala Ser Ser Arg Asn Ser Leu Gly Glu Gly Gln Glu Pro Lys Ser His Leu Lys Glu Glu Asp Pro Glu Glu Pro Arg Lys Pro Ala Ser Ala Pro Ser Glu Ala Cys Arg Arg Gln Ser Ser Gly Ala Gly Ala Glu His Leu Phe Leu Glu Asn Asp Val Ala Glu Ala Leu Leu Gln Glu Ser Glu Glu Ala Ser Glu Leu Lys Pro Val Glu Leu Asp Thr Ser Glu Gly Asn Ile Thr Lys Gln Leu Val Lys Arg Leu Thr Ser Ala Glu Val Pro Met Ala Thr Asp Arg Leu Leu Ser Glu Gly Ser Val Gly Gly Glu Ser Glu Gly Cys Arg Ser Phe Leu Asp Gly Ser Leu Glu Asp Ala Phe Asn Gly Leu Leu Leu Ala Leu Glu Pro His Lys Glu Gln Tyr Lys Glu Phe Gln Asp Leu Asn Gln Glu Val Met Asn Leu Asp Asp Ile Leu Lys Lys

FIGURE 2

gccccgccgc cggcagtgga ccgctgtgcg cgaaccctga accctacggt cccgacccgc gggcgaggcc gggtacctgg gctgggatcc ggagcaagcg ggcgagggca gcgccctaag caggcccgga gcgatggcag ccttgatgac cccgggaacc ggggccccac ccgcgcctgg tgacttctcc ggggaaggga gccagggact tcccgaccct tcgccagagc ccaagcagct cccggagctg atccgcatga agcgagacgg aggccgcctg agcgaagcgg acatcagggg cttcgtggcc gctgtggtga atgggagcgc gcagggcgca cagatcgggg ccatgctgat ggccatccga cttcggggca tggatctgga ggagacctcg gtgctgaccc aggccctggc tcagtcggga cagcagctgg agtggccaga ggcctggcgc cagcagcttg tggacaagca ttccacaggg ggtgtgggtg acaaggtcag cctggtcctc gcacctgccc tggcggcatg tggctgcaag gtgccaatga tcagcggacg tggtctgggg cacacaggag gcaccttgga taagctggag tctattcctg gattcaatgt catccagagc ccagagcaga tgcaagtgct gctggaccag gcgggctgct gtatcgtggg tcagagtgag cagctggttc ctgcggacgg aatcctatat gcagccagag atgtgacagc caccgtggac agcctgccac tcatcacagc ctccattctc agtaagaaac tcgtggaggg gctgtccgct ctggtggtgg acgttaagtt cggaggggcc gccgtcttcc ccaaccagga gcaggcccgg gagctggcaa agacgctggt tggcgtggga gccagcctag ggcttcgggt cgcggcagcg ctgaccgcca tggacaagcc cctgggtcgc tgcgtgggcc acgccctgga ggtggaggag gcgctgctct gcatggacgg cgcaggcccg ccagacttaa gggacctggt caccacgctc ggggggcgccc tgctctggct cagcggacac gcggggactc aggctcaggg cgctgcccgg gtggccgcgg cgctggacga cggctcggcc cttggccgct tcgagcggat gctggcggcg cagggcgtgg atcccggtct ggcccgagcc ctgtgctcgg gaagtcccgc agaacgccgg cagctgctgc ctcgcgcccg ggagcaggag gagctgctgg cgcccgcaga tggcaccgtg gagctggtcc gggcgctgcc gctggcgctg gtgctgcacg agctcggggc cgggcgcagc cgcgctgggg agccgctccg cctgggggtg ggcgcagagc tgctggtcga cgtgggtcag aggctgcgcc gtgggacccc ctggctccgc gtgcaccggg acggccccgc gctcagcggc ccgcagagcc gcgccctgca ggaggcgctc gtactctccg accgcgcgcc attcgccgcc ccctcgccct tcgcagagct cgttctgccg ccgcagcaat aaagctcctt tgccgcgaaa

FIGURE 3

Met Ala Ala Leu Met Thr Pro Gly Thr Gly Ala Pro Pro Ala Pro Gly Asp Phe Ser Gly Glu Gly Ser Gln Gly Leu Pro Asp Pro Ser Pro Glu Pro Lys Gln Leu Pro Glu Leu Ile Arg Met Lys Arg Asp Gly Gly Arg Leu Ser Glu Ala Asp Ile Arg Gly Phe Val Ala Ala Val Val Asn Gly Ser Ala Gln Gly Ala Gln Ile Gly Ala Met Leu Met Ala Ile Arg Leu Arg Gly Met Asp Leu Glu Glu Thr Ser Val Leu Thr Gln Ala Leu Ala Gln Ser Gly Gln Gln Leu Glu Trp Pro Glu Ala Trp Arg Gln Gln Leu Val Asp Lys His Ser Thr Gly Gly Val Gly Asp Lys Val Ser Leu Val Leu Ala Pro Ala Leu Ala Ala Cys Gly Cys Lys Val Pro Met Ile Ser Gly Arg Gly Leu Gly His Thr Gly Gly Thr Leu Asp Lys Leu Glu Ser Ile Pro Gly Phe Asn Val Ile Gln Ser Pro Glu Gln Met Gln Val Leu Leu Asp Gln Ala Gly Cys Cys Ile Val Gly Gln Ser Glu Gln Leu Val Pro Ala Asp Gly Ile Leu Tyr Ala Ala Arg Asp Val Thr Ala Thr Val Asp Ser Leu Pro Leu Ile Thr Ala Ser Ile Leu Ser Lys Lys Leu Val Glu Gly Leu Ser Ala Leu Val Val Asp Val Lys Phe Gly Gly Ala Ala Val Phe Pro Asn Gln Glu Gln Ala Arg Glu Leu Ala Lys Thr Leu Val Gly Val Gly Ala Ser Leu Gly Leu Arg Val Ala Ala Ala Leu Thr Ala Met Asp Lys Pro Leu Gly Arg Cys Val Gly His Ala Leu Glu Val Glu Glu Ala Leu Leu Cys Met Asp Gly Ala Gly Pro Pro Asp Leu Arg Asp Leu Val Thr Thr Leu Gly Gly Ala Leu Leu Trp Leu Ser Gly His Ala Gly Thr Gln Ala Gln Gly Ala Ala Arg Val Ala Ala Ala Leu Asp Asp Gly Ser Ala Leu Gly Arg Phe Glu Arg Met Leu Ala Ala Gln Gly Val Asp Pro Gly Leu Ala Arg Ala Leu Cys Ser Gly Ser Pro Ala Glu Arg Arg Gln Leu Leu Pro Arg Ala Arg Glu Gln Glu Glu Leu Leu Ala Pro Ala Asp Gly Thr Val Glu Leu Val Arg Ala Leu Pro Leu Ala Leu Val Leu His Glu Leu Gly Ala Gly Arg Ser Arg Ala Gly Glu Pro Leu Arg Leu Gly Val Gly Ala Glu Leu Leu Val Asp Val Gly Gln Arg Leu Arg Arg Gly Thr Pro Trp Leu Arg Val His Arg Asp Gly Pro Ala Leu Ser Gly Pro Gln Ser Arg Ala Leu Gln Glu Ala Leu Val Leu Ser Asp Arg Ala Pro Phe Ala Ala Pro Ser Pro Phe Ala Glu Leu Val Leu Pro Pro Gln Gln

FIGURE 4

ctgcaggaag gagagaggaa gaggagcaga agggggcagc agcggacgcc gctaacggcc tccctcggcg ctgacaggct gggccggcgc ccggctcgct tgggtgttcg cgtcgccact tcggcttctc ggccggtcgg gcccctcggc ccgggcttgc ggcgcgcgtc ggggctgagg gctgctgcgg cgcagggaga ggcctggtcc tcgctgccga gggatgtgag tgggagctga gcccacactg gagggccccc gagggcccag cctggaggtc gttcagagcc gtgcccgccc cggggcttcg cagaccttga cccgccgggt aggagccgcc cctgcgggct cgagggcgcg ctctggtcgc ccgatctgtg tagccggttt cagaagcagg caacaggaac aagatgtgaa ctgtttctct tctgcagaaa aagaggctct tcctcctcct cccgcgacgg caaatgttct gaaaaagact ctgcatggga atggcctgcc ttacgatgac agaaatggag ggaacatcca cctcttctat atatcagaat ggtgatattt ctggaaatgc caattctatg aagcaaatag atccagttct tcaggtgtat ctttaccatt cccttgggaa atctgaggca gattatctga cctttccatc tggggagtat gttgcagaag aaatctgtat tgctgcttct aaagcttgtg gtatcacacc tgtgtatcat aatatgtttg ctttaatgag tgaaacagaa aggatctggt atccacccaa ccatgtcttc catatagatg agtcaaccag gcataatgta ctctacagaa taagattttâ ctttcctcgt tggtattgca gtggcagcaa cagagcctat cggcatggaa tatctcgagg tgctgaagct cctcttcttg atgactttgt catgtcttac ctctttgctc agtggcggca tgattttgtg cacggatgga taaaagtacc tgtgactcat gaaacacagg aagaatgtct tgggatggca gtgttagata tgatgagaat agccaaagaa aacgatcaaa ccccactggc catctataac tctatcagct acaagacatt cttaccaaaa tgtattcgag caaagatcca agactatcat attttgacaa ggaagcgaat aaggtacaga tttcgcagat ttattcagca attcagccaa tgcaaagcca ctgccagaaa cttgaaactt aagtatctta taaatctgga aactctgcag tctgccttct acacagagaa atttgaagta aaagaacctg gaagtggtcc ttcaggtgag gagatttttg caaccattat aataactgga aacggtggaa ttcagtggtc aagagggaaa cataaagaaa gtgagacact gacagaacag gatttacagt tatattgcga ttttcctaat attattgatg tcagtattaa gcaagcaaac caagagggtt caaatgaaag ccgagttgta actatccata agcaagatgg taaaaatctg gaaattgaac ttagctcatt aagggaagct ttgtctttcg tgtcattaat tgatggatat tatagattaa ctgcagatgc acatcattac ctctgtaaag aagtagcacc tccagccgtg cttgaaaata tacaaagcaa ctgtcatggc ccaatttcga tggattttgc cattagtaaa ctgaagaaag caggtaatca gactggactg tatgtacttc gatgcagtcc taaggacttt aataaatatt ttttgacttt tgctgtcgag cgagaaaatg tcattgaata taaacactgt ttgattacaa aaaatgagaa tgaagagtac aacctcagtg ggacaaagaa gaacttcagc agtcttaaag atcttttgaa ttgttaccag atggaaactg ttcgctcaga caatataatt ttccagttta ctaaatgctg tcccccaaag ccaaaagata aatcaaacct tctagtcttc agaacgaatg gtgtttctga tgtaccaacc tcaccaacat tacagaggcc tactcatatg aaccaaatgg tgtttcacaa aatcagaaat gaagatttga tatttaatga aagccttggc caaggcactt ttacaaagat ttttaaaggc gtacgaagag aagtaggaga ctacggtcaa ctgcatgaaa cagaagttct tttaaaagtt ctggataaag cacacagaaa ctattcagag tctttctttg aagcagcaag tatgatgagc aagctttctc acaagcattt ggttttaaat tatggagtat gtgtctgtgg agacgagaat attctggttc aggagtttgt aaaatttgga tcactagata catatctgaa aaagaataaa aattgtataa atatattatg gaaacttgaa gttgctaaac agttggcatg ggccatgcat tttctagaag aaaacaccct tattcatggg aatgtatgtg ccaaaaatat tctgcttatc agagaagaag acaggaagac aggaaatcct cctttcatca aacttagtga tcctggcatt agtattacag ttttgccaaa ggacattctt caggagagaa taccatgggt accacctgaa tgcattgaaa atcctaaaaa tttaaatttg gcaacagaca aatggagttt tggtaccact ttgtgggaaa tctgcagtgg aggagataaa cctctaagtg ctctggattc tcaaagaaag ctacaatttt atgaagatag gcatcagctt cctgcaccaa agtgggcaga attagcaaac cttataaata attgtatgga ttatgaacca gatttcaggc cttctttcag agccatcata cgagatctta acagtttgtt tactccagat tatgaactat taacagaaaa tgacatgtta ccaaatatga ggataggtgc cctagggttt tctggtgcct ttgaagaccg ggatcctaca cagtttgaag agagacattt gaaatttcta cagcaacttg gcaagggtaa ttttgggagt gtggagatgt gccggtatga ccctctacag gacaacactg gggaggtggt cgctgtaaaa aagcttcagc atagtactga agagcaccta agagactttg aaagggaaat tgaaatcctg aaatccctac agcatgacaa cattgtaaag tacaagggag tgtgctacag tgctggtcgg cgtaatctaa aattaattat ggaatattta ccatatggaa gtttacgaga ctatcttcaa aaacataaag aacggataga tcacataaaa cttctgcagt acacatctca gatatgcaag ggtatggagt atcttggtac aaaaaggtat atccacaggg atctggcaac gagaaatata ttggtggaga acgagaacag agttaaaatt ggagattttg ggttaaccaa agtcttgcca caagacaaag aatactataa agtaaaagaa cctggtgaaa gtcccatatt ctggtatgct ccagaatcac tgacagagag caagttttct gtggcctcag atgtttggag ctttggagtg gttctgtatg aacttttcac atacattgag aagagtaaaa gtccaccagc ggaatttatg cgtatgattg gcaatgacaa acaaggacag atgatcgtgt tccatttgat agaacttttg aagaataatg gaagattacc aagaccagat ggatgcccag atgagatcta tatgatcatg acagaatgct ggaacaataa tgtaaatcaa cgccccctcct ttagggatct agctcttcga gtggatcaaa taagggataa catggctgga tgaaagaaat gaccttcatt ctgagaccaa agtagattta cagaacaaag ttttatattt cacattgctg tggactatta ttacatatat

FIGURE 5 (continued)

cattattata taaatcatga tgctagccag caaagatgtg aaaatatctg ctcaaaactt tcaaagttta gtaagttttt cttcatgagg ccaccagtaa aagacattaa tgagaattcc ttagcaagga ttttgtaaga agtttcttaa acattgtctg ttaacatcac tcttgtctgg caaaagaaaa aaaatagact ttttcaactc agctttttga gacctgaaaa aattattatg taaattttgc aatgttaaag atgcacagaa tatgtatgta tagtttttac cacagtggat gtataatacc ttggcatctt gtgtgatgtt ttacacacat gagggctggt gttcattaat actgttttct aatttttcca tagttaatct ataattaatt acttcactat acaaacaaat taagatgttc agataattga ataagtacct ttgtgtcctt gttcatttat atcgctggcc agcattataa gcaggtgtat acttttagct tgtagttcca tgtactgtaa atatttttca cataaaggga acaaatgtct agttttattt gtataggaaa tttccctgac cctaaataat acattttgaa atgaaacaag cttacaaaga tataatctat tttattatgg tttcccttgt atctatttgt ggtgaatgtg ttttttaaat ggaactatct ccaaattttt ctaagactac tatgaacagt tttcttttaa aattttgaga ttaagaatgc caggaatatt gtcatccttt gagctgctga ctgccaataa cattcttcga tctctgggat ttatgctcat gaactaaatt taagcttaag ccataaaata gattagattg ttttttaaaa atggatagct cattaagaag tgcagcaggt taagaatttt ttcctaaaga ctgtatattt gaggggtttc agaattttgc attgcagtca tagaagagat ttatttcctt tttagagggg aaatgaggta aataagtaaa aaagtatgct tgttaatttt attcaagaat gccagtagaa aattcataac gtgtatcttt aagaaaaatg agcatacatc ttaaatcttt tcaatta

FIGURE 5

Met Gly Met Ala Cys Leu Thr Met Thr Glu Met Glu Gly Thr Ser Thr Ser Ser Ile Tyr Gln Asn Gly Asp Ile Ser Gly Asn Ala Asn Ser Met Lys Gln Ile Asp Pro Val Leu Gln Val Tyr Leu Tyr His Ser Leu Gly Lys Ser Glu Ala Asp Tyr Leu Thr Phe Pro Ser Gly Glu Tyr Val Ala Glu Glu Ile Cys Ile Ala Ala Ser Lys Ala Cys Gly Ile Thr Pro Val Tyr His Asn Met Phe Ala Leu Met Ser Glu Thr Glu Arg Ile Trp Tyr Pro Pro Asn His Val Phe His Ile Asp Glu Ser Thr Arg His Asn Val Leu Tyr Arg Ile Arg Phe Tyr Phe Pro Arg Trp Tyr Cys Ser Gly Ser Asn Arg Ala Tyr Arg His Gly Ile Ser Arg Gly Ala Glu Ala Pro Leu Leu Asp Asp Phe Val Met Ser Tyr Leu Phe Ala Gln Trp Arg His Asp Phe Val His Gly Trp Ile Lys Val Pro Val Thr His Glu Thr Gln Glu Glu Cys Leu Gly Met Ala Val Leu Asp Met Met Arg Ile Ala Lys Glu Asn Asp Gln Thr Pro Leu Ala Ile Tyr Asn Ser Ile Ser Tyr Lys Thr Phe Leu Pro Lys Cys Ile Arg Ala Lys Ile Gln Asp Tyr His Ile Leu Thr Arg Lys Arg Ile Arg Tyr Arg Phe Arg Arg Phe Ile Gln Gln Phe Ser Gln Cys Lys Ala Thr Ala Arg Asn Leu Lys Leu Lys Tyr Leu Ile Asn Leu Glu Thr Leu Gln Ser Ala Phe Tyr Thr Glu Lys Phe Glu Val Lys Glu Pro Gly Ser Gly Pro Ser Gly Glu Glu Ile Phe Ala Thr Ile Ile Ile Thr Gly Asn Gly Gly Ile Gln Trp Ser Arg Gly Lys His Lys Glu Ser Glu Thr Leu Thr Glu Gln Asp Leu Gln Leu Tyr Cys Asp Phe Pro Asn Ile Ile Asp Val Ser Ile Lys Gln Ala Asn Gln Glu Gly Ser Asn Glu Ser Arg Val Val Thr Ile His Lys Gln Asp Gly Lys Asn Leu Glu Ile Glu Leu Ser Ser Leu Arg Glu Ala Leu Ser Phe Val Ser Leu Ile Asp Gly Tyr Tyr Arg Leu Thr Ala Asp Ala His His Tyr Leu Cys Lys Glu Val Ala Pro Pro Ala Val Leu Glu Asn Ile Gln Ser Asn Cys His Gly Pro Ile Ser Met Asp Phe Ala Ile Ser Lys Leu Lys Lys Ala Gly Asn Gln Thr Gly Leu Tyr Val Leu Arg Cys Ser Pro Lys Asp Phe Asn Lys Tyr Phe Leu Thr Phe Ala Val Glu Arg Glu Asn Val Ile Glu Tyr Lys His Cys Leu Ile Thr Lys Asn Glu Asn Glu Glu Tyr Asn Leu Ser Gly Thr Lys Lys Asn Phe Ser Ser Leu Lys Asp Leu Leu Asn Cys Tyr Gln Met Glu Thr Val Arg Ser Asp Asn Ile Ile Phe Gln Phe Thr Lys Cys Cys Pro Pro Lys Pro Lys Asp Lys Ser Asn Leu Leu Val Phe Arg Thr Asn Gly Val Ser Asp Val Pro Thr Ser Pro Thr Leu Gln Arg Pro Thr His Met Asn Gln Met Val Phe His Lys Ile Arg Asn Glu Asp Leu Ile Phe Asn Glu Ser Leu Gly Gln Gly Thr Phe Thr Lys Ile Phe Lys Gly Val Arg Arg Glu Val Gly Asp Tyr Gly Gln Leu His Glu Thr Glu Val Leu Leu Lys Val Leu Asp Lys Ala His Arg Asn Tyr Ser Glu Ser Phe Phe Glu Ala Ala Ser Met Met Ser Lys Leu Ser His Lys His Leu Val Leu Asn Tyr Gly Val Cys Val Cys Gly Asp Glu Asn Ile Leu Val Gln Glu Phe Val Lys Phe Gly Ser Leu Asp Thr Tyr Leu Lys Lys Asn Lys Asn Cys Ile Asn Ile Leu Trp Lys Leu Glu Val Ala Lys Gln Leu Ala Trp Ala Met His Phe Leu Glu Glu Asn Thr Leu Ile His Gly Asn Val Cys Ala Lys Asn Ile Leu Leu Ile Arg Glu Glu Asp Arg Lys Thr Gly Asn Pro Pro Phe Ile Lys Leu Ser Asp Pro Gly Ile Ser Ile Thr Val Leu Pro Lys Asp Ile Leu Gln Glu Arg Ile Pro Trp Val Pro Pro Glu Cys Ile Glu Asn Pro Lys Asn Leu Asn Leu Ala Thr Asp Lys Trp Ser Phe Gly Thr Thr Leu Trp Glu Ile Cys Ser Gly Gly Asp Lys Pro Leu Ser Ala Leu Asp Ser Gln Arg Lys Leu Gln Phe Tyr Glu Asp Arg His Gln Leu Pro Ala Pro Lys Trp Ala Glu Leu Ala Asn Leu Ile Asn Asn Cys Met Asp Tyr Glu Pro Asp Phe Arg Pro Ser Phe Arg Ala Ile Ile Arg Asp Leu Asn Ser Leu Phe Thr Pro Asp Tyr Glu Leu Leu Thr Glu Asn Asp Met Leu Pro Asn Met Arg Ile Gly Ala Leu Gly Phe Ser Gly Ala Phe Glu Asp Arg Asp Pro Thr Gln Phe Glu Glu Arg His Leu Lys Phe Leu Gln Gln Leu Gly Lys Gly Asn Phe Gly Ser Val Glu Met Cys Arg Tyr Asp Pro Leu Gln Asp Asn Thr Gly Glu Val Val Ala Val Lys Lys Leu Gln His Ser Thr Glu Glu His Leu Arg Asp Phe Glu Arg Glu Ile Glu Ile Leu Lys Ser Leu Gln His Asp Asn Ile Val Lys Tyr Lys Gly Val Cys Tyr Ser Ala Gly Arg Arg Asn Leu Lys Leu Ile Met Glu Tyr Leu Pro Tyr Gly Ser Leu Arg Asp Tyr Leu Gln Lys His Lys Glu Arg Ile Asp His Ile Lys Leu Leu Gln Tyr Thr Ser Gln Ile Cys Lys Gly Met Glu Tyr Leu Gly Thr Lys Arg Tyr Ile His Arg Asp Leu Ala Thr Arg Asn Ile Leu Val Glu Asn Glu Asn Arg Val Lys Ile Gly Asp Phe Gly Leu Thr Lys Val Leu Pro Gln Asp Lys Glu Tyr Tyr Lys Val Lys Glu Pro Gly Glu Ser Pro Ile Phe Trp Tyr Ala Pro Glu Ser Leu Thr Glu Ser Lys Phe Ser Val Ala Ser Asp Val Trp Ser Phe Gly Val Val Leu Tyr Glu Leu Phe Thr Tyr Ile Glu Lys Ser Lys Ser Pro Pro Ala Glu Phe Met Arg Met Ile Gly Asn Asp Lys Gln Gly Gln Met Ile Val Phe His Leu Ile Glu Leu Leu Lys Asn Asn Gly Arg Leu Pro Arg Pro Asp Gly Cys

Pro Asp Glu Ile Tyr Met Ile Met Thr Glu Cys Trp Asn Asn Asn Val Asn Gln Arg Pro Ser Phe Arg Asp Leu Ala Leu Arg Val Asp Gln Ile Arg Asp Asn Met Ala Gly

FIGURE 6

ctcttgtcag ctgtctttca gaagacctgg tggggnaagt ccgtgggcat catgttgacc gagctggaga aagccttgaa ctctatcatc gacgtctacc acaagtactc cctgataaag gggaatttcc atgccgtcta cagggatgac ctgaagaaat tgctagagac cgagtgtcct cagtatatca ggaaaaaggg tgcagacgtc tggttcaaag agttggatat caacactgat ggtgcagtta acttccagga gttcctcatt ctggtgataa agatgggctg gcagcccaca aaaaaagcca tgaagaaagc cacaaagagt agctgagtta ctgcccagag gctgggcccc tgacatgtac ctgcagaata ataaagtcat caatacctca aaaaaaaaaa aaaaaaaaaa

FIGURE 7

Met Leu Thr Glu Leu Glu Lys Ala Leu Asn Ser Ile Ile Asp Val Tyr His Lys Tyr Ser Leu Ile Lys Gly Asn Phe His Ala Val Tyr Arg Asp Asp Leu Lys Lys Leu Leu Glu Thr Glu Cys Pro Gln Tyr Ile Arg Lys Lys Gly Ala Asp Val Trp Phe Lys Glu Leu Asp Ile Asn Thr Asp Gly Ala Val Asn Phe Gln Glu Phe Leu Ile Leu Val Ile Lys Met Gly Trp Gln Pro Thr Lys Lys Ala Met Lys Lys Ala Thr Lys Ser Ser

FIGURE 8

gaattaggca cgagagctcc ttgccagctc tcctcctcgc acagccgctc gaaccgcctg ctgagcccca tggcccgcgc cacgctctcc gccgcccccа gcaatccccg gctcctgcga gtggcgctgc tgctcctgct cctggtggcc gccagccggc gcgcagcagg agcgcccctg gccactgaac tgcgctgcca gtgcttgcag accctgcagg gaattcacct caagaacatc caaagtgtga aggtgaagtc ccccggaccc cactgcgccc aaaccgaagt catagccaca ctcaagaatg ggcagaaagc ttgtctcaac cccgcatcgc ccatggttaa gaaaatcatc gaaaagatgc tgaaaaatgg caaatccaac tgaccagaag gaaggaggaa gcttattggt ggctgttcct gaaggagccc tgccttacag gaacagaaga ggaaagagag acacagctgc agaggccacc tggattgcgc ctaatgtgtt tgagcatcac ttaggagaag tcttctattt atttatttat ttatttattt atttgtttgt tttagaagat tctatgttaa tattttatgt gtaaaataag gttatgattg aatctacttg cacactctcc cattatattt attgtttatt ttaggtcaaa cccaagttag ttcaatcctg attcatattt aatttgaaga tagaaggttt gcagatattc tctagtcatt tgttaatatt tcttcgtgat gacatatcac atgtcagcca ctgtgataga ggctgaggaa tccaagaaaa tggccagtaa gatcaatgtg acggcaggga aatgtatgtg tgtctatttt gtaactgtaa agatgaatgt cagttgttat ttattgaaat gatttcacag tgtgtggtca acatttctca tgttgaagct ttaagaacta aaatgttcta aatatccctt ggacatttta tgtctttctt gtaagatact gccttgttta atgttaatta tgcagtgttt ccctctgtgt tagagcagag aggtttcgat attta

FIGURE 9

Met Ala Arg Ala Thr Leu Ser Ala Ala Pro Ser Asn Pro Arg Leu Leu Arg Val Ala Leu Leu Leu Leu Leu Leu Val Ala Ala Ser Arg Arg Ala Ala Gly Ala Pro Leu Ala Thr Glu Leu Arg Cys Gln Cys Leu Gln Thr Leu Gln Gly Ile His Leu Lys Asn Ile Gln Ser Val Lys Val Lys Ser Pro Gly Pro His Cys Ala Gln Thr Glu Val Ile Ala Thr Leu Lys Asn Gly Gln Lys Ala Cys Leu Asn Pro Ala Ser Pro Met Val Lys Lys Ile Ile Glu Lys Met Leu Lys Asn Gly Lys Ser Asn

FIGURE 10

gaattcaaaa tgtcttcagt tgtaaatctt accattattt tacgtacctc taagaaataa aagtgcttct aattaaaata tgatgtcatt aattatgaaa tacttcttga taacagaagt tttaaaatag ccatcttaga atcagtgaaa tatggtaatg tattattttc ctcctttgag ttaggtcttg tgctttttt tcctggccac taaatttcac aatttccaaa aagcaaaata aacatattct gaatattttt gctgtgaaac acttgacagc agagctttcc accatgaaaa gaagcttcat gagtcacaca ttacatcttt gggttgattg aatgccactg aaacattcta gtagcctgga gaagttgacc tacctgtgga gatgcctgcc attaaatggc atcctgatgg cttaatacac atcactcttc tgtgaagggt tttaattttc aacacagctt actctgtagc atcatgttta cattgtatgt ataaagatta tacaaaggtg caattgtgta tttcttcctt aaaatgtatc agtataggat ttagaatctc catgttgaaa ctctaaatgc atagaaataa aaataataaa aaatttttca ttttggcttt tcagcctagt attaaaactg ataaaagcaa agccatgcac aaaactacct ccctagagaa aggctagtcc cttttcttcc ccattcattt cattatgaac atagtagaaa acagcatatt cttatcaaat ttgatgaaaa gcgccaacac gtttgaactg aaatacgact tgtcatgtga actgtaccga atgtctacgt attccacttt tcctgctggg gtccctgtct cagaaaggag tcttgctcgc gctggtttct attacactgg tgtgaatgac aaggtcaaat gcttctgttg tggcctgatg ctggataact ggaaaagagg agacagtcct actgaaaagc ataaaaagtt gtatcctagc tgcagattcg ttcagagtct aaattccgtt aacaacttgg aagctacctc tcagcctact tttccttctt cagtaacaaa ttccacacac tcattacttc cgggtacaga aaacagtgga tatttccgtg gctcttattc aaactctcca tcaaatcctg taaactccag agcaaatcaa gatttttctg ccttgatgag aagttcctac cactgtgcaa tgaataacga aaatgccaga ttacttactt ttcagacatg gccattgact tttctgtcgc caacagatct ggcaaaagca ggcttttact acataggacc tggagacaga gtggcttgct ttgcctgtgg tggaaaattg agcaattggg aaccgaagga taatgctatg tcagaacacc tgagacattt tcccaaatgc ccatttatag aaaatcagct tcaagacact tcaagataca cagtttctaa tctgagcatg cagacacatg cagcccgctt taaaacattc tttaactggc cctctagtgt tctagttaat cctgagcagc ttgcaagtgc gggtttttat tatgtgggta acagtgatga tgtcaaatgc ttttgctgtg atggtggact caggtgttgg gaatctggag atgatccatg ggttcaacat gccaagtggt ttccaaggtg tgagtacttg ataagaatta aaggacagga gttcatccgt caagttcaag ccagttaccc tcatctactt gaacagctgc tatccacatc agacagccca ggagatgaaa atgcagagtc atcaattatc cattttgaac ctggagaaga ccattcagaa gatgcaatca tgatgaatac tcctgtgatt aatgctgccg tggaaatggg ctttagtaga agcctggtaa aacagacagt tcagagaaaa atcctagcaa ctggagagaa ttatagacta gtcaatgatc ttgtgttaga cttactcaat gcagaagatg aaataaggga agaggagaga gaaagagcaa ctgaggaaaa agaatcaaat gatttattat taatccggaa gaatagaatg gcacttttc aacatttgac ttgtgtaatt ccaatcctgg atagtctact aactgccgga attattaatg aacaagaaca tgatgttatt aaacagaaga cacagacgtc tttacaagca agagaactga ttgatacgat tttagtaaaa ggaaatattg cagccactgt attcagaaac tctctgcaag aagctgaagc tgtgttatat gagcatttat ttgtgcaaca ggacataaaa tatattccca cagaagatgt ttcagatcta ccagtggaag aacaattgcg gagactacaa gaagaaagaa catgtaaagt gtgtatggac aaagaagtgt ccatagtgtt tattccttgt ggtcatctag tagtatgcaa agattgtgct ccttctttaa gaaagtgtcc tatttgtagg agtacaatca agggtacagt tcgtacattt ctttcatgaa gaagaaccaa aacatcatct aaactttaga attaatttat taaatgtatt ataactttaa ctttcatcct aatttggttt ccttaaaatt tttatttatt tacaactcaa caaacattgt tttgtgtaac atatttaata tatgtatcta aaccatatga acatatattt tttagaaact aagagaatga taggcttttg ttcttatgaa cgaaaaagag gtagcactac aaacacaata ttcaatcaaa atttcagcat tattgaaatt gtaagtgaag taaaacttaa gatatttgag ttaaccttta agaattttaa atattttggc attgtactaa taccgggaac atgaagccag gtgtggtggt atgtgcctgt agtcccaggc tgaggcaaga gaattacttg agcccaggag tttgaatcca tcctgggcag catactgaga ccctgccttt aaaaacaaac agaacaaaaa caaaacacca gggacacatt tctctgtctt ttttgatcag tgtcctatac atcgaaggtg tgcatatatg ttgaatgaca ttttagggac atggtgtttt tataaagaat tctgtgagaa aaaatttaat aaaaccccccc aaatt

FIGURE 11

Met Asn Ile Val Glu Asn Ser Ile Phe Leu Ser Asn Leu Met Lys Ser Ala Asn Thr Phe Glu Leu Lys Tyr Asp Leu Ser Cys Glu Leu Tyr Arg Met Ser Thr Tyr Ser Thr Phe Pro Ala Gly Val Pro Val Ser Glu Arg Ser Leu Ala Arg Ala Gly Phe Tyr Tyr Thr Gly Val Asn Asp Lys Val Lys Cys Phe Cys Cys Gly Leu Met Leu Asp Asn Trp Lys Arg Gly Asp Ser Pro Thr Glu Lys His Lys Lys Leu Tyr Pro Ser Cys Arg Phe Val Gln Ser Leu Asn Ser Val Asn Asn Leu Glu Ala Thr Ser Gln Pro Thr Phe Pro Ser Ser Val Thr Asn Ser Thr His Ser Leu Leu Pro Gly Thr Glu Asn Ser Gly Tyr Phe Arg Gly Ser Tyr Ser Asn Ser Pro Ser Asn Pro Val Asn Ser Arg Ala Asn Gln Asp Phe Ser Ala Leu Met Arg Ser Ser Tyr His Cys Ala Met Asn Asn Glu Asn Ala Arg Leu Leu Thr Phe Gln Thr Trp Pro Leu Thr Phe Leu Ser Pro Thr Asp Leu Ala Lys Ala Gly Phe Tyr Tyr Ile Gly Pro Gly Asp Arg Val Ala Cys Phe Ala Cys Gly Gly Lys Leu Ser Asn Trp Glu Pro Lys Asp Asn Ala Met Ser Glu His Leu Arg His Phe Pro Lys Cys Pro Phe Ile Glu Asn Gln Leu Gln Asp Thr Ser Arg Tyr Thr Val Ser Asn Leu Ser Met Gln Thr His Ala Ala Arg Phe Lys Thr Phe Phe Asn Trp Pro Ser Ser Val Leu Val Asn Pro Glu Gln Leu Ala Ser Ala Gly Phe Tyr Tyr Val Gly Asn Ser Asp Asp Val Lys Cys Phe Cys Cys Asp Gly Gly Leu Arg Cys Trp Glu Ser Gly Asp Asp Pro Trp Val Gln His Ala Lys Trp Phe Pro Arg Cys Glu Tyr Leu Ile Arg Ile Lys Gly Gln Glu Phe Ile Arg Gln Val Gln Ala Ser Tyr Pro His Leu Leu Glu Gln Leu Leu Ser Thr Ser Asp Ser Pro Gly Asp Glu Asn Ala Glu Ser Ser Ile Ile His Phe Glu Pro Gly Glu Asp His Ser Glu Asp Ala Ile Met Met Asn Thr Pro Val Ile Asn Ala Ala Val Glu Met Gly Phe Ser Arg Ser Leu Val Lys Gln Thr Val Gln Arg Lys Ile Leu Ala Thr Gly Glu Asn Tyr Arg Leu Val Asn Asp Leu Val Leu Asp Leu Leu Asn Ala Glu Asp Glu Ile Arg Glu Glu Glu Arg Glu Arg Ala Thr Glu Glu Lys Glu Ser Asn Asp Leu Leu Leu Ile Arg Lys Asn Arg Met Ala Leu Phe Gln His Leu Thr Cys Val Ile Pro Ile Leu Asp Ser Leu Leu Thr Ala Gly Ile Ile Asn Glu Gln Glu His Asp Val Ile Lys Gln Lys Thr Gln Thr Ser Leu Gln Ala Arg Glu Leu Ile Asp Thr Ile Leu Val Lys Gly Asn Ile Ala Ala Thr Val Phe Arg Asn Ser Leu Gln Glu Ala Glu Ala Val Leu Tyr Glu His Leu Phe Val Gln Gln Asp Ile Lys Tyr Ile Pro Thr Glu Asp Val Ser Asp Leu Pro Val Glu Glu Gln Leu Arg Arg Leu Gln Glu Glu Arg Thr Cys Lys Val Cys Met Asp Lys Glu Val Ser Ile Val Phe Ile Pro Cys Gly His Leu Val Val Cys Lys Asp Cys Ala Pro Ser Leu Arg Lys Cys Pro Ile Cys Arg Ser Thr Ile Lys Gly Thr Val Arg Thr Phe Leu Ser

FIGURE 12

cggcaaaaaa aaaaggcgta agaattttga agctatgttc aaaggtatcc ttcagagtgg attggataac ttcgtgataa accacatgct aaagaacaac gtggctggac aaacatctat ccagacccta gtacctaata cggatcaaaa gtcgaccagt gtaaaaaaag acaaccacaa aaaaaaaaca gttaagatgt tggaatacct gggcaaagat gttcttcatg gtgtttttaa ttatttggca aaacacgatg ttctgacatt gaaggaagag gaaaagaaaa aatattatga tgccaaaatt gaagacaagg ccctgatctt ggtagactct ttgcgaaaga atcgcgtggc tcatcaaatg tttacccaaa cacttctcaa tatggaccaa aagatcacca gtgtaaaacc tcttctgcaa atcgaggctg gaccacctga gtcagcagaa tctacaaata tactcaaact ttgtcctcgt gaagaattcc tgagactgtg taaaaaaaat catgatgaga tctatccaat aaaaaagaga gaggaccgca gacgcctggc tctcatcata tgcaatacaa agtttgatca cctgcctgca aggaatgggg ctcactatga catcgtgggg atgaaaaggc tgcttcaagg cctgggctac actgtggttg acgaaaagaa tctcacagcc agggatatgg agtcagtgct gagggcattt gctgccagac cagagcacaa gtcctctgac agcacgttct tggtactcat gtctcatggc atcctagagg gaatctgcgg aactgcgcat aaaaagaaaa aaccggatgt gctgctttat gacaccatct tccagatatt caacaaccgc aactgcctca gtctaaagga caaacccaag gtcatcattg tccaggcctg cagaggtgaa aaacatgggg aactctgggt cagagactct ccagcatcct tggcagtcat ctcttcacag tcatctgaga acctggaggc agattctgtt tgcaagatcc acgaggagaa ggacttcatt gctttctgtt cttcaacacc acataacgtg tcctggagag accgcacaag gggctccatc ttcattacgg aactcatcac atgcttccag aaatattctt gctgctgcca cctaatggaa atatttcgga aggtacagaa atcatttgaa gttccacagg ctaaagccca gatgcccacc atagaacgag caaccttgac aagagatttc tacctctttc ctggcaattg aaaatgaaac cacaggcagc ccagccctcc tctgtcaaca tcaaagagca catttaccag tatagcttgc atagtcaata tttggtattt caataaaagt aaagactgta

FIGURE 13

Met Phe Lys Gly Ile Leu Gln Ser Gly Leu Asp Asn Phe Val Ile Asn His Met Leu Lys Asn Asn Val Ala Gly Gln Thr Ser Ile Gln Thr Leu Val Pro Asn Thr Asp Gln Lys Ser Thr Ser Val Lys Lys Asp Asn His Lys Lys Lys Thr Val Lys Met Leu Glu Tyr Leu Gly Lys Asp Val Leu His Gly Val Phe Asn Tyr Leu Ala Lys His Asp Val Leu Thr Leu Lys Glu Glu Glu Lys Lys Lys Tyr Tyr Asp Ala Lys Ile Glu Asp Lys Ala Leu Ile Leu Val Asp Ser Leu Arg Lys Asn Arg Val Ala His Gln Met Phe Thr Gln Thr Leu Leu Asn Met Asp Gln Lys Ile Thr Ser Val Lys Pro Leu Leu Gln Ile Glu Ala Gly Pro Pro Glu Ser Ala Glu Ser Thr Asn Ile Leu Lys Leu Cys Pro Arg Glu Glu Phe Leu Arg Leu Cys Lys Lys Asn His Asp Glu Ile Tyr Pro Ile Lys Lys Arg Glu Asp Arg Arg Arg Leu Ala Leu Ile Ile Cys Asn Thr Lys Phe Asp His Leu Pro Ala Arg Asn Gly Ala His Tyr Asp Ile Val Gly Met Lys Arg Leu Leu Gln Gly Leu Gly Tyr Thr Val Val Asp Glu Lys Asn Leu Thr Ala Arg Asp Met Glu Ser Val Leu Arg Ala Phe Ala Ala Arg Pro Glu His Lys Ser Ser Asp Ser Thr Phe Leu Val Leu Met Ser His Gly Ile Leu Glu Gly Ile Cys Gly Thr Ala His Lys Lys Lys Lys Pro Asp Val Leu Leu Tyr Asp Thr Ile Phe Gln Ile Phe Asn Asn Arg Asn Cys Leu Ser Leu Lys Asp Lys Pro Lys Val Ile Ile Val Gln Ala Cys Arg Gly Glu Lys His Gly Glu Leu Trp Val Arg Asp Ser Pro Ala Ser Leu Ala Val Ile Ser Ser Gln Ser Ser Glu Asn Leu Glu Ala Asp Ser Val Cys Lys Ile His Glu Glu Lys Asp Phe Ile Ala Phe Cys Ser Ser Thr Pro His Asn Val Ser Trp Arg Asp Arg Thr Arg Gly Ser Ile Phe Ile Thr Glu Leu Ile Thr Cys Phe Gln Lys Tyr Ser Cys Cys Cys His Leu Met Glu Ile Phe Arg Lys Val Gln Lys Ser Phe Glu Val Pro Gln Ala Lys Ala Gln Met Pro Thr Ile Glu Arg Ala Thr Leu Thr Arg Asp Phe Tyr Leu Phe Pro Gly Asn

FIGURE 14

acagaagtgc tagaagccag tgctcgtgaa ctaaggagaa aaagaacaga caagggaaca gcctggacat ggcatcagag atccacatga caggcccaat gtgcctcatt gagaacacta atgggcgact gatggcgaat ccagaagctc tgaagatcct ttctgccatt acacagccta tggtggtggt ggcaattgtg ggcctctacc gcacaggcaa atcctacctg atgaacaagc tggctggaaa gaaaaagggc ttctctctgg gctccacggt gcagtctcac actaaaggaa tctggatgtg gtgtgtgccc caccccaaga agccaggcca catcctagtt ctgctggaca ccgagggtct gggagatgta gagaagggtg acaaccagaa tgactcctgg atcttcgccc tggccgtcct cctgagcagc accttcgtgt acaatagcat aggaaccatc aaccagcagg ctatggacca actgtactat gtgacagagc tgacacatag aatccgatca aaatcctcac ctgatgagaa tgagaatgag gttgaggatt cagctgactt tgtgagcttc ttcccagact ttgtgtggac actgagagat ttctccctgg acttggaagc agatggacaa cccctcacac cagatgagta cctgacatac tccctgaagc tgaagaaagg taccagtcaa aaagatgaaa cttttaacct gcccagactc tgtatccgga aattcttccc aaagaaaaaa tgctttgtct ttgatcggcc cgttcaccgc aggaagcttg cccagctcga gaaactacaa gatgaagagc tggaccccga atttgtgcaa caagtagcag acttctgttc ctacatcttt agtaattcca aaactaaaac tctttcagga ggcatccagg tcaacgggcc tcgtctagag agcctggtgc tgacctacgt caatgccatc agcagtgggg atctgccgtg catggagaac gcagtcctgg ccttggccca gatagagaac tcagctgcag tgcaaaaggc tattgcccac tatgaacagc agatgggcca gaaggtgcag ctgcccacag aaagcctcca ggagctgctg gacctgcaca gggacagtga gagagaggcc attgaagtct tcatcaggag ttccttcaaa gatgtggacc atctatttca aaaggagtta gcggcccagc tagaaaaaaa gcgggatgac ttttgtaaac agaatcagga agcatcatca gatcgttgct caggtttact tcaggtcatt ttcagtcctc tagaagaaga agtgaaggcg ggaatttatt cgaaaccagg gggctatcgt ctctttgttc agaagctaca agacctgaag aaaaagtact atgaggaacc gaggaagggg atacaggctg aagagattct gcagacatac ttgaaatcca aggagtctat gactgatgca attctccaga cagaccagac tctcacagaa aaagaaaagg agattgaagt ggaacgtgtg aaagctgagt ctgcacaggc ttcagcaaaa atgttgcagg aaatgcaaag aaagaatgag cagatgatgg aacagaagga gaggagttat caggaacact tgaaacaact gactgagaag atggagaacg acagggtcca gttgctgaaa gagcaagaga ggaccctcgc tcttaaactt caggaacagg agcaactact aaaagaggga tttcaaaaag aaagcagaat aatgaaaaat gagatacagg atctccagac gaaaatgaga cgacgaaagg catgtaccat aagctaaaga ccagagcctt cctgtcaccc ctaaccaagg cataattgaa acaattttag aatttggaac aagcgtcact acatttgata ataattagat cttgcatcat aacaccaaaa gtttataaag gcatgtggta caatgatcaa aatcatgttt tttcttaaaa aaaaaaaaaa gactgtaaat tgtgcaacaa agatgcattt acctctgtat caactcagga aatctcataa gctggtacca ctcaggagaa gtttattctt ccagatgacc agcagtagac aaatggatac tgagcagagt cttaggtaaa agtcttggga aatatttggg cattggtctg gccaagtcta caatgtccca atatcaagga caaccaccct agcttcttag tgaagacaat gtacagttat ccattagatc aagactacac ggtctatgag caataatgtg atttctggac attgcccatg tataatcctc actgatgatt tcaagctaaa gcaaaccacc ttatacagag atctagaatc tctttatgtt ctccagagga aggtggaaga aaccatgggc aggagtagga attgagtgat aaacaattgg gctaatgaag aaaacttctc ttattgttca gttcatccag attataactt caatgggaca ctttagacca ttagacaatt gacactggat taaacaaatt cacataatgc caaatacaca atgtatttat agcaacgtat aatttgcaaa gatggacttt aaaagatgct gtgtaactaa actgaaataa ttcaattact tattatttag aatgttaaag cttatgatag tcttttctaa ttcttaacac tcatacttga aatctttccg agtttcccca gaagagaata tgggattttt tttgacattt ttgacccatt taataatgct cttgtgttta cctagtatat gtagactttg tcttatgtgt caaaagtcct aggaaagtgg ttgatgtttc ttatagcaat taaaaattat ttttgaactg a

FIGURE 15

Met Ala Ser Glu Ile His Met Thr Gly Pro Met Cys Leu Ile Glu Asn Thr Asn Gly Arg Leu Met Ala Asn Pro Glu Ala Leu Lys Ile Leu Ser Ala Ile Thr Gln Pro Met Val Val Val Ala Ile Val Gly Leu Tyr Arg Thr Gly Lys Ser Tyr Leu Met Asn Lys Leu Ala Gly Lys Lys Lys Gly Phe Ser Leu Gly Ser Thr Val Gln Ser His Thr Lys Gly Ile Trp Met Trp Cys Val Pro His Pro Lys Lys Pro Gly His Ile Leu Val Leu Leu Asp Thr Glu Gly Leu Gly Asp Val Glu Lys Gly Asp Asn Gln Asn Asp Ser Trp Ile Phe Ala Leu Ala Val Leu Leu Ser Ser Thr Phe Val Tyr Asn Ser Ile Gly Thr Ile Asn Gln Gln Ala Met Asp Gln Leu Tyr Tyr Val Thr Glu Leu Thr His Arg Ile Arg Ser Lys Ser Ser Pro Asp Glu Asn Glu Asn Glu Val Glu Asp Ser Ala Asp Phe Val Ser Phe Phe Pro Asp Phe Val Trp Thr Leu Arg Asp Phe Ser Leu Asp Leu Glu Ala Asp Gly Gln Pro Leu Thr Pro Asp Glu Tyr Leu Thr Tyr Ser Leu Lys Leu Lys Lys Gly Thr Ser Gln Lys Asp Glu Thr Phe Asn Leu Pro Arg Leu Cys Ile Arg Lys Phe Phe Pro Lys Lys Lys Cys Phe Val Phe Asp Arg Pro Val His Arg Arg Lys Leu Ala Gln Leu Glu Lys Leu Gln Asp Glu Glu Leu Asp Pro Glu Phe Val Gln Gln Val Ala Asp Phe Cys Ser Tyr Ile Phe Ser Asn Ser Lys Thr Lys Thr Leu Ser Gly Gly Ile Gln Val Asn Gly Pro Arg Leu Glu Ser Leu Val Leu Thr Tyr Val Asn Ala Ile Ser Ser Gly Asp Leu Pro Cys Met Glu Asn Ala Val Leu Ala Leu Ala Gln Ile Glu Asn Ser Ala Ala Val Gln Lys Ala Ile Ala His Tyr Glu Gln Gln Met Gly Gln Lys Val Gln Leu Pro Thr Glu Ser Leu Gln Glu Leu Leu Asp Leu His Arg Asp Ser Glu Arg Glu Ala Ile Glu Val Phe Ile Arg Ser Ser Phe Lys Asp Val Asp His Leu Phe Gln Lys Glu Leu Ala Ala Gln Leu Glu Lys Lys Arg Asp Asp Phe Cys Lys Gln Asn Gln Glu Ala Ser Ser Asp Arg Cys Ser Gly Leu Leu Gln Val Ile Phe Ser Pro Leu Glu Glu Glu Val Lys Ala Gly Ile Tyr Ser Lys Pro Gly Gly Tyr Arg Leu Phe Val Gln Lys Leu Gln Asp Leu Lys Lys Lys Tyr Tyr Glu Glu Pro Arg Lys Gly Ile Gln Ala Glu Glu Ile Leu Gln Thr Tyr Leu Lys Ser Lys Glu Ser Met Thr Asp Ala Ile Leu Gln Thr Asp Gln Thr Leu Thr Glu Lys Glu Lys Glu Ile Glu Val Glu Arg Val Lys Ala Glu Ser Ala Gln Ala Ser Ala Lys Met Leu Gln Glu Met Gln Arg Lys Asn Glu Gln Met Met Glu Gln Lys Glu Arg Ser Tyr Gln Glu His Leu Lys Gln Leu Thr Glu Lys Met Glu Asn Asp Arg Val Gln Leu Leu Lys Glu Gln Glu Arg Thr Leu Ala Leu Lys Leu Gln Glu Gln Glu Gln Leu Leu Lys Glu Gly Phe Gln Lys Glu Ser Arg Ile Met Lys Asn Glu Ile Gln Asp Leu Gln Thr Lys Met Arg Arg Arg Lys Ala Cys Thr Ile Ser

FIGURE 16

attaaacctc tcgccgagcc cctccgcaga ctctgcgccg gaaagtttca tttgctgtat gccatcctcg agagctgtct aggttaacgt cgcactctg tgtatataac ctcgacagtc ttggcaccta acgtgctgtg cgtagctgct cctttggttg aatccccagg cccttgttgg ggcacaaggt ggcaggatgt ctcagtggta cgaacttcag cagcttgact caaaattcct ggagcaggtt caccagcttt atgatgacag ttttcccatg gaaatcagac agtacctggc acagtggtta gaaaagcaag actgggagca cgctgccaat gatgtttcat ttgccaccat ccgttttcat gacctcctgt cacagctgga tgatcaatat agtcgctttt ctttggagaa taacttcttg ctacagcata acataaggaa aagcaagcgt aatcttcagg ataattttca ggaagaccca atccagatgt ctatgatcat ttacagctgt ctgaaggaag aaaggaaaat tctggaaaac gcccagagat ttaatcaggc tcagtcgggg aatattcaga gcacagtgat gttagacaaa cagaaagagc ttgacagtaa agtcagaaat gtgaaggaca aggttatgtg tatagagcat gaaatcaaga gcctggaaga tttacaagat gaatatgact tcaaatgcaa aaccttgcag aacagagaac acgagaccaa tggtgtggca aagagtgatc agaaacaaga acagctgtta ctcaagaaga tgtatttaat gcttgacaat aagagaaagg aagtagttca caaaataata gagttgctga atgtcactga acttacccag aatgccctga ttaatgatga actagtggag tggaagcgga gacagcagag cgcctgtatt ggggggccgc ccaatgcttg cttggatcag ctgcagaact ggttcactat agttgcggag agtctgcagc aagttcggca gcagcttaaa aagttggagg aattggaaca gaaatacacc tacgaacatg accctatcac aaaaaacaaa caagtgttat gggaccgcac cttcagtctt ttccagcagc tcattcagag ctcgtttgtg gtggaaagac agccctgcat gccaacgcac cctcagaggc cgctggtctt gaagacaggg gtccagttca ctgtgaagtt gagactgttg gtgaaattgc aagagctgaa ttataatttg aaagtcaaag tcttatttga taaagatgtg aatgagagaa atacagtaaa aggatttagg aagttcaaca ttttgggcac gcacacaaaa gtgatgaaca tggaggagtc caccaatggc agtctggcgg ctgaatttcg gcacctgcaa ttgaaagaac agaaaaatgc tggcaccaga acgaatgagg gtcctctcat cgttactgaa gagcttcact cccttagttt tgaaacccaa ttgtgccagc ctggtttggt aattgacctc gagacgacct ctctgcccgt tgtggtgatc tccaacgtca gccagctccc gagcggttgg gcctccatcc tttggtacaa catgctggtg gcggaaccca ggaatctgtc cttcttcctg actccaccat gtgcacgatg ggctcagctt tcagaagtgc tgagttggca gttttcttct gtcaccaaaa gaggtctcaa tgtggaccag ctgaacatgt tgggagagaa gcttcttggt cctaacgcca gccccgatgg tctcattccg tggacgaggt tttgtaagga aaatataaat gataaaaatt ttcccttctg gctttggatt gaaagcatcc tagaactcat taaaaaacac ctgctccctc tctggaatga tgggtgcatc atgggcttca tcagcaagga gcgagagcgt gccctgttga aggaccagca gccggggacc ttcctgctgc ggttcagtga gagctcccgg gaaggggcca tcacattcac atgggtggag cggtcccaga acggaggcga acctgacttc catgcggttg aaccctacac gaagaaagaa ctttctgctg ttactttccc tgacatcatt cgcaattaca aagtcatggc tgctgagaat attcctgaga atcccctgaa gtatctgtat ccaaatattg acaaagacca tgcctttgga aagtattact ccaggccaaa ggaagcacca gagccaatgg aacttgatgg ccctaaagga actggatata tcaagactga gttgatttct gtgtctgaag ttcacccttc tagacttcag accacagaca acctgctccc catgtctcct gaggagtttg acgaggtgtc tcggatagtg ggctctgtag aattcgacag tatgatgaac acagtataga gcatgaattt ttttcatctt ctctggcgac agttttcctt ctcatctgtg attccctcct gctactctgt tccttcacat cctgtgtttc tagggaaatg aaagaaaggc cagcaaattc gctgcaacct gttgatagca agtgaatttt tctctaactc agaaacatca gttactctga agggcatcat gcatcttact gaaggtaaaa ttgaaaggca ttctctgaag agtgggtttc acaagtgaaa aacatccaga tacacccaaa gtatcaggac gagaatgagg gtcctttggg aaaggagaag ttaagcaaca tctagcaaat gttatgcata aagtcagtgc ccaactgtta taggttgttg gataaatcag tggttattta gggaactgct tgacgtagga acggtaaatt tctgtgggag aattcttaca tgttttcttt gctttaagtg taactggcag ttttccattg gtttacctgt gaaatagttc aaagccaagt ttatatacaa ttatatcagt cctctttcaa aggtagccat catggatctg gtagggggaa aatgtgtatt ttattacatc tttcacattg gctatttaaa gacaaagaca aattctgttt cttgagaaga gaatattagc tttactgttt gttatggctt aatgacacta gctaatatca atagaaggat gtacatttcc aaattcacaa gttgtgtttg atatccaaag ctgaatacat tctgctttca tcttggtcac atacaattat ttttacagtt ctcccaaggg agttaggcta ttcacaacca ctcattcaaa agttgaaatt aaccatagat gtagataaac tcagaaattt aattcatgtt tcttaaatgg gctactttgt ccttttgtt attagggtgg tatttagtct attagccaca aaattgggaa aggagtagaa aaagcagtaa ctgacaactt gaataataca ccagagataa tatgagaatc agatcatttc aaaactcatt tcctatgtaa ctgcattgag aactgcatat gtttcgctga tatatgtgtt tttcacattt gcgaatggtt ccattctctc tcctgtactt tttccagaca ctttttgag tggatgatgt ttcgtgaagt atactgtatt tttacctttt tccttcctta tcactgacac aaaaagtaga ttaagagatg ggtttgacaa ggttcttccc ttttacatac tgctgtctat gtggctgtat cttgtttttc cactactgct accacaacta tattatcatg caaatgctgt attcttcttt ggtggagata aagatttctt gagttttgtt ttaaaattaa agctaaagta tctgtattgc attaaatata atatcgacac agtgctttcc gtggcactgc atacaatctg aggcctcctc tctcagtttt tatatagatg gcgagaacct aagtttcagt tgattttaca attgaaatga ctaaaaaaca aagaagacaa cattaaaaac aatattgttt cta

FIGURE 17

Met Ser Gln Trp Tyr Glu Leu Gln Gln Leu Asp Ser Lys Phe Leu Glu Gln Val His Gln Leu Tyr Asp Asp Ser Phe Pro Met Glu Ile Arg Gln Tyr Leu Ala Gln Trp Leu Glu Lys Gln Asp Trp Glu His Ala Ala Asn Asp Val Ser Phe Ala Thr Ile Arg Phe His Asp Leu Leu Ser Gln Leu Asp Asp Gln Tyr Ser Arg Phe Ser Leu Glu Asn Asn Phe Leu Leu Gln His Asn Ile Arg Lys Ser Lys Arg Asn Leu Gln Asp Asn Phe Gln Glu Asp Pro Ile Gln Met Ser Met Ile Ile Tyr Ser Cys Leu Lys Glu Glu Arg Lys Ile Leu Glu Asn Ala Gln Arg Phe Asn Gln Ala Gln Ser Gly Asn Ile Gln Ser Thr Val Met Leu Asp Lys Gln Lys Glu Leu Asp Ser Lys Val Arg Asn Val Lys Asp Lys Val Met Cys Ile Glu His Glu Ile Lys Ser Leu Glu Asp Leu Gln Asp Glu Tyr Asp Phe Lys Cys Lys Thr Leu Gln Asn Arg Glu His Glu Thr Asn Gly Val Ala Lys Ser Asp Gln Lys Gln Glu Gln Leu Leu Leu Lys Lys Met Tyr Leu Met Leu Asp Asn Lys Arg Lys Glu Val Val His Lys Ile Ile Glu Leu Leu Asn Val Thr Glu Leu Thr Gln Asn Ala Leu Ile Asn Asp Glu Leu Val Glu Trp Lys Arg Arg Gln Gln Ser Ala Cys Ile Gly Gly Pro Pro Asn Ala Cys Leu Asp Gln Leu Gln Asn Trp Phe Thr Ile Val Ala Glu Ser Leu Gln Gln Val Arg Gln Gln Leu Lys Lys Leu Glu Glu Leu Glu Gln Lys Tyr Thr Tyr Glu His Asp Pro Ile Thr Lys Asn Lys Gln Val Leu Trp Asp Arg Thr Phe Ser Leu Phe Gln Gln Leu Ile Gln Ser Ser Phe Val Val Glu Arg Gln Pro Cys Met Pro Thr His Pro Gln Arg Pro Leu Val Leu Lys Thr Gly Val Gln Phe Thr Val Lys Leu Arg Leu Leu Val Lys Leu Gln Glu Leu Asn Tyr Asn Leu Lys Val Lys Val Leu Phe Asp Lys Asp Val Asn Glu Arg Asn Thr Val Lys Gly Phe Arg Lys Phe Asn Ile Leu Gly Thr His Thr Lys Val Met Asn Met Glu Glu Ser Thr Asn Gly Ser Leu Ala Ala Glu Phe Arg His Leu Gln Leu Lys Glu Gln Lys Asn Ala Gly Thr Arg Thr Asn Glu Gly Pro Leu Ile Val Thr Glu Glu Leu His Ser Leu Ser Phe Glu Thr Gln Leu Cys Gln Pro Gly Leu Val Ile Asp Leu Glu Thr Thr Ser Leu Pro Val Val Val Ile Ser Asn Val Ser Gln Leu Pro Ser Gly Trp Ala Ser Ile Leu Trp Tyr Asn Met Leu Val Ala Glu Pro Arg Asn Leu Ser Phe Phe Leu Thr Pro Pro Cys Ala Arg Trp Ala Gln Leu Ser Glu Val Leu Ser Trp Gln Phe Ser Ser Val Thr Lys Arg Gly Leu Asn Val Asp Gln Leu Asn Met Leu Gly Glu Lys Leu Leu Gly Pro Asn Ala Ser Pro Asp Gly Leu Ile Pro Trp Thr Arg Phe Cys Lys Glu Asn Ile Asn Asp Lys Asn Phe Pro Phe Trp Leu Trp Ile Glu Ser Ile Leu Glu Leu Ile Lys Lys His Leu Leu Pro Leu Trp Asn Asp Gly Cys Ile Met Gly Phe Ile Ser Lys Glu Arg Glu Arg Ala Leu Leu Lys Asp Gln Gln Pro Gly Thr Phe Leu Leu Arg Phe Ser Glu Ser Ser Arg Glu Gly Ala Ile Thr Phe Thr Trp Val Glu Arg Ser Gln Asn Gly Gly Glu Pro Asp Phe His Ala Val Glu Pro Tyr Thr Lys Lys Glu Leu Ser Ala Val Thr Phe Pro Asp Ile Ile Arg Asn Tyr Lys Val Met Ala Ala Glu Asn Ile Pro Glu Asn Pro Leu Lys Tyr Leu Tyr Pro Asn Ile Asp Lys Asp His Ala Phe Gly Lys Tyr Tyr Ser Arg Pro Lys Glu Ala Pro Glu Pro Met Glu Leu Asp Gly Pro Lys Gly Thr Gly Tyr Ile Lys Thr Glu Leu Ile Ser Val Ser Glu Val His Pro Ser Arg Leu Gln Thr Thr Asp Asn Leu Leu Pro Met Ser Pro Glu Glu Phe Asp Glu Val Ser Arg Ile Val Gly Ser Val Glu Phe Asp Ser Met Met Asn Thr Val

FIGURE 18

ggcgctccgc ctgctgcgcg tctacgcggt ccccgcgggc cttccgggcc cactgcgccg cgcggaccgc ctcgggctcg gacggccggt gtccccggcg cgccgctcgc ccggatcggc cgcggcttcg gcgcctgggg ctcggggctc cggggaggcc gtcgcccgcg atgctgctct ccaagttcgg ctccctggcg cacctctgcg ggcccggcgg cgtggaccac ctcccggtga agatcctgca gccagccaag gcggacaagg agagcttcga gaaggcgtac caggtgggcg ccgtgctggg tagcggcggc ttcggcacgg tctacgcggg tagccgcatc gccgacgggc tcccggtggc tgtgaagcac gtggtgaagg agcgggtgac cgagtggggc agcctgggcg gcgcgaccgt gcccctggag gtggtgctgc tgcgcaaggt gggcgcggcg ggcggcgcgc gcggcgtcat ccgcctgctg gactggttcg agcggcccga cggcttcctg ctggtgctgg agcggcccga gccggcgcag gacctcttcg actttatcac ggagcgcggc gccctggacg agccgctggc gcgccgcttc ttcgcgcagg tgctggccgc cgtgcgccac tgccacagct gcggggtcgt gcaccgcgac attaaggacg aaaatctgct tgtggacctg cgctccggag agctcaagct catcgacttc ggttcgggtg cgctgctcaa ggacacggtc tacaccgact tcgacggcac ccgagtgtac agccccccgg agtggatccg ctaccaccgc taccacgggc gctcggccac cgtgtggtcg ctgggcgtgc ttctctacga tatggtgtgt ggggacatcc ccttcgagca ggacgaggag atcctccgag gccgcctgct cttccggagg agggtctctc cagagtgcca gcagctgatc cggtggtgcc tgtccctgcg gccctcagag cggccgtcgc tggatcagat tgcggcccat ccctggatgc tgggggctga cgggggcgcc ccggagagct gtgacctgcg gctgtgcacc ctcgaccctg atgacgtggc cagcaccacg tccagcagcg agagcttgtg aggagctgca cctgactggg agctagggga ccacctgcct tggccagacc tgggacgccc ccagaccctg acttttтcct gcgtgggccg tctcctcctg cggaagcagt gacctctgac ccctggtgac cttcgctttg agtgcctttt gaacgctggt cccgcgggac ttggttttct caagctctgt ctgtccaaag acgctccggt cgaggtcccg cctgccctgg gtggatactt gaaccccaga cgcccctctg tgctgctgtg tccggaggcg gccttcccat ctgcctgccc acccggagct ctttccgccg gcgcagggtc ccaagcccac ctcccgccct cagtcctgcg gtgtgcgtct gggcacgtcc tgcacacaca atgcaagtcc tggcytccgc gcccgcccgc ccacgcgagc cgtacccgcc gccaactctg ttatttatgg tgtgaccccc tggaggtgcc ctcggcccac cggggctatt tattgtttaa tttatttgtt gaggttattt cctctgagca gtctgcctct cccaagcccc aggggacagt ggggaggcag gggagggggt ggctgtggtc cagggacccc aggccctgat tcctgtgcct ggcgtctgtc ctggccccgc ctgtcagaag atgaacatgt atagtggcta acttaagggg agtgggtgac cctgacactt ccaggcactg tgcccagggt ttgggtttta aattattgac tttgtacagt ctgcttgtgg gctctgaaag ctggggtggg gccagagcct gagcgtttaa tttattcagt acctgtgttt gtgtgaatgc ggtgtgtgca ggcatcgcag atgggggttc tttcagttca aaagtgagat gtctggagat catatttttt tatacaggta tttcaattaa aatgtttttg tacatagaaa aaaaaaaaaa aaaaaaaaaa gggcgg

FIGURE 19

Arg Ser Ala Cys Cys Ala Ser Thr Arg Ser Pro Arg Ala Phe Arg Ala His Cys Ala Ala Arg Thr Ala Ser Gly Ser Asp Gly Arg Cys Pro Arg Arg Ala Ala Arg Pro Asp Arg Pro Arg Leu Arg Arg Leu Gly Leu Gly Ala Pro Gly Arg Pro Ser Pro Ala Met Leu Leu Ser Lys Phe Gly Ser Leu Ala His Leu Cys Gly Pro Gly Gly Val Asp His Leu Pro Val Lys Ile Leu Gln Pro Ala Lys Ala Asp Lys Glu Ser Phe Glu Lys Ala Tyr Gln Val Gly Ala Val Leu Gly Ser Gly Gly Phe Gly Thr Val Tyr Ala Gly Ser Arg Ile Ala Asp Gly Leu Pro Val Ala Val Lys His Val Val Lys Glu Arg Val Thr Glu Trp Gly Ser Leu Gly Gly Ala Thr Val Pro Leu Glu Val Val Leu Leu Arg Lys Val Gly Ala Ala Gly Gly Ala Arg Gly Val Ile Arg Leu Leu Asp Trp Phe Glu Arg Pro Asp Gly Phe Leu Leu Val Leu Glu Arg Pro Glu Pro Ala Gln Asp Leu Phe Asp Phe Ile Thr Glu Arg Gly Ala Leu Asp Glu Pro Leu Ala Arg Arg Phe Phe Ala Gln Val Leu Ala Ala Val Arg His Cys His Ser Cys Gly Val Val His Arg Asp Ile Lys Asp Glu Asn Leu Leu Val Asp Leu Arg Ser Gly Glu Leu Lys Leu Ile Asp Phe Gly Ser Gly Ala Leu Leu Lys Asp Thr Val Tyr Thr Asp Phe Asp Gly Thr Arg Val Tyr Ser Pro Pro Glu Trp Ile Arg Tyr His Arg Tyr His Gly Arg Ser Ala Thr Val Trp Ser Leu Gly Val Leu Leu Tyr Asp Met Val Cys Gly Asp Ile Pro Phe Glu Gln Asp Glu Glu Ile Leu Arg Gly Arg Leu Leu Phe Arg Arg Arg Val Ser Pro Glu Cys Gln Gln Leu Ile Arg Trp Cys Leu Ser Leu Arg Pro Ser Glu Arg Pro Ser Leu Asp Gln Ile Ala Ala His Pro Trp Met Leu Gly Ala Asp Gly Gly Ala Pro Glu Ser Cys Asp Leu Arg Leu Cys Thr Leu Asp Pro Asp Asp Val Ala Ser Thr Thr Ser Ser Ser Glu Ser Leu

FIGURE 20

agtaaaagtc cacagttacc gtgagagaaa aaaagaggag aaagcagtgc agccaaactc ggaagaaaag agaggaggaa aaggactcga ctttcacatt ggaacaacct tctttccagt gctaaggctc tctgatctgg ggaacaacac ctggacatgg ctccagagat caacttgccg ggcccaatga gcctcattga taacactaaa gggcagctgg tggtgaatcc agaagctctg aagatcctat ctgcaattac gcagcctgtg gtggtggtgg cgattgtggg cctctatcgc acaggcaaat cctacctgat gaacaagctg gctgggaaga aaaacggctt ctctctaggc tccacagtga agtctcacac caagggaatc tggatgtggt gtgtgcctca tcccaagaag ccagaacaca ccctagttct gctcgacact gagggcctgg gagatataga gaagggtgac aatgagaatg actcctggat ctttgccttg gccatcctcc tgagcagcac cttcgtgtac aatagcatgg gaaccatcaa ccagcaggcc atggaccaac ttcactatgt gacagagctg acagatcgaa tcaaggcaaa ctcctcacct ggtaacaatt ctgtagacga ctcagctgac tttgtgagct tttttccagc atttgtgtgg actctcagag atttcaccct ggaactggaa gtagatggag aacccatcac tgctgatgac tacttggagc tttcgctaaa gctaagaaaa ggtactgata agaaaagtaa aagctttaat gatcctcggt tgtgcatccg aaagttcttc cccaagagga agtgcttcgt cttcgattgg cccgctccta agaagtacct tgctcaccta gagcagctaa aggaggaaga gctgaaccct gatttcatag aacaagttgc agaattttgt tcctacatcc tcagccattc caatgtcaag actctttcag gtggcattgc agtcaatggg cctcgtctag agagcctggt gctgacctac gtcaatgcca tcagcagtgg ggatctaccc tgcatggaga acgcagtcct ggccttggcc cagatagaga actcagccgc agtggaaaag gctattgccc actatgaaca gcagatgggc cagaaggtgc agctgcccac ggaaaccctc caggagctgc tggacctgca cagggacagt gagagagagg ccattgaagt cttcatgaag aactctttca aggatgtgga ccaaatgttc cagaggaaat taggggccca gttggaagca aggcgagatg acttttgtaa gcagaattcc aaagcatcat cagattgttg catggcttta cttcaggata tatttggccc tttagaagaa gatgtcaagc agggaacatt ttctaaacca ggaggttacc gtctctttac tcagaagctg caggagctga agaataagta ctaccaggtg ccaaggaagg ggatacaggc caaagaggtg ctgaaaaaat atttggagtc caaggaggat gtggctgatg cacttctaca gactgatcag tcactctcag aaaaggaaaa agcgattgaa gtggaacgta taaaggctga atctgcagaa gctgcaaaga aaatgttgga ggaaatacaa aagaagaatg aggagatgat ggaacagaaa gagaagagtt atcaggaaca tgtgaaacaa ttgactgaga agatggagag ggacagggcc cagttaatgg cagagcaaga gaagaccctc gctcttaaac ttcaggaaca ggaacgcctt ctcaaggagg gattcgagaa tgagagcaag agacttcaaa aagacatatg ggatatccag atgagaagca aatcattgga gccaatatgt aacatactct aaaagtccaa ggagcaaaat ttgcctgtcc agctccctct ccccaagaaa caacatgaat gagcaacttc agagtgtcaa acaactgcca ttaaacttaa ctcaaaatca tgatgcatgc atttttgttg aaccataaag tttgcaaagt aaaggttaag tatgaggtca atgtttt

FIGURE 21

Met Ala Pro Glu Ile Asn Leu Pro Gly Pro Met Ser Leu Ile Asp Asn Thr Lys Gly Gln Leu Val Val Asn Pro Glu Ala Leu Lys Ile Leu Ser Ala Ile Thr Gln Pro Val Val Val Val Ala Ile Val Gly Leu Tyr Arg Thr Gly Lys Ser Tyr Leu Met Asn Lys Leu Ala Gly Lys Lys Asn Gly Phe Ser Leu Gly Ser Thr Val Lys Ser His Thr Lys Gly Ile Trp Met Trp Cys Val Pro His Pro Lys Lys Pro Glu His Thr Leu Val Leu Leu Asp Thr Glu Gly Leu Gly Asp Ile Glu Lys Gly Asp Asn Glu Asn Asp Ser Trp Ile Phe Ala Leu Ala Ile Leu Leu Ser Ser Thr Phe Val Tyr Asn Ser Met Gly Thr Ile Asn Gln Gln Ala Met Asp Gln Leu His Tyr Val Thr Glu Leu Thr Asp Arg Ile Lys Ala Asn Ser Ser Pro Gly Asn Asn Ser Val Asp Asp Ser Ala Asp Phe Val Ser Phe Phe Pro Ala Phe Val Trp Thr Leu Arg Asp Phe Thr Leu Glu Leu Glu Val Asp Gly Glu Pro Ile Thr Ala Asp Asp Tyr Leu Glu Leu Ser Leu Lys Leu Arg Lys Gly Thr Asp Lys Lys Ser Lys Ser Phe Asn Asp Pro Arg Leu Cys Ile Arg Lys Phe Phe Pro Lys Arg Lys Cys Phe Val Phe Asp Trp Pro Ala Pro Lys Lys Tyr Leu Ala His Leu Glu Gln Leu Lys Glu Glu Glu Leu Asn Pro Asp Phe Ile Glu Gln Val Ala Glu Phe Cys Ser Tyr Ile Leu Ser His Ser Asn Val Lys Thr Leu Ser Gly Gly Ile Ala Val Asn Gly Pro Arg Leu Glu Ser Leu Val Leu Thr Tyr Val Asn Ala Ile Ser Ser Gly Asp Leu Pro Cys Met Glu Asn Ala Val Leu Ala Leu Ala Gln Ile Glu Asn Ser Ala Ala Val Glu Lys Ala Ile Ala His Tyr Glu Gln Gln Met Gly Gln Lys Val Gln Leu Pro Thr Glu Thr Leu Gln Glu Leu Leu Asp Leu His Arg Asp Ser Glu Arg Glu Ala Ile Glu Val Phe Met Lys Asn Ser Phe Lys Asp Val Asp Gln Met Phe Gln Arg Lys Leu Gly Ala Gln Leu Glu Ala Arg Arg Asp Asp Phe Cys Lys Gln Asn Ser Lys Ala Ser Ser Asp Cys Cys Met Ala Leu Leu Gln Asp Ile Phe Gly Pro Leu Glu Glu Asp Val Lys Gln Gly Thr Phe Ser Lys Pro Gly Gly Tyr Arg Leu Phe Thr Gln Lys Leu Gln Glu Leu Lys Asn Lys Tyr Tyr Gln Val Pro Arg Lys Gly Ile Gln Ala Lys Glu Val Leu Lys Lys Tyr Leu Glu Ser Lys Glu Asp Val Ala Asp Ala Leu Leu Gln Thr Asp Gln Ser Leu Ser Glu Lys Glu Lys Ala Ile Glu Val Glu Arg Ile Lys Ala Glu Ser Ala Glu Ala Ala Lys Lys Met Leu Glu Glu Ile Gln Lys Lys Asn Glu Glu Met Met Glu Gln Lys Glu Lys Ser Tyr Gln Glu His Val Lys Gln Leu Thr Glu Lys Met Glu Arg Asp Arg Ala Gln Leu Met Ala Glu Gln Glu Lys Thr Leu Ala Leu Lys Leu Gln Glu Gln Glu Arg Leu Leu Lys Glu Gly Phe Glu Asn Glu Ser Lys Arg Leu Gln Lys Asp Ile Trp Asp Ile Gln Met Arg Ser Lys Ser Leu Glu Pro Ile Cys Asn Ile Leu

FIGURE 22

aaacactctg tgtggctcct cggctttggg acagagtgca agacgatgac ttgcaaaatg tcgcagctgg aacgcaacat agagaccatc atcaacacct tccaccaata ctctgtgaag ctggggcacc cagacaccct gaaccagggg gaattcaaag agctggtgcg aaaagatctg caaaattttc tcaagaagga gaataagaat gaaaaggtca tagaacacat catggaggac ctggacacaa atgcagacaa gcagctgagc ttcgaggagt tcatcatgct gatggcgagg ctaacctggg cctcccacga gaagatgcac gagggtgacg agggccctgg ccaccaccat aagccaggcc tcggggaggg caccccctaa gaccacagtg gccaagatca cagtggccac ggccatggcc acagtcatgg tggccacggc cacaggccac taatcaggag gccaggccac cctgcctcta cccaaccagg gccccggggc ctgttatgtc aaactgtctt ggctgtgggg ctaggggctg gggccaaata aagtctcttc ctccaa

FIGURE 23

Met Thr Cys Lys Met Ser Gln Leu Glu Arg Asn Ile Glu Thr Ile Ile Asn Thr Phe His Gln Tyr Ser Val Lys Leu Gly His Pro Asp Thr Leu Asn Gln Gly Glu Phe Lys Glu Leu Val Arg Lys Asp Leu Gln Asn Phe Leu Lys Lys Glu Asn Lys Asn Glu Lys Val Ile Glu His Ile Met Glu Asp Leu Asp Thr Asn Ala Asp Lys Gln Leu Ser Phe Glu Glu Phe Ile Met Leu Met Ala Arg Leu Thr Trp Ala Ser His Glu Lys Met His Glu Gly Asp Glu Gly Pro Gly His His His Lys Pro Gly Leu Gly Glu Gly Thr Pro

FIGURE 24

gtgtatgaaa aataatttca agtttaacaa acacaaggaa accgcagggt ccatgtcaaa gctgatgagc tatttctgaa actcgtgcag aattgtggtt tgtgtggtct atgtcacggc acccttgagg gagagtgggc aattgcctga acttggaggc tgtgtcctgt ccccaggctg ctccagggct gcctccttcc gactgggcct tcttatctgg gactgttgag ggcaacaggc cttccgaaga ccagtgaaga aggaggccct gcaaacagga ggctgacagg gtaggaacga ggccatgatc cctttgcaga aggacaacca ggaggagggt gtctgcccca tctgccagga gagcctgaag gaggccgtga gcaccaactg cggacatctc ttctgtcgag tgtgcctgac acagcatgtg gagaaggcct cagcctctgg ggtcttctgc tgccccctct gccggaagcc ctgttctgag gaggtgctag ggacaggcta tatctgcccc aaccaccaga agagggtgtg caggttctgt gaggagagca gacttcttct atgtgtggaa tgcctggtgt cccctgaaca catgtctcat catgaactga ccattgaaaa tgccctcagc cactacaagg aacgactcaa tcgccggagc aggaagctca gaaaggacat tgcagaactt cagcggctca aggctcagca ggagaagaaa ctgcaggctc tgcagcagtg gctgggccag ctggagcaca tgccagcaga agcggccaga atccttgaca tctccagggc agtaacacag ctcagaagcc tggtcattga tctggaaagg acggccaagg aattagacac caacacactg aagaatgctg gtgacttact gaacaggagt gctccacaga aattagaggt tatttatccc cagttggaga aaggagtcag tgaattgctt cttcagcccc ctcagaagct ctgaccc

FIGURE 25

Met Ile Pro Leu Gln Lys Asp Asn Gln Glu Glu Gly Val Cys Pro Ile Cys Gln Glu Ser Leu Lys Glu Ala Val Ser Thr Asn Cys Gly His Leu Phe Cys Arg Val Cys Leu Thr Gln His Val Glu Lys Ala Ser Ala Ser Gly Val Phe Cys Cys Pro Leu Cys Arg Lys Pro Cys Ser Glu Glu Val Leu Gly Thr Gly Tyr Ile Cys Pro Asn His Gln Lys Arg Val Cys Arg Phe Cys Glu Glu Ser Arg Leu Leu Leu Cys Val Glu Cys Leu Val Ser Pro Glu His Met Ser His His Glu Leu Thr Ile Glu Asn Ala Leu Ser His Tyr Lys Glu Arg Leu Asn Arg Arg Ser Arg Lys Leu Arg Lys Asp Ile Ala Glu Leu Gln Arg Leu Lys Ala Gln Gln Glu Lys Lys Leu Gln Ala Leu Gln Gln Trp Leu Gly Gln Leu Glu His Met Pro Ala Glu Ala Ala Arg Ile Leu Asp Ile Ser Arg Ala Val Thr Gln Leu Arg Ser Leu Val Ile Asp Leu Glu Arg Thr Ala Lys Glu Leu Asp Thr Asn Thr Leu Lys Asn Ala Gly Asp Leu Leu Asn Arg Ser Ala Pro Gln Lys Leu Glu Val Ile Tyr Pro Gln Leu Glu Lys Gly Val Ser Glu Leu Leu Leu Gln Pro Pro Gln Lys Leu

FIGURE 26

cgacggagcg gccctggctg cagcctcccg gcgccagcga agacaggctg agatgcggct gctcctgctc gtgccgctgc tgctggctcc agcgcccggg tcctcggctc ccaaggtgag gcggcagagt gacacctggg gaccctggag ccagtggagc ccctgcagcc ggacctgtgg agggggtgtc agcttccggg agcgcccctg ctactcccag aggagagatg gaggctccag ctgcgtgggc cccgcccgga gccaccgctc ttgtcgcacg gagagctgcc ccgacggcgc ccgggacttc cgggccgagc agtgcgcgga gttcgacgga gcggagttcc aggggcggcg gtatcggtgg ctgccctact acagcgcccc aaacaagtgt gaactgaact gcattcccaa gggggagaac ttctactaca agcacaggga ggctgtggtt gatgggacgc cctgcgagcc tggcaagagg gatgtctgtg tggatggcag ctgccgggtt gtcggctgtg atcacgagct ggactcgtcc aagcaggagg acaagtgtct gcggtgtggg ggtgacggca cgacctgcta ccccgtcgca ggcacctttg acgctaatga cctcagccga gctgtgaaga atgttcgtgg ggaatactac ctcaatgggc actggaccat cgaggcggcc cgggccctgc cggcagccag caccatcctg cattacgagc ggggtgctga gggggacctg gcccctgagc gactccatgc ccggggcccc acctcggagc ccctggtcat cgagctcatc agccaggagc ccaaccccgg tgtgcactat gagtaccacc tgcccctgcg ccgccccagc cccggcttca gctggagcca cggctcatgg agtgactgca gcgcggagtg tggcggaggt caccagtccc gcctggtgtt ctgcaccatc gaccatgagg cctaccccga ccacatgtgc cagcgccagc cacggccagc tgaccggcgt tcctgcaatc ttcacccttg cccggagacc aagcgctgga aggcagggcc atgggcaccc tgctcagcct cctgtggagg aggctcccag tcccgctccg tgtactgcat ctcgtctgac ggggccggca tccaggaggc cgtggaggag gctgagtgtg ccgggctgcc tgggaagccc cctgccattc aggcctgtaa cctgcagcgc tgtgcagcct ggagcccgga gccctgggga gagtgttctg tcagttgtgg cgttggcgtc cggaagcgga gcgttacttg ccggggtgaa aggggttctt tgctccatac cgcagcgtgc tccttggaag accggccacc tctgactgag ccctgtgtgc atgaggactg ccccctcctc agtgaccagg cctggcatgt tggcacctgg ggtctatgct ccaagagctg cagctcgggc actcggaggc gacaggtcat ctgtgccatt gggccgccca gccactgcgg gagcctgcag cactccaagc ctgtggatgt ggagccttgt aacacgcagc cctgtcatct cccccaggag gtccccagca tgcaggatgt gcacacccct gccagcaacc cctggatgcc gttgggccct caggagtccc ctgcctcaga ctccagaggc cagtggtggg cagcccagga acacccctca gccaggggtg accacagggg agaacgaggt gaccccaggg gcgaccaagg cacccacctg tcagccctgg gccccgctcc ctctctgcag cagcccccat accagcaacc cctgcggtcg ggctcagggc cccacgactg cagacacagt cctcacgggt gctgccccga tggccacacg gcatctctcg ggcctcagtg gcaaggctgc cctggggccc cctgtcagca gagcaggtac gggtgctgcc ctgacagggt atctgtcgct gaggggcccc atcacgctgg ctgcacaaag tcgtatggtg gtgacagcac cgggggcagg cccaggtcaa gggcagtggc ttctacagtc cacaacaccc accagcccca ggcccagcag aatgagccca gtgagtgccg gggctcccag tttggctgtt gctatgacaa cgtggccact gcagccggtc ctcttgggga aggctgtgtg ggccagccca gccatgccta ccccgtgcgg tgcctgctgc ccagtgccca tggctcttgc gcagactggg ctgcccgctg gtacttcgtt gcctctgtgg gccaatgtaa ccgcttctgg tatggcggct gccatggcaa tgccaataac tttgcctcgg agcaagagtg catgagcagc tgccagggat ctctccatgg gccccgtcgt ccccagcctg gggcttctgg aaggagcacc cacacggatg gtggcggcag cagtcctgca ggcgagcagg aacccagcca gcacaggaca ggggccgcgg tgcagagaaa gccctggcct tctggtggtc tctggcggca agaccaacag cctgggccag gggaggcccc ccacacccag gcctttggag aatggccatg ggggcaggag cttgggtcca gggcccctgg actgggtgga gatgccggat caccagcgcc acccttccac agctcctcct acaggattag cttggcaggt gtggagccct cgttggtgca ggcagccctg gggcagttgg tgcggctctc ctgctcagac gacactgccc cggaatccca ggctgcctgg cagaaagatg gccagcccat ctcctctgac aggcacaggc tgcagttcga cggatccctg atcatccacc ccctgcaggc agaggacgcg ggcacctaca gctgtggcag cacccggcca ggccgcgact cccagaagat ccaacttcgc atcatagggg gtgacatggc cgtgctgtct gaggctgagc tgagccgctt ccctcagccc agggacccag ctcaggactt tggccaagcg ggggctgctg ggcccctggg ggccatcccc tcttcacacc cacagcctgc aaacaggctg cgtttggacc agaaccagcc ccgggtggtg gatgccagtc caggccagcg gatccggatg acctgccgtg ccgaaggctt cccgccccca gccatcgagt ggcagagaga tgggcagcct gtctcttctc ccagacacca gctgcagcct gatggctccc tggtcattag ccgagtggct gtagaagatg gcggcttcta cacctgtgtc gctttcaatg ggcaggaccg agaccagcga tgggtccagc tcagagttct gggggagctg acaatctcag gactgccccc tactgtgaca gtgccagagg gtgatacggc caggctattg tgtgtggtag caggagaaag tgtgaacatc aggtggtcca ggaacgggct acctgtgcag gctgatggcc accgtgtcca ccagtcccca gatggcacgc tgctcattta caacttgcgg gccagggatg agggctccta cacgtgcagt gcctaccagg ggagccaggc agtcagccgc agcaccgagg tgaaggtggt ctcaccagca cccaccgccc agcccaggga ccctggcagg gactgcgtcg accagccaga gctggccaac tgtgatttga tcctgcaggc ccagctttgt ggcaatgagt attactccag cttctgctgt

FIGURE 27 (Continued)

gccagctgtt cacgtttcca gcctcacgct cagcccatct ggcagtaggg atgaaggcta gttccagccc cagtccaaaa tagttcatag ggctagggag aaaggaagat ggactcttgg cttcctctct ctggctggca aagggagtta tcttctggaa tacattagct ctttcaaaaa cccacccagt gtttagcctc aacggcagcc agttaccagc ttctctctgt agccttcagc agtgtttgca tctctgacat aaccacaggc tgctgttttc aagaagagca atctgtttgg ataagaaaaa cctttacttt acagcttccc tttataattt gttacacagg aatagttaaa tgcatttgtt tgtttgtttt ttgagacaga gtttcactct tgttgcccag gctggagggc aatggcgcga tctcagctca ctgcaacctc cgtctcctgg gttcttgatt ctcctgtgtc agccttctga gtagctagga ttacagatgc ctatcaccat gcctgggtaa tttttgtatt tttagttgag atggggtttc accatgttgg ccaggctggt ctcgaacttc tgacctcaga tgatctgccc gcctcagcct cccaaagtgc tgggattaca ggcatgagcc accacgccca gccatcaatg catttttttt attttttttt tgagacagag tttcgcactt cttgcccagg ctggagtaca atggtgcgat cttggctcac tgcaacctcc acctcctggg ttcaagcgct tctccagcct cagcctcctg agtagctggg attacaggta tgtgccacca tgcctggcta attttgtatt tttagtagag acggggtttc tccatgttgg tcagactggt cttgaactcc cgacctcagg taatccgccc gcctcggcct cccaaaatgc tgggattaga ggtgtgagcc actgtgccca gcccatcaat gtgttttaaa gctagctgtc agggttccac ttaatttaaa gctgggcagg gagatgtgta atgatttcaa agttaacacc tgtttgtttt ctaaagggca tgccaagtcc tgctgtatca gggaagtatt ctgtgctaaa atcagcgatg gttcattgct ctagtctctc tcacccttct aggcagtgca tcagtcagct ctaaatctgg tgcagagggt taacagcata acccttgttg gcaaaatgga atagatgtta agacctcaaa tagggatttg ggatgaaaca gctgcagtta gcactgttat ctgagcatga aagaactgga aacgctcctt acgtcgagat gttggacctt gaagccctcc tgaggccaac atgcaaatct ggctgtgacg gttcatctga cacctgtgta aagctgacca gcctgctctg tacagtgaca atgaggagcc cctctcttcc ttaagtagga atctgtgaag caaaatgttt gctgccaaag acaaatcaga ctgtcagtca ttaaaaacag cattagcagg atgaggatag caatggggaa gggttgtggg caatgcagta acagggaaat ggcttcagaa atggtttgag ttggaagaca acattcttca tctctcagga cttctaattc cttgatgcta aaagaagagg catggattct atgagcttcc aagtcccttt ccactttaac cttctacaaa tctttcagag gactgcctag tagcaaaggt tattcctgga cacaggaaag acgggcatta cagggaccaa agctctgaaa ggtgactttt attaccaaca cactggctgg aaaagggaca aaccacatca cgggtgagtg atacttctca gtcttctcta ctcattcaac aaaggaaatg tgggctgggg cagaggtctt ttttcattta atactggaaa aatattgaag agcatccatg ttcacttatg gctggttttg ctatagaaat tggaaaataa aggccacttt tttgaaatcc ccagtttaat taaaaaaaaa aaaaaaaaa

FIGURE 27

Met Arg Leu Leu Leu Leu Val Pro Leu Leu Leu Ala Pro Ala Pro Gly Ser Ser Ala Pro Lys Val Arg Arg Gln Ser Asp Thr Trp Gly Pro Trp Ser Gln Trp Ser Pro Cys Ser Arg Thr Cys Gly Gly Gly Val Ser Phe Arg Glu Arg Pro Cys Tyr Ser Gln Arg Arg Asp Gly Gly Ser Ser Cys Val Gly Pro Ala Arg Ser His Arg Ser Cys Arg Thr Glu Ser Cys Pro Asp Gly Ala Arg Asp Phe Arg Ala Glu Gln Cys Ala Glu Phe Asp Gly Ala Glu Phe Gln Gly Arg Arg Tyr Arg Trp Leu Pro Tyr Tyr Ser Ala Pro Asn Lys Cys Glu Leu Asn Cys Ile Pro Lys Gly Glu Asn Phe Tyr Tyr Lys His Arg Glu Ala Val Val Asp Gly Thr Pro Cys Glu Pro Gly Lys Arg Asp Val Cys Val Asp Gly Ser Cys Arg Val Val Gly Cys Asp His Glu Leu Asp Ser Ser Lys Gln Glu Asp Lys Cys Leu Arg Cys Gly Gly Asp Gly Thr Thr Cys Tyr Pro Val Ala Gly Thr Phe Asp Ala Asn Asp Leu Ser Arg Ala Val Lys Asn Val Arg Gly Glu Tyr Tyr Leu Asn Gly His Trp Thr Ile Glu Ala Ala Arg Ala Leu Pro Ala Ala Ser Thr Ile Leu His Tyr Glu Arg Gly Ala Glu Gly Asp Leu Ala Pro Glu Arg Leu His Ala Arg Gly Pro Thr Ser Glu Pro Leu Val Ile Glu Leu Ile Ser Gln Glu Pro Asn Pro Gly Val His Tyr Glu Tyr His Leu Pro Leu Arg Arg Pro Ser Pro Gly Phe Ser Trp Ser His Gly Ser Trp Ser Asp Cys Ser Ala Glu Cys Gly Gly Gly His Gln Ser Arg Leu Val Phe Cys Thr Ile Asp His Glu Ala Tyr Pro Asp His Met Cys Gln Arg Gln Pro Arg Pro Ala Asp Arg Arg Ser Cys Asn Leu His Pro Cys Pro Glu Thr Lys Arg Trp Lys Ala Gly Pro Trp Ala Pro Cys Ser Ala Ser Cys Gly Gly Gly Ser Gln Ser Arg Ser Val Tyr Cys Ile Ser Ser Asp Gly Ala Gly Ile Gln Glu Ala Val Glu Glu Ala Glu Cys Ala Gly Leu Pro Gly Lys Pro Pro Ala Ile Gln Ala Cys Asn Leu Gln Arg Cys Ala Ala Trp Ser Pro Glu Pro Trp Gly Glu Cys Ser Val Ser Cys Gly Val Gly Val Arg Lys Arg Ser Val Thr Cys Arg Gly Glu Arg Gly Ser Leu Leu His Thr Ala Ala Cys Ser Leu Glu Asp Arg Pro Pro Leu Thr Glu Pro Cys Val His Glu Asp Cys Pro Leu Leu Ser Asp Gln Ala Trp His Val Gly Thr Trp Gly Leu Cys Ser Lys Ser Cys Ser Ser Gly Thr Arg Arg Arg Gln Val Ile Cys Ala Ile Gly Pro Pro Ser His Cys Gly Ser Leu Gln His Ser Lys Pro Val Asp Val Glu Pro Cys Asn Thr Gln Pro Cys His Leu Pro Gln Glu Val Pro Ser Met Gln Asp Val His Thr Pro Ala Ser Asn Pro Trp Met Pro Leu Gly Pro Gln Glu Ser Pro Ala Ser Asp Ser Arg Gly Gln Trp Trp Ala Ala Gln Glu His Pro Ser Ala Arg Gly Asp His Arg Gly Glu Arg Gly Asp Pro Arg Gly Asp Gln Gly Thr His Leu Ser Ala Leu Gly Pro Ala Pro Ser Leu Gln Gln Pro Pro Tyr Gln Gln Pro Leu Arg Ser Gly Ser Gly Pro His Asp Cys Arg His Ser Pro His Gly Cys Cys Pro Asp Gly His Thr Ala Ser Leu Gly Pro Gln Trp Gln Gly Cys Pro Gly Ala Pro Cys Gln Gln Ser Arg Tyr Gly Cys Cys Pro Asp Arg Val Ser Val Ala Glu Gly Pro His His Ala Gly Cys Thr Lys Ser Tyr Gly Gly Asp Ser Thr Gly Gly Arg Pro Arg Ser Arg Ala Val Ala Ser Thr Val His Asn Thr His Gln Pro Gln Ala Gln Gln Asn Glu Pro Ser Glu Cys Arg Gly Ser Gln Phe Gly Cys Cys Tyr Asp Asn Val Ala Thr Ala Ala Gly Pro Leu Gly Glu Gly Cys Val Gly Gln Pro Ser His Ala Tyr Pro Val Arg Cys Leu Leu Pro Ser Ala His Gly Ser Cys Ala Asp Trp Ala Ala Arg Trp Tyr Phe Val Ala Ser Val Gly Gln Cys Asn Arg Phe Trp Tyr Gly Gly Cys His Gly Asn Ala Asn Asn Phe Ala Ser Glu Gln Glu Cys Met Ser Ser Cys Gln Gly Ser Leu His Gly Pro Arg Arg Pro Gln Pro Gly Ala Ser Gly Arg Ser Thr His Thr Asp Gly Gly Gly Ser Ser Pro Ala Gly Glu Gln Glu Pro Ser Gln His Arg Thr Gly Ala Ala Val Gln Arg Lys Pro Trp Pro Ser Gly Gly Leu Trp Arg Gln Asp Gln Gln Pro Gly Pro Gly Glu Ala Pro His Thr Gln Ala Phe Gly Glu Trp Pro Trp Gly Gln Glu Leu Gly Ser Arg Ala Pro Gly Leu Gly Gly Asp Ala Gly Ser Pro Ala Pro Pro Phe His Ser Ser Ser Tyr Arg Ile Ser Leu Ala Gly Val Glu Pro Ser Leu Val Gln Ala Ala Leu Gly Gln Leu Val Arg Leu Ser Cys Ser Asp Asp Thr Ala Pro Glu Ser Gln Ala Ala Trp Gln Lys Asp Gly Gln Pro Ile Ser Ser Asp Arg His Arg Leu Gln Phe Asp Gly Ser Leu Ile Ile His Pro Leu Gln Ala Glu Asp Ala Gly Thr Tyr Ser Cys Gly Ser Thr Arg Pro Gly Arg Asp Ser Gln Lys Ile Gln Leu Arg Ile Ile Gly Gly Asp Met Ala Val Leu Ser Glu Ala Glu Leu Ser Arg Phe Pro Gln Pro Arg Asp Pro Ala Gln Asp Phe Gly Gln Ala Gly Ala Ala Gly Pro Leu Gly Ala Ile Pro Ser Ser His Pro Gln Pro Ala Asn Arg Leu Arg Leu Asp Gln Asn Gln Pro Arg Val Val Asp Ala Ser Pro Gly Gln Arg Ile Arg Met Thr Cys Arg Ala Glu Gly Phe Pro Pro Pro Ala Ile Glu Trp Gln Arg Asp Gly Gln Pro Val Ser Ser Pro Arg His Gln Leu Gln Pro Asp Gly Ser Leu Val Ile Ser Arg Val Ala Val Glu Asp Gly Gly Phe Tyr Thr Cys Val Ala Phe Asn Gly Gln Asp

Arg Asp Gln Arg Trp Val Gln Leu Arg Val Leu Gly Glu Leu Thr Ile Ser Gly Leu Pro Pro Thr Val Thr Val Pro Glu Gly Asp Thr Ala Arg Leu Leu Cys Val Val Ala Gly Glu Ser Val Asn Ile Arg Trp Ser Arg Asn Gly Leu Pro Val Gln Ala Asp Gly His Arg Val His Gln Ser Pro Asp Gly Thr Leu Leu Ile Tyr Asn Leu Arg Ala Arg Asp Glu Gly Ser Tyr Thr Cys Ser Ala Tyr Gln Gly Ser Gln Ala Val Ser Arg Ser Thr Glu Val Lys Val Val Ser Pro Ala Pro Thr Ala Gln Pro Arg Asp Pro Gly Arg Asp Cys Val Asp Gln Pro Glu Leu Ala Asn Cys Asp Leu Ile Leu Gln Ala Gln Leu Cys Gly Asn Glu Tyr Tyr Ser Ser Phe Cys Cys Ala Ser Cys Ser Arg Phe Gln Pro His Ala Gln Pro Ile Trp Gln

FIGURE 28

gcggccgctt tcgatttcgc tttcccctaa atggctgagc ttctcgccag cgcaggatca gcctgttcct gggactttcc gagagccccg ccctcgttcc ctcccccagc cgccagtagg ggaggactcg gcggtacccg gagcttcagg ccccaccggg gcgcggagag tcccagaccc ggccgggacc gggacggcgt ccgagtgcca atggctagct ctaggtgtcc cgctccccgc gggtgccgct gcctccccgg agcttctctc gcatggctgg ggacagtact gctacttctc gccgactggg tgctgctccg gaccgcgctg ccccgcatat tctccctgct ggtgcccacc gcgctgccac tgctccgggt ctgggcggtg ggcctgagcc gctgggccgt gctctggctg ggggcctgcg gggtcctcag ggcaacggtt ggctccaaga gcgaaaacgc aggtgcccag ggctggctgg ctgctttgaa gccattagct gcggcactgg gcttggccct gccgggactt gccttgttcc gagagctgat ctcatgggga gccccccggt ccgcggatag caccaggcta ctgcactggg gaagtcaccc taccgccttc gttgtcagtt atgcagcggc actgcccgca gcagccctgt ggcacaaact cgggagcctc tgggtgcccg gcggtcaggg cggctctgga aaccctgtgc gtcggcttct aggctgcctg ggctcggaga cgcgccgcct ctcgctgttc ctggtcctgg tggtcctctc ctctcttggg gagatggcca ttccattctt tacgggccgc ctcactgact ggattctaca agatggctca gccgatacct tcactcgaaa cttaactctc atgtccattc tcaccatagc cagtgcagtg ctggagttcg tgggtgacgg gatctataac aacaccatgg gccacgtgca cagccacttg cagggagagg tgtttggggc tgtcctgcgc caggagacgg agtttttcca acagaaccag acaggtaaca tcatgtctcg ggtaacagag gacacgtcca ccctgagtga ttctctgagt gagaatctga gcttatttct gtggtacctg gtgcgaggcc tatgtctctt ggggatcatg ctctggggat cagtgtccct caccatggtc accctgatca ccctgcctct gcttttcctt ctgcccaaga aggtgggaaa atggtaccag ttgctggaag tgcaggtgcg ggaatctctg gcaaagtcca gccaggtggc cattgaggct ctgtcggcca tgcctacagt tcgaagcttt gccaacgagg agggcgaagc ccagaagttt agggaaaagc tgcaagaaat aaagacactc aaccagaagg aggctgtggc ctatgcagtc aactcctgga ccactagtat ttcaggtatg ctgctgaaag tgggaatcct ctacattggt gggcagctgg tgaccagtgg ggctgtaagc agtgggaacc ttgtcacatt tgttctctac cagatgcagt tcacccaggc tgtggaggta ctgctctcca tctaccccag agtacagaag gctgtgggct cctcagagaa aatatttgag tacctggacc gcacccctcg ctgcccaccc agtggtctgt tgactcccct acacttggag ggccttgtcc agttccaaga tgtctccttt gcctacccaa accgcccaga tgtcttagtg ctacaggggc tgacattcac cctacgccct ggcgaggtga cggcgctggt gggacccaat gggtctggga agagcacagt ggctgccctg ctgcagaatc tgtaccagcc caccgggggа cagctgctgt tggatgggaa gcccccttccc caatatgagc accgctacct gcacaggcag gtggctgcag tgggacaaga gccacaggta tttggaagaa gtcttcaaga aaatattgcc tatggcctga cccagaagcc aactatggag gaaatcacag ctgctgcagt aaagtctggg gcccatagtt tcatctctgg actccctcag ggctatgaca cagaggtaga cgaggctggg agccagctgt cagggggtca gcgacaggca gtggcgttgg cccgagcatt gatccggaaa ccgtgtgtac ttatcctgga tgatgccacc agtgccctgg atgcaaacag ccagttacag gtggagcagc tcctgtacga aagccctgag cggtactccc gctcagtgct tctcatcacc cagcacctca gcctggtgga gcaggctgac cacatcctct ttctggaagg aggcgctatc cgggaggggg gaacccacca gcagctcatg gagaaaaagg ggtgctactg ggccatggtg caggctcctg cagatgctcc agaatgaaag ccttctcaga cctgcgcact ccatctccct ccctttttctt ctctctgtgg tggagaacca cagctgcaga gtagcagctg cctccaggat gagttacttg aaatttgcct tgagtgtgtt acctcctttc caagctcctc gtgataatgc agacttcctg gagtacaaac acaggatttg taattcctac tgtaacggag tttagagcca gggctgatgc tttggtgtgg ccagcactct gaaactgaga aatgttcaga atgtacggaa agatgatcag ctattttcaa cataactgaa ggcatatgct ggcccataaa caccctgtag gttcttgata tttataataa aattggtgtt ttgt

Figure 29

Met Ala Glu Leu Leu Ala Ser Ala Gly Ser Ala Cys Ser Trp Asp Phe Pro Arg Ala Pro Pro Ser Phe Pro Pro Pro Ala Ala Ser Arg Gly Gly Leu Gly Gly Thr Arg Ser Phe Arg Pro His Arg Gly Ala Glu Ser Pro Arg Pro Gly Arg Asp Arg Asp Gly Val Arg Val Pro Met Ala Ser Ser Arg Cys Pro Ala Pro Arg Gly Cys Arg Cys Leu Pro Gly Ala Ser Leu Ala Trp Leu Gly Thr Val Leu Leu Leu Leu Ala Asp Trp Val Leu Leu Arg Thr Ala Leu Pro Arg Ile Phe Ser Leu Leu Val Pro Thr Ala Leu Pro Leu Leu Arg Val Trp Ala Val Gly Leu Ser Arg Trp Ala Val Leu Trp Leu Gly Ala Cys Gly Val Leu Arg Ala Thr Val Gly Ser Lys Ser Glu Asn Ala Gly Ala Gln Gly Trp Leu Ala Ala Leu Lys Pro Leu Ala Ala Ala Leu Gly Leu Ala Leu Pro Gly Leu Ala Leu Phe Arg Glu Leu Ile Ser Trp Gly Ala Pro Gly Ser Ala Asp Ser Thr Arg Leu Leu His Trp Gly Ser His Pro Thr Ala Phe Val Val Ser Tyr Ala Ala Ala Leu Pro Ala Ala Ala Leu Trp His Lys Leu Gly Ser Leu Trp Val Pro Gly Gly Gln Gly Gly Ser Gly Asn Pro Val Arg Arg Leu Leu Gly Cys Leu Gly Ser Glu Thr Arg Arg Leu Ser Leu Phe Leu Val Leu Val Val Leu Ser Ser Leu Gly Glu Met Ala Ile Pro Phe Phe Thr Gly Arg Leu Thr Asp Trp Ile Leu Gln Asp Gly Ser Ala Asp Thr Phe Thr Arg Asn Leu Thr Leu Met Ser Ile Leu Thr Ile Ala Ser Ala Val Leu Glu Phe Val Gly Asp Gly Ile Tyr Asn Asn Thr Met Gly His Val His Ser His Leu Gln Gly Glu Val Phe Gly Ala Val Leu Arg Gln Glu Thr Glu Phe Phe Gln Gln Asn Gln Thr Gly Asn Ile Met Ser Arg Val Thr Glu Asp Thr Ser Thr Leu Ser Asp Ser Leu Ser Glu Asn Leu Ser Leu Phe Leu Trp Tyr Leu Val Arg Gly Leu Cys Leu Leu Gly Ile Met Leu Trp Gly Ser Val Ser Leu Thr Met Val Thr Leu Ile Thr Leu Pro Leu Leu Phe Leu Leu Pro Lys Lys Val Gly Lys Trp Tyr Gln Leu Leu Glu Val Gln Val Arg Glu Ser Leu Ala Lys Ser Ser Gln Val Ala Ile Glu Ala Leu Ser Ala Met Pro Thr Val Arg Ser Phe Ala Asn Glu Glu Gly Glu Ala Gln Lys Phe Arg Glu Lys Leu Gln Glu Ile Lys Thr Leu Asn Gln Lys Glu Ala Val Ala Tyr Ala Val Asn Ser Trp Thr Thr Ser Ile Ser Gly Met Leu Leu Lys Val Gly Ile Leu Tyr Ile Gly Gly Gln Leu Val Thr Ser Gly Ala Val Ser Ser Gly Asn Leu Val Thr Phe Val Leu Tyr Gln Met Gln Phe Thr Gln Ala Val Glu Val Leu Leu Ser Ile Tyr Pro Arg Val Gln Lys Ala Val Gly Ser Ser Glu Lys Ile Phe Glu Tyr Leu Asp Arg Thr Pro Arg Cys Pro Pro Ser Gly Leu Leu Thr Pro Leu His Leu Glu Gly Leu Val Gln Phe Gln Asp Val Ser Phe Ala Tyr Pro Asn Arg Pro Asp Val Leu Val Leu Gln Gly Leu Thr Phe Thr Leu Arg Pro Gly Glu Val Thr Ala Leu Val Gly Pro Asn Gly Ser Gly Lys Ser Thr Val Ala Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly Gln Leu Leu Leu Asp Gly Lys Pro Leu Pro Gln Tyr Glu His Arg Tyr Leu His Arg Gln Val Ala Ala Val Gly Gln Glu Pro Gln Val Phe Gly Arg Ser Leu Gln Glu Asn Ile Ala Tyr Gly Leu Thr Gln Lys Pro Thr Met Glu Glu Ile Thr Ala Ala Ala Val Lys Ser Gly Ala His Ser Phe Ile Ser Gly Leu Pro Gln Gly Tyr Asp Thr Glu Val Asp Glu Ala Gly Ser Gln Leu Ser Gly Gly Gln Arg Gln Ala Val Ala Leu Ala Arg Ala Leu Ile Arg Lys Pro Cys Val Leu Ile Leu Asp Asp Ala Thr Ser Ala Leu Asp Ala Asn Ser Gln Leu Gln Val Glu Gln Leu Leu Tyr Glu Ser Pro Glu Figure 32 Arg Tyr Ser Arg Ser Val Leu Leu Ile Thr Gln His Leu Ser Leu Val Glu Gln Ala Asp His Ile Leu Phe Leu Glu Gly Gly Ala Ile Arg Glu Gly Gly Thr His Gln Gln Leu Met Glu Lys Lys Gly Cys Tyr Trp Ala Met Val Gln Ala Pro Ala Asp Ala Pro Glu

FIGURE 30

aaaatttgaa gacaagatgg gcacctactc tacaattctg ataaaaacag aggtcatcga atgtgggaac tactgtggag tacgcatcat tcactctttg attgcagagt tctcactgga agaattgaag aaaagctatc acctgaataa aagtcaaatt atgttggata tgctaactga gaatttgttc ttcgatactg gtatgggaaa aagtaaattt ttgcaagata tgcacacact cctactcaca agacaccgcg atgaacatga aggtgaaaca ggaaattggt tttccccatt tattgaagca ttacataaag atgaaggaaa tgaagcagtt gaagctgtat tgcttgaaag tatccatcgg ttcaacccaa atgcattcat ttgccaagcg ttggcaagac atttctacat taaaaagaag gactttggca atgctctaaa ctgggcaaaa caagcaaaaa tcatagaacc tgacaattct tatatctcag atacactggg tcaagtctac aaaagtaaaa taagatggtg gatagaggaa aacggaggaa acgggaacat ttcagttgat gatctaattg ctcttttgga tttagcagaa catgcctcaa gtgcattcaa agaatctcaa cagcaaagtg aagatagaga gtatgaagtg aaggaaagat tgtatccgaa gtcaaaaagg cggtatgata cttacaatat agctggttat caaggagaga tagaagttgg gctttacaca atccaaattc tccagctcat tccttttttt gataataaaa atgagctatc taaaagatat atggtcaatt ttgtatcagg aagtagtgat attccagggg atccaaacaa tgaatataaa ttagccctca aaaactatat tccttattta actaaattga aattttcttt gaaaaagtcc tttgattttt ttgatgaata ctttgtcctg ctaaaaccca ggaacaatat taagcaaaat gaagaggcca aaactcggag aaaggtggct ggatatttta agaaatatgt agatatattt tgtctcttag aagaatcaca aaacaacaca ggtcttggat caaagttcag tgagccactt caagtagaga gatgcaggag aaacctagta gctttaaaag cagacaagtt ttctgggctc ttggaatatc ttatcaaaag tcaagaggat gctataagca ctatgaaatg tatagtgaac gaatatactt ttctcttaga acaatgcact gtcaaaatcc agtcaaaaga aaagctaaat ttcatcttgg ccaacattat tctctcctgt atccaaccta cctccagatt agtaaagcca gttgaaaaac taaaagatca gcttcgagaa gtcttgcaac caataggact gacttatcag ttttcagaac cgtatttttct agcttccctc ttattctggc cagaaaatca acaactagat caacattctg aacaaatgaa agagtatgct caagcactaa aaaattcttt caaggggcaa tataaacata tgcatcgtac aaagcaacca attgcatatt tctttcttgg aaaaggtaaa agactggaaa gacttgttca caaaggaaaa attgaccagt gctttaagaa gacaccagat attaattcct tgtggcagag tggagatgtg tggaaggagg aaaaagtcca agaacttttg cttcgtttac aaggtcgagc tgaaaacaat tgtttatata tagaatatgg aatcaatgaa aaaatcacaa tacccatcac tcccgctttt ttaggtcaac ttagaagtgg cagaagcata gagaaggtgt ctttttacct gggatttccc attggaggcc cacttgctta tgacattgaa attgtttaag agcctgatat tcttcctcca agaatttgat ctcagtaccc atttaatttt tttggactca agatctatgc tttaaaccgg caaggttata gatacagcct ctagctcttc agatctgtac atgcagtatt taatttcctc ttaaacatgt tatgagttct acaaggacaa tagtgaaaaa ggaaggagtg agatatatga aaagtagcaa atatgttcct tggtttggtt aacatcattg atgacaaaat aataaggagc tatgactgga gtcaggagaa gttagtgtaa taagctggct acacagaacc ccactactta ccaggcatgg attgaagaag attgtctact caaatggcat ttagacatta gaatgtctgg gaaaatattt ctcaaagaca gcaaaaacct ctcaaactga ggagcaacat ttattcttac taagcagatc atcaatgtat catgtgcttg gcactcaagg atcttccaaa acagaggacc aaccagtctt ctgaaggtca tgcccacaga agtcatcgga ccttaccaaa gtaggttgga gaattagatt gccttttcat gcagtgagat tcagttaagc aaaaatgaaa tttgtctcta tagctaatta gcttatcaac tcccctccaa acaaacaatt aaaaaaaaaa catacagaca ctcaaattcc acaagctaat gaacaaaagg gactcttgtg agaagactaa tgagtccctc atccagaaga tgccaatgta ctggcagatt aacatacaac ctatgttttg aacaaaaaca accagcgata cgtaatcaaa atgtaatttt cccctaataa aattatggat atgggcagtc atcaatggct gccaaaacca ttaagtggaa agctgattaa aaaacaaaaa tttctaatgg atttatcaaa ctgtcccaaa tcctgataaa tattaacatc acagaggaag accagacatt atgggcctgg aagtactata ggagtgcaca catcacccgt gacatggtct tgccaaataa ttaaacctga atttgatcag gtctctggat cttatttgca attcaaaaga aattttaaaa aaatcctact aacaccacca caaatatgca atcagcaata tccagaaagg ggaaattcac aggacaaaaa cctggttttc ttttttggtt tcttcaacca aaaaagaaag aaattgcaaa ggaccaaaaa aatgttgggg aatctataca ttataaggga cttaacaact aaagggcaac atatagactt tagatcctaa tttgagcaaa atctaaaatc aattattagg caatcagaaa aatttgaaca cagactagat atttgaggat attaaggtac tatattattg aagattccat ggttatgttt tttaaagagt tcatgccttt tagagataca tactaaagta tttgtaaata aatgacatga tctagaaaaa aaaaaaaaaa a

FIGURE 31

Met Gly Thr Tyr Ser Thr Ile Leu Ile Lys Thr Glu Val Ile Glu Cys Gly Asn Tyr Cys Gly Val Arg Ile Ile His Ser Leu Ile Ala Glu Phe Ser Leu Glu Glu Leu Lys Lys Ser Tyr His Leu Asn Lys Ser Gln Ile Met Leu Asp Met Leu Thr Glu Asn Leu Phe Phe Asp Thr Gly Met Gly Lys Ser Lys Phe Leu Gln Asp Met His Thr Leu Leu Leu Thr Arg His Arg Asp Glu His Glu Gly Glu Thr Gly Asn Trp Phe Ser Pro Phe Ile Glu Ala Leu His Lys Asp Glu Gly Asn Glu Ala Val Glu Ala Val Leu Leu Glu Ser Ile His Arg Phe Asn Pro Asn Ala Phe Ile Cys Gln Ala Leu Ala Arg His Phe Tyr Ile Lys Lys Lys Asp Phe Gly Asn Ala Leu Asn Trp Ala Lys Gln Ala Lys Ile Ile Glu Pro Asp Asn Ser Tyr Ile Ser Asp Thr Leu Gly Gln Val Tyr Lys Ser Lys Ile Arg Trp Trp Ile Glu Glu Asn Gly Gly Asn Gly Asn Ile Ser Val Asp Asp Leu Ile Ala Leu Leu Asp Leu Ala Glu His Ala Ser Ser Ala Phe Lys Glu Ser Gln Gln Gln Ser Glu Asp Arg Glu Tyr Glu Val Lys Glu Arg Leu Tyr Pro Lys Ser Lys Arg Arg Tyr Asp Thr Tyr Asn Ile Ala Gly Tyr Gln Gly Glu Ile Glu Val Gly Leu Tyr Thr Ile Gln Ile Leu Gln Leu Ile Pro Phe Phe Asp Asn Lys Asn Glu Leu Ser Lys Arg Tyr Met Val Asn Phe Val Ser Gly Ser Ser Asp Ile Pro Gly Asp Pro Asn Asn Glu Tyr Lys Leu Ala Leu Lys Asn Tyr Ile Pro Tyr Leu Thr Lys Leu Lys Phe Ser Leu Lys Lys Ser Phe Asp Phe Phe Asp Glu Tyr Phe Val Leu Leu Lys Pro Arg Asn Asn Ile Lys Gln Asn Glu Glu Ala Lys Thr Arg Arg Lys Val Ala Gly Tyr Phe Lys Lys Tyr Val Asp Ile Phe Cys Leu Leu Glu Glu Ser Gln Asn Asn Thr Gly Leu Gly Ser Lys Phe Ser Glu Pro Leu Gln Val Glu Arg Cys Arg Arg Asn Leu Val Ala Leu Lys Ala Asp Lys Phe Ser Gly Leu Leu Glu Tyr Leu Ile Lys Ser Gln Glu Asp Ala Ile Ser Thr Met Lys Cys Ile Val Asn Glu Tyr Thr Phe Leu Leu Glu Gln Cys Thr Val Lys Ile Gln Ser Lys Glu Lys Leu Asn Phe Ile Leu Ala Asn Ile Ile Leu Ser Cys Ile Gln Pro Thr Ser Arg Leu Val Lys Pro Val Glu Lys Leu Lys Asp Gln Leu Arg Glu Val Leu Gln Pro Ile Gly Leu Thr Tyr Gln Phe Ser Glu Pro Tyr Phe Leu Ala Ser Leu Leu Phe Trp Pro Glu Asn Gln Gln Leu Asp Gln His Ser Glu Gln Met Lys Glu Tyr Ala Gln Ala Leu Lys Asn Ser Phe Lys Gly Gln Tyr Lys His Met His Arg Thr Lys Gln Pro Ile Ala Tyr Phe Phe Leu Gly Lys Gly Lys Arg Leu Glu Arg Leu Val His Lys Gly Lys Ile Asp Gln Cys Phe Lys Lys Thr Pro Asp Ile Asn Ser Leu Trp Gln Ser Gly Asp Val Trp Lys Glu Glu Lys Val Gln Glu Leu Leu Leu Arg Leu Gln Gly Arg Ala Glu Asn Asn Cys Leu Tyr Ile Glu Tyr Gly Ile Asn Glu Lys Ile Thr Ile Pro Ile Thr Pro Ala Phe Leu Gly Gln Leu Arg Ser Gly Arg Ser Ile Glu Lys Val Ser Phe Tyr Leu Gly Phe Pro Ile Gly Gly Pro Leu Ala Tyr Asp Ile Glu Ile Val

FIGURE 32

tataaattgc tttttaactt cgttgaacaa aacatgaaaa tagagagact ggttgaagta aagccttcct tagttattga ctatttaaag acagaaaaga agctattctg gccaaagata aagaaggtaa atgtgcaggt aagtttcaat cctgagaaca aacaaaaagg cattttacta actggctcaa agaccgaagt actgaaggca gtggacattg tcaagcaagt ctgggattca gtctgtgtta aaagtgtcca tactgataag ccaggagcca agcagttctt ccaggataaa gcacggtttt atcaaagtga gatcaaacgg ttgtttggtt gttacattga actacaggag aatgaagtaa tgaaggaggg aggcagcccc gctgggcaga agtgcttctc tcggacagtc ttggcccctg gcgttgtgct gattgtgcag cagggtgact tggcacggct tcctgtcgat gtggtggtga atgcatctaa tgaggacctt aagcattatg gtggcctggc cgctgcgctc tcaaaagcag ctggccctga gctccaggcc gactgtgacc agatagtgaa gagagagggc agactcctac cgggcaatgc caccatctcc aaggcaggaa agctgcccta ccaccacgtg atccatgcag tggggccccg ctggagcgga tatgaggccc cgaggtgtgt gtacctatta aggagagctg tgcaactcag tctctgtcta gccgaaaaat acaagtaccg atccatagcc atcccagcta ttagttctgg agtctttggc tttcccttag gccgatgcgt ggagaccatt gtttctgcca tcaaggaaaa cttccaattc aagaaggatg gacactgctt gaaagaaatc taccttgtgg atgtatctga gaagactgtt gaggcctttg cagaagctgt gaaaactgta tttaaagcca ccctgccaga tacagctgcc ccgccaggtt taccaccagc agcagcgggg cctgggaaaa catcatggga aaaaggaagc ctggtgtccc cgggaggcct gcagatgctg ttggtgaaag agggtgtgca gaatgctaag accgatgttg ttgtcaactc cgttcccttg gatctcgtgc ttagtagagg gcctctttct aagtccctct tggaaaaagc tggaccagag ctccaggagg aattggacac agttggacaa ggggtggctg tcagcatggg cacagtgctc aaaaccagca gctggaatct ggactgtcgc tatgtgcttc acgtggtagc tccggagtgg agaaatggta gcacatcttc actcaagata atggaagaca taatcagaga atgtatggag atcactgaga gcttgtcctt aaaatcaatt gcatttccag caataggaac aggaaacttg ggatttccta aaaacatatt cgctgaatta atcatttcag aggtgttcaa atttagtagc aagaatcagc tgaaaacttt acaagaggtt cactttctgc tgcacccgag tgatcatgaa aatattcagg cattttcaga tgaatttgcc agaagggcta atggaaatct cgtcagtgac aaaattccga aggctaaaga tacacaaggt ttttatggga ctgtttctag ccctgattca ggtgtgtatg aaatgaagat tggctccatc atcttccagg tggcttctgg agatatcacg aaagaagagg cagatgtgat tgtaaattca acatcaaact cattcaatct caaagcaggg gtctccaaag caattttaga atgtgctgga caaaatgtag aaagggaatg ttctcagcaa gctcagcagc gcaaaaatga ttatataatc accggaggtg gatttttgag gtgcaagaat atcattcatg taattggtgg aaatgatgtc aagagttcag tttcctctgt tttgcaggag tgtgaaaaaa aaaattactc atccatttgc ctcccagcca ttgggacagg aaatgccaaa caacacccag ataaggttgc tgaagccata attgatgcca ttgaagactt tgtccagaaa ggatcagccc agtctgtgaa aaaagttaaa gttgttatct ttctgcctca agtactggat gtgttttatg ccaacatgaa gaaaagagaa gggactcagc tttcttccca acagtctgtg atgtctaaac ttgcatcatt tttgggcttt tcaaagcaat ctccccaaaa aaagaatcat ttggttttgg aaaagaaaac agaatcagca acttttcggg tgtgtggtga aaatgtcacg tgtgtggaat acgctatctc ctggctacaa gacctgattg aaaaagaaca gtgtccttac accagtgaag atgagtgcat caaagacttt gatgaaaagg agtatcagga gttgaatgag ctgcagaaga agttaaatat taacatttcc ctggaccata agagaccttt gattaaggtt ttgggaatta gcagagatgt gatgcaggct agagatgaaa ttgaggcgat gatcaagaga gttcgattgg ccaaagaaca ggaatcccgg gcagattgta tcagtgagtt tatagaatgg cagtataatg acaataacac ttctcattgt tttaacaaaa tgaccaatct gaaattagag gatgcaagga gagaaaagaa aaaaacagtt gatgtcaaaa ttaatcatcg gcactacaca gtgaacttga acacatacac tgccacagac acaaagggcc acagtttatc tgttcagcgc ctcacgaaat ccaaagttga catccctgca cactggagtg atatgaagca gcagaatttc tgtgtggtgg agctgctgcc tagtgatcct gagtacaaca cggtggcaag caagtttaat cagacctgct cacacttcag aatagagaag gtaagccttc tgctagaatg cagtttctgg atggtggaaa taagttctgt catggtccta tataaaatcc attttcattc acttcctatc acatttttt aaacccagaa ttagaatttg tatggtaatt agtagttcta gattctactc atgtgaccat aattactgag gcattaagat tcttgtgtca gtgattacaa tatttgattg taatatgata gaacactaaa gacatatatt tactttgtga agcaagctaa tacaaattca aagatatggc tttaaaattg gatttgatag ctagcaaatt ccacagagag ccatgcagag gctccttaga tcaggaccat gttactctgc cccattattc acagatcaac agtgcttcct tgataaagcc agcaggcctt ttctcgttta tcataattat tttgggcagg tgaatgtgat gattcgtgcc tgtagtccca gctattggga ggctgaggtg gaaggattgc atgagcccag gagtttgacg ccagtctggg taacatagtg agatcctgct ctcaaataaa aacaaccaat tattttggca tcttcttcca tttttaaaca tttttgatat tgctgtttga aattatattt tccttgactt ctctagcaaa attattatga ttttttttt ccttgactaa ttttcttttc atttttgcag gcacgctgtt tctcttccaa acccctaatt ctagctttat tcacgccatt tatgcttaaa cggtcttttg tctctgtacc tcaccaggga atatatttac ccttcttgga ttcaactatt agttcaatgt cgatagctcc caaatcaaca ttaccaacct gggtctttga ctcaagctct agaacatact cccagtggcc taaaaaaatc tccacttgag gctgggcaca gtggctcacg cctgtaatcc cagcactttg ggaggccgag gtgggtggat cacgaggtca ggggttcaag accatcctgg tgaagatggt gaaaccacgt ctctactaaa actacaaaaa ttagccgggc atgttggcag

gtgcctataa tcccacctac ttgggaggct gaggcaggat aattgcttga acatgggcgg cagagattgc agtgagccaa gatcacgcca ctgcactcca gcctggtcga cagagtgaga ctccgtctca aaaaaaaaaa tctccacttg aatatctaac tgcaaaatca acttctctaa aatctaatgc atcatacgta agtaattctc tttccctttc cttcctcatt tctgtttttg gttctaccac tttctgagta aagccggaga tctttgatcc accataagtc tgccagtaag acctacattt tctttgcaaa tttttcttac tctctatttg aactgccaac actgtttatt catgttgtta agtacatcat aatttaaaaa gattcaaagt gccctacaaa gatataaact ataccttcag ataaaataaa tatacaaaga aaaatggtta aagagaaaag aatggcaggg aaaataagat aatacagacg aactgctagt tctcaaaaat atataacatg aggttaccaa tttgtccctg agcttcctag tagacaaagc aagaagtaaa cattcaggta caagactcat aatgtccgta aatcaaaaag caaaccattt gataaggagg ctcacagctc ctcacaatac tgagactgac tcctgagaga tttctcttgt ggatcaagta ctagagaata tcctcaacgt catcctcaca ataaattaaa tatcaacttt tatatcactg ttttttttta atgtaaaact ggttgaacaa aaccgatgcc tgattgaatg aaaacaattc tatgaggcac caagacaata tgattcaagt atgcagctct atgatggtct atttctgaga taacaagtaa gtctcactcc aagtaccaat tactactaac tggtagtggc tgattggcac attgtgatga gatgctaagt ttagattgag caggaatgaa tgttctgctt gaccagcaat atctacagtg ggccctgtgg atgcctgctg tgtattggca gaccctggcc agagaattga tttcaacact tttttgcagt gaaacctttt ttttcaataa aatcttatgt gaaatcccag tgtatgaacc agataaaagc agaggtgtgg gtagtactta aggtgcctcc atggaggtcc ctagaattgt g

FIGURE 33

Tyr Lys Leu Leu Phe Asn Phe Val Glu Gln Asn Met Lys Ile Glu Arg Leu Val Glu Val Lys Pro Ser Leu Val Ile Asp Tyr Leu Lys Thr Glu Lys Lys Leu Phe Trp Pro Lys Ile Lys Lys Val Asn Val Gln Val Ser Phe Asn Pro Glu Asn Lys Gln Lys Gly Ile Leu Leu Thr Gly Ser Lys Thr Glu Val Leu Lys Ala Val Asp Ile Val Lys Gln Val Trp Asp Ser Val Cys Val Lys Ser Val His Thr Asp Lys Pro Gly Ala Lys Gln Phe Phe Gln Asp Lys Ala Arg Phe Tyr Gln Ser Glu Ile Lys Arg Leu Phe Gly Cys Tyr Ile Glu Leu Gln Glu Asn Glu Val Met Lys Glu Gly Gly Ser Pro Ala Gly Gln Lys Cys Phe Ser Arg Thr Val Leu Ala Pro Gly Val Val Leu Ile Val Gln Gln Gly Asp Leu Ala Arg Leu Pro Val Asp Val Val Val Asn Ala Ser Asn Glu Asp Leu Lys His Tyr Gly Gly Leu Ala Ala Ala Leu Ser Lys Ala Ala Gly Pro Glu Leu Gln Ala Asp Cys Asp Gln Ile Val Lys Arg Glu Gly Arg Leu Leu Pro Gly Asn Ala Thr Ile Ser Lys Ala Gly Lys Leu Pro Tyr His His Val Ile His Ala Val Gly Pro Arg Trp Ser Gly Tyr Glu Ala Pro Arg Cys Val Tyr Leu Leu Arg Arg Ala Val Gln Leu Ser Leu Cys Leu Ala Glu Lys Tyr Lys Tyr Arg Ser Ile Ala Ile Pro Ala Ile Ser Ser Gly Val Phe Gly Phe Pro Leu Gly Arg Cys Val Glu Thr Ile Val Ser Ala Ile Lys Glu Asn Phe Gln Phe Lys Lys Asp Gly His Cys Leu Lys Glu Ile Tyr Leu Val Asp Val Ser Glu Lys Thr Val Glu Ala Phe Ala Glu Ala Val Lys Thr Val Phe Lys Ala Thr Leu Pro Asp Thr Ala Ala Pro Pro Gly Leu Pro Pro Ala Ala Ala Gly Pro Gly Lys Thr Ser Trp Glu Lys Gly Ser Leu Val Ser Pro Gly Gly Leu Gln Met Leu Leu Val Lys Glu Gly Val Gln Asn Ala Lys Thr Asp Val Val Val Asn Ser Val Pro Leu Asp Leu Val Leu Ser Arg Gly Pro Leu Ser Lys Ser Leu Leu Glu Lys Ala Gly Pro Glu Leu Gln Glu Glu Leu Asp Thr Val Gly Gln Gly Val Ala Val Ser Met Gly Thr Val Leu Lys Thr Ser Ser Trp Asn Leu Asp Cys Arg Tyr Val Leu His Val Val Ala Pro Glu Trp Arg Asn Gly Ser Thr Ser Ser Leu Lys Ile Met Glu Asp Ile Ile Arg Glu Cys Met Glu Ile Thr Glu Ser Leu Ser Leu Lys Ser Ile Ala Phe Pro Ala Ile Gly Thr Gly Asn Leu Gly Phe Pro Lys Asn Ile Phe Ala Glu Leu Ile Ile Ser Glu Val Phe Lys Phe Ser Ser Lys Asn Gln Leu Lys Thr Leu Gln Glu Val His Phe Leu Leu His Pro Ser Asp His Glu Asn Ile Gln Ala Phe Ser Asp Glu Phe Ala Arg Arg Ala Asn Gly Asn Leu Val Ser Asp Lys Ile Pro Lys Ala Lys Asp Thr Gln Gly Phe Tyr Gly Thr Val Ser Ser Pro Asp Ser Gly Val Tyr Glu Met Lys Ile Gly Ser Ile Ile Phe Gln Val Ala Ser Gly Asp Ile Thr Lys Glu Glu Ala Asp Val Ile Val Asn Ser Thr Ser Asn Ser Phe Asn Leu Lys Ala Gly Val Ser Lys Ala Ile Leu Glu Cys Ala Gly Gln Asn Val Glu Arg Glu Cys Ser Gln Gln Ala Gln Gln Arg Lys Asn Asp Tyr Ile Ile Thr Gly Gly Gly Phe Leu Arg Cys Lys Asn Ile Ile His Val Ile Gly Gly Asn Asp Val Lys Ser Ser Val Ser Ser Val Leu Gln Glu Cys Glu Lys Lys Asn Tyr Ser Ser Ile Cys Leu Pro Ala Ile Gly Thr Gly Asn Ala Lys Gln His Pro Asp Lys Val Ala Glu Ala Ile Ile Asp Ala Ile Glu Asp Phe Val Gln Lys Gly Ser Ala Gln Ser Val Lys Lys Val Lys Val Val Ile Phe Leu Pro Gln Val Leu Asp Val Phe Tyr Ala Asn Met Lys Lys Arg Glu Gly Thr Gln Leu Ser Ser Gln Gln Ser Val Met Ser Lys Leu Ala Ser Phe Leu Gly Phe Ser Lys Gln Ser Pro Gln Lys Lys Asn His Leu Val Leu Glu Lys Lys Thr Glu Ser Ala Thr Phe Arg Val Cys Gly Glu Asn Val Thr Cys Val Glu Tyr Ala Ile Ser Trp Leu Gln Asp Leu Ile Glu Lys Glu Gln Cys Pro Tyr Thr Ser Glu Asp Glu Cys Ile Lys Asp Phe Asp Glu Lys Glu Tyr Gln Glu Leu Asn Glu Leu Gln Lys Lys Leu Asn Ile Asn Ile Ser Leu Asp His Lys Arg Pro Leu Ile Lys Val Leu Gly Ile Ser Arg Asp Val Met Gln Ala Arg Asp Glu Ile Glu Ala Met Ile Lys Arg Val Arg Leu Ala Lys Glu Gln Glu Ser Arg Ala Asp Cys Ile Ser Glu Phe Ile Glu Trp Gln Tyr Asn Asp Asn Asn Thr Ser His Cys Phe Asn Lys Met Thr Asn Leu Lys Leu Glu Asp Ala Arg Arg Glu Lys Lys Lys Thr Val Asp Val Lys Ile Asn His Arg His Tyr Thr Val Asn Leu Asn Thr Tyr Thr Ala Thr Asp Thr Lys Gly His Ser Leu Ser Val Gln Arg Leu Thr Lys Ser Lys Val Asp Ile Pro Ala His Trp Ser Asp Met Lys Gln Gln Asn Phe Cys Val Val Glu Leu Leu Pro Ser Asp Pro Glu Tyr Asn Thr Val Ala Ser Lys Phe Asn Gln Thr Cys Ser His Phe Arg Ile Glu Lys Val Ser Leu Leu Leu Glu Cys Ser Phe Trp Met Val Glu Ile Ser Ser Val Met Val Leu Tyr Lys Ile His Phe His Ser Leu Pro Ile Thr Phe Phe

FIGURE 34

actccaggtc ccctatcctg tcctctgcaa cccaaacgtc caggaggatc atgacctgcg gatcaggatt tggtgggcgc gccttcagct gcatctcggc ctgcgggccg cgccccggcc gctgctgcat caccgccgcc ccctaccgtg gcatctcctg ctaccgcggc ctcaccgggg gcttcggcag ccacagcgtg tgcggaggct ttcgggccgg ctcctgcgga cgcagcttcg gctaccgctc cgggggcgtg tgcgggccca gtcccccatg catcaccacc gtgtcggtca acgagagcct cctcacgccc ctcaacctgg agatcgaccc caacgcgcag tgcgtgaagc aggaggagaa ggagcagatc aagtccctca acagcaggtt cgcggccttc atcgacaagg tgcgcttcct ggagcagcag aacaaactgc tggagacaaa gctgcagttc taccagaacc gcgagtgttg ccagagcaac ctggagcccc tgtttgaggg ctacatcgag actctgcggc gggaggccga gtgcgtggag gccgacagcg ggaggctggc ctcagagctt aaccacgtgc aggaggtgct ggagggctac aagaagaagt atgaggagga ggtttctctg agagcaacag ctgagaacga gtttgtggct ctgaagaagg atgtggactg cgcctacctc cgcaagtcag acctggaggc caacgtggag gccctgatcc aggagatcga cttcctgagg cggctgtatg aggaggagat ccgcattctc cagtcgcaca tctcagacac ctccgtggtt gtcaagctgg acaacagccg ggacctgaac atggactgca tcattgccga gattaaggca cagtatgacg acattgtcac ccgcagccgg gccgaggccg agtcctggta ccgcagcaag tgtgaggaga tgaaggccac ggtgatcagg cacggggaga ccctgcgccg caccaaggag gagatcaatg agctgaaccg catgatccaa aggctgacgg ccgaggtgga gaatgccaag tgccagaact ccaagctgga ggccgcggtg gctcagtctg agcagcaggg tgaggcagcc ctcagtgatg cccgctgcaa gctggccgag ctggagggcg ccctgcagaa ggccaagcag gacatggcct gcctgatcag ggagtaccag gaggtgatga actccaagct gggcctggac atcgagatcg ccacctacag gcgcctgctg gagggcgagg agcagaggct atgtgaaggc attggggctg tgaatgtctg tgtcagcagc tcccggggcg gggtcgtgtg cggggacctc tgcgtgtcag gctcccggcc agtgactggc agtgtctgca gcgctccgtg caacgggaac gtggcggtga gcaccggcct gtgtgcgccc tgcggccaat tgaacaccac ctgcggaggg ggttcctgcg gcgtgggctc ctgtggtatc agctccctgg gtgtggggtc ttgcggcagc agctgccgga aatgttaggc accccaactc aagtcccagg ccccaggcat ctttgcctgc cctgccttgc ttggcccagt cagtcaggcg cctggagaag tgctcagcta cttctcctgc actttgaaag acccctccca ctcctggcct cacatttctc tgtgtgatcc cccacttctg ggctctgcca ccccacagtg ggaaaggcca ccctagaaag aagtccgctg gcacccatag gaaggggcct caggagcagg aagggccagg accagaacct tgcccacggc aactgccttc ctgcctctcc ccttcctcct ctgctcttga tctgtgtttc aataaattaa tgtagccaaa aaaaaaaaaa aaaaa

FIGURE 35

Met Thr Cys Gly Ser Gly Phe Gly Gly Arg Ala Phe Ser Cys Ile Ser Ala Cys Gly Pro Arg Pro Gly Arg Cys Cys Ile Thr Ala Ala Pro Tyr Arg Gly Ile Ser Cys Tyr Arg Gly Leu Thr Gly Gly Phe Gly Ser His Ser Val Cys Gly Gly Phe Arg Ala Gly Ser Cys Gly Arg Ser Phe Gly Tyr Arg Ser Gly Gly Val Cys Gly Pro Ser Pro Pro Cys Ile Thr Thr Val Ser Val Asn Glu Ser Leu Leu Thr Pro Leu Asn Leu Glu Ile Asp Pro Asn Ala Gln Cys Val Lys Gln Glu Glu Lys Glu Gln Ile Lys Ser Leu Asn Ser Arg Phe Ala Ala Phe Ile Asp Lys Val Arg Phe Leu Glu Gln Gln Asn Lys Leu Leu Glu Thr Lys Leu Gln Phe Tyr Gln Asn Arg Glu Cys Cys Gln Ser Asn Leu Glu Pro Leu Phe Glu Gly Tyr Ile Glu Thr Leu Arg Arg Glu Ala Glu Cys Val Glu Ala Asp Ser Gly Arg Leu Ala Ser Glu Leu Asn His Val Gln Glu Val Leu Glu Gly Tyr Lys Lys Lys Tyr Glu Glu Glu Val Ser Leu Arg Ala Thr Ala Glu Asn Glu Phe Val Ala Leu Lys Lys Asp Val Asp Cys Ala Tyr Leu Arg Lys Ser Asp Leu Glu Ala Asn Val Glu Ala Leu Ile Gln Glu Ile Asp Phe Leu Arg Arg Leu Tyr Glu Glu Glu Ile Arg Ile Leu Gln Ser His Ile Ser Asp Thr Ser Val Val Val Lys Leu Asp Asn Ser Arg Asp Leu Asn Met Asp Cys Ile Ile Ala Glu Ile Lys Ala Gln Tyr Asp Asp Ile Val Thr Arg Ser Arg Ala Glu Ala Glu Ser Trp Tyr Arg Ser Lys Cys Glu Glu Met Lys Ala Thr Val Ile Arg His Gly Glu Thr Leu Arg Arg Thr Lys Glu Glu Ile Asn Glu Leu Asn Arg Met Ile Gln Arg Leu Thr Ala Glu Val Glu Asn Ala Lys Cys Gln Asn Ser Lys Leu Glu Ala Ala Val Ala Gln Ser Glu Gln Gln Gly Glu Ala Ala Leu Ser Asp Ala Arg Cys Lys Leu Ala Glu Leu Glu Gly Ala Leu Gln Lys Ala Lys Gln Asp Met Ala Cys Leu Ile Arg Glu Tyr Gln Glu Val Met Asn Ser Lys Leu Gly Leu Asp Ile Glu Ile Ala Thr Tyr Arg Arg Leu Leu Glu Gly Glu Glu Gln Arg Leu Cys Glu Gly Ile Gly Ala Val Asn Val Cys Val Ser Ser Ser Arg Gly Gly Val Val Cys Gly Asp Leu Cys Val Ser Gly Ser Arg Pro Val Thr Gly Ser Val Cys Ser Ala Pro Cys Asn Gly Asn Val Ala Val Ser Thr Gly Leu Cys Ala Pro Cys Gly Gln Leu Asn Thr Thr Cys Gly Gly Gly Ser Cys Gly Val Gly Ser Cys Gly Ile Ser Ser Leu Gly Val Gly Ser Cys Gly Ser Ser Cys Arg Lys Cys

FIGURE 36

agcggggcag aagaggaaga tttctgaaga gtgcagctgc ctgaaccgag ccctgccgaa cagctgagaa ttgcactgca accatgagtg agaacaataa gaattccttg gagagcagcc tacggcaact aaaatgccat ttcacctgga acttgatgga gggagaaaac tccttggatg attttgaaga caaagtattt taccggactg agtttcagaa tcgtgaattc aaagccacaa tgtgcaacct actggcctat ctaaagcacc tcaaagggca aaacgaggca gccctggaat gcttacgtaa agctgaagag ttaatccagc aagagcatgc tgaccaggca gaaatcagaa gtctggtcac ctggggaaac tatgcctggg tctactatca catgggccga ctctcagacg ttcagattta tgtagacaag gtgagacatg tctgtgagaa gttttccagt ccctatagaa ttgagagtcc agagcttgac tgtgaggaag ggtggacacg gttaaagtgt ggaggaaacc aaaatgaaag agcgaaggtg tgctttgaga aggctctgga aaagaagcca aagaacccag aattcacctc tggactggca atagcaagct accgtctgga caactggcca ccatctcaga acgccattga ccctctgagg caagccattc ggctgaatcc tgacaaccag taccttaaag tcctcctggc tctgaagctt cataagatgc gtgaagaagg tgaagaggaa ggtgaaggag agaagttagt tgaagaagcc ttggagaaag ccccaggtgt aacagatgta cttcgcagtg cagccaagtt ttatcgaaga aaagatgagc cagacaaagc gattgaactg cttaaaaagg ctttagaata cataccaaac aatgcctacc tgcattgcca aattgggtgc tgctataggg caaaagtctt ccaagtaatg aatctaagag agaatggaat gtatgggaaa agaaagttac tggaactaat aggacacgct gtggctcatc tgaagaaagc tgatgaggcc aatgataatc tcttccgtgt ctgttccatt cttgccagcc tccatgctct agcagatcag tatgaagaag cagagtatta cttccaaaag gaattcagta aagagcttac tcctgtagcg aaacaactgc tccatctgcg gtatggcaac tttcagctgt accaaatgaa gtgtgaagac aaggccatcc accactttat agagggtgta aaaataaacc agaaatcaag ggagaaagaa aagatgaaag acaaactgca aaaaattgcc aaaatgcgac tttctaaaaa tggagcagat tctgaggctt tgcatgtctt ggcattcctt caggagctga atgaaaaaat gcaacaagca gatgaagact ctgagagggg tttggagtct ggaagcctca tcccttcagc atcaagctgg aatggggaat ggagaataga gatgtggtgc ccactaggct actgctgata gggagctgaa attcctccac caagttggta ttcaaaatat gtaatgactg gtatggcaaa agattggact aagacactgg ccataccact ggacagggtt atgttaacac ctgaattgct gggtcttgag agagcccaag gagttctggg agagggacca gattgggggg taggtccacg ggcttggtga tagaattatt tctcgattga cttcttgagt gcaatttgaa ctgtaacatt tgcttagtca cctttagtgg agtaatccac tgggcttgtt tctatattta tataaagcag ccaaatcctt catgtaatat tgaagtccat ttttgcaatg ttgttccata cttggagtca ttttgcatcc catagaggtt agtcctgcat agccagtaat gtgctaagtt catccaaaag ctgggggacc aaagtctaaa tagggctcag tatcccccat cgcttatctc tgcctccttc ctcctccttc ccagtctatc atcaaccttg agtattctac acaatgtgaa ttcaagtgcc tgattaattg aggtggcaac atagtttgag acgagggcag agaacaggaa gatacatagc tagaagcgac gggtacaaaa agcaatgtgt acaagaagac tttcagcaag tatacagaga gttcacctct actctgccct cctcatagtc ataatgtagc aagtaaagaa tgagaatgga ttctgtacaa tacactagaa accaacataa tgtatttctt taaaacctgt gtgaaaaaat aaatgttcca ccagtaggga taggggaaaa gtaaccaaaa gagagaaaga gaaaggaatg ctggtttatc tttgtagatt gtaatcgaat ggagaaattt gcagtatttt agccactatt aggaattttt ttttttgta aaatgaagac tgaactctgt tcaaatgctt tcatgaacct ggtttgagac ggtaggaaag caacaaaacg tgggaacctg gtgactaagg gcctggtgca aggacttggg aaatgtcatt aataatagat ggtggggttt tccccccttt agaaatgttg gatattaagt gatataaaca cttcttttaa ctccgaaaat cttctgagaa atcacaaaat tcacggtatg cttggaacga ttgagatttt ctaggtagat gctgaatagc ctagacatca aagttggtgt gaaccaaaat agagtcagct gacccagcat cagccacact ctgggttgga aaatgtttgc ctgttggaat taatttaagc ttaagtatat atcaacatta ttttattgtg caattaaaac aatacaaatt catggttttt taaagttaaa aattctaacc actgtaacaa cagtttttgt gttattttct gtattaaaca tcttgttgca cgcatttgag gtcatcaggg tgcaaaattt gtattcctga aaatgtcata tattttcatt aataaataac ctaaatatga taaaacataa aaaaaaaaaa aaa

FIGURE 37

Met Glu Gly Glu Asn Ser Leu Asp Asp Phe Glu Asp Lys Val Phe Tyr Arg Thr Glu Phe Gln Asn Arg Glu Phe Lys Ala Thr Met Cys Asn Leu Leu Ala Tyr Leu Lys His Leu Lys Gly Gln Asn Glu Ala Ala Leu Glu Cys Leu Arg Lys Ala Glu Glu Leu Ile Gln Gln Glu His Ala Asp Gln Ala Glu Ile Arg Ser Leu Val Thr Trp Gly Asn Tyr Ala Trp Val Tyr Tyr His Met Gly Arg Leu Ser Asp Val Gln Ile Tyr Val Asp Lys Val Arg His Val Cys Glu Lys Phe Ser Ser Pro Tyr Arg Ile Glu Ser Pro Glu Leu Asp Cys Glu Glu Gly Trp Thr Arg Leu Lys Cys Gly Gly Asn Gln Asn Glu Arg Ala Lys Val Cys Phe Glu Lys Ala Leu Glu Lys Lys Pro Lys Asn Pro Glu Phe Thr Ser Gly Leu Ala Ile Ala Ser Tyr Arg Leu Asp Asn Trp Pro Pro Ser Gln Asn Ala Ile Asp Pro Leu Arg Gln Ala Ile Arg Leu Asn Pro Asp Asn Gln Tyr Leu Lys Val Leu Leu Ala Leu Lys Leu His Lys Met Arg Glu Glu Gly Glu Glu Glu Glu Gly Glu Gly Glu Lys Leu Val Glu Glu Ala Leu Glu Lys Ala Pro Gly Val Thr Asp Val Leu Arg Ser Ala Ala Lys Phe Tyr Arg Arg Lys Asp Glu Pro Asp Lys Ala Ile Glu Leu Leu Lys Lys Ala Leu Glu Tyr Ile Pro Asn Asn Ala Tyr Leu His Cys Gln Ile Gly Cys Cys Tyr Arg Ala Lys Val Phe Gln Val Met Asn Leu Arg Glu Asn Gly Met Tyr Gly Lys Arg Lys Leu Leu Glu Leu Ile Gly His Ala Val Ala His Leu Lys Lys Ala Asp Glu Ala Asn Asp Asn Leu Phe Arg Val Cys Ser Ile Leu Ala Ser Leu His Ala Leu Ala Asp Gln Tyr Glu Glu Ala Glu Tyr Tyr Phe Gln Lys Glu Phe Ser Lys Glu Leu Thr Pro Val Ala Lys Gln Leu Leu His Leu Arg Tyr Gly Asn Phe Gln Leu Tyr Gln Met Lys Cys Glu Asp Lys Ala Ile His His Phe Ile Glu Gly Val Lys Ile Asn Gln Lys Ser Arg Glu Lys Glu Lys Met Lys Asp Lys Leu Gln Lys Ile Ala Lys Met Arg Leu Ser Lys Asn Gly Ala Asp Ser Glu Ala Leu His Val Leu Ala Phe Leu Gln Glu Leu Asn Glu Lys Met Gln Gln Ala Asp Glu Asp Ser Glu Arg Gly Leu Glu Ser Gly Ser Leu Ile Pro Ser Ala Ser Ser Trp Asn Gly Glu Trp Arg Ile Glu Met Trp Cys Pro Leu Gly Tyr Cys

FIGURE 38

ggccccttgt ctgcagagat ggctcccaat gcttcctgcc tctgtgtgca tgtccgttcc gaggaatggg atttaatgac ctttgatgcc aacccatatg acagcgtgaa aaaaatcaaa gaacatgtcc ggtctaagac caaggttcct gtgcaggacc aggttctttt gctgggctcc aagatcttaa agccacggag aagcctctca tcttatggca ttgacaaaga gaagaccatc caccttaccc tgaaagtggt gaagcccagt gatgaggagc tgcccttgtt tcttgtggag tcaggtgatg aggcaaagag gcacctcctc caggtgcgaa ggtccagctc agtggcacaa gtgaaagcaa tgatcgagac taagacgggt ataatccctg agacccagat tgtgacttgc aatggaaaga gactggaaga tgggaagatg atggcagatt acggcatcag aaagggcaac ttactcttcc tggcatctta ttgtattgga gggtgaccac cctggggatg gggtgttggc aggggtcaaa aagcttattt cttttaatct cttactcaac gaacacatct tctgatgatt tcccaaaatt aatgagaatg agatgagtag agtaagattt gggtgggatg ggtaggatga agtatattgc ccaactctat gtttctttga ttctaacaca attaattaag tgacatgatt tttactaatg tattactgag actagtaaat aaatttttaa ggcaaaatag agcattc

FIGURE 39

Met Ala Pro Asn Ala Ser Cys Leu Cys Val His Val Arg Ser Glu Glu Trp Asp Leu Met Thr Phe Asp Ala Asn Pro Tyr Asp Ser Val Lys Lys Ile Lys Glu His Val Arg Ser Lys Thr Lys Val Pro Val Gln Asp Gln Val Leu Leu Leu Gly Ser Lys Ile Leu Lys Pro Arg Arg Ser Leu Ser Ser Tyr Gly Ile Asp Lys Glu Lys Thr Ile His Leu Thr Leu Lys Val Val Lys Pro Ser Asp Glu Glu Leu Pro Leu Phe Leu Val Glu Ser Gly Asp Glu Ala Lys Arg His Leu Leu Gln Val Arg Arg Ser Ser Ser Val Ala Gln Val Lys Ala Met Ile Glu Thr Lys Thr Gly Ile Ile Pro Glu Thr Gln Ile Val Thr Cys Asn Gly Lys Arg Leu Glu Asp Gly Lys Met Met Ala Asp Tyr Gly Ile Arg Lys Gly Asn Leu Leu Phe Leu Ala Ser Tyr Cys Ile Gly Gly

FIGURE 40

attgagagtg gctctaacaa gtgccatttt tccttgttag ctttcatttc tcagcccttt acaagattaa aatagtctgc agtttaatct ctccaaagct ttacggacag tgattctgtc ctaaacaaga cagtgactcc aggatttctg aagactattg tggaagaagc atccattaag gccaagctat aacatcagaa atggtgaatg aatacaagaa aattcttttg ctgaaaggat ttgagctcat ggatgattat cattttacat caattaagtc cttactggcc tatgatttag gactaactac aaaaatgcaa gaggaataca acagaattaa gattacagat ttgatggaaa aaaagttcca aggcgttgcc tgtctagaca aactaataga acttgccaaa gatatgccat cacttaaaaa ccttgttaac aatcttcgaa aagagaagtc aaaagttgct aagaaaatta aaacacaaga aaaagctcca gtgaaaaaaa taaaccagga agaagtgggt cttgcggcac ctgcacccac cgcaagaaac aaactgacat cggaagcaag agggaggatt cctgtagctc agaaaagaaa aactccaaac aaagaaaaga ctgaagccaa aaggaataag gtgtcccaag agcagagtaa gcccccaggt ccctcaggag ccagcacatc tgcagctgtg gatcatcccc cactacccca gacctcatca tcaactccat ccaacacttc gtttactccg aatcaggaaa cccaggccca acggcaggtg gatgcaagaa gaaatgttcc ccaaaacgac ccagtgacag tggtggtact gaaagcaaca gcgccattta aatacgagtc cccagaaaat gggaaaagca caatgtttca tgctacagtg gccagtaaga ctcaatattt ccatgtgaaa gtcttcgaca tcaacttgaa agagaaattt gtaaggaaga aggtcattac catatctgat tactctgaat gtaaaggagt aatggaaata aaggaagcat catctgtgtc tgactttaat caaaattttg aggtcccaaa cagaattatc gaaatagcaa ataaaactcc caagatcagt caactttaca agcaagcatc tggaacaatg gtgtatgggt tgtttatgtt acaaaagaaa agcgtacaca agaagaacac aatttatgaa atacaggata atacaggatc catggatgta gtggggagtg gaaaatggca caatatcaag tgtgagaaag gagataaact tcgactcttc tgccttcaac tgagaacagt tgaccgcaag ctgaaactgg tgtgtggaag tcacagcttc atcaaggtca tcaaggccaa gaaaaacaag gaaggaccaa tgaatgttaa ttgaaatatg aaagctgaaa tgcaacaaac aacttccgct taaaacaatt aagttgttaa taactgtgat tttgtaaatt tcagtaattc atttaaatga tgtttcagta gatatattct agcatattaa gagcttttat aactgagtta tagattagtt tgctttctgg aataaaattt tcttcttata ctcttccttt tttttagata ttacattttg cttttatgac attcacgagg caaaaaaccg

FIGURE 41

Met Val Asn Glu Tyr Lys Lys Ile Leu Leu Leu Lys Gly Phe Glu Leu Met Asp Asp Tyr His Phe Thr Ser Ile Lys Ser Leu Leu Ala Tyr Asp Leu Gly Leu Thr Thr Lys Met Gln Glu Glu Tyr Asn Arg Ile Lys Ile Thr Asp Leu Met Glu Lys Lys Phe Gln Gly Val Ala Cys Leu Asp Lys Leu Ile Glu Leu Ala Lys Asp Met Pro Ser Leu Lys Asn Leu Val Asn Asn Leu Arg Lys Glu Lys Ser Lys Val Ala Lys Lys Ile Lys Thr Gln Glu Lys Ala Pro Val Lys Lys Ile Asn Gln Glu Glu Val Gly Leu Ala Ala Pro Ala Pro Thr Ala Arg Asn Lys Leu Thr Ser Glu Ala Arg Gly Arg Ile Pro Val Ala Gln Lys Arg Lys Thr Pro Asn Lys Glu Lys Thr Glu Ala Lys Arg Asn Lys Val Ser Gln Glu Gln Ser Lys Pro Pro Gly Pro Ser Gly Ala Ser Thr Ser Ala Ala Val Asp His Pro Pro Leu Pro Gln Thr Ser Ser Ser Thr Pro Ser Asn Thr Ser Phe Thr Pro Asn Gln Glu Thr Gln Ala Gln Arg Gln Val Asp Ala Arg Arg Asn Val Pro Gln Asn Asp Pro Val Thr Val Val Val Leu Lys Ala Thr Ala Pro Phe Lys Tyr Glu Ser Pro Glu Asn Gly Lys Ser Thr Met Phe His Ala Thr Val Ala Ser Lys Thr Gln Tyr Phe His Val Lys Val Phe Asp Ile Asn Leu Lys Glu Lys Phe Val Arg Lys Lys Val Ile Thr Ile Ser Asp Tyr Ser Glu Cys Lys Gly Val Met Glu Ile Lys Glu Ala Ser Ser Val Ser Asp Phe Asn Gln Asn Phe Glu Val Pro Asn Arg Ile Ile Glu Ile Ala Asn Lys Thr Pro Lys Ile Ser Gln Leu Tyr Lys Gln Ala Ser Gly Thr Met Val Tyr Gly Leu Phe Met Leu Gln Lys Lys Ser Val His Lys Lys Asn Thr Ile Tyr Glu Ile Gln Asp Asn Thr Gly Ser Met Asp Val Val Gly Ser Gly Lys Trp His Asn Ile Lys Cys Glu Lys Gly Asp Lys Leu Arg Leu Phe Cys Leu Gln Leu Arg Thr Val Asp Arg Lys Leu Lys Leu Val Cys Gly Ser His Ser Phe Ile Lys Val Ile Lys Ala Lys Lys Asn Lys Glu Gly Pro Met Asn Val Asn

FIGURE 42

gggaggagag aaaagccatg gccgacaagg tcctgaagga gaagagaaag ctgtttatcc gttccatggg tgaaggtaca ataaatggct tactggatga attattacag acaagggtgc tgaacaagga agagatggag aaagtaaaac gtgaaaatgc tacagttatg gataagaccc gagctttgat tgactccgtt attccgaaag gggcacaggc atgccaaatt tgcatcacat acatttgtga agaagacagt tacctggcag ggacgctggg actctcagca gatcaaacat ctggaaatta ccttaatatg caagactctc aaggagtact ttcttccttt ccagctcctc aggcagtgca ggacaaccca gctatgccca catcctcagg ctcagaaggg aatgtcaagc tttgctccct agaagaagct caaaggatat ggaaacaaaa gtcggcagag atttatccaa taatggacaa gtcaagccgc acacgtcttg ctctcattat ctgcaatgaa gaatttgaca gtattcctag aagaactgga gctgaggttg acatcacagg catgacaatg ctgctacaaa atctggggta cagcgtagat gtgaaaaaaa atctcactgc ttcggacatg actacagagc tggaggcatt tgcacaccgc ccagagcaca agacctctga cagcacgttc ctggtgttca tgtctcatgg tattcgggaa ggcatttgtg ggaagaaaca ctctgagcaa gtcccagata tactacaact caatgcaatc tttaacatgt tgaataccaa gaactgccca agtttgaagg acaaaccgaa ggtgatcatc atccaggcct gccgtggtga cagccctggt gtggtgtggt ttaaagattc agtaggagtt tctggaaacc tatctttacc aactacagaa gagtttgagg atgatgctat taagaaagcc cacatagaga aggattttat cgctttctgc tcttccacac cagataatgt ttcttggaga catcccacaa tgggctctgt ttttattgga agactcattg aacatatgca agaatatgcc tgttcctgtg atgtggagga aattttccgc aaggttcgat tttcatttga gcagccagat ggtagagcgc agatgcccac cactgaaaga gtgactttga caagatgttt ctacctcttc ccaggacatt aaaataagga aactgtatga atgtctgcgg gcaggaagtg aagagatcgt tctgtaaaag gtttttggaa ttatgtctgc tgaataataa actttttttg aaataataaa tctggtagaa aaatgaaaaa aaaaaaaaaa aaa

FIGURE 43

Met Ala Asp Lys Val Leu Lys Glu Lys Arg Lys Leu Phe Ile Arg Ser Met Gly Glu Gly Thr Ile Asn Gly Leu Leu Asp Glu Leu Leu Gln Thr Arg Val Leu Asn Lys Glu Glu Met Glu Lys Val Lys Arg Glu Asn Ala Thr Val Met Asp Lys Thr Arg Ala Leu Ile Asp Ser Val Ile Pro Lys Gly Ala Gln Ala Cys Gln Ile Cys Ile Thr Tyr Ile Cys Glu Glu Asp Ser Tyr Leu Ala Gly Thr Leu Gly Leu Ser Ala Asp Gln Thr Ser Gly Asn Tyr Leu Asn Met Gln Asp Ser Gln Gly Val Leu Ser Ser Phe Pro Ala Pro Gln Ala Val Gln Asp Asn Pro Ala Met Pro Thr Ser Ser Gly Ser Glu Gly Asn Val Lys Leu Cys Ser Leu Glu Glu Ala Gln Arg Ile Trp Lys Gln Lys Ser Ala Glu Ile Tyr Pro Ile Met Asp Lys Ser Ser Arg Thr Arg Leu Ala Leu Ile Ile Cys Asn Glu Glu Phe Asp Ser Ile Pro Arg Arg Thr Gly Ala Glu Val Asp Ile Thr Gly Met Thr Met Leu Leu Gln Asn Leu Gly Tyr Ser Val Asp Val Lys Lys Asn Leu Thr Ala Ser Asp Met Thr Thr Glu Leu Glu Ala Phe Ala His Arg Pro Glu His Lys Thr Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Gly Ile Arg Glu Gly Ile Cys Gly Lys Lys His Ser Glu Gln Val Pro Asp Ile Leu Gln Leu Asn Ala Ile Phe Asn Met Leu Asn Thr Lys Asn Cys Pro Ser Leu Lys Asp Lys Pro Lys Val Ile Ile Ile Gln Ala Cys Arg Gly Asp Ser Pro Gly Val Val Trp Phe Lys Asp Ser Val Gly Val Ser Gly Asn Leu Ser Leu Pro Thr Thr Glu Glu Phe Glu Asp Asp Ala Ile Lys Lys Ala His Ile Glu Lys Asp Phe Ile Ala Phe Cys Ser Ser Thr Pro Asp Asn Val Ser Trp Arg His Pro Thr Met Gly Ser Val Phe Ile Gly Arg Leu Ile Glu His Met Gln Glu Tyr Ala Cys Ser Cys Asp Val Glu Glu Ile Phe Arg Lys Val Arg Phe Ser Phe Glu Gln Pro Asp Gly Arg Ala Gln Met Pro Thr Thr Glu Arg Val Thr Leu Thr Arg Cys Phe Tyr Leu Phe Pro Gly His

FIGURE 44

gactgctaag agggggttaa agggggacga tgtgaaggag agaacctgtg gtccttcaga aggcgaagaa gaaagaaagg ggaagcagtg aagaaaggga cggagatact gggacaggga gaaaaaagtt gtggagagta gcttttaagg agtcatttgg tggccatgga tccaacgtgc tcttctgagt gcatttataa cctcataccc agtgacttga aggagcctcc ccagcctcct aggtacatat ccatttttaa ggcaactgta aaagatgaca tgcaaaaagc taaaactgca atgaaaacta tgggaccagc aaaagttgaa gtaccttctc caaaggattt cctaaagaaa cattcaaagg agaaaactct accacccaaa aaaaactttg atcggaacgt gcccaaaaag cctgctgtgc cattgaagac tgatcatcct gtcatgggaa tacagagtgg aaaaaatttt ataaatacaa atgcagctga tatcatcatg ggagtggcta aaaagcctaa accaatttat gttgataaaa gaactggaga caagcatgat cttgagcctt caggactagt tccaaagtac atcaataaaa aggattatgg tgtcacacct gaatacatat gtaagcgaaa cgaggaaata aagaaagccc aagaagacta tgatcgttat atccaggaaa accttaagaa agcagctatg aaaaggctct ccgatgaaga aagggaggca gttttgcagg ggctgaaaaa gaactgggaa gaggtgcata aagaattcca gtccctctcg gtctttatag attctatacc aaagaagatc cgcaagcaga ggctggaaga agaaatgaaa caactagaac acgacattgg cataattgaa aagcacaaga ttatttatat tgccaataac gcatgatacc aacagcacaa ctttgaaaac tgttaagtat tttgaactgg aaatagtaac acgtgccttc ttgctactct aaactgtctc caacacattg tttctgagct ccacaaatgc aaaagatgta ttttcctgtg gcccatgaca tttgcagtta ttcccagtga gaaatatttt cagtattcgt aacactgtat atgatgaaag gcttctattt ggaggaagaa aaattaagaa gacaacttac aaaatcaaga tgacaactta taaaggcatc attgaggatg attaaggaga atagcctcct ttctagcata ccaacctcga tactcttatt ttattccaca actcactatg catatcttat ttaaatgttt ttttcctttt ggtccttttct acttatctat tttgtgaatt ctaaagttac atttgtaaga ttacataatc tattaagcaa taagtttatg ttagtagagc tgttttcaac ccaaaaataa gaaaaaatag ctctaaatat ctaaaaggaa aaggttattt tatgaaattt taaattagaa aaatttggta aaatatatgc aactataaaa tatcagagaa ataacaattt ctactgctta cactggtttt tatcctctgg acaacataaa aaacaaaata tgggagtctt tcaggctttt ttcacaaaca cagaatttgg aagccttata gaaaagctta ttttggttac ttaaagaaaa gtagtttata tacaattatt ttttgaaaat tcacttgaaa cttgtccata tgagtatctt tattccttta ttaacttagg gcagatataa aataaaggat aatatatgac aaattctcac ttaccaagaa tggttggttg ctatttaggg taggctaaca gctgtgacag tacactccaa aatgtataat tacgtaaaca catattcaat tcttgctaac atagcagtac tttgctgtga gcaggtcagc aggaaccctt ttctgcagtc actcagggac ccagacttac agagtgggta ggatgcatct gatccagagt tagggagagg cacgtacagg ccaggcctag aaatgatgca tatcattccc gtttgcatcg ctaagtaagc aacttaagtt gctttaacaa actaactcca aatctcagtt tcctgataaa gatacatttt tcatttacat cactgtgcaa tgtgactaag ggtaggggta taagtctgtt ccatgcagtc actcagggac ccagtctcct tttgtctggt gactctgttg atccaggcag tctttctctg ccaattcagg atgagatgtt taggtaagta ttttatttgt gaaatgattg ctatacatac tcatttttaa ataattcaaa atcagtagca atgcaaaaat attctgatta ctttagcctt atggatatta tgctttgaag tcatgagtgg gagttgcctt aaatgttaaa atgaaaactt tgtggtttta acagctaatt cttttgcttt ctgtaaatgt ctactaaaga atctagactt ttctctatgg tctacagtgt tgtcctagat gaacattgtt gcctttcttt cacagagcct tcagagggaa acattcccat ccattgttcc tggaaaggtg atccctacca cgggatccca aacttggata gagccagttc aacctccccc aatccataca catacatacc taggtcatcc tatcacccaa aagagggaca aacatctgac ttggacagct gaccagtgac tgatcagatt ctctctctct tgagagcatg aattaagaga catggagact gcagtcactt gggagtagac acctgaaact aaaaagtcaa acttcattat gcagctagtt tgacttggtt tctcttcctg ttcaaaggaa gaatgggtag aataaagatt tgatgtggtc tggccccttg tctatgatct ttttagcttg atttcttgaa atgctgcttc ttccctaccc actgtaactg gcattcccat agtactgagg tactagagac ctctgagatc tgcacacatg gttccctcca cccagaaaac tgccctttc tttctctcat cctacatagc tgcctggcaa atccctagtc ttcatcagct cacatcacat ttccatgaca atccccttg attcctcaga atctggcctt cctttatagc actggtcata ttgtattgtg catatctggt tatttgcctg ttttccatga acatttcaag cttatggggg agaagacact gtatacattt tcatctgcat tccttagaat ctgcataaca gctggtatag agaaggtact caaaaaatcc ttaatgaata aagtaatgga tcgtaccc

FIGURE 45

Met Asp Pro Thr Cys Ser Ser Glu Cys Ile Tyr Asn Leu Ile Pro Ser Asp Leu Lys Glu Pro Pro Gln Pro Pro Arg Tyr Ile Ser Ile Phe Lys Ala Thr Val Lys Asp Asp Met Gln Lys Ala Lys Thr Ala Met Lys Thr Met Gly Pro Ala Lys Val Glu Val Pro Ser Pro Lys Asp Phe Leu Lys Lys His Ser Lys Glu Lys Thr Leu Pro Pro Lys Lys Asn Phe Asp Arg Asn Val Pro Lys Lys Pro Ala Val Pro Leu Lys Thr Asp His Pro Val Met Gly Ile Gln Ser Gly Lys Asn Phe Ile Asn Thr Asn Ala Ala Asp Ile Ile Met Gly Val Ala Lys Lys Pro Lys Pro Ile Tyr Val Asp Lys Arg Thr Gly Asp Lys His Asp Leu Glu Pro Ser Gly Leu Val Pro Lys Tyr Ile Asn Lys Lys Asp Tyr Gly Val Thr Pro Glu Tyr Ile Cys Lys Arg Asn Glu Glu Ile Lys Lys Ala Gln Glu Asp Tyr Asp Arg Tyr Ile Gln Glu Asn Leu Lys Lys Ala Ala Met Lys Arg Leu Ser Asp Glu Glu Arg Glu Ala Val Leu Gln Gly Leu Lys Lys Asn Trp Glu Glu Val His Lys Glu Phe Gln Ser Leu Ser Val Phe Ile Asp Ser Ile Pro Lys Lys Ile Arg Lys Gln Arg Leu Glu Glu Glu Met Lys Gln Leu Glu His Asp Ile Gly Ile Ile Glu Lys His Lys Ile Ile Tyr Ile Ala Asn Asn Ala

FIGURE 46

cggaacctgt cgtatattct ttgataaccc ttttagagga agagtcggaa atagtcaagt tactaacgaa tacccaccac aagtatagtg accctcctgt gaactttctg ccagtaccct ctaggaccag aataaataat cctgcctgtc ataaaacagt gattccaaat aattcttttg tttctaatca aattccagaa gttgaaaaag catcagaatc tgaggagtca gatgaggatg acggtcctgc acctgttata gtagagaatg aaagctatgt gaaccttaag aaaaagattt ccaaaagata tgactggcag gcaaagtcag tacatgctga aaatggtaaa atctgcaagc agttccgaat gaaacaggct tccagacagt tccagtccat tctgcaagag aggcaatcac tccctgcttg ggaagaaaga gaaaccattc ttaacttatt gcgtaagcac caggtggttg tcataagtgg tatgactgga tgtgggaaaa ccacacaaat tccgcagttt attctggatg attctctgag tggaccacct gagaaggtag ccaacatcat ctgtacccaa ccccgacgaa tctctgcaat ctctgttgct gaacgcgttg ctaaagaaag agcagagagg gtgggtctga ccgtgggata ccagattcgg ttagaaagtg tcaagtcctc agccaccaga ctgttatact gcaccacggg agtgctgctg agaaggctag aaggagatac agctctacaa ggagtttccc atatcattgt tgatgaagtt catgagagga cagaagaaag tgacttcttg ctgctagttt tgaaggacat tgtatcgcag aggccaggtc ttcaagttat tttaatgagt gcaactctaa acgctgagct tttttcagac tattttaatt cctgccccgt cattactata ccaggtcgta catttcctgt tgatcaattt tttttggaag atgcaattgc tgtgacaagg tatgtattac aggatgggag cccatatatg cggtccatga aacagatttc aaaggaaaag cttaaagcaa ggcggaacag aactgcattt gaagaagtgg aagaagacct aaggctctcc cttcacctcc aggatcagga ttctgtcaaa gatgcagtgc cagatcaaca gttagatttt aagcagctcc tggcccgcta taaaggggtt agcaagtcag tcatcaaaac aatgtccatc atggattttg aaaaggtgaa tcttgaatta atagaggcct tattagagtg gattgtggat ggaaagcact cctaccctcc aggtgctata cttgtatttt taccaggact agcagaaatc aaaatgcttt atgaacagct acagtctaat tctcttttca acaacagacg tagtaatcga tgtgttattc acccacttca ttcatcttta tccagtgaag agcagcaggc tgtgtttgta aaacctcctg caggagtaac taagattata atttccacca acattgctga gacatccata accatcgatg atgttgtcta tgttatcgat tctgggaaaa tgaaagaaaa gagatatgat gccagcaaag ggatggaaag tctagaggac acctttgtat ctcaagctaa tgctctacaa aggaaaggcc gagcaggccg tgttgcatct ggggtctgct tccatgtatt cactagccat cactacaatc accagctttt aaaacaacag ctaccagaaa tacaaagagt gccattggaa cagctgtgtc taagaattaa aattttagag atgtttagtg ctcataatct ccagtctgtg ttctctcggc tcattgaacc tccacacacc gattctcttc gtgcctcaaa aatacgatta cgagacttag gagcattaac tccagatgaa agattgaccc ctcttgggta tcatttggcc tctctgcccg tggatgtgag aattggcaaa ctaatgttgt ttgggtctat cttccgctgt ttggatcctg ctctcaccat tgctgccagt ttggctttta agtcgccgtt tgtatctccc tgggataaaa aagaagaagc taaccagaaa aagctggaat ttgcattcgc aaacagtgat tatctggccc ttctacaagc gtataaggga tggcagctaa gtacaaaaga aggcgtgcgt gcaagttata attactgcag acaaaacttc ttgtctggaa gagttctgca ggaaatggcc agcctcaaac gacaattcac ggaactgttg tcggatatag ggtttgcaag ggaagggctc agagcaaggg aaattgagaa aagggcccaa ggaggagatg gtgtcttaga tgccacagga gaagaggcaa actcaaatgc tgagaacccc aagctgatat cagcaatgct gtgtgctgct ttgtatccaa atgtagtgca ggtgaaaagc ccagaaggaa aatttcagaa gaccagtact ggagctgtca gaatgcaacc aaaatcagct gagttgaagt ttgtcaccaa gaacgatgga tatgtacaca ttcacccttc atcagtgaac tatcaggtga gacactttga cagcccctac ctgttgtacc acgagaagat aaaaactagt cgagtattca tccgagactg cagcatggtg tctgtgtacc cgctggtctt gtttggagga ggccaagtga atgtgcagct tcaaagagga gagttcgttg tctccctgga tgatggttgg atccgttttg tagctgcttc ccatcaggtg gctgaactgg taaaggagct tcgttgtgaa cttgatcagc ttctccagga taaaattaaa aacccaagca ttgatctgtg tacgtgtcct cgaggatccc ggatcatcag cacaattgtg aaacttgtca ccacacaata aaaagcagtc ttagagagtg cttgctactc acctgcttct agctcacctg ggaaataaca gcagaacctc tacctcgaac taaagaccta ttggggctgg ccctggtgga ggagcccagg gcatgaagcc caaggcagct gaggcagtgt atataccctt agggccattt ctaacaaagc cttggccact cccagcacaa tttggagtgt caagggtgag agcctaaaac ccagcttgcc tgtctttgtc tctgtgattg ttctggagtg aattaagttc acctgataac tcaaaagtga atgtataata caattctgtt ttaatctgtg tattcttttt ctcctacttt ttactggggt gagaggggca tgaagagaaa tacgcctttt ttttttctt ttcctgtcgc caaggctcga ctgagagaag tcagaacaga gaaggggaaa aaaacccaaa attatgtgaa caagcaaaat taaaatttca ttttag

FIGURE 47

Met Lys Gln Ala Ser Arg Gln Phe Gln Ser Ile Leu Gln Glu Arg Gln Ser Leu Pro Ala Trp Glu Glu Arg Glu Thr Ile Leu Asn Leu Leu Arg Lys His Gln Val Val Val Ile Ser Gly Met Thr Gly Cys Gly Lys Thr Thr Gln Ile Pro Gln Phe Ile Leu Asp Asp Ser Leu Ser Gly Pro Pro Glu Lys Val Ala Asn Ile Ile Cys Thr Gln Pro Arg Arg Ile Ser Ala Ile Ser Val Ala Glu Arg Val Ala Lys Glu Arg Ala Glu Arg Val Gly Leu Thr Val Gly Tyr Gln Ile Arg Leu Glu Ser Val Lys Ser Ser Ala Thr Arg Leu Leu Tyr Cys Thr Thr Gly Val Leu Leu Arg Arg Leu Glu Gly Asp Thr Ala Leu Gln Gly Val Ser His Ile Ile Val Asp Glu Val His Glu Arg Thr Glu Glu Ser Asp Phe Leu Leu Leu Val Leu Lys Asp Ile Val Ser Gln Arg Pro Gly Leu Gln Val Ile Leu Met Ser Ala Thr Leu Asn Ala Glu Leu Phe Ser Asp Tyr Phe Asn Ser Cys Pro Val Ile Thr Ile Pro Gly Arg Thr Phe Pro Val Asp Gln Phe Phe Leu Glu Asp Ala Ile Ala Val Thr Arg Tyr Val Leu Gln Asp Gly Ser Pro Tyr Met Arg Ser Met Lys Gln Ile Ser Lys Glu Lys Leu Lys Ala Arg Arg Asn Arg Thr Ala Phe Glu Glu Val Glu Glu Asp Leu Arg Leu Ser Leu His Leu Gln Asp Gln Asp Ser Val Lys Asp Ala Val Pro Asp Gln Gln Leu Asp Phe Lys Gln Leu Leu Ala Arg Tyr Lys Gly Val Ser Lys Ser Val Ile Lys Thr Met Ser Ile Met Asp Phe Glu Lys Val Asn Leu Glu Leu Ile Glu Ala Leu Leu Glu Trp Ile Val Asp Gly Lys His Ser Tyr Pro Pro Gly Ala Ile Leu Val Phe Leu Pro Gly Leu Ala Glu Ile Lys Met Leu Tyr Glu Gln Leu Gln Ser Asn Ser Leu Phe Asn Asn Arg Arg Ser Asn Arg Cys Val Ile His Pro Leu His Ser Ser Leu Ser Ser Glu Glu Gln Gln Ala Val Phe Val Lys Pro Pro Ala Gly Val Thr Lys Ile Ile Ile Ser Thr Asn Ile Ala Glu Thr Ser Ile Thr Ile Asp Asp Val Val Tyr Val Ile Asp Ser Gly Lys Met Lys Glu Lys Arg Tyr Asp Ala Ser Lys Gly Met Glu Ser Leu Glu Asp Thr Phe Val Ser Gln Ala Asn Ala Leu Gln Arg Lys Gly Arg Ala Gly Arg Val Ala Ser Gly Val Cys Phe His Val Phe Thr Ser His His Tyr Asn His Gln Leu Leu Lys Gln Gln Leu Pro Glu Ile Gln Arg Val Pro Leu Glu Gln Leu Cys Leu Arg Ile Lys Ile Leu Glu Met Phe Ser Ala His Asn Leu Gln Ser Val Phe Ser Arg Leu Ile Glu Pro Pro His Thr Asp Ser Leu Arg Ala Ser Lys Ile Arg Leu Arg Asp Leu Gly Ala Leu Thr Pro Asp Glu Arg Leu Thr Pro Leu Gly Tyr His Leu Ala Ser Leu Pro Val Asp Val Arg Ile Gly Lys Leu Met Leu Phe Gly Ser Ile Phe Arg Cys Leu Asp Pro Ala Leu Thr Ile Ala Ala Ser Leu Ala Phe Lys Ser Pro Phe Val Ser Pro Trp Asp Lys Lys Glu Glu Ala Asn Gln Lys Lys Leu Glu Phe Ala Phe Ala Asn Ser Asp Tyr Leu Ala Leu Leu Gln Ala Tyr Lys Gly Trp Gln Leu Ser Thr Lys Glu Gly Val Arg Ala Ser Tyr Asn Tyr Cys Arg Gln Asn Phe Leu Ser Gly Arg Val Leu Gln Glu Met Ala Ser Leu Lys Arg Gln Phe Thr Glu Leu Leu Ser Asp Ile Gly Phe Ala Arg Glu Gly Leu Arg Ala Arg Glu Ile Glu Lys Arg Ala Gln Gly Gly Asp Gly Val Leu Asp Ala Thr Gly Glu Glu Ala Asn Ser Asn Ala Glu Asn Pro Lys Leu Ile Ser Ala Met Leu Cys Ala Ala Leu Tyr Pro Asn Val Val Gln Val Lys Ser Pro Glu Gly Lys Phe Gln Lys Thr Ser Thr Gly Ala Val Arg Met Gln Pro Lys Ser Ala Glu Leu Lys Phe Val Thr Lys Asn Asp Gly Tyr Val His Ile His Pro Ser Ser Val Asn Tyr Gln Val Arg His Phe Asp Ser Pro Tyr Leu Leu Tyr His Glu Lys Ile Lys Thr Ser Arg Val Phe Ile Arg Asp Cys Ser Met Val Ser Val Tyr Pro Leu Val Leu Phe Gly Gly Gly Gln Val Asn Val Gln Leu Gln Arg Gly Glu Phe Val Val Ser Leu Asp Asp Gly Trp Ile Arg Phe Val Ala Ala Ser His Gln Val Ala Glu Leu Val Lys Glu Leu Arg Cys Glu Leu Asp Gln Leu Leu Gln Asp Lys Ile Lys Asn Pro Ser Ile Asp Leu Cys Thr Cys Pro Arg Gly Ser Arg Ile Ile Ser Thr Ile Val Lys Leu Val Thr Thr Gln

FIGURE 48

atggagcgcg ggatgcacct cggtgcagcg gccgccggcg aggacgacct cttcctgcac aagagcctga gcgcctccac ctccaagcgc ttggaagcgg ctttccgctc cacgcccccg ggcatggacc tgtccctggc gccgccgcct cgggaacgcc cggcgtcctc ctcctcgtcg cccctgggct gcttcgagcc ggctgacccc gagggggcag ggctgctgtt gccgccgcct ggaggaggcg gcggcggcag cgcgggaagt ggcggcggcg gcggcggcgg ggtgggtgtc cccgggctgc tagtaggttc agccggcgtt gggggcgacc ctagcctaag cagcctgccg gccggggccg ccctttgcct caagtacggc gaaagcgcga gccggggctc ggtggccgag agcagcggcg gcgagcagag ccccgacgac gacagcgacg gtcgctgcga gctcgtgctg cgggccggag tagccgaccc gcgggcctcc ccgggagcgg gaggtggtgg cgcgaaggca gccgagggct gctccaatgc ccacctccac ggcggcgcca gcgtcccccc ggggggcctg ggcggcggcg gcggcggggg tagcagcagc ggtagcagtg gcggcggtgg cggtagcggt agcggcagcg gcggcagcag cagcagcagc agcagcagca gcaagaaatc caaagagcaa aaggcgctgc ggcttaacat caatgcccga gagcgccggc ggatgcacga cctgaacgac gcgctggacg agctgcgcgc ggtgatcccc tacgcgcaca gcccctcggt gcgaaagctc tccaagatcg ccacgctgct gctcgccaag aactacatcc tcatgcaggc gcaggccctg gaggagatgc ggcgcctagt cgcctacctc aaccagggcc aggccatctc ggctgcctcc ctgcccagct cggcggctgc agcggcagca gctgctgccc tgcacccggc gctcggcgcc tacgagcagg cagccggcta cccgttcagc gccggactgc ccccggctgc ctcctgcccg gagaagtgcg ccctgtttaa cagcgtctcc tccagcctct gcaaacagtg cacggagaag ccttaa

FIGURE 49

Met Glu Arg Gly Met His Leu Gly Ala Ala Ala Ala Gly Glu Asp Asp Leu Phe Leu His Lys Ser Leu Ser Ala Ser Thr Ser Lys Arg Leu Glu Ala Ala Phe Arg Ser Thr Pro Pro Gly Met Asp Leu Ser Leu Ala Pro Pro Pro Arg Glu Arg Pro Ala Ser Ser Ser Ser Ser Pro Leu Gly Cys Phe Glu Pro Ala Asp Pro Glu Gly Ala Gly Leu Leu Leu Pro Pro Pro Gly Gly Gly Gly Gly Gly Ser Ala Gly Ser Gly Gly Gly Gly Gly Gly Gly Gly Val Gly Val Pro Gly Leu Leu Val Gly Ser Ala Gly Val Gly Gly Asp Pro Ser Leu Ser Ser Leu Pro Ala Gly Ala Ala Leu Cys Leu Lys Tyr Gly Glu Ser Ala Ser Arg Gly Ser Val Ala Glu Ser Ser Gly Gly Glu Gln Ser Pro Asp Asp Asp Ser Asp Gly Arg Cys Glu Leu Val Leu Arg Ala Gly Val Ala Asp Pro Arg Ala Ser Pro Gly Ala Gly Gly Gly Gly Ala Lys Ala Ala Glu Gly Cys Ser Asn Ala His Leu His Gly Gly Ala Ser Val Pro Pro Gly Gly Leu Gly Gly Gly Gly Gly Gly Gly Gly Ser Ser Ser Gly Ser Ser Gly Gly Gly Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Lys Lys Ser Lys Glu Gln Lys Ala Leu Arg Leu Asn Ile Asn Ala Arg Glu Arg Arg Arg Met His Asp Leu Asn Asp Ala Leu Asp Glu Leu Arg Ala Val Ile Pro Tyr Ala His Ser Pro Ser Val Arg Lys Leu Ser Lys Ile Ala Thr Leu Leu Leu Ala Lys Asn Tyr Ile Leu Met Gln Ala Gln Ala Leu Glu Glu Met Arg Arg Leu Val Ala Tyr Leu Asn Gln Gly Gln Ala Ile Ser Ala Ala Ser Leu Pro Ser Ser Ala Ala Ala Ala Ala Ala Ala Ala Ala Leu His Pro Ala Leu Gly Ala Tyr Glu Gln Ala Ala Gly Tyr Pro Phe Ser Ala Gly Leu Pro Pro Ala Ala Ser Cys Pro Glu Lys Cys Ala Leu Phe Asn Ser Val Ser Ser Ser Leu Cys Lys Gln Cys Thr Glu Lys Pro

FIGURE 50

atgaagcttc tcacgggcct ggttttctgc tccttggtcc tgggtgtcag cagccgaagc ttcttttcgt tccttggcga ggcttttgat ggggctcggg acatgtggag agcctactct gacatgagag aagccaatta catcggctca gacaaatact tccatgctcg ggggaactat gatgctgcca aaaggggacc tgggggtgtc tgggctgcag aagcgatcag cgatgccaga gagaatatcc agagattctt tggccatggt gcggaggact cgctggctga tcaggctgcc aatgaatggg gcaggagtgg caaagacccc aatcacttcc gacctgctgg cctgcctgag aaatactga

FIGURE 51

Met Lys Leu Leu Thr Gly Leu Val Phe Cys Ser Leu Val Leu Gly Val Ser Ser Arg Ser Phe Phe Ser Phe Leu Gly Glu Ala Phe Asp Gly Ala Arg Asp Met Trp Arg Ala Tyr Ser Asp Met Arg Glu Ala Asn Tyr Ile Gly Ser Asp Lys Tyr Phe His Ala Arg Gly Asn Tyr Asp Ala Ala Lys Arg Gly Pro Gly Gly Val Trp Ala Ala Glu Ala Ile Ser Asp Ala Arg Glu Asn Ile Gln Arg Phe Phe Gly His Gly Ala Glu Asp Ser Leu Ala Asp Gln Ala Ala Asn Glu Trp Gly Arg Ser Gly Lys Asp Pro Asn His Phe Arg Pro Ala Gly Leu Pro Glu Lys Tyr

FIGURE 52

agggaataaa ggctcaggga ccggcagttc tactctagag cccaccagcc tctcagagcc tccggtgact ggcctgtgtc tccccctgga tggacatgtg gacggcgctg ctcatcctgc aagccttgtt gctaccctcc ctggctgatg gtgccacccc tgccctgcgc tttgtagccg tgggtgactg gggaggggtc cccaatgccc cattccacac ggcccgggaa atggccaatg ccaaggagat cgctcggact gtgcagatcc tgggtgcaga cttcatcctg tctctagggg acaattttta cttcactggt gtgcaagaca tcaatgacaa gaggttccag gagacctttg aggacgtatt ctctgaccgc tcccttcgca aagtgccctg gtacgtgcta gccggaaacc atgaccacct tggcaatgtc tctgcccaga ttgcatactc taagatctcc aagcgctgga acttccccag ccctttctac cgcctgcact tcaagatccc acagaccaat gtgtctgtgg ccatttttat gctggacaca gtgacactat gtggcaactc agatgacttc ctcagccagc agcctgagag gccccgagac gtgaagctgg cccgcacaca gctgtcctgg ctcaagaaac agctggcggc ggccagggag gactacgtgc tggtggctgg ccactacccc gtgtggtcca tagccgagca cgggcctacc cactgcctgg tcaagcagct acggccactg ctggccacat acggggtcac tgcctacctg tgcggccacg atcacaatct gcagtacctg caagatgaga atggcgtggg ctacgtgctg agtggggctg ggaatttcat ggacccctca aagcggcacc agcgcaaggt ccccaacggc tatctgcgct tccactatgg gactgaagac tcactgggtg gctttgccta tgtggagatc agctccaaag agatgactgt cacttacatc gaggcctcgg gcaagtccct ctttaagacc aggctgccga ggcgagccag gccctgaact cccatgactg cccagctctg aggcccgatc tccactgttg ggtgggtggc ctgccgggac cctgctcaca ggcaggcttt tcctccaacc tgtggcgctg cagcagggca ggaaggggaa acacagctga tgaactgtgg tgccacatga cccttgtggc acagatgccc acgtatgtga aacacacatg gacatgtgtc ccagccacag tgttatgctc tgtggctggc tcacctttgc tgagttccgg ggtgcaatgg gggagggagg gagggaaagc ttcctcctaa atcaagcatc tttctgttac tgatgttcaa taaaagaata gttgccaagg ctg

FIGURE 53

Met Asp Met Trp Thr Ala Leu Leu Ile Leu Gln Ala Leu Leu Leu Pro Ser Leu Ala Asp Gly Ala Thr Pro Ala Leu Arg Phe Val Ala Val Gly Asp Trp Gly Gly Val Pro Asn Ala Pro Phe His Thr Ala Arg Glu Met Ala Asn Ala Lys Glu Ile Ala Arg Thr Val Gln Ile Leu Gly Ala Asp Phe Ile Leu Ser Leu Gly Asp Asn Phe Tyr Phe Thr Gly Val Gln Asp Ile Asn Asp Lys Arg Phe Gln Glu Thr Phe Glu Asp Val Phe Ser Asp Arg Ser Leu Arg Lys Val Pro Trp Tyr Val Leu Ala Gly Asn His Asp His Leu Gly Asn Val Ser Ala Gln Ile Ala Tyr Ser Lys Ile Ser Lys Arg Trp Asn Phe Pro Ser Pro Phe Tyr Arg Leu His Phe Lys Ile Pro Gln Thr Asn Val Ser Val Ala Ile Phe Met Leu Asp Thr Val Thr Leu Cys Gly Asn Ser Asp Asp Phe Leu Ser Gln Gln Pro Glu Arg Pro Arg Asp Val Lys Leu Ala Arg Thr Gln Leu Ser Trp Leu Lys Lys Gln Leu Ala Ala Ala Arg Glu Asp Tyr Val Leu Val Ala Gly His Tyr Pro Val Trp Ser Ile Ala Glu His Gly Pro Thr His Cys Leu Val Lys Gln Leu Arg Pro Leu Leu Ala Thr Tyr Gly Val Thr Ala Tyr Leu Cys Gly His Asp His Asn Leu Gln Tyr Leu Gln Asp Glu Asn Gly Val Gly Tyr Val Leu Ser Gly Ala Gly Asn Phe Met Asp Pro Ser Lys Arg His Gln Arg Lys Val Pro Asn Gly Tyr Leu Arg Phe His Tyr Gly Thr Glu Asp Ser Leu Gly Gly Phe Ala Tyr Val Glu Ile Ser Ser Lys Glu Met Thr Val Thr Tyr Ile Glu Ala Ser Gly Lys Ser Leu Phe Lys Thr Arg Leu Pro Arg Arg Ala Arg Pro

FIGURE 54

gggagtacct ggaccagctt aatgccctgc gccgcgagaa gcagaagctc gtggagaaga tcatggacca ataccgcgtg ctggagcctg tgcccctgcc ccggaccaag gtccccttcc ccggcaccca tgcgccgggc ccagagctcc ctctgcctgc gggatgagac cttggcaggc gggcagcggc ggaaactcag ctcaaggttc ccggtggggc gaagctctga gtcattcagc cctggggaca cccctaggca acgattccga cagcgccatc caggcccccc ggggggcgccc gtctcccaca gcaaaggacc tggtgtggga tgggagaact ccgctgagac cctgcaggaa cacgaaacag atgccaaccg agagggccct gaggtacagg aaccggagaa acgtcccctc accccatccc tcagccagtg acaccgtggg aacagcaggc ttgggagtgc agccttctcg gcactggagt gtcagcggag gccccaggca gcccaagagc tcagggagcc agggacccca aggggagtcc ttggacaagg aggcctgggc cctgagatcc tccacggtca gcgccggggc ccggagatgg agctgggacg agtgtgtgga caggggggat ggctggcccc ccgagcagct ccaggctgga gttctggttc ttccaggtgg ctcccgctga ggcagcggtc tctgggggat cccccagctg aaggaggctg gcaggagttg gcaagagaac cccctgccct gtccaggtgg gaagctgagt cccagtgctg ggggactgtg gcctgggctg atcttgagcc ttaactggac atgaggggca tgagaataaa gctgaactgc agcctcctga aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa

FIGURE 55

Met Pro Cys Ala Ala Arg Ser Arg Ser Ser Trp Arg Arg Ser Trp Thr Asn Thr Ala Cys Trp Ser Leu Cys Pro Cys Pro Gly Pro Arg Ser Pro Ser Pro Ala Pro Met Arg Arg Ala Gln Ser Ser Leu Cys Leu Arg Asp Glu Thr Leu Ala Gly Gly Gln Arg Arg Lys Leu Ser Ser Arg Phe Pro Val Gly Arg Ser Ser Glu Ser Phe Ser Pro Gly Asp Thr Pro Arg Gln Arg Phe Arg Gln Arg His Pro Gly Pro Leu Gly Ala Pro Val Ser His Ser Lys Gly Pro Gly Val Gly Trp Glu Asn Ser Ala Glu Thr Leu Gln Glu His Glu Thr Asp Ala Asn Arg Glu Gly Pro Glu Val Gln Glu Pro Glu Lys Arg Pro Leu Thr Pro Ser Leu Ser Gln

FIGURE 56

agagcaaaga aaaatccaat tgcctgcaca ataaaaagtt gtcagagaag aaagtgaagt ctcccctgca tttatttct actttgcgca ggtcgccaag ttatcctccc cctggttgtg gcaaaagcaa atccaaactg aaatctgagc aggacggaat ctccaaaacg cataagctgc tgcggaggac ttgttccagc acagttaaga ctgatgatgt gtgtgtcaca aagtcacaca ggacctttgg ccgctccttg tccagcgatc ccagggcgga gcaggctatg acagcaatta aatcgcacaa acttttgaac cgtccttgcc ctgcagctgt taagtcagag gaatgcctaa ctctaaagtc gcatagacta ttgactcgat cttgttctgg agatccacga tgtgagcaca acacaaactt gaagccccat aaactgttaa gcaggtctta ctctagtaat ctcagaatgg aagaattata tggactgaaa aatcacaaat tgctcagcaa gtcctactcc agtgccccca agtcatccaa aactgagctt ttcaaggaac ctaacgcaga gggcaggagg ctctctctta cctcagggct tattggtatc ctaacaccat cttcatcttc atcttctcag cttgctccaa atggtgcaaa atgcattcca gtacgagacc gtggcttcct ggtgcagaca attgagtttg ctgaacagcg gatccctgta ttaaatgaat attgtgtggt ttgtgatgag ccacatgtgt ttcaaaatgg ccctatgctt aggcctaccg tatgtgaacg ggagctgtgt gtgtttgctt ttcaaaccct gggagtaatg aatgaagctg ctgatgaaat agcaactgga gctcaggtgg tagatctact agtatccatg tgtaggtctg cgttggaatc tcctagaaaa gttgtgattt tcgagccata tccttctgtg gtagatccta atgatcctca gatgttggcc ttcaacccca ggaaaaagaa ctatgatcga gtaatgaaag cactggatag cataacttct atcagagaaa tgacacaagc accatatctg gaaatcaaga agcaaatgga taaacaggac ccccttgctc atcccttact gcaatgggtt atatcaagta atagatcaca tattgtgaaa ctgccagtta acaggcaatt gaagtttatg catactccac atcagttcct tcttctcagc agtccaccag ccaaagaatc caattttaga gctgctaaaa aactctttgg aagcaccttt gcatttcatg gctcacacat tgaaaactgg cactccatcc tgaggaatgg tctggttgtt gcttctaata cacgattgca gctccatggt gcaatgtatg gaagtggaat ctatcttagt ccaatgtcaa gcatatcatt tggttactca gggatgaaca agaaacagaa ggtgtcagcc aaggacgagc cagcttcaag cagtaaaagc agcaatacat cacagtcaca gaaaaaagga cagcaatccc aattcctgca aagccgtaac ttaaaatgca tagccttatg tgaagtgatc acctcatctg acctgcacaa acatggagag atatgggttg tccccaatac tgaccatgtc tgcacacgat tctttttcgt ctatgaagac ggccaagtgg gagatgcaaa tattaataca caagaaggag gcattcacaa agagatcctc cgagtaattg gtgatcaaac tgctactggt taaaggacca ccatttaatt aacatgattc gaaagccttc ctcgggttca aagctggatt ttgaactgaa gaagattata aaattattta ttgttattat aaacaaaatt aacccttga atactgattt tttttcttag tatttctaag tatctcatta aatacctaaa atggtataag atttatcaat tgtagggtta tggaatctag taataaaatt tcaacagcac ttaaactgaa gtttgggttg ctcatacaat aaacagattg aaaaaaaaaa aaaaaaa

FIGURE 57

Met Thr Ala Ile Lys Ser His Lys Leu Leu Asn Arg Pro Cys Pro Ala Ala Val Lys Ser Glu Glu Cys Leu Thr Leu Lys Ser His Arg Leu Leu Thr Arg Ser Cys Ser Gly Asp Pro Arg Cys Glu His Asn Thr Asn Leu Lys Pro His Lys Leu Leu Ser Arg Ser Tyr Ser Ser Asn Leu Arg Met Glu Glu Leu Tyr Gly Leu Lys Asn His Lys Leu Leu Ser Lys Ser Tyr Ser Ser Ala Pro Lys Ser Ser Lys Thr Glu Leu Phe Lys Glu Pro Asn Ala Glu Gly Arg Arg Leu Ser Leu Thr Ser Gly Leu Ile Gly Ile Leu Thr Pro Ser Ser Ser Ser Ser Ser Gln Leu Ala Pro Asn Gly Ala Lys Cys Ile Pro Val Arg Asp Arg Gly Phe Leu Val Gln Thr Ile Glu Phe Ala Glu Gln Arg Ile Pro Val Leu Asn Glu Tyr Cys Val Val Cys Asp Glu Pro His Val Phe Gln Asn Gly Pro Met Leu Arg Pro Thr Val Cys Glu Arg Glu Leu Cys Val Phe Ala Phe Gln Thr Leu Gly Val Met Asn Glu Ala Ala Asp Glu Ile Ala Thr Gly Ala Gln Val Val Asp Leu Leu Val Ser Met Cys Arg Ser Ala Leu Glu Ser Pro Arg Lys Val Val Ile Phe Glu Pro Tyr Pro Ser Val Val Asp Pro Asn Asp Pro Gln Met Leu Ala Phe Asn Pro Arg Lys Lys Asn Tyr Asp Arg Val Met Lys Ala Leu Asp Ser Ile Thr Ser Ile Arg Glu Met Thr Gln Ala Pro Tyr Leu Glu Ile Lys Lys Gln Met Asp Lys Gln Asp Pro Leu Ala His Pro Leu Leu Gln Trp Val Ile Ser Ser Asn Arg Ser His Ile Val Lys Leu Pro Val Asn Arg Gln Leu Lys Phe Met His Thr Pro His Gln Phe Leu Leu Leu Ser Ser Pro Pro Ala Lys Glu Ser Asn Phe Arg Ala Ala Lys Lys Leu Phe Gly Ser Thr Phe Ala Phe His Gly Ser His Ile Glu Asn Trp His Ser Ile Leu Arg Asn Gly Leu Val Val Ala Ser Asn Thr Arg Leu Gln Leu His Gly Ala Met Tyr Gly Ser Gly Ile Tyr Leu Ser Pro Met Ser Ser Ile Ser Phe Gly Tyr Ser Gly Met Asn Lys Lys Gln Lys Val Ser Ala Lys Asp Glu Pro Ala Ser Ser Ser Lys Ser Ser Asn Thr Ser Gln Ser Gln Lys Lys Gly Gln Gln Ser Gln Phe Leu Gln Ser Arg Asn Leu Lys Cys Ile Ala Leu Cys Glu Val Ile Thr Ser Ser Asp Leu His Lys His Gly Glu Ile Trp Val Val Pro Asn Thr Asp His Val Cys Thr Arg Phe Phe Phe Val Tyr Glu Asp Gly Gln Val Gly Asp Ala Asn Ile Asn Thr Gln Glu Gly Gly Ile His Lys Glu Ile Leu Arg Val Ile Gly Asp Gln Thr Ala Thr Gly

FIGURE 58

gctgacacct gcccagtgga agctggcatc cctccccttg tgggttcaga gctgcaagaa gcaccaggct cggccacttc agaagcccca gcctcgacct agcccaccct ctcagggcca cagtgcagaa gcctgcacac ctgccaagtc tctccgactc cttgcagctg ctgtcagcat ggcccaggct cctgctgacc cgggcagaga aggccacctt gaacaaagaa tcctgcaggt gctgacagag gctggctccc cggtgaaact tgcccagctg gtgaaggaat gccaagcacc caagagggag ctcaaccaag tcctctaccg aatgaaaaag gagttgaaag tctccctcac atcccctgcc acctggtgct tgggcgggac tgatcctgaa ggcgagggtc ctgcagagct ggccttgtcc agccctgccg agaggcccca gcaacatgca gctacaattc cagagacccc tggccctcag ttcagccaac aacgggagga agacatctac aggtttctca aagacaatgg tccccagagg gccctggtca tcgcccaagc actgggaatg aggacagcaa aagatgtgaa ccgagacttg tacaggatga agagcaggca ccttctggac atggatgagc agtccaaagc atggacgatt taccgcccag aagattctgg aagaagagca aagtcagcct caattattta ccagcacaat ccaatcaaca tgatctgcca gaatggaccc aacagctgga tttccattgc aaactccgaa gccatccaga ttggacacgg gaacatcatt acaagacaga cagtctccag ggaggacggt tccgccggtc cacgccacct cccttcaatg gcaccaggtg attcctcaac ttgggggacc ctagttgatc cctgggggcc ccaggacatc cacatggagc ggtccatact gagacgggtg cagctgggac acagcaatga gatgaggctc cacggcgtcc cgtccgaggg ccctgcccac atccccccctg gcagcccccc agtctctgcc actgctgccg gcccagaagc ttcgtttgaa gcaagaattc ccagtccagg aactcaccct gagggggaag ccgcccagag aatccacatg aaatcgtgct ttctcgagga cgccaccatc ggcaacagca acaaaatgtc tatcagccca ggggtggctg gcccaggagg agtcgcaggg tctggagagg gggagccagg ggaggacgca ggtcgtcgtc ccgcagacac acaatccaga agtcactttc ctcgagacat tggtcagccc atcactccca gccactcgaa gctcaccccc aagctggaaa ctatgactct tggaaacagg agtcacaaag ctgcagaagg cagccactat gtggatgaag cctcacacga ggggagctgg tggggaggtg ggatttagtg cacagcctca cgtggggctt ggacacaggc tgggggtggg cgcatgctag ggagactagc ctgctgctct ctgcattcct tagcgtcttg tttgacctgc ttgcttccag acataacctg catgaatcag ttttggggga atggacctgg catggggatg ggttcaggcc aggtcttttg atggccagga gtagatgaca gggagttgcc ttggggaacc tttggtgtgc caagaggagg tgggtagatg ggagtggggc tcggtccccc aggcccaggg gactctctcc actctttcct gggctcgggg catctgcctg gagttacctt ccatcatggc tacctgctgt ggtttgaatg tttgagtccc aacaaaattc atatcaaaac ataatcccaa ctgggtgcag tggctcacgc ctgtaatccc agcactttgg gaggccgagg cgggcggatc aataggtcag gaaatccaga ccgtcctggc taacatggtg aaaccccgtc tctactaaaa aaaaaaatac aaaaaattag ccgggcgttg tggcgggcac ctggagtccc agctactccg gaggctgagg gaggagaatg gtgtgaaccc gggaggtgga gcttccagtg agccgagatc gcgccactgc actccaggct gggcgacaga gcgagactcc gtctcaaaaa aataaataca taaataaaaa ataaaccacc cataaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa

FIGURE 59

Met Ala Gln Ala Pro Ala Asp Pro Gly Arg Glu Gly His Leu Glu Gln Arg Ile Leu Gln Val Leu Thr Glu Ala Gly Ser Pro Val Lys Leu Ala Gln Leu Val Lys Glu Cys Gln Ala Pro Lys Arg Glu Leu Asn Gln Val Leu Tyr Arg Met Lys Lys Glu Leu Lys Val Ser Leu Thr Ser Pro Ala Thr Trp Cys Leu Gly Gly Thr Asp Pro Glu Gly Glu Gly Pro Ala Glu Leu Ala Leu Ser Ser Pro Ala Glu Arg Pro Gln Gln His Ala Ala Thr Ile Pro Glu Thr Pro Gly Pro Gln Phe Ser Gln Gln Arg Glu Glu Asp Ile Tyr Arg Phe Leu Lys Asp Asn Gly Pro Gln Arg Ala Leu Val Ile Ala Gln Ala Leu Gly Met Arg Thr Ala Lys Asp Val Asn Arg Asp Leu Tyr Arg Met Lys Ser Arg His Leu Leu Asp Met Asp Glu Gln Ser Lys Ala Trp Thr Ile Tyr Arg Pro Glu Asp Ser Gly Arg Arg Ala Lys Ser Ala Ser Ile Ile Tyr Gln His Asn Pro Ile Asn Met Ile Cys Gln Asn Gly Pro Asn Ser Trp Ile Ser Ile Ala Asn Ser Glu Ala Ile Gln Ile Gly His Gly Asn Ile Ile Thr Arg Gln Thr Val Ser Arg Glu Asp Gly Ser Ala Gly Pro Arg His Leu Pro Ser Met Ala Pro Gly Asp Ser Ser Thr Trp Gly Thr Leu Val Asp Pro Trp Gly Pro Gln Asp Ile His Met Glu Arg Ser Ile Leu Arg Arg Val Gln Leu Gly His Ser Asn Glu Met Arg Leu His Gly Val Pro Ser Glu Gly Pro Ala His Ile Pro Pro Gly Ser Pro Pro Val Ser Ala Thr Ala Ala Gly Pro Glu Ala Ser Phe Glu Ala Arg Ile Pro Ser Pro Gly Thr His Pro Glu Gly Glu Ala Ala Gln Arg Ile His Met Lys Ser Cys Phe Leu Glu Asp Ala Thr Ile Gly Asn Ser Asn Lys Met Ser Ile Ser Pro Gly Val Ala Gly Pro Gly Gly Val Ala Gly Ser Gly Glu Gly Glu Pro Gly Glu Asp Ala Gly Arg Arg Pro Ala Asp Thr Gln Ser Arg Ser His Phe Pro Arg Asp Ile Gly Gln Pro Ile Thr Pro Ser His Ser Lys Leu Thr Pro Lys Leu Glu Thr Met Thr Leu Gly Asn Arg Ser His Lys Ala Ala Glu Gly Ser His Tyr Val Asp Glu Ala Ser His Glu Gly Ser Trp Trp Gly Gly Gly Ile

FIGURE 60

gccgtcatct ctaagaaaca accataccac tgaatgctac tgtgtactta caaaccacac tcatattcgt cacgtcattt catcttcacc cccacctcca aatgaggctt gaaatgagat gagatgttcc tccctcccct ttcaaccatg gacctcacac tgtggacttc ctcttagagc ctctgagtta ggtacccaag ccaaggcaca atgtccctgc cccccataag actgcccagc ccctatggct ctgatcggct ggtacagcta gcagccaggc tccggccagc actctgtgat actctgatca ccgtagggag ccaggagttc cccgcccaca gcctggtgct agcaggtgtc agccagcagc tgggccgcag gggccagtgg gctctgggag aaggcatcag cccttctacc tttgcccagc tcctgaactt tgtgtatggg gagagtgtag agctgcagcc tggagagcta aggccccttc aggaggcggc cagggccttg ggagtgcagt ccctggaaga ggcatgctgg agggctcgag gggacagggc taaaaagcca gatccaggcc tgaagaaaca tcaggaggag ccagagaaac cctcaaggaa tcctgagaga gaactggggg accctggaga gaagcagaaa ccagaacagg tttctagaac tggtgggaga gaacaggaga tgttgcacaa gcactcgcca ccaagaggca gacccgagat ggcaggagca acgcaggagg ctcagcagga acagaccagg tcaaaggaga aacgcctcca agcccctgtt ggccaaaggg gagcagatgg gaagcatgga gtgctcacgt ggttgaggga aaatccaggg ggctctgagg aaagtctgcg caagctccct ggcccccttc ccccagcagg ctccctgcaa accagcgtca cccctaggcc ctcgtgggct gaggcccctt ggttggtggg gggccagcct gccctgtgga gcatcctgct gatgccgccc agatatggca ttcccttcta ccatagcacc cccaccactg gagcctggca ggaggtctgg cgggaacaga ggatcccact gtccctaaat gcccccaaag ggctctggag ccagaaccag ttggcctcct ccagccctac cccaggttcc ctcccccagg gccccgcaca gctcagccct ggggagatgg aagagtctga tcaggggcac acaggcgcac ttgcaacctg tgcgggtcat gaggacaagg caggctgccc acctcgcccg caccctcccc cggcccctcc tgctcggtct cggccctatg cgtgctctgt ctgtggaaag aggttttcac tcaagcatca gatggagacg cactaccgag tccacacagg agagaagccc ttctcctgta gcctttgtcc tcagcgctcc cgggacttct cggccatgac caagcacctg cggacacacg gggccgctcc gtaccgctgc tccctgtgcg gggccggctg tcccagcctg gcctccatgc aggcgcacat gcgcggtcac tcgcccagcc aactcccgcc cggatggacc atccgctcca ccttcctcta ctcctcctcg aggccgtctc ggccctcgac ctctccctgt tgtccttctt cctccaccac ctgacggggt gtcggtagcg tcttagccaa gagtccaatt aaagaacgaa aagcgggccg gctcggcttc tgacctggca ccgctgctac ggcggcctag caaattccgc cccagaagcg ccccaggaag ggcgccgagt gccctctcct ggacgatcgc gggtcgcaga agcccaggcc agcgagccct acagagtgag gacactgaag tgtgcaggag cgaaggttaa cagtagggga gattgtcgat ctcatcacca taataaagag tttcctgtgc cctcccttca

FIGURE 61

Met Ser Leu Pro Pro Ile Arg Leu Pro Ser Pro Tyr Gly Ser Asp Arg Leu Val Gln Leu Ala Ala Arg Leu Arg Pro Ala Leu Cys Asp Thr Leu Ile Thr Val Gly Ser Gln Glu Phe Pro Ala His Ser Leu Val Leu Ala Gly Val Ser Gln Gln Leu Gly Arg Arg Gly Gln Trp Ala Leu Gly Glu Gly Ile Ser Pro Ser Thr Phe Ala Gln Leu Leu Asn Phe Val Tyr Gly Glu Ser Val Glu Leu Gln Pro Gly Glu Leu Arg Pro Leu Gln Glu Ala Ala Arg Ala Leu Gly Val Gln Ser Leu Glu Glu Ala Cys Trp Arg Ala Arg Gly Asp Arg Ala Lys Lys Pro Asp Pro Gly Leu Lys Lys His Gln Glu Glu Pro Glu Lys Pro Ser Arg Asn Pro Glu Arg Glu Leu Gly Asp Pro Gly Glu Lys Gln Lys Pro Glu Gln Val Ser Arg Thr Gly Gly Arg Glu Gln Glu Met Leu His Lys His Ser Pro Pro Arg Gly Arg Pro Glu Met Ala Gly Ala Thr Gln Glu Ala Gln Gln Glu Gln Thr Arg Ser Lys Glu Lys Arg Leu Gln Ala Pro Val Gly Gln Arg Gly Ala Asp Gly Lys His Gly Val Leu Thr Trp Leu Arg Glu Asn Pro Gly Gly Ser Glu Glu Ser Leu Arg Lys Leu Pro Gly Pro Leu Pro Pro Ala Gly Ser Leu Gln Thr Ser Val Thr Pro Arg Pro Ser Trp Ala Glu Ala Pro Trp Leu Val Gly Gly Gln Pro Ala Leu Trp Ser Ile Leu Leu Met Pro Pro Arg Tyr Gly Ile Pro Phe Tyr His Ser Thr Pro Thr Thr Gly Ala Trp Gln Glu Val Trp Arg Glu Gln Arg Ile Pro Leu Ser Leu Asn Ala Pro Lys Gly Leu Trp Ser Gln Asn Gln Leu Ala Ser Ser Ser Pro Thr Pro Gly Ser Leu Pro Gln Gly Pro Ala Gln Leu Ser Pro Gly Glu Met Glu Glu Ser Asp Gln Gly His Thr Gly Ala Leu Ala Thr Cys Ala Gly His Glu Asp Lys Ala Gly Cys Pro Pro Arg Pro His Pro Pro Pro Ala Pro Pro Ala Arg Ser Arg Pro Tyr Ala Cys Ser Val Cys Gly Lys Arg Phe Ser Leu Lys His Gln Met Glu Thr His Tyr Arg Val His Thr Gly Glu Lys Pro Phe Ser Cys Ser Leu Cys Pro Gln Arg Ser Arg Asp Phe Ser Ala Met Thr Lys His Leu Arg Thr His Gly Ala Ala Pro Tyr Arg Cys Ser Leu Cys Gly Ala Gly Cys Pro Ser Leu Ala Ser Met Gln Ala His Met Arg Gly His Ser Pro Ser Gln Leu Pro Pro Gly Trp Thr Ile Arg Ser Thr Phe Leu Tyr Ser Ser Ser Arg Pro Ser Arg Pro Ser Thr Ser Pro Cys Cys Pro Ser Ser Ser Thr Thr

FIGURE 62

acgcggggat tctgtgtaat tcctatccac agtcacttct gttcattttt aatgaaaacc tattgctgtt attttctatt atgagttaac ggtgatgtgt gttttttaaa ttttgtatac ttgctctcac cctaaaatat accttaagag acttttcccc tgtttttctt tctgctttcc aagactccag gaaaaacagc ttccatggca cattttgtac agggcacatc tagaatgatt gccgcagaaa gttctacgga gcataaagag tgtgctgaac catcaacaag aaagaacttg atgaattctc ttgaacaaaa gataaggtgt ttggaaaaac aaagaaaaga gctcctggaa gttaaccagc aatgggatca gcaatttaga agtatgaaag agttatatga aagaaaggta gcagagctga agacgaaact ggacgccgcg gaaagattcc tcagcacgcg ggagaaggat ccgcatcaga ggcagagaaa ggacgacagg cagagagagg acgacaggca gcgcgacctg acccgggacc ggctgcagcg ggaggagaag gaaaaggaac gcctaaatga agaattacat gaattgaaag aagagaataa acttttaaag ggaaaaaata ctcttgcgaa caaggaaaag gaacattacg aatgtgaaat aaaacgcctc aataaggctc ttcaggatgc cttgaatatc aagtgttcat tttccgagga ctgtttgagg aagtctcgag tggaattctg ccatgaggag atgagaacag aaatggaagt tctgaagcag caggtgcaaa tatacgaaga agacttcaaa aaggaacgat cggatcgaga gagacttaat caagagaaag aggagctaca gcaaattaat gaaacttccc aatcccagtt gaacaggctg aattcccaga taaaagcttg tcagatggag aaagaaaaac tagaaaagca attaaaacag atgtattgcc caccctgtaa ctgcggcttg gttttccacc tgcaagatcc atgggtacca acaggccctg gagctgtgca gaagcaacgg gagcacccac cagactgtca gtggtatgct cttgaccagc ttccgccaga tgtacaacac aaggcaaatg gtttatcctc agtaaagaaa gtccatccgt agaagtacac actaacagag agagacaaca ggcaacgagg gagcgtggct gaggaccctc ttctttgttt atactgaggc ttgtttctgc cacaaaggca catcatctac cctgttattt gtgcctggtc atgttttcct ttggtatgaa tacaggaaaa ggcttctgac agctaagatc ctgatcaaat tggaggagcc agttattata caaccaaata caacttccag tttccttgaa atgagacttg gcagatggat gatgcacgac tccctgaaaa tctcttcagc atattgctgt tggatgcaca aaaatgattc tatgatttag gcaactcagt gtttgctgca gggatattgt atgttgattt aaagtgcata tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tttcctgggg taaaaatttc tgcagttgta aacgtttaac attgctccca ttcttcttcc acagggcctt agttctttag ctatttgact acatattgtt gacctcagtg atcctaaacg tagaattgaa gaggtgtata tacctcgtta aattaaataa gtggttcaat ctgaataaga tggttaattg gaagctattc cttagacaga tcatttcttt aagatggtga gaaattgtgc gcctgcatca caagacttga ttatgaaaga taaagtcttg ggctgggtgc agtggctcat gcctataatc ccagcacttt gggaggctga ggcaggtgga ttgctttgag gccaggagtt ctagaccagc ctggccagca tggtgaaacc ccatctctac tataaataca aaaattagcc aggctcgtgg cacacaccta taaacccagc tactcaggag gcttgaggcg ggaggatcac ttgagcccag ggaggcagag gttgctgtaa gttgagatcg ccactgcact ccagcctggg aaatagagtg agcaagactc agtgcccccc acccacccac tccacaccac caaaaaaaaa aaaaaaaaaa aaaggaagac aaagtcctga tgggatgatg atggctatat ggctatgctg tgtccatata tacttacaga aatatttcag acatatggat ttatagttaa atctgtgttt ttccttccta tggatttgat taattttaat gaaaaactta attctgactc ctcaagccaa ttaaaatgaa aatggaattt atttaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa

FIGURE 63

Met Ala His Phe Val Gln Gly Thr Ser Arg Met Ile Ala Ala Glu Ser Ser Thr Glu His Lys Glu Cys Ala Glu Pro Ser Thr Arg Lys Asn Leu Met Asn Ser Leu Glu Gln Lys Ile Arg Cys Leu Glu Lys Gln Arg Lys Glu Leu Leu Glu Val Asn Gln Gln Trp Asp Gln Gln Phe Arg Ser Met Lys Glu Leu Tyr Glu Arg Lys Val Ala Glu Leu Lys Thr Lys Leu Asp Ala Ala Glu Arg Phe Leu Ser Thr Arg Glu Lys Asp Pro His Gln Arg Gln Arg Lys Asp Asp Arg Gln Arg Glu Asp Asp Arg Gln Arg Asp Leu Thr Arg Asp Arg Leu Gln Arg Glu Glu Lys Glu Lys Glu Arg Leu Asn Glu Glu Leu His Glu Leu Lys Glu Glu Asn Lys Leu Leu Lys Gly Lys Asn Thr Leu Ala Asn Lys Glu Lys Glu His Tyr Glu Cys Glu Ile Lys Arg Leu Asn Lys Ala Leu Gln Asp Ala Leu Asn Ile Lys Cys Ser Phe Ser Glu Asp Cys Leu Arg Lys Ser Arg Val Glu Phe Cys His Glu Glu Met Arg Thr Glu Met Glu Val Leu Lys Gln Gln Val Gln Ile Tyr Glu Glu Asp Phe Lys Lys Glu Arg Ser Asp Arg Glu Arg Leu Asn Gln Glu Lys Glu Glu Leu Gln Gln Ile Asn Glu Thr Ser Gln Ser Gln Leu Asn Arg Leu Asn Ser Gln Ile Lys Ala Cys Gln Met Glu Lys Glu Lys Leu Glu Lys Gln Leu Lys Gln Met Tyr Cys Pro Pro Cys Asn Cys Gly Leu Val Phe His Leu Gln Asp Pro Trp Val Pro Thr Gly Pro Gly Ala Val Gln Lys Gln Arg Glu His Pro Pro Asp Cys Gln Trp Tyr Ala Leu Asp Gln Leu Pro Pro Asp Val Gln His Lys Ala Asn Gly Leu Ser Ser Val Lys Lys Val His Pro

FIGURE 64

atataaaggc gccgccgtcc ttgcccccag gactcggccc catggggacg ccgccggccg ccgctggcgc atggcgggta ggagctgtgg cgcggggcct tccaggagtc tgagctatga gtggcccctg tggagagaag cctgtcctgg aagccagccc caccatgagt ctgtgggaat ttgaggacag ccacagccgt cagggcaccc caaggccggg tcaagagctg gccgctgagg aggcctcggc cctggaactg cagatgaagg tggacttctt ccggaagctg ggctattcat ccacggagat ccacagcgtc ctgcagaagc tgggcgtcca ggcagacacc aacacggtgc tgggtgagct ggtgaaacac gggacagcca ccgagcggga gcgccagacc tcaccggacc cctgccctca gctccctcta gtcccgcggg gtggtggcac ccctaaggct cccaacctgg agcctccact cccagaagag gaaaaggagg gcagcgacct gagaccagtg gtcatcgatg ggagcaacgt ggccatgagc catgggaaca aggaggtctt ctcctgccgg ggcatcctgc tggcagtgaa ctggtttctg gagcggggcc acacagacat cacagtgttt gtgccatcct ggaggaagga gcagcctcgg cccgacgtgc ccatcacaga ccagcacatc ctgcgggaac tggagaagaa gaagatcctg gtgttcacac catcacgacg cgtgggtggc aagcgggtgg tgtgctatga cgacagattc attgtgaagc tggcctacga gtctgacggg atcgtggttt ccaacgacac ataccgtgac ctccaaggcg agcggcagga gtggaagcgc ttcatcgagg agcggctgct catgtactcc ttcgtcaatg acaagtttat gcccccctgat gacccactgg gccggcacgg gcccagcctg gacaacttcc tgcgtaagaa gccactcact ttggagcaca ggaagcagcc gtgtccctat ggaaggaaat gcacctatgg gatcaagtgc cgattcttcc acccagagcg gccaagctgc ccccagcgct ctgtggcaga tgagctccgt gccaatgctc tcctctcacc ccccagagcc ccaagcaagg acaaaaatgg ccggcggcct tcaccttcat cccagtccag ctctctgcta acagagagtg agcagtgcag cctggatggg aagaagctgg gggcccaggc atccccaggg tcccgccaag agggtctaac acagacctat gccccatcag gcaggagcct cgcacctagc gggggcagtg gcagcagctt tgggcccaca gactggctcc cacagacgct ggactcactc ccgtacgtct cccaggattg cctggactcg ggcattggct ccctggagag ccagatgtcg gaactttggg gggttcgagg aggaggccct ggtgagccgg gcccaccccg agccccttac acgggctaca gtccctatgg atctgagctc ccagccaccg cagccttctc tgcctttggc cgggccatgg gtgctggcca cttcagtgtc cctgccgact acccacccgc gccccctgcc tttccacctc gagagtactg gtctgaacca tacccactgc ccccacccac atcagtcctt caggagcccc cagtgcagag cccaggggct ggcaggagcc cgtggggcag ggcagacagc ctggccaagg agcaggccag cgtgtatact aagctgtgtg gtgtgtttcc cccgcacctg gtggaggctg tgatggggcg cttcccacag ctcctggacc cccagcagct ggctgccgag atcctctcct acaagtccca gcaccccagt gagtaagctg cctgtggctg gcaagggcag caccccccagc ctccaagggc cgtcaggctg ggctttgggc cattgagcag cccattccca gccctgaggc ccaccccaga ggctggacag agggaggatt caagtcggga aggaaaccca caaaccaaag atactgtagg attggttctg gcccatgcag cacctctagc tgtctgcctc agtgggtcag aagcgatcac cctgttgata cacattgtat ctctgtagtt taaggagacg ctgccggtaa cggcgtcggt ccgtggctga ggcccaaacc gtcttttctc tcagagggtg gggagggagg tgggggcagc agaggcctgg gctgggtgcc ctgtgcacgc caccccactt ccgccctacc cctgggacgt tggccttggc tggctagttg ggcaccgtgt gcctgccctc caagggcctc ctctacgcca atgaggcctc atctgtgctc tcgctgggca cgtggcttca tgtcagtaag caagatgctt cttaataacc caccttctgc cccactctat tccttatcct gctgcccctg taggggtcaa gggccctccg tctacaccct cttcttctcc tccatccttt attcagagtc atctcgccct tccccatggg tgggggaacc tgtgtttgtt tgtgtgcaca tgtaaatttt aaatatttta agcagaaagt ccttacctcc tgtaacacat caataaagta caatcattgt gagccctttc aaaaaaaaaa aaaaaaa

FIGURE 65

Met Ser Gly Pro Cys Gly Glu Lys Pro Val Leu Glu Ala Ser Pro Thr Met Ser Leu Trp Glu Phe Glu Asp Ser His Ser Arg Gln Gly Thr Pro Arg Pro Gly Gln Glu Leu Ala Ala Glu Glu Ala Ser Ala Leu Glu Leu Gln Met Lys Val Asp Phe Phe Arg Lys Leu Gly Tyr Ser Ser Thr Glu Ile His Ser Val Leu Gln Lys Leu Gly Val Gln Ala Asp Thr Asn Thr Val Leu Gly Glu Leu Val Lys His Gly Thr Ala Thr Glu Arg Glu Arg Gln Thr Ser Pro Asp Pro Cys Pro Gln Leu Pro Leu Val Pro Arg Gly Gly Gly Thr Pro Lys Ala Pro Asn Leu Glu Pro Pro Leu Pro Glu Glu Glu Lys Glu Gly Ser Asp Leu Arg Pro Val Val Ile Asp Gly Ser Asn Val Ala Met Ser His Gly Asn Lys Glu Val Phe Ser Cys Arg Gly Ile Leu Leu Ala Val Asn Trp Phe Leu Glu Arg Gly His Thr Asp Ile Thr Val Phe Val Pro Ser Trp Arg Lys Glu Gln Pro Arg Pro Asp Val Pro Ile Thr Asp Gln His Ile Leu Arg Glu Leu Glu Lys Lys Lys Ile Leu Val Phe Thr Pro Ser Arg Arg Val Gly Gly Lys Arg Val Val Cys Tyr Asp Asp Arg Phe Ile Val Lys Leu Ala Tyr Glu Ser Asp Gly Ile Val Val Ser Asn Asp Thr Tyr Arg Asp Leu Gln Gly Glu Arg Gln Glu Trp Lys Arg Phe Ile Glu Glu Arg Leu Leu Met Tyr Ser Phe Val Asn Asp Lys Phe Met Pro Pro Asp Asp Pro Leu Gly Arg His Gly Pro Ser Leu Asp Asn Phe Leu Arg Lys Lys Pro Leu Thr Leu Glu His Arg Lys Gln Pro Cys Pro Tyr Gly Arg Lys Cys Thr Tyr Gly Ile Lys Cys Arg Phe Phe His Pro Glu Arg Pro Ser Cys Pro Gln Arg Ser Val Ala Asp Glu Leu Arg Ala Asn Ala Leu Leu Ser Pro Pro Arg Ala Pro Ser Lys Asp Lys Asn Gly Arg Arg Pro Ser Pro Ser Ser Gln Ser Ser Ser Leu Leu Thr Glu Ser Glu Gln Cys Ser Leu Asp Gly Lys Lys Leu Gly Ala Gln Ala Ser Pro Gly Ser Arg Gln Glu Gly Leu Thr Gln Thr Tyr Ala Pro Ser Gly Arg Ser Leu Ala Pro Ser Gly Gly Ser Gly Ser Ser Phe Gly Pro Thr Asp Trp Leu Pro Gln Thr Leu Asp Ser Leu Pro Tyr Val Ser Gln Asp Cys Leu Asp Ser Gly Ile Gly Ser Leu Glu Ser Gln Met Ser Glu Leu Trp Gly Val Arg Gly Gly Gly Pro Gly Glu Pro Gly Pro Pro Arg Ala Pro Tyr Thr Gly Tyr Ser Pro Tyr Gly Ser Glu Leu Pro Ala Thr Ala Ala Phe Ser Ala Phe Gly Arg Ala Met Gly Ala Gly His Phe Ser Val Pro Ala Asp Tyr Pro Pro Ala Pro Pro Ala Phe Pro Pro Arg Glu Tyr Trp Ser Glu Pro Tyr Pro Leu Pro Pro Pro Thr Ser Val Leu Gln Glu Pro Pro Val Gln Ser Pro Gly Ala Gly Arg Ser Pro Trp Gly Arg Ala Asp Ser Leu Ala Lys Glu Gln Ala Ser Val Tyr Thr Lys Leu Cys Gly Val Phe Pro Pro His Leu Val Glu Ala Val Met Gly Arg Phe Pro Gln Leu Leu Asp Pro Gln Gln Leu Ala Ala Glu Ile Leu Ser Tyr Lys Ser Gln His Pro Ser Glu

FIGURE 66

atggaaggag acttctcggt gtgcaggaac tgtaaaagac atgtagtctc tgccaacttc accctccatg aggcttactg cctgcggttc ctggtcctgt gtccggagtg tgaggagcct gtccccaagg aaaccatgga ggagcactgc aagcttgagc accagcaggt tgggtgtacg atgtgtcagc agagcatgca gaagtcctcg ctggagtttc ataaggccaa tgagtgccag gagcgccctg ttgagtgtaa gttctgcaaa ctggacatgc agctcagcaa gctggagctc cacgagtcct actgtggcag ccggacagag ctctgccaag gctgtggcca gttcatcatg caccgcatgc tcgcccagca cagagatgtc tgtcggagtg aacaggccca gctcgggaaa ggggaaagaa tttcagctcc tgaaagggaa atctactgtc attattgcaa ccaaatgatt ccagaaaata agtatttcca ccatatgggt aaatgttgtc cagactcaga gtttaagaaa cactttcctg ttggaaatcc agaaattctt ccttcatctc ttccaagtca agctgctgaa aatcaaactt ccacgatgga gaaagatgtt cgtccaaaga caagaagtat aaacagattt cctcttcatt ctgaaagttc atcaaagaaa gcaccaagaa gcaaaaacaa aaccttggat ccacttttga tgtcagagcc caagcccagg accagctccc ctagaggaga taaagcagcc tatgacattc tgaggagatg ttctcagtgt ggcatcctgc ttcccctgcc gatcctaaat caacatcagg agaaatgccg gtggttagct tcatcaaaaa ggaaaacaag tgagaaattt cagctagatt tggaaaagga aaggtactac aaattcaaaa gatttcactt ttaacactgg cattcctgcc tacttgctgt ggtggtcttg tgaaaggtga tgggttttat tcgttgggct ttaaaagaaa aggtttggca gaactaaaaa caaaactcac gtatcatctc aatagataca gaaaaggctt ttgataaaat tcaacttgac ttcatgttaa aaaccctcaa caaaccaggc gtcgaaggaa catacctcaa aataataaga gccatctatg acaaaaccac agccaacatc atactgaatg agcaaaagct ggagcattac tcttgagaag tagaacaagg cacttcagtc ctattcaaca tagtactgga agtctcgcca cagcaatcag gcaagagaaa gaagtaaaag gcaccc

FIGURE 67

Met Glu Gly Asp Phe Ser Val Cys Arg Asn Cys Lys Arg His Val Val Ser Ala Asn Phe Thr Leu His Glu Ala Tyr Cys Leu Arg Phe Leu Val Leu Cys Pro Glu Cys Glu Glu Pro Val Pro Lys Glu Thr Met Glu Glu His Cys Lys Leu Glu His Gln Gln Val Gly Cys Thr Met Cys Gln Gln Ser Met Gln Lys Ser Ser Leu Glu Phe His Lys Ala Asn Glu Cys Gln Glu Arg Pro Val Glu Cys Lys Phe Cys Lys Leu Asp Met Gln Leu Ser Lys Leu Glu Leu His Glu Ser Tyr Cys Gly Ser Arg Thr Glu Leu Cys Gln Gly Cys Gly Gln Phe Ile Met His Arg Met Leu Ala Gln His Arg Asp Val Cys Arg Ser Glu Gln Ala Gln Leu Gly Lys Gly Glu Arg Ile Ser Ala Pro Glu Arg Glu Ile Tyr Cys His Tyr Cys Asn Gln Met Ile Pro Glu Asn Lys Tyr Phe His His Met Gly Lys Cys Cys Pro Asp Ser Glu Phe Lys Lys His Phe Pro Val Gly Asn Pro Glu Ile Leu Pro Ser Ser Leu Pro Ser Gln Ala Ala Glu Asn Gln Thr Ser Thr Met Glu Lys Asp Val Arg Pro Lys Thr Arg Ser Ile Asn Arg Phe Pro Leu His Ser Glu Ser Ser Ser Lys Lys Ala Pro Arg Ser Lys Asn Lys Thr Leu Asp Pro Leu Leu Met Ser Glu Pro Lys Pro Arg Thr Ser Ser Pro Arg Gly Asp Lys Ala Ala Tyr Asp Ile Leu Arg Arg Cys Ser Gln Cys Gly Ile Leu Leu Pro Leu Pro Ile Leu Asn Gln His Gln Glu Lys Cys Arg Trp Leu Ala Ser Ser Lys Arg Lys Thr Ser Glu Lys Phe Gln Leu Asp Leu Glu Lys Glu Arg Tyr Tyr Lys Phe Lys Arg Phe His Phe

FIGURE 68

actgggagaa cagaagactt cacaatttaa tgcctcagtt tttaaaaaag gatccttaca cttcatgtct cctagccatc agaagaggaa tgagacagca aaagttcaaa tggcctgttt caagtttctg atataaaacg atgacatttt caggaaaatc ctgcatttcc agagagagac tggctggtta aatttctgaa agaggacacc agctaaaaga aggtattgca tctcacccga gcagactgtg tctgtggaaa gtgtaagccc cttgccagaa gagcagcttc ccagcaaagg cagagggtga aaacagcaaa ggtcttaaga cactggggac ctagagtcaa aagggacctc ctccagggaa aacgctgtgt gagaaatggc ctcattcggt gactgtgagt gacacagcag aaagttgggt cattccggct gctttttga gaagtccctg aagagatcaa taacagcaag agggaacctg gcaaggaagc tattcctata atccaggaaa gagatgagga aggcttggac caggtggtag tggtgtcagg tagtcaaatg ctgggtatat tttgaagata caccccatag gatttgctcc acattgaatg tggaatgctg gaagagagat aaagtgtacc tgtcacatac tttttgagtt ttatttattt tcttagaagt aagtacacaa agagatgcta cctaggagaa gggtattctt ttcactattc tttcaaattt tctgtatgtt cgaacatttt catagtagaa agttgggggg aaaatctgtt tcataaacat ttcctcagca gcagtccagt ctattgcatt ttaattggtt gtgatatcat tgttttatgc aatacgttct caacaagtat atcctccggc aaactgaaca aggaccaagt ctgttctgcc tacagctctg cttcctcata gctgctttcc agaacgtgac tcttgcaaat tatcaagaaa ggggaactaa tctaagggat ccagatcaaa cagcctcatg aagacttatt ttatgtttct aatataaaga tagaagtttt cagaaaagcc ctgctacaca gaggatcaga gcaggggtgg gcctgctggg ctgcagctgg gattctgagc atcctttccc ggaggcacgg aaagtgagtg agtgagccca gtgaggaaga agttgaagct ttgatatgag taaacaagta tctctacctg aaatgattaa agactggacc aaagagcatg tgaaaaaatg ggtaaatgaa gaccttaaga ttaatgagca atacgggcaa attctgctca gtgaagaagt aacaggatta gtcctgcagg aattaactga gaaggacctt gtagaaatgg ggctaccatg gggtccagca cttttgataa aacgttcata caacaaattg aatagtaagt cccctgaaag tgacaatcat gatccgggac aattagataa ttcaaaaccg tccaaaacag aacaccagaa aaatccaaaa cacaccaaaa aggaagaaga aaattcaatg tcatctaata ttgattatga tcccagagag atcagagata tcaaacaaga agaatcaatt cttatgaaag aaaatgtgtt agatgaagta gcaaatgcta aacacaagaa aaagggtaag ctaaaacctg aacaattgac ttgtatgcca tatccttttg atcagttcca tgacagccat cgctacatag aacattatac tctacaacct gaaacaggag cactcaatct cattgatcca atacatgagt tcaaagctct cacaaacaca gaaacagcca cggaagtgga cattaagatg aaattcagca atgaagtctt ccgatttgca tcagcttgta tgaattcacg caccaatggc accatccatt ttggagtcaa ggacaaaccc catggagaaa ttgttggtgt gaaaatcacc agtaaggctg ccttcattga ccacttcaat gtaatgatca aaaagtattt tgaagaaagt gagatcaatg aagccaagaa gtgtattcgg gagccaaggt ttgtggaagt ccttctgcag aacaatacac catctgacag atttgtcatt gaagttgata ctattccaaa acactctata tgtaatgata agtatttcta cattcagatg caaatttgta aagataaaat atggaaacaa aaccaaaatc tttcactgtt tgtaagagaa ggggctagct ctagggatat cctggccaat tccaagcaac gggatgtaga tttcaaggca tttttacaaa atttaaagtc actggtagca tctagaaaag aggctgaaga agagtatgga atgaaggcaa tgaagaagga gagtgaagga ctaaagctgg ttaaacttct cataggaaac cgagactcac tggataattc atactatgac tggtacattc ttgtaacaaa taaatgccat ccaaaccaaa taaagcactt agatttttta aaagaaatta aatggtttgc tgtgttggag tttgatcctg aatctatgat caatggagtg gtcaaagctt acaaagaaag tcgggtggca aaccttcact ttccaaatca atatgaagac aagacaacta acatgtggga gaagatttct actcttaatc tttaccaaca gcccagctgg attttctgca acggcagatc agacctgaaa agcgagacat ataaacctct agaaccacat ttatggcaga gagaaagagc ttcagaagtc aggaaactaa ttttatttct cacagatgaa aatataatga caagaggaaa atttttggta gtgtttctat tactctcttc agtggaaagc ccaggagatc cactcattga aactttctgg gctttctatc aagctctcaa aggaatggaa aatatgttgt gtatctctgt aaactcacat atttatcaac gatggaaaga tctactacaa acaagaatga agatggaaga tgaactaaca aaccacagta tttccacttt aaatatagaa ctggtaaaca gcactatcct taaactaaaa tcggtgactc ggtcatcaag aaggtttttg cccgcccgtg gatcttcttc agttatccta gagaaaaaga aagaggatgt cttgactgca ctggaaatcc tctgtgaaaa tgagtgtaca gagacagaca tcgagaaaga caaatctaaa ttcctggagt ttaagaaatc aaaagaagaa cacttttatc gaggtggcaa agtatcctgg tggaacttct atttttcttc tgaaaactat tcttcagatt ttgttaaaag ggacagttat gaaaagctta aagatttaat acactgctgg gcagagtctc ctaaaccaat atttgcaaaa atcatcaatc tttatcatca tccaggctgt ggaggtacca cactggctat gcatgttctc tgggacttaa agaaaaactt cagatgtgct gtgttaaaaa acaagacaac tgattttgca gaaattgcag agcaagtgat caatctggtc acctataggg caaagagcca tcaggattac attcctgtgc ttctccttgt ggatgatttt gaagaacaag aaaatgtcta ctttctacaa aatgccatcc attccgtttt agcagaaaag gatttgcgat atgaaaaaac attggtaatt atcttaaact gcatgagatc ccggaatcca gatgaaagtg caaaattggc agacagtatt gcactaaatt accaactttc ttccaaggaa caaagagctt ttggtgccaa actgaaggaa attgaaaagc agcacaagaa ctgtgaaaac ttttattcct tcatgatcat gaaaagcaat tttgatgaaa catatataga aaatgtagtc aggaatatcc taaaaggaca ggatgttgac agcaaggaag

FIGURE 69 Continued)

cacaactcat ttccttcctg gctttactca gctcttatgt tactgactct acaatttcag tttcacagtg tgaaatattt ttgggaatca tatacactag tacaccctgg gaacctgaaa gcttagaaga caagatggga acttattcta cacttctaat aaaaacagaa gttgcagaat atgggagata cacaggtgtg cgtatcattc accctctgat tgccctgtac tgtctaaaag aactggaaag aagctatcac ttggataaat gtcaaattgc attgaatata ttagaagaga atttattcta tgattctgga ataggaagag acaaatttca acatgatgtt caaactcttc tgcttacaag acagcgcaag gtgtatggag atgaaacaga cactctgttt tccccattaa tggaagcttt acagaataaa gacattgaaa aggtcttgag tgcaggaagt agacgattcc cacaaaatgc attcatttgt caagccttag caagacattt ctacattaaa gagaaggact ttaacacagc tctggactgg gcacgtcagg ccaaaatgaa agcacctaaa aattcctata tttcagatac actaggtcaa gtctacaaaa gtgaaatcaa atggtggttg gatgggaaca aaaactgtag gagcattact gttaatgacc taacacatct cctagaagct gcggaaaaag cctcaagagc tttcaaagaa tcccaaaggc aaactgatag taaaaactat gaaaccgaga actggtcacc acagaagtcc cagagacgat atgacatgta taacacagct tgtttcttgg gtgaaataga agttggtctt tacactatcc agattcttca gctcactccc tttttccaca aagaaaatga attatccaaa aaacatatgg tgcaattttt atcaggaaag tggaccattc ctcctgatcc cagaaatgaa tgttatttgg ctcttagcaa gttcacatcc cacctaaaaa atttacaatc agatctgaaa aggtgctttg actttttat tgattatatg gttcttctga aaatgaggta tacccaaaaa gaaattgcag aaatcatgtt aagcaagaaa gtcagtcgtt gtttcaggaa atacacagaa cttttctgtc atttggatcc atgtctatta caaagtaaag agagtcaatt actccaggag gagaattgca ggaaaaagct agaagctctg agagcagata ggtttgctgg actcttggaa tatcttaatc caaactacaa agatgctacc accatggaaa gtatagtgaa tgaatatgcc ttcctactgc agcaaaactc aaaaaagccc atgacaaatg agaaacaaaa ttccattttg gccaacatta ttctgagttg tctaaagccc aactccaagt taattcaacc acttaccacg ctaaaaaaac aactccgaga ggtcttgcaa tttgtaggac taagtcatca atatccaggt ccttatttct tggcctgcct cctgttctgg ccagaaaatc aagagctaga tcaagattcc aaactaatag aaaagtatgt ttcatcctta aatagatcct tcaggggaca gtacaagcgc atgtgcaggt ccaagcaggc aagcacactt ttctatctgg gcaaaaggaa gggtctaaac agtattgttc acaaggccaa aatagagcag tactttgata aagcacaaaa tacaaattcc ctctggcaca gtggggatgt gtggaaaaaa aatgaagtca aagacctcct gcgtcgtcta actggtcagg ctgaaggcaa gctaatctct gtagaatatg gaacagagga aaaaataaaa ataccagtaa tatctgttta ttcaggtcca ctcagaagtg gtaggaacat agaaagagtg tctttctacc taggattttc cattgaaggc cctctggcat atgatataga agtaatttaa gacaatacat cacctgtagt tcaaatacgt ttatttatat ctttatgatt ttattctctc tctctattct catggcactt tcataacatt atggctaacc tctaattaca gattttgctt ttgcctccct gaatgaatta caagcctttt taagatatga aatatgccta cccgcagagc ttggcacaaa gtggagtcaa tcttttaatg ttttaaatat gcattttcag actcaaataa ttaagaagtt tcattgatat ccactggtca catcataact gtctataggg caataaaatc tgtgttaaac tcaattgctt ttataagttt tctaaattat ttcttcactg tgacagcaaa gatttaaata agatgaatgt aaaagagaaa gcttattgga ctcaaaccca cagatccaca ccagagttct atttacctca tcttggtatc aataaaaact tatgtggaag gtaaatatat tgttccccat ccaccacata acactctccc caacacacac acacacacac acacacacac acacacacac acacactcct tgtacccctt gcccttctcc cagctcattg ctccaggaga gagaagagtt caaaaaataa agtaatcata aacttgaact ctctccattc tcttgttccc atttacaggt gaatctcttc ctttaagcca tttttgtctc ctgtgaatac agccttatct ccacctgttt cttagatccc atctcccctg gcttattttt tccattcatt accctctttg ttccctttac ttctcaacct gtgctatata catgctgttc tctctgttga gattgcctta tttccatcta acattctctc tcctgctatt ctgatttgtc attcacaact gatttcaaga gtcaccttca ccaggaagtc ttccttgacc accatcattc ctgcctgatt agagggcttc ctcatggtaa tatgtgttct caagttttca gtgtcaagga atgccatccc agaagctcat tctcagatgc acaacagcca gaacagtctc aagcagcatt ctagagcttg gaatttaaga actacgcatt gcctataaag tgaaacatag gctaatatag attaaattga atattgaata aaaaatatat ttatttatcc ac

FIGURE 69

Met Ser Lys Gln Val Ser Leu Pro Glu Met Ile Lys Asp Trp Thr Lys Glu His Val Lys Lys Trp
Val Asn Glu Asp Leu Lys Ile Asn Glu Gln Tyr Gly Gln Ile Leu Leu Ser Glu Glu Val Thr Gly
Leu Val Leu Gln Glu Leu Thr Glu Lys Asp Leu Val Glu Met Gly Leu Pro Trp Gly Pro Ala Leu
Leu Ile Lys Arg Ser Tyr Asn Lys Leu Asn Ser Lys Ser Pro Glu Ser Asp Asn His Asp Pro Gly
Gln Leu Asp Asn Ser Lys Pro Ser Lys Thr Glu His Gln Lys Asn Pro Lys His Thr Lys Lys Glu
Glu Glu Asn Ser Met Ser Ser Asn Ile Asp Tyr Asp Pro Arg Glu Ile Arg Asp Ile Lys Gln Glu Glu
Ser Ile Leu Met Lys Glu Asn Val Leu Asp Glu Val Ala Asn Ala Lys His Lys Lys Lys Gly Lys
Leu Lys Pro Glu Gln Leu Thr Cys Met Pro Tyr Pro Phe Asp Gln Phe His Asp Ser His Arg Tyr
Ile Glu His Tyr Thr Leu Gln Pro Glu Thr Gly Ala Leu Asn Leu Ile Asp Pro Ile His Glu Phe Lys
Ala Leu Thr Asn Thr Glu Thr Ala Thr Glu Val Asp Ile Lys Met Lys Phe Ser Asn Glu Val Phe
Arg Phe Ala Ser Ala Cys Met Asn Ser Arg Thr Asn Gly Thr Ile His Phe Gly Val Lys Asp Lys
Pro His Gly Glu Ile Val Gly Val Lys Ile Thr Ser Lys Ala Ala Phe Ile Asp His Phe Asn Val Met
Ile Lys Lys Tyr Phe Glu Glu Ser Glu Ile Asn Glu Ala Lys Lys Cys Ile Arg Glu Pro Arg Phe Val
Glu Val Leu Leu Gln Asn Asn Thr Pro Ser Asp Arg Phe Val Ile Glu Val Asp Thr Ile Pro Lys His
Ser Ile Cys Asn Asp Lys Tyr Phe Tyr Ile Gln Met Gln Ile Cys Lys Asp Lys Ile Trp Lys Gln Asn
Gln Asn Leu Ser Leu Phe Val Arg Glu Gly Ala Ser Ser Arg Asp Ile Leu Ala Asn Ser Lys Gln
Arg Asp Val Asp Phe Lys Ala Phe Leu Gln Asn Leu Lys Ser Leu Val Ala Ser Arg Lys Glu Ala
Glu Glu Glu Tyr Gly Met Lys Ala Met Lys Lys Glu Ser Glu Gly Leu Lys Leu Val Lys Leu Leu
Ile Gly Asn Arg Asp Ser Leu Asp Asn Ser Tyr Tyr Asp Trp Tyr Ile Leu Val Thr Asn Lys Cys
His Pro Asn Gln Ile Lys His Leu Asp Phe Leu Lys Glu Ile Lys Trp Phe Ala Val Leu Glu Phe
Asp Pro Glu Ser Met Ile Asn Gly Val Val Lys Ala Tyr Lys Glu Ser Arg Val Ala Asn Leu His
Phe Pro Asn Gln Tyr Glu Asp Lys Thr Thr Asn Met Trp Glu Lys Ile Ser Thr Leu Asn Leu Tyr
Gln Gln Pro Ser Trp Ile Phe Cys Asn Gly Arg Ser Asp Leu Lys Ser Glu Thr Tyr Lys Pro Leu
Glu Pro His Leu Trp Gln Arg Glu Arg Ala Ser Glu Val Arg Lys Leu Ile Leu Phe Leu Thr Asp
Glu Asn Ile Met Thr Arg Gly Lys Phe Leu Val Val Phe Leu Leu Leu Ser Ser Val Glu Ser Pro
Gly Asp Pro Leu Ile Glu Thr Phe Trp Ala Phe Tyr Gln Ala Leu Lys Gly Met Glu Asn Met Leu
Cys Ile Ser Val Asn Ser His Ile Tyr Gln Arg Trp Lys Asp Leu Leu Gln Thr Arg Met Lys Met
Glu Asp Glu Leu Thr Asn His Ser Ile Ser Thr Leu Asn Ile Glu Leu Val Asn Ser Thr Ile Leu Lys
Leu Lys Ser Val Thr Arg Ser Ser Arg Arg Phe Leu Pro Ala Arg Gly Ser Ser Ser Val Ile Leu Glu
Lys Lys Lys Glu Asp Val Leu Thr Ala Leu Glu Ile Leu Cys Glu Asn Glu Cys Thr Glu Thr Asp
Ile Glu Lys Asp Lys Ser Lys Phe Leu Glu Phe Lys Lys Ser Lys Glu Glu His Phe Tyr Arg Gly
Gly Lys Val Ser Trp Trp Asn Phe Tyr Phe Ser Ser Glu Asn Tyr Ser Ser Asp Phe Val Lys Arg
Asp Ser Tyr Glu Lys Leu Lys Asp Leu Ile His Cys Trp Ala Glu Ser Pro Lys Pro Ile Phe Ala Lys
Ile Ile Asn Leu Tyr His His Pro Gly Cys Gly Gly Thr Thr Leu Ala Met His Val Leu Trp Asp Leu
Lys Lys Asn Phe Arg Cys Ala Val Leu Lys Asn Lys Thr Thr Asp Phe Ala Glu Ile Ala Glu Gln
Val Ile Asn Leu Val Thr Tyr Arg Ala Lys Ser His Gln Asp Tyr Ile Pro Val Leu Leu Leu Val Asp
Asp Phe Glu Glu Gln Glu Asn Val Tyr Phe Leu Gln Asn Ala Ile His Ser Val Leu Ala Glu Lys
Asp Leu Arg Tyr Glu Lys Thr Leu Val Ile Ile Leu Asn Cys Met Arg Ser Arg Asn Pro Asp Glu
Ser Ala Lys Leu Ala Asp Ser Ile Ala Leu Asn Tyr Gln Leu Ser Ser Lys Glu Gln Arg Ala Phe
Gly Ala Lys Leu Lys Glu Ile Glu Lys Gln His Lys Asn Cys Glu Asn Phe Tyr Ser Phe Met Ile
Met Lys Ser Asn Phe Asp Glu Thr Tyr Ile Glu Asn Val Val Arg Asn Ile Leu Lys Gly Gln Asp
Val Asp Ser Lys Glu Ala Gln Leu Ile Ser Phe Leu Ala Leu Leu Ser Ser Tyr Val Thr Asp Ser Thr
Ile Ser Val Ser Gln Cys Glu Ile Phe Leu Gly Ile Ile Tyr Thr Ser Thr Pro Trp Glu Pro Glu Ser Leu
Glu Asp Lys Met Gly Thr Tyr Ser Thr Leu Leu Ile Lys Thr Glu Val Ala Glu Tyr Gly Arg Tyr
Thr Gly Val Arg Ile Ile His Pro Leu Ile Ala Leu Tyr Cys Leu Lys Glu Leu Glu Arg Ser Tyr His
Leu Asp Lys Cys Gln Ile Ala Leu Asn Ile Leu Glu Glu Asn Leu Phe Tyr Asp Ser Gly Ile Gly
Arg Asp Lys Phe Gln His Asp Val Gln Thr Leu Leu Leu Thr Arg Gln Arg Lys Val Tyr Gly Asp

FIGURE 70(Continued)

Glu Thr Asp Thr Leu Phe Ser Pro Leu Met Glu Ala Leu Gln Asn Lys Asp Ile Glu Lys Val Leu Ser Ala Gly Ser Arg Arg Phe Pro Gln Asn Ala Phe Ile Cys Gln Ala Leu Ala Arg His Phe Tyr Ile Lys Glu Lys Asp Phe Asn Thr Ala Leu Asp Trp Ala Arg Gln Ala Lys Met Lys Ala Pro Lys Asn Ser Tyr Ile Ser Asp Thr Leu Gly Gln Val Tyr Lys Ser Glu Ile Lys Trp Trp Leu Asp Gly Asn Lys Asn Cys Arg Ser Ile Thr Val Asn Asp Leu Thr His Leu Leu Glu Ala Ala Glu Lys Ala Ser Arg Ala Phe Lys Glu Ser Gln Arg Gln Thr Asp Ser Lys Asn Tyr Glu Thr Glu Asn Trp Ser Pro Gln Lys Ser Gln Arg Arg Tyr Asp Met Tyr Asn Thr Ala Cys Phe Leu Gly Glu Ile Glu Val Gly Leu Tyr Thr Ile Gln Ile Leu Gln Leu Thr Pro Phe Phe His Lys Glu Asn Glu Leu Ser Lys Lys His Met Val Gln Phe Leu Ser Gly Lys Trp Thr Ile Pro Pro Asp Pro Arg Asn Glu Cys Tyr Leu Ala Leu Ser Lys Phe Thr Ser His Leu Lys Asn Leu Gln Ser Asp Leu Lys Arg Cys Phe Asp Phe Phe Ile Asp Tyr Met Val Leu Leu Lys Met Arg Tyr Thr Gln Lys Glu Ile Ala Glu Ile Met Leu Ser Lys Lys Val Ser Arg Cys Phe Arg Lys Tyr Thr Glu Leu Phe Cys His Leu Asp Pro Cys Leu Leu Gln Ser Lys Glu Ser Gln Leu Leu Gln Glu Glu Asn Cys Arg Lys Lys Leu Glu Ala Leu Arg Ala Asp Arg Phe Ala Gly Leu Leu Glu Tyr Leu Asn Pro Asn Tyr Lys Asp Ala Thr Thr Met Glu Ser Ile Val Asn Glu Tyr Ala Phe Leu Leu Gln Gln Asn Ser Lys Lys Pro Met Thr Asn Glu Lys Gln Asn Ser Ile Leu Ala Asn Ile Ile Leu Ser Cys Leu Lys Pro Asn Ser Lys Leu Ile Gln Pro Leu Thr Thr Leu Lys Lys Gln Leu Arg Glu Val Leu Gln Phe Val Gly Leu Ser His Gln Tyr Pro Gly Pro Tyr Phe Leu Ala Cys Leu Leu Phe Trp Pro Glu Asn Gln Glu Leu Asp Gln Asp Ser Lys Leu Ile Glu Lys Tyr Val Ser Ser Leu Asn Arg Ser Phe Arg Gly Gln Tyr Lys Arg Met Cys Arg Ser Lys Gln Ala Ser Thr Leu Phe Tyr Leu Gly Lys Arg Lys Gly Leu Asn Ser Ile Val His Lys Ala Lys Ile Glu Gln Tyr Phe Asp Lys Ala Gln Asn Thr Asn Ser Leu Trp His Ser Gly Asp Val Trp Lys Lys Asn Glu Val Lys Asp Leu Leu Arg Arg Leu Thr Gly Gln Ala Glu Gly Lys Leu Ile Ser Val Glu Tyr Gly Thr Glu Glu Lys Ile Lys Ile Pro Val Ile Ser Val Tyr Ser Gly Pro Leu Arg Ser Gly Arg Asn Ile Glu Arg Val Ser Phe Tyr Leu Gly Phe Ser Ile Glu Gly Pro Leu Ala Tyr Asp Ile Glu Val Ile

FIGURE 70

gggcttcgtg ttcctgggtg ctgaccgtgc actccccgcc gcccgaggac ttagagctct ggaagtagct ctccagcttc cttcgtactc gggggccgga cttgtacacc cgcacgagga gcggggacgg cgggcgcaga agtgggccac catatctgga aactacagtc tatgctttga agcgcaaaag ggaataaaca tttaaagact cccccgggga cctggaggat ggacttttcc atggtggccg gagcagcagc ttacaatgaa aaatcaggta ggattacctc gctctcactc ttgtttcaga aagtctttgc tcagatcttt cctcagtgga gaaaggggaa tacagaagaa tgtctcccct acaagtgctc agagactggt gctcttggag aaaactatag ttggcaaatt cccattaacc acaatgactt caaaatttta aaaaataatg agcgtcagct gtgtgaagtc ctccagaata agtttggctg tatctctacc ctggtctctc cagttcagga aggcaacagc aaatctctgc aagtgttcag aaaaatgctg actcctagga tagagttatc agtctggaaa gatgacctca ccacacatgc tgttgatgct gtggtgaatg cagccaatga agatcttctg catgggggag gcctggccct ggccctggta aaagctggtg gatttgaaat ccaagaagag agcaaacagt ttgttgccag atatggtaaa gtgtcagctg gtgagatagc tgtcacggga gcagggaggc ttccctgcaa acagatcatc catgctgttg ggcctcggtg gatggaatgg gataaacagg gatgtactgg aaagctgcag agggccattg taagtattct gaattatgtc atctataaaa atactcacat taagacagta gcaattccag ccttgagctc tgggattttt cagttccctc tgaatttgtg tacaaagact attgtagaga ctatccgggt tagtttgcaa gggaagccaa tgatgagtaa tttgaaagaa attcacctgg tgagcaatga ggaccctact gttgctgcct ttaaagctgc ttcagaattc atcctaggga agagtgagct gggacaagaa accacccctt ctttcaatgc aatggtcgtg aacaacctga ccctccagat tgtccagggc cacattgaat ggcagacggc agatgtaatt gttaattctg taaacccaca tgatattaca gttggacctg tggcaaagtc aattctacaa caagcaggag ttgaaatgaa atcggaattt cttgccacaa aggctaaaca gtttcaacgg tcccagttgg tactggtcac aaaaggattt aacttgttct gtaaatatat ataccatgta ctgtggcatt cagaatttcc taaacctcag atattaaaac atgcaatgaa ggagtgtttg gaaaaatgca ttgagcaaaa tataacttcc atttcctttc ctgcccttgg gactggaaac atggaaataa agaaggaaac agcagcagag attttgtttg atgaagtttt aacatttgcc aaagaccatg taaaacacca gttaactgta aaatttgtga tctttccaac agatttggag atatataagg ctttcagttc tgaaatggca aagaggtcca agatgctgag tttgaacaat tacagtgtcc cccagtcaac cagagaggag aaaagagaaa atgggcttga agctagatct cctgccatca atctgatggg attcaacgtg gaagagatgt gtgaggccca cgcatggatc caaagaatcc tgagtctcca gaaccaccac atcattgaga ataatcatat tctgtacctt gggagaaagg aacatgacat tttgtctcag cttcagaaaa cttcaagtgt ctccatcaca gaaattatca gcccaggaag gacagagtta gagattgaag gagcccgggc tgacctcatt gaggtggtta tgaacattga agatatgctt tgtaaagtac aggaggaaat ggcaaggaaa aaggagcgag gcctttggcg ctcgttagga cagtggacta ttcagcaaca aaaaacccaa gacgaaatga aagaaaatat catatttctg aaatgtcctg tgcctccaac tcaagagctt ctagatcaaa agaaacagtt tgaaaaatgt ggtttgcagg ttctaaaggt ggagaagata gacaatgagg tccttatggc tgcctttcaa agaaagaaga aaatgatgga agaaaaactg cacaggcaac ctgtgagcca taggctgttt cagcaagtcc cataccagtt ctgcaatgtg gtatgcagag ttggctttca aagaatgtac tcgacacctt gcgatccaaa atacggagct ggcatatact tcaccaagaa cctcaaaaac ctggcagaga aggccaagaa aatctctgct gcagataagc tgatctatgt gtttgaggct gaagtactca caggcttctt ctgccaggga catccgttaa atattgttcc cccaccactg agtcctggag ctatagatgg tcatgacagt gtggttgaca atgtctccag ccctgaaacc tttgttattt ttagtggcat gcaggctata cctcagtatt tgtggacatg cacccaggaa tatgtacagt cacaagatta ctcatcagga ccaatgagac cctttgcaca gcatccttgg aggggattcg caagtggcag ccctgttgat taatctctac atcattttaa cagctggtat ggccttacct tgggtgaact aaccaaataa tgaccatcga tggctcaaag agtggcttga atatatccca tgggttatct gtatggactg actgggttat tgaaaggact agccacatac tagcatctta gtgcctttat ctgtctttat gtcttggggt tggggtaggt agataccaaa tgaaacactt tcaggacctt ccttcctctt gcagttgttc tttaatctcc tttactagag gagataaata ttttgcatat aatgaagaaa tttttctagt atataacgca ggccttttat tttctaaaat gatgatagta taaaaatgtt aggataacag aatgatttta gattttccag agaatattat aaagtgcttt aggtatgaaa ataaatcatc tttgtctgat taaaaaaaaa aaa

FIGURE 71

Met Asp Phe Ser Met Val Ala Gly Ala Ala Ala Tyr Asn Glu Lys Ser Gly Arg Ile Thr Ser Leu Ser Leu Leu Phe Gln Lys Val Phe Ala Gln Ile Phe Pro Gln Trp Arg Lys Gly Asn Thr Glu Glu Cys Leu Pro Tyr Lys Cys Ser Glu Thr Gly Ala Leu Gly Glu Asn Tyr Ser Trp Gln Ile Pro Ile Asn His Asn Asp Phe Lys Ile Leu Lys Asn Asn Glu Arg Gln Leu Cys Glu Val Leu Gln Asn Lys Phe Gly Cys Ile Ser Thr Leu Val Ser Pro Val Gln Glu Gly Asn Ser Lys Ser Leu Gln Val Phe Arg Lys Met Leu Thr Pro Arg Ile Glu Leu Ser Val Trp Lys Asp Asp Leu Thr Thr His Ala Val Asp Ala Val Val Asn Ala Ala Asn Glu Asp Leu Leu His Gly Gly Gly Leu Ala Leu Ala Leu Val Lys Ala Gly Gly Phe Glu Ile Gln Glu Glu Ser Lys Gln Phe Val Ala Arg Tyr Gly Lys Val Ser Ala Gly Glu Ile Ala Val Thr Gly Ala Gly Arg Leu Pro Cys Lys Gln Ile Ile His Ala Val Gly Pro Arg Trp Met Glu Trp Asp Lys Gln Gly Cys Thr Gly Lys Leu Gln Arg Ala Ile Val Ser Ile Leu Asn Tyr Val Ile Tyr Lys Asn Thr His Ile Lys Thr Val Ala Ile Pro Ala Leu Ser Ser Gly Ile Phe Gln Phe Pro Leu Asn Leu Cys Thr Lys Thr Ile Val Glu Thr Ile Arg Val Ser Leu Gln Gly Lys Pro Met Met Ser Asn Leu Lys Glu Ile His Leu Val Ser Asn Glu Asp Pro Thr Val Ala Ala Phe Lys Ala Ala Ser Glu Phe Ile Leu Gly Lys Ser Glu Leu Gly Gln Glu Thr Thr Pro Ser Phe Asn Ala Met Val Val Asn Asn Leu Thr Leu Gln Ile Val Gln Gly His Ile Glu Trp Gln Thr Ala Asp Val Ile Val Asn Ser Val Asn Pro His Asp Ile Thr Val Gly Pro Val Ala Lys Ser Ile Leu Gln Gln Ala Gly Val Glu Met Lys Ser Glu Phe Leu Ala Thr Lys Ala Lys Gln Phe Gln Arg Ser Gln Leu Val Leu Val Thr Lys Gly Phe Asn Leu Phe Cys Lys Tyr Ile Tyr His Val Leu Trp His Ser Glu Phe Pro Lys Pro Gln Ile Leu Lys His Ala Met Lys Glu Cys Leu Glu Lys Cys Ile Glu Gln Asn Ile Thr Ser Ile Ser Phe Pro Ala Leu Gly Thr Gly Asn Met Glu Ile Lys Lys Glu Thr Ala Ala Glu Ile Leu Phe Asp Glu Val Leu Thr Phe Ala Lys Asp His Val Lys His Gln Leu Thr Val Lys Phe Val Ile Phe Pro Thr Asp Leu Glu Ile Tyr Lys Ala Phe Ser Ser Glu Met Ala Lys Arg Ser Lys Met Leu Ser Leu Asn Asn Tyr Ser Val Pro Gln Ser Thr Arg Glu Glu Lys Arg Glu Asn Gly Leu Glu Ala Arg Ser Pro Ala Ile Asn Leu Met Gly Phe Asn Val Glu Glu Met Cys Glu Ala His Ala Trp Ile Gln Arg Ile Leu Ser Leu Gln Asn His His Ile Ile Glu Asn Asn His Ile Leu Tyr Leu Gly Arg Lys Glu His Asp Ile Leu Ser Gln Leu Gln Lys Thr Ser Ser Val Ser Ile Thr Glu Ile Ile Ser Pro Gly Arg Thr Glu Leu Glu Ile Glu Gly Ala Arg Ala Asp Leu Ile Glu Val Val Met Asn Ile Glu Asp Met Leu Cys Lys Val Gln Glu Glu Met Ala Arg Lys Lys Glu Arg Gly Leu Trp Arg Ser Leu Gly Gln Trp Thr Ile Gln Gln Gln Lys Thr Gln Asp Glu Met Lys Glu Asn Ile Ile Phe Leu Lys Cys Pro Val Pro Pro Thr Gln Glu Leu Leu Asp Gln Lys Lys Gln Phe Glu Lys Cys Gly Leu Gln Val Leu Lys Val Glu Lys Ile Asp Asn Glu Val Leu Met Ala Ala Phe Gln Arg Lys Lys Lys Met Met Glu Glu Lys Leu His Arg Gln Pro Val Ser His Arg Leu Phe Gln Gln Val Pro Tyr Gln Phe Cys Asn Val Val Cys Arg Val Gly Phe Gln Arg Met Tyr Ser Thr Pro Cys Asp Pro Lys Tyr Gly Ala Gly Ile Tyr Phe Thr Lys Asn Leu Lys Asn Leu Ala Glu Lys Ala Lys Lys Ile Ser Ala Ala Asp Lys Leu Ile Tyr Val Phe Glu Ala Glu Val Leu Thr Gly Phe Phe Cys Gln Gly His Pro Leu Asn Ile Val Pro Pro Pro Leu Ser Pro Gly Ala Ile Asp Gly His Asp Ser Val Val Asp Asn Val Ser Ser Pro Glu Thr Phe Val Ile Phe Ser Gly Met Gln Ala Ile Pro Gln Tyr Leu Trp Thr Cys Thr Gln Glu Tyr Val Gln Ser Gln Asp Tyr Ser Ser Gly Pro Met Arg Pro Phe Ala Gln His Pro Trp Arg Gly Phe Ala Ser Gly Ser Pro Val Asp

FIGURE 72

tgtcaaaagc ctgcacacga gacccccgtg ggccaggact gacttcctcc ccacacaggg ctgggcgggg caagcaggaa ggagcctgtt acagtcaagg tgacgcatcc ttgccgggcc agcccgaaca gcagctgggt cggcaagcga caggagcacg ggtcatcttt tccccagagg cgtcggaatg gacctgtgcc acccagagcc cgcggagctg agcagcgggg agacggaaga gttacagagg atcaagtggc accgaaagca gctcctggag gacatccaga agctgaagga tgagattgca gatgtgtttg cccaaatcga ctgcttcgag agtgcggagg agagccggat ggcccagaag gagaaggagc tgtgtattgg gcgcaagaag ttcaacatgg accccgccaa gggtatccag tatttcattg agcacaagct gctgacccct gacgtccagg acattgcacg gttcctgtat aaaggcgagg gcctcaacaa gacagccatt ggtacctacc tgggggagag ggatcccatc aacctgcagg tcctccaggc cttcgtggac tgccacgagt tcgccaacct caacctcgtc caggccctca ggcagttcct gtggagcttc cggctgccgg gcgaggccca gaagatagac cggatgatgg aggcctttgc cactcgatac tgcctctgca acccaggcgt cttccagtcc acagacacct gctacgtgtt gtccttctcc atcatcatgc tcaacaccag cctccacaat cccaacgtcc gggacaggcc gcctttcgag cgctttgtgt ccatgaaccg cggcatcaac aatggtagcg acctgcccga ggaccagctg cggaacctct tcgacagcat caagagtgag ccattctcca tccctgagga cgacggcaat gacctcactc acaccttctt caatccagac cgggagggtt ggctgctcaa gctagggggc cgcgtgaaga cgtggaaacg gcgctggttc atcctgaccg acaactgcct ctactacttc gagttcacca ctgacaagga gccacgggga attatacctc ttgagaacct ctcggtgcag aaggtggatg accccaagaa gccattctgc ctggagctct acaaccctag ctgccgaggc cagaaaatca aggcctgcaa gaccgatggc gacggcaggg tggtggaggg caagcacgaa tcgtaccgca tctcagccac cagtgccgag gaacgtgacc agtggatcga gtccatccga gccagcatca cccgtgtccc cttctacgac ctggtctcta ctcggaagaa gaagattgcc agcaagcagt gagattcctg gaggtggcac tgggggctgg tcaccctgag agtcccatcg cctgcagcac ctggagaccc acctcccacc ccagtgcact cttttgggcc acagacatca ttgctgttcc ccgttacctc gagctgactc tagaggggaa ggcagagctc aggagggtgg gtgggagctg cagtgggctc agagtccagc aatgaggccc cctggcctgg gcacccagct gcaggcccct gccctacgtg cactacagga aggggtgagg agagcagcca gaggaaaacc agccccagaa tgctgcaact tctcttctct ctggacttcg gtgtcctcgg ctctgaaggc gctctctgca cttagatgct gtcagccctc aacgtaggag gggccgtggg gtccctaagt gattcttctc cctggcaagg ctcttccttt tcagggatat ctctgccaac ccttcccctg tcctcgggtt gggcttggcc ctctctgcct gagagagctc agcacacaca cagctcagac ccacggacag gaccccggga cagaaccccg ggagcactgc cctaggagcc tggaccccac gagctcagtc ccagctctgc ctctgactcg ctgtgtaccc tctgccaagt catgcccatt ctctagttct tgcaaaactg cagtgtttgg actagaaacg tattggcccc tgctagccct gtgctccagc ttccagctgg agatggcagc cgttatttgc ggagcccagg ctgactccgg attcaacgtt gctggggaga gaaaagcagt atagactcca ccttccagga tgtccatttc ggggagagga gcaggtggga ccctcaagaa aatgacggag aacatcccag acagatggga ctcaagcagg atgggtgcta tatccaagaa gccaagaagg gagagtttcg tgcactgtgg ttaacaggag ggccgcctgg aggcagtggc tgagccagaa agtaacacag agctcatgct tggagagata gagtcttggc catggctttc ctgcaagacc actgacgagc agtcccatgg tgataaaggg cagcccggcg ggtcccagca tctcgagacc ctctgcagaa gtattatcag agtagagctg acttccagta cccgggcagc cagctctgtc tccagggagg cctggcctgg aggaggagtc cactaacagg aaacacttct cacccccтca cacaggccca ggggagcccc tggagggaaa ttccttggca ggggaacagg aaatgtggtc gcctctgccc cactgccagc ctgagtgggc aaggaagcag gtggatcccc cagaaggaac cgcagctcgc gaggcacctc tcctcgtccc cacccacccc cacatttgca caccttccac agggtcagga tggagtagct gccttgcgag gtggtgagac tcctgtctct ggaggtctgc aagcactggt agtgatattg cagcagacaa ggtctgggtt gggcgtctgc aggaggagac cttgtgggac atctgaggac atccgcagat tcttgtcagc ctgtgaacta ggccctgcct ctgtcacctc attggtccat gaaggagcag ccaggggtgg tggaaggagc actgggctag gggtcagggg tcagagattc tgtcctgctc ctgggatgca ctggctactc ccttagtcta ctcccttccc ctctctggtc ctcagcttcc tccatcatgg aggagatggg atcatggatt ttctgggcat aagtggctgt tctgggagtc attccaaaga gagaataaaa ctcctgatcc aaaaaaaaaa aaaaaaaaaa a

FIGURE 73

Met Asp Leu Cys His Pro Glu Pro Ala Glu Leu Ser Ser Gly Glu Thr Glu Glu Leu Gln Arg Ile Lys Trp His Arg Lys Gln Leu Leu Glu Asp Ile Gln Lys Leu Lys Asp Glu Ile Ala Asp Val Phe Ala Gln Ile Asp Cys Phe Glu Ser Ala Glu Glu Ser Arg Met Ala Gln Lys Glu Lys Glu Leu Cys Ile Gly Arg Lys Lys Phe Asn Met Asp Pro Ala Lys Gly Ile Gln Tyr Phe Ile Glu His Lys Leu Leu Thr Pro Asp Val Gln Asp Ile Ala Arg Phe Leu Tyr Lys Gly Glu Gly Leu Asn Lys Thr Ala Ile Gly Thr Tyr Leu Gly Glu Arg Asp Pro Ile Asn Leu Gln Val Leu Gln Ala Phe Val Asp Cys His Glu Phe Ala Asn Leu Asn Leu Val Gln Ala Leu Arg Gln Phe Leu Trp Ser Phe Arg Leu Pro Gly Glu Ala Gln Lys Ile Asp Arg Met Met Glu Ala Phe Ala Thr Arg Tyr Cys Leu Cys Asn Pro Gly Val Phe Gln Ser Thr Asp Thr Cys Tyr Val Leu Ser Phe Ser Ile Ile Met Leu Asn Thr Ser Leu His Asn Pro Asn Val Arg Asp Arg Pro Pro Phe Glu Arg Phe Val Ser Met Asn Arg Gly Ile Asn Asn Gly Ser Asp Leu Pro Glu Asp Gln Leu Arg Asn Leu Phe Asp Ser Ile Lys Ser Glu Pro Phe Ser Ile Pro Glu Asp Asp Gly Asn Asp Leu Thr His Thr Phe Phe Asn Pro Asp Arg Glu Gly Trp Leu Leu Lys Leu Gly Gly Arg Val Lys Thr Trp Lys Arg Arg Trp Phe Ile Leu Thr Asp Asn Cys Leu Tyr Tyr Phe Glu Phe Thr Thr Asp Lys Glu Pro Arg Gly Ile Ile Pro Leu Glu Asn Leu Ser Val Gln Lys Val Asp Asp Pro Lys Lys Pro Phe Cys Leu Glu Leu Tyr Asn Pro Ser Cys Arg Gly Gln Lys Ile Lys Ala Cys Lys Thr Asp Gly Asp Gly Arg Val Val Glu Gly Lys His Glu Ser Tyr Arg Ile Ser Ala Thr Ser Ala Glu Glu Arg Asp Gln Trp Ile Glu Ser Ile Arg Ala Ser Ile Thr Arg Val Pro Phe Tyr Asp Leu Val Ser Thr Arg Lys Lys Lys Ile Ala Ser Lys Gln

FIGURE 74

ccagggtgat gctgaagatg atgaccttct tccaaggcct ctagagccat cagcctgtgc caggcaccct cgacttgcct agaggccccc aaaagttgca gtccacatca gaggcagagt cagaggcctc catgtcggag gcctcctctg aggacctggt gccacccctg gaggctgggg cagccccata tagggaggag gaagaggcgg cgaagaagaa gaaggagaag aagaagaagt ccaaaggcct ggccaatgtg ttctgcgtct tcaccaaagg gaagaagaag aagggtcagc ccagctcagc ggagcccgag gacgcagccg ggtccaggca ggggctggat ggcccgcccc ccacagtgga ggagctgaag gcggcgctgg agcgcgggca gctggaggcg gcgcggccgc tgctggcgct ggagcgggag ctggcggcgg cggcggcggc gggcggtgtg agcgaggagg agctggtgcg gcgccagagc aaggtggagg cgctgtacga gctgctgcgc gaccaggtgc tgggcgtgct gcggcggccg ctggaggcgc cgcccgagcg gctgcgccag gcgctggccg tggtggcgga gcaggagcgc gaggaccgcc aggcggcggc ggcggggccg gggacctcgg ggctggcggc cacgcgcccg cggcgctggc tgcagctgtg gcggcgcggc gtggcggagg cggccgagga gcgcatgggc cagcggccgg ccgcgggcgc cgaggtcccc gagagcgtct ttctgcactt gggccgcacc atgaaggagg acctggaggc cgtggtggag cggctgaagc cgctgttccc cgccgagttc ggcgtcgtgg cggcctacgc cgagagctac caccagcact tcgcggccca cctggccgcc gtggcgcagt tcgagctgtg cgagcgcgac acctacatgc tgctgctctg ggtggagaac ctctacccca atgacatcat caacagcccc aagctggtgg gtgagctgca gggtatgggg ctcgggagcc tcctgccccc caggcagatc cgactgctgg aggccacatt cctgtccagt gaggcggcca atgtgaggga gttgatggac cgagctctgg agctagaggc acggcgctgg gctgaggatg tgcctcccca gaggctggac ggccactgcc acagcgagct ggccatcgac atcatccaga tcacctccca ggcccaggcc aaggccgaga gcatcacgct ggacttgggc tcacagataa agcgggtgct gctggtggag ctgcctgcgt tcctgaggag ctaccagcgc gcctttaatg aatttctgga gagaggcaag cagctgacga attacagggc caatgttatt gccaacatca acaactgcct gtccttccgg atgtccatgg agcagaattg gcaggtaccc caggacaccc tgagcctcct gctgggcccc ctgggtgagc tcaagagcca cggctttgac accctgctcc agaacctgca tgaggacctg aagccactgt tcaagaggtt cacgcacacc cgctgggcgg cccctgtgga gaccctggaa aacatcatcg ccactgtaga cacgaggctg cctgagttct cagagctgca gggctgtttc cgggaggagc tcatggaggc cttgcacctg cacctggtga aggagtacat catccaactc agcaaggggc gcctggtcct caagacggcc gagcagcagc agcagctggc tgggtacatc ctggccaatg ctgacaccat ccagcacttc tgcacccagc acggctcccc ggcgacctgg ctgcagcctg ctctccctac gctggccgag atcattcgcc tgcaggaccc cagtgccatc aagattgagg tggccactta tgccacctgc taccctgact tcagcaaagg ccacctgagc gctatcctgg ccatcaaggg gaacctatcc aacagtgagg tcaagcgcat ccggagcatc ttggacgtca gcatgggggc gcaggagccc tcccggcccc tattttccct tataaaggtt ggttagcttt tcctgtggcc tgacctgcct gtgagtgccc agcaagcctt gggcacaccc cgctgggagc tgttaagagc agcgctggtt ctcggttcct cccgggtctc ctgtgctctg atgctacttc tgcctagccc tggcggaggt gcaggccctg tcagctggaa ctggacagac cttggtttgt ttacatgtcc gatgggggca ggagctccca tcctgggcag ccaaccaggc aacaccaagg actctttgta aacgatagct gatcgtgtgc acgcaaggaa agaaccagga gggagagtgc agccaggctc agggatcccc ggacacctct gtccagagcc cctccacagt cggcctcatg actgtcctcc tcgtgggtgg ggccgagggc cctcttcagc tctctggaga caggggccga gcctcaccca tctgccctct gcagcccagg gccgccgtga gcgggattca gcaatggtgg aatggaagac agaactggaa gagaaagaag gaaaagatga gctctcgtct ggcaggggct tttagggtcc tgtggcgagc tgtgagcacc gccagcgtta gacgtcacat ccaggtggcc ccacggcccc tacaggctgg ccctgcaatg gggccctgag ccctccctct tcatccccca aggcctcaac tagagggtgg tcccccgagg gcttggtgtc tactaccgaa gggcccaaga cctcctgggt cctctcaggc tcccccttcc ccaaggcagg gacaggccct gggggtgcca ccgtgggccc tgccacccag aagtctggct gaggtctggg caggggcagg gcaagcttga cctctcactg ttgacccttt ggcctctgta tttgtttcct attgccgtga caggtttcca caaacttcgt ggatcaaaac gaggtcttcc agttctgcgg gtcagaaggc tgacctgggg ctcaaatctg ggtgtcggca gtcctgcact ccttctggag gctctagggg agaattcatt tctggccttt tcatttttag aggctgaccg taattcttga cttcaggctc ctccatcttc agagccagct gtgggtagtt gaatcttttt cccgtcacct cattgaggcc tcccctctcc tgcctccctc caccactttt ttttttttt ttttgagaca gggtcttgct gtgttgccca ggctggagtg cagtggcctg gtcatggcat caaggctcac tgcagcctgg acctcctggt tcaagtgatc ctcttgtctc agtcccctga gacaatcccc cacgcccagc tacatatttt tgtggataca gggtctcatt ctgttgccta ggcttgtctg gaactcctgg gctcaaggga tcttgtagcc ttagcctcct aaagtgctgg gattataggc atgagtcact cgtacccggc ctgctctacc gcttttaagg acgcttatga tcacattgcg cctacccaga gaacccaggt cgtctttcta ttttcaggtc agctgattag ccaccttagt tccatctgca actttagttc ccactggctg tgtaacctaa catagtcaca ggctctgggg actgtcacgt ggacatcttt gggaggccgt tattctgccc accgcaccct ccgttcatcc cctgccctgc cgggcacctc gctctacccc aggaaaatgt gagctcgttt tcctgctcgg catgtgctcc ccctaaggct ctgctcctcc ctgggcctga aagttccttc tcagcctgag agggggccct tcgatctcag gcatgactca gcccggctga tgcctctgca gtgctgagtc aggatttggg gccggctctc ttgggtctgt ccccttttcc caggtactgc

cttacaaagc tgtggccagg aagtggccgg tataaaggat gcccaaggtc tttgtacgtg tgtaggagtt agcgtgtttg atattgttaa tataataata attatttttt agagtactgc ttttgtatgt atgttgaaca ggatccaggt ttttatagct tgatataaaa cagaattcaa aagtgaaaaa

FIGURE 75

Met Ser Glu Ala Ser Ser Glu Asp Leu Val Pro Pro Leu Glu Ala Gly Ala Ala Pro Tyr Arg Glu Glu Glu Glu Ala Ala Lys Lys Lys Lys Glu Lys Lys Lys Lys Ser Lys Gly Leu Ala Asn Val Phe Cys Val Phe Thr Lys Gly Lys Lys Lys Lys Gly Gln Pro Ser Ser Ala Glu Pro Glu Asp Ala Ala Gly Ser Arg Gln Gly Leu Asp Gly Pro Pro Pro Thr Val Glu Glu Leu Lys Ala Ala Leu Glu Arg Gly Gln Leu Glu Ala Ala Arg Pro Leu Leu Ala Leu Glu Arg Glu Leu Ala Ala Ala Ala Ala Ala Gly Gly Val Ser Glu Glu Glu Leu Val Arg Arg Gln Ser Lys Val Glu Ala Leu Tyr Glu Leu Leu Arg Asp Gln Val Leu Gly Val Leu Arg Arg Pro Leu Glu Ala Pro Pro Glu Arg Leu Arg Gln Ala Leu Ala Val Val Ala Glu Gln Glu Arg Glu Asp Arg Gln Ala Ala Ala Ala Gly Pro Gly Thr Ser Gly Leu Ala Ala Thr Arg Pro Arg Arg Trp Leu Gln Leu Trp Arg Arg Gly Val Ala Glu Ala Ala Glu Glu Arg Met Gly Gln Arg Pro Ala Ala Gly Ala Glu Val Pro Glu Ser Val Phe Leu His Leu Gly Arg Thr Met Lys Glu Asp Leu Glu Ala Val Val Glu Arg Leu Lys Pro Leu Phe Pro Ala Glu Phe Gly Val Val Ala Ala Tyr Ala Glu Ser Tyr His Gln His Phe Ala Ala His Leu Ala Ala Val Ala Gln Phe Glu Leu Cys Glu Arg Asp Thr Tyr Met Leu Leu Leu Trp Val Glu Asn Leu Tyr Pro Asn Asp Ile Ile Asn Ser Pro Lys Leu Val Gly Glu Leu Gln Gly Met Gly Leu Gly Ser Leu Leu Pro Pro Arg Gln Ile Arg Leu Leu Glu Ala Thr Phe Leu Ser Ser Glu Ala Ala Asn Val Arg Glu Leu Met Asp Arg Ala Leu Glu Leu Glu Ala Arg Arg Trp Ala Glu Asp Val Pro Pro Gln Arg Leu Asp Gly His Cys His Ser Glu Leu Ala Ile Asp Ile Ile Gln Ile Thr Ser Gln Ala Gln Ala Lys Ala Glu Ser Ile Thr Leu Asp Leu Gly Ser Gln Ile Lys Arg Val Leu Leu Val Glu Leu Pro Ala Phe Leu Arg Ser Tyr Gln Arg Ala Phe Asn Glu Phe Leu Glu Arg Gly Lys Gln Leu Thr Asn Tyr Arg Ala Asn Val Ile Ala Asn Ile Asn Asn Cys Leu Ser Phe Arg Met Ser Met Glu Gln Asn Trp Gln Val Pro Gln Asp Thr Leu Ser Leu Leu Leu Gly Pro Leu Gly Glu Leu Lys Ser His Gly Phe Asp Thr Leu Leu Gln Asn Leu His Glu Asp Leu Lys Pro Leu Phe Lys Arg Phe Thr His Thr Arg Trp Ala Ala Pro Val Glu Thr Leu Glu Asn Ile Ile Ala Thr Val Asp Thr Arg Leu Pro Glu Phe Ser Glu Leu Gln Gly Cys Phe Arg Glu Glu Leu Met Glu Ala Leu His Leu His Leu Val Lys Glu Tyr Ile Ile Gln Leu Ser Lys Gly Arg Leu Val Leu Lys Thr Ala Glu Gln Gln Gln Gln Leu Ala Gly Tyr Ile Leu Ala Asn Ala Asp Thr Ile Gln His Phe Cys Thr Gln His Gly Ser Pro Ala Thr Trp Leu Gln Pro Ala Leu Pro Thr Leu Ala Glu Ile Ile Arg Leu Gln Asp Pro Ser Ala Ile Lys Ile Glu Val Ala Thr Tyr Ala Thr Cys Tyr Pro Asp Phe Ser Lys Gly His Leu Ser Ala Ile Leu Ala Ile Lys Gly Asn Leu Ser Asn Ser Glu Val Lys Arg Ile Arg Ser Ile Leu Asp Val Ser Met Gly Ala Gln Glu Pro Ser Arg Pro Leu Phe Ser Leu Ile Lys Val Gly

FIGURE 76

ggtgggtctg aatctagcac catgacggaa ctagagacag ccatgggcat gatcatagac gtcttttccc gatattcggg cagcgagggc agcacgcaga ccctgaccaa gggggagctc aaggtgctga tggagaagga gctaccaggc ttcctgcaga gtggaaaaga caaggatgcc gtggataaat tgctcaagga cctggacgcc aatggagatg cccaggtgga cttcagtgag ttcatcgtgt tcgtggctgc aatcacgtct gcctgtcaca agtactttga gaaggcagga ctcaaatgat gccctggaga tgtcacagat tcctgcagag ccatggtccc aggcttccca aaagtgtttg ttggcaatta ttcccctagg ctgagcctgc tcatgtacct ctgattaata aatgcttatg aaaaaaaaa

FIGURE 77

Met Thr Glu Leu Glu Thr Ala Met Gly Met Ile Ile Asp Val Phe Ser Arg Tyr Ser Gly Ser Glu Gly Ser Thr Gln Thr Leu Thr Lys Gly Glu Leu Lys Val Leu Met Glu Lys Glu Leu Pro Gly Phe Leu Gln Ser Gly Lys Asp Lys Asp Ala Val Asp Lys Leu Leu Lys Asp Leu Asp Ala Asn Gly Asp Ala Gln Val Asp Phe Ser Glu Phe Ile Val Phe Val Ala Ala Ile Thr Ser Ala Cys His Lys Tyr Phe Glu Lys Ala Gly Leu Lys

FIGURE 78

ctagtctttc agccttcagg ctgtttttgg cttgaagctc tcttggcctc ctagtttcta cctaatcatg tccctggtgg aggccatcag cctctggaat gaaggggtgc tggcagcgga caagaaggac tggaagggag ccctggatgc cttcagtgcc gtccaggacc cccactcccg gatttgcttc aacattggct gcatgtacac tatcctgaag aacatgactg aagcagagaa ggcctttacc agaagcatta accgagacaa gcacttggca gtggcttact tccaacgagg gatgctctac taccagacag agaaatatga tttggctatc aaagacctta aagaagcctt gattcagctt cgagggaacc agctgataga ctataagatc ctggggctcc agttcaagct gtttgcctgt gaggtgttat ataacattgc tttcatgtat gccaagaagg aggaatggaa aaaagctgaa gaacagttag cattggccac gagcatgaag tctgagccca gacattccaa aatcgacaag gcgatggagt gtgtctggaa gcagaagcta tatgagccag tggtgatccc tgtgggcaag ctgtttcgac caaatgagag acaagtggct cagctggcca agaaggatta cctaggcaag gcgacggtcg tggcatctgt ggtggatcaa gacagtttct ctgggtttgc ccctctgcaa ccacaggcag ctgagcctcc acccagaccg aaaaccccag agatcttcag ggctctggaa ggggaggctc accgtgtgct atttgggttt gtgcctgaga caaaagaaga gctccaggtc atgccaggga acattgtctt tgtcttgaag aagggcaatg ataactgggc cacggtcatg ttcaacgggc agaaggggct tgttccctgc aactaccttg aaccagttga gttgcggatc caccctcagc agcagcccca ggaggaaagc tctccgcagt ccgacatccc agctcctcct agttccaaag cccctggaaa accccagctg tcaccaggcc agaaacaaaa agaagagcct aaggaagtga agctcagtgt tcccatgccc tacacactca aggtgcacta caagtacacg gtagtcatga agactcagcc cgggctcccc tacagccagg tccgggacat ggtgtctaag aaactggagc tccggctgga acacactaag ctgagctatc ggcctcggga cagcaatgag ctggtgcccc tttcagaaga cagcatgaag gatgcctggg gccaggtgaa aaactactgc ctgactctgt ggtgtgagaa cacagtgggt gaccaaggct ttccagatga acccaaggaa agtgaaaaag ctgatgctaa taaccagaca acagaacctc agcttaagaa aggcagccaa gtggaggcac tcttcagtta tgaggctacc caaccagagg acctggagtt tcaggaaggg gatataatcc tggtgttatc aaaggtgaat gaagaatggc tggaagggga gtgcaaaggg aaggtgggca ttttccccaa agtttttgtt gaagactgcg caactacaga tttggaaagc actcggagag aagtctagga tgtttcacaa actacaaagc tgaagaaaat gaagccctat tacttgtttg taagatttag caccccttctg ctgtatactg tactgagaca ttacagtttg gaagtgttaa ctatttattc cctgttaaaa tttaacctac tagacaatga tgtgagtacc caggatgatt tcctggggca cagtgggtga ggagatgggg acaggtgaat ggaggagtta ggggagagga aaagtggatg gaagtgtctg gaaagggcac gagagagtct tccaggtact gatcctgttt cttgctctga gtgctagcta gccagctgtg ttcacactgt aaacattcat caagctgtac atttggtgca cttttctgtg tcataccaca ataaaaaaaa acctatcatc atcttacaaa aacaagacac ccaagtccag gcccaaggag taagtacaaa tattcctgtt tctgaaccat tactgtaatt ggctcttaag gcttgaagta accttatagg ttactcataa ggcatataca aataaacttg tttgttttct tttttc

FIGURE 79

Met Ser Leu Val Glu Ala Ile Ser Leu Trp Asn Glu Gly Val Leu Ala Ala Asp Lys Lys Asp Trp Lys Gly Ala Leu Asp Ala Phe Ser Ala Val Gln Asp Pro His Ser Arg Ile Cys Phe Asn Ile Gly Cys Met Tyr Thr Ile Leu Lys Asn Met Thr Glu Ala Glu Lys Ala Phe Thr Arg Ser Ile Asn Arg Asp Lys His Leu Ala Val Ala Tyr Phe Gln Arg Gly Met Leu Tyr Tyr Gln Thr Glu Lys Tyr Asp Leu Ala Ile Lys Asp Leu Lys Glu Ala Leu Ile Gln Leu Arg Gly Asn Gln Leu Ile Asp Tyr Lys Ile Leu Gly Leu Gln Phe Lys Leu Phe Ala Cys Glu Val Leu Tyr Asn Ile Ala Phe Met Tyr Ala Lys Lys Glu Glu Trp Lys Lys Ala Glu Glu Gln Leu Ala Leu Ala Thr Ser Met Lys Ser Glu Pro Arg His Ser Lys Ile Asp Lys Ala Met Glu Cys Val Trp Lys Gln Lys Leu Tyr Glu Pro Val Val Ile Pro Val Gly Lys Leu Phe Arg Pro Asn Glu Arg Gln Val Ala Gln Leu Ala Lys Lys Asp Tyr Leu Gly Lys Ala Thr Val Val Ala Ser Val Val Asp Gln Asp Ser Phe Ser Gly Phe Ala Pro Leu Gln Pro Gln Ala Ala Glu Pro Pro Pro Arg Pro Lys Thr Pro Glu Ile Phe Arg Ala Leu Glu Gly Glu Ala His Arg Val Leu Phe Gly Phe Val Pro Glu Thr Lys Glu Glu Leu Gln Val Met Pro Gly Asn Ile Val Phe Val Leu Lys Lys Gly Asn Asp Asn Trp Ala Thr Val Met Phe Asn Gly Gln Lys Gly Leu Val Pro Cys Asn Tyr Leu Glu Pro Val Glu Leu Arg Ile His Pro Gln Gln Gln Pro Gln Glu Glu Ser Ser Pro Gln Ser Asp Ile Pro Ala Pro Pro Ser Ser Lys Ala Pro Gly Lys Pro Gln Leu Ser Pro Gly Gln Lys Gln Lys Glu Glu Pro Lys Glu Val Lys Leu Ser Val Pro Met Pro Tyr Thr Leu Lys Val His Tyr Lys Tyr Thr Val Val Met Lys Thr Gln Pro Gly Leu Pro Tyr Ser Gln Val Arg Asp Met Val Ser Lys Lys Leu Glu Leu Arg Leu Glu His Thr Lys Leu Ser Tyr Arg Pro Arg Asp Ser Asn Glu Leu Val Pro Leu Ser Glu Asp Ser Met Lys Asp Ala Trp Gly Gln Val Lys Asn Tyr Cys Leu Thr Leu Trp Cys Glu Asn Thr Val Gly Asp Gln Gly Phe Pro Asp Glu Pro Lys Glu Ser Glu Lys Ala Asp Ala Asn Asn Gln Thr Thr Glu Pro Gln Leu Lys Lys Gly Ser Gln Val Glu Ala Leu Phe Ser Tyr Glu Ala Thr Gln Pro Glu Asp Leu Glu Phe Gln Glu Gly Asp Ile Ile Leu Val Leu Ser Lys Val Asn Glu Glu Trp Leu Glu Gly Glu Cys Lys Gly Lys Val Gly Ile Phe Pro Lys Val Phe Val Glu Asp Cys Ala Thr Thr Asp Leu Glu Ser Thr Arg Arg Glu Val

FIGURE 80

tcagccaatt agagctccag ttgtcactcc tacccacact gggcctgggg gtgaagggaa gtgtttatta ggggtacatg tgaagccgtc cagaagtgtc agagtctttg tagctttgaa agtcacctag gttatttggg catgctctcc tgagtcctct gctagttaag ctctctgaaa agaaggtggc agacccggtt tgctgatcgc cccagggatc aggaggctga tcccaaagtt gtcagatgga gagtaaatac aaggagatac tcttgctaac aggcctggat aacatcactg atgaggaact ggataggttt aagttctttc tttcagacga gtttaatatt gccacaggca aactacatac tgcaaacaga atacaagtag ctaccttgat gattcaaaat gctggggcgg tgtctgcagt gatgaagacc attcgtattt ttcagaagtt gaattatatg cttttggcaa aacgtcttca ggaggagaag gagaaagttg ataagcaata caaatcggta acaaaaccaa agccactaag tcaagctgaa atgagtcctg ctgcatctgc agccatcaga aatgatgtcg caaagcaacg tgctgcacca aaagtctctc ctcatgttaa gcctgaacag aaacagatgg tggcccagca ggaatctatc agagaagggt ttcagaagcg ctgtttgcca gttatggtac tgaaagcaaa gaagcccttc acgtttgaga cccaagaagg caagcaggag atgtttcatg ctacagtggc tacagaaaag gaattcttct ttgtaaaagt ttttaataca ctgctgaaag ataaattcat tccaaagaga ataattataa tagcaagata ttatcggcac agtggtttct tagaggtaaa tagcgcctca cgtgtgttag atgctgaatc tgaccaaaag gttaatgtcc cgctgaacat tatcagaaaa gctggtgaaa ccccgaagat caacacgctt caaactcagc cccttggaac aattgtgaat ggtttgtttg tagtccagaa ggtaacagaa aagaagaaaa acatattatt tgacctaagt gacaacactg ggaaaatgga agtactgggg gttagaaacg aggacacaat gaaatgtaag gaaggagata aggttcgact tacattcttc acactgtcaa aaaatggaga aaaactacag ctgacatctg gagttcatag caccataaag gttattaagg ccaaaaaaaa aacatagaga agtaaaaagg accaattcaa gccaactggt ctaagcagca tttaattgaa gaatatgtga tacagcctct tcaatcagat tgtaagttac ctgaaagctg cagttcacag gctcctctct ccaccaaatt aggatagaat aattgctgga taaacaaatt cagaatatca acagatgatc acaataaaca tctgtttctc attcc

FIGURE 81

Met Glu Ser Lys Tyr Lys Glu Ile Leu Leu Leu Thr Gly Leu Asp Asn Ile Thr Asp Glu Glu Leu Asp Arg Phe Lys Phe Phe Leu Ser Asp Glu Phe Asn Ile Ala Thr Gly Lys Leu His Thr Ala Asn Arg Ile Gln Val Ala Thr Leu Met Ile Gln Asn Ala Gly Ala Val Ser Ala Val Met Lys Thr Ile Arg Ile Phe Gln Lys Leu Asn Tyr Met Leu Leu Ala Lys Arg Leu Gln Glu Glu Lys Glu Lys Val Asp Lys Gln Tyr Lys Ser Val Thr Lys Pro Lys Pro Leu Ser Gln Ala Glu Met Ser Pro Ala Ala Ser Ala Ala Ile Arg Asn Asp Val Ala Lys Gln Arg Ala Ala Pro Lys Val Ser Pro His Val Lys Pro Glu Gln Lys Gln Met Val Ala Gln Gln Glu Ser Ile Arg Glu Gly Phe Gln Lys Arg Cys Leu Pro Val Met Val Leu Lys Ala Lys Lys Pro Phe Thr Phe Glu Thr Gln Glu Gly Lys Gln Glu Met Phe His Ala Thr Val Ala Thr Glu Lys Glu Phe Phe Phe Val Lys Val Phe Asn Thr Leu Leu Lys Asp Lys Phe Ile Pro Lys Arg Ile Ile Ile Ile Ala Arg Tyr Tyr Arg His Ser Gly Phe Leu Glu Val Asn Ser Ala Ser Arg Val Leu Asp Ala Glu Ser Asp Gln Lys Val Asn Val Pro Leu Asn Ile Ile Arg Lys Ala Gly Glu Thr Pro Lys Ile Asn Thr Leu Gln Thr Gln Pro Leu Gly Thr Ile Val Asn Gly Leu Phe Val Val Gln Lys Val Thr Glu Lys Lys Lys Asn Ile Leu Phe Asp Leu Ser Asp Asn Thr Gly Lys Met Glu Val Leu Gly Val Arg Asn Glu Asp Thr Met Lys Cys Lys Glu Gly Asp Lys Val Arg Leu Thr Phe Phe Thr Leu Ser Lys Asn Gly Glu Lys Leu Gln Leu Thr Ser Gly Val His Ser Thr Ile Lys Val Ile Lys Ala Lys Lys Lys Thr

FIGURE 82

tcttttcctt ttcctctttg actgagcacc gaggggcagt tggcagcttc acctcagagc tgcaggaagg aacggggcag tgaaaatcga atcgggtgtg atcctaggcc aagctcatgg cccagcaggg ccagcagggg cagatggcaa gtggagacag caatctcaac ttcaggatgg tcgcagagat ccagaacgta gagggtcaga acctgcagga gcaggtttgc cctgagccca ttttcaggtt cttcagagaa aacaaggtgg agattgcaag tgcaataaca aggccatttc ctttccttat gggcctccga gaccgctcct tcatctccga gcagatgtat gaacattttc aagaagcttt tagaaacctg gtcccagtga caagagtgat gtattgtgta ctcagtgaac tggagaagac atttggctgg tcacatctgg aagcattgtt cagcaggatt aacctgatgg cctatcctga tttaaacgag atttacagaa gcttccagaa tgtatgctat gaacactcac ctctccaaat gaataatgta aacgatttag aagatagacc cagattacta ccatatggta aacaagagaa cagcaatgcc tgtcatgaaa tggatgatat agcagtgcct caggaagcct tgagctcctc ggcaaggtgt gagccaggtt tctcttcaga gtcttgtgag cagttagctc tcccaaaggc tggtggagga gatgctgaag atgcacccag cctactacca ggtgggggag tgtcctgtaa acttgctata caaatagatg aaggagaatc agaagaaatg cccaagttac tgccttatga tacagaagtt ctagaaagca acgggatgat agatgcggca aggacataca gcacagcacc aggggagaaa cagggagagg aggaaggcag gaacagtccc agaaaaagaa accaagacaa ggagaagtac caagagagtc cagagggaag agacaaagag acctttgatc taaaaactcc ccaagtcact aatgaaggag aaccagagaa ggggctctgt ctactaccag gtgaaggaga agagggcagt gatgactgtt cagaaatgtg tgatggagaa gagccccagg aagcctctag ctccctagca agatgtgggt cagtttcttg tttctctaca gagacctttg atctaaagac tccccaagtc actaatgaag gagaaccaga gaaggagctc agtctactac caggtgaagg agaagagggc agtgatgact gttcggaaat gtgtgatgga gaagagcgcc aggaagcctc tagctcccta gcaagacgtg ggtcagtgtc tagtgaacta gaaaatcacc caatgaatga agaaggagaa tcagaagagc ttgcttctag cctgctatat gataatgtac caggagcgga gcaatcagca tatgaaaatg agaagtgttc ctgtgtcatg tgtttctcag aagaggtgcc aggaagccca gaagcaagga cggaaagtga tcaagcgtgt ggcacaatgg atactgtgga tattgcaaac aactccactt tgggaaaacc caagaggaaa agaagaaaaa agaggggcca tggctggagc agaatgagaa tgagaaggca gaaaaacagc caacaaaatg ataatagcaa agccgacggc caggtggtct ccagtgaaaa gaaggcgaac gtgaatctga aagacctttc caagattagg gggagaaaga gaggcaaacc tggaacccgc ttcactcaga gtgacagagc tgcacagaaa agagtccgat caagagcttc aagaaagcac aaagatgaaa ctgtggattt taaggctcct ttgcttccag tgacctgtgg tggggtgaag ggaattttac ataagaagaa attgcagcaa ggaatcttgg tgaagtgtat acagactgag gatggaaaat ggttcacccc cacggaattt gaaatcaaag gaggccatgc aagatcaaag aactggaggc tgagtgtgcg ctgtggcggg tggcccctac gatggctgat ggagaatgga tttctgcctg atcctccaag aatacgttac aggaaaaaaa agagaatact gaagtctcaa aacaatagct cagttgaccc ttgtatgaga aacctggatg agtgtgaggt gtgccgggac ggaggggagc tgttctgttg cgacacttgt tcaagagtct tccatgagga ctgtcacatc ccgcctgtgg aagctgagag gaccccgtgg aattgcatct tctgcaggat gaaggagtct ccgggaagcc aacagtgttg tcaggaatct gaggtcctgg agaggcagat gtgtcctgag gaacagttga aatgtgagtt cctcctcttg aaagtctatt gctgttctga gagctccttt tttgccaaga ttccatacta ttattatatt agagaggcgt gtcaaggcct gaaggagccc atgtggttgg ataaaatcaa gaaaaggctg aatgagcacg gttaccccca agtggagggg tttgtacaag acatgcgcct catcttccag aaccacaggg cctcttacaa gtacaagggt tttggccaaa tgggatttag actggaggct gagtttgaga agaatttcaa ggaagtgttt gctattcagg gaaacaaatg ggaacaattg actggattag tggatgctga aagcattcag caaatggcac cctaaaatat gccgctggtt tgccactgac ttcaaaatga ggtcacttgg gcacagcaca tgcagggagg ggcttttctc tgagcctcct tcatctgccc aaagacaaat cctcaaaagg aaattcaatc atcatgaatc acaaccccaa gtatctcatc agccagggaa gagtaagtgg gatcacaggg aaggatgttg gcagcgacac catcccatac aggctcttac ctcttctcct gagggctgct ccagacaaca tttattaccc agaagacctt ttgtctgaaa accagccaag ctttattcag gacacacttc ttgccttcac tttcccactt ccgtggccac ctccatgcag aagccctaag cccacattct ttcgatagct cacggtggtg catgagtgtc catcatctga ctcttctcgg agtctcatat tttgtgggac tcctgtgcaa acatatgtta ttaaaatttt tttcctcctg ttaaaaaaaa aaaaaaaaaa aa

FIGURE 83

Met Ala Gln Gln Gly Gln Gln Gly Gln Met Ala Ser Gly Asp Ser Asn Leu Asn Phe Arg Met Val Ala Glu Ile Gln Asn Val Glu Gly Gln Asn Leu Gln Glu Gln Val Cys Pro Glu Pro Ile Phe Arg Phe Phe Arg Glu Asn Lys Val Glu Ile Ala Ser Ala Ile Thr Arg Pro Phe Pro Phe Leu Met Gly Leu Arg Asp Arg Ser Phe Ile Ser Glu Gln Met Tyr Glu His Phe Gln Glu Ala Phe Arg Asn Leu Val Pro Val Thr Arg Val Met Tyr Cys Val Leu Ser Glu Leu Glu Lys Thr Phe Gly Trp Ser His Leu Glu Ala Leu Phe Ser Arg Ile Asn Leu Met Ala Tyr Pro Asp Leu Asn Glu Ile Tyr Arg Ser Phe Gln Asn Val Cys Tyr Glu His Ser Pro Leu Gln Met Asn Asn Val Asn Asp Leu Glu Asp Arg Pro Arg Leu Leu Pro Tyr Gly Lys Gln Glu Asn Ser Asn Ala Cys His Glu Met Asp Asp Ile Ala Val Pro Gln Glu Ala Leu Ser Ser Ser Ala Arg Cys Glu Pro Gly Phe Ser Ser Glu Ser Cys Glu Gln Leu Ala Leu Pro Lys Ala Gly Gly Gly Asp Ala Glu Asp Ala Pro Ser Leu Leu Pro Gly Gly Gly Val Ser Cys Lys Leu Ala Ile Gln Ile Asp Glu Gly Glu Ser Glu Glu Met Pro Lys Leu Leu Pro Tyr Asp Thr Glu Val Leu Glu Ser Asn Gly Met Ile Asp Ala Ala Arg Thr Tyr Ser Thr Ala Pro Gly Glu Lys Gln Gly Glu Glu Glu Gly Arg Asn Ser Pro Arg Lys Arg Asn Gln Asp Lys Glu Lys Tyr Gln Glu Ser Pro Glu Gly Arg Asp Lys Glu Thr Phe Asp Leu Lys Thr Pro Gln Val Thr Asn Glu Gly Glu Pro Glu Lys Gly Leu Cys Leu Leu Pro Gly Glu Gly Glu Glu Gly Ser Asp Asp Cys Ser Glu Met Cys Asp Gly Glu Glu Pro Gln Glu Ala Ser Ser Ser Leu Ala Arg Cys Gly Ser Val Ser Cys Phe Ser Thr Glu Thr Phe Asp Leu Lys Thr Pro Gln Val Thr Asn Glu Gly Glu Pro Glu Lys Glu Leu Ser Leu Leu Pro Gly Glu Gly Glu Glu Gly Ser Asp Asp Cys Ser Glu Met Cys Asp Gly Glu Glu Arg Gln Glu Ala Ser Ser Ser Leu Ala Arg Arg Gly Ser Val Ser Ser Glu Leu Glu Asn His Pro Met Asn Glu Glu Gly Glu Ser Glu Glu Leu Ala Ser Ser Leu Leu Tyr Asp Asn Val Pro Gly Ala Glu Gln Ser Ala Tyr Glu Asn Glu Lys Cys Ser Cys Val Met Cys Phe Ser Glu Glu Val Pro Gly Ser Pro Glu Ala Arg Thr Glu Ser Asp Gln Ala Cys Gly Thr Met Asp Thr Val Asp Ile Ala Asn Asn Ser Thr Leu Gly Lys Pro Lys Arg Lys Arg Arg Lys Lys Arg Gly His Gly Trp Ser Arg Met Arg Met Arg Arg Gln Lys Asn Ser Gln Gln Asn Asp Asn Ser Lys Ala Asp Gly Gln Val Val Ser Ser Glu Lys Lys Ala Asn Val Asn Leu Lys Asp Leu Ser Lys Ile Arg Gly Arg Lys Arg Gly Lys Pro Gly Thr Arg Phe Thr Gln Ser Asp Arg Ala Ala Gln Lys Arg Val Arg Ser Arg Ala Ser Arg Lys His Lys Asp Glu Thr Val Asp Phe Lys Ala Pro Leu Leu Pro Val Thr Cys Gly Gly Val Lys Gly Ile Leu His Lys Lys Lys Leu Gln Gln Gly Ile Leu Val Lys Cys Ile Gln Thr Glu Asp Gly Lys Trp Phe Thr Pro Thr Glu Phe Glu Ile Lys Gly Gly His Ala Arg Ser Lys Asn Trp Arg Leu Ser Val Arg Cys Gly Gly Trp Pro Leu Arg Trp Leu Met Glu Asn Gly Phe Leu Pro Asp Pro Pro Arg Ile Arg Tyr Arg Lys Lys Lys Arg Ile Leu Lys Ser Gln Asn Asn Ser Ser Val Asp Pro Cys Met Arg Asn Leu Asp Glu Cys Glu Val Cys Arg Asp Gly Gly Glu Leu Phe Cys Cys Asp Thr Cys Ser Arg Val Phe His Glu Asp Cys His Ile Pro Pro Val Glu Ala Glu Arg Thr Pro Trp Asn Cys Ile Phe Cys Arg Met Lys Glu Ser Pro Gly Ser Gln Gln Cys Cys Gln Glu Ser Glu Val Leu Glu Arg Gln Met Cys Pro Glu Glu Gln Leu Lys Cys Glu Phe Leu Leu Leu Lys Val Tyr Cys Cys Ser Glu Ser Ser Phe Phe Ala Lys Ile Pro Tyr Tyr Tyr Tyr Ile Arg Glu Ala Cys Gln Gly Leu Lys Glu Pro Met Trp Leu Asp Lys Ile Lys Lys Arg Leu Asn Glu His Gly Tyr Pro Gln Val Glu Gly Phe Val Gln Asp Met Arg Leu Ile Phe Gln Asn His Arg Ala Ser Tyr Lys Tyr Lys Gly Phe Gly Gln Met Gly Phe Arg Leu Glu Ala Glu Phe Glu Lys Asn Phe Lys Glu Val Phe Ala Ile Gln Gly Asn Lys Trp Glu Gln Leu Thr Gly Leu Val Asp Ala Glu Ser Ile Gln Gln Met Ala Pro

FIGURE 84

ggcccagctg ctgagaggag ttgcctgaga gtgacctttg catctgcctg tccagccagc atggaaccaa agcggatcag agagggctac cttgtgaaga aggggagcgt gttcaatacg tggaaaccca tgtgggttgt attgttagaa gatggaattg aattctataa gaagaaaagt gacaacagcc ccaaaggaat gatcccgctg aaagggagca ctctgactag cccttgtcaa gactttggca aaaggatgtt tgtgtttaag atcactacga ccaaacagca ggaccacttc ttccaggcag ccttcctgga ggagagagat gcctgggttc gggatatcaa taaggccatt aaatgcattg aaggaggcca gaaatttgcc aggaaatcta ccaggaggtc cattcgactg ccagaaacca ttgacttagg tgccttatat ttgtccatga aagacactga aaaaggaata aaagaactga atctagagaa ggacaagaag atttttaatc actgcttcac aggtaactgc gtcattgatt ggctggtatc caaccagtct gttaggaatc gccaggaagg cctcatgatt gcttcatcgc tgctcaatga ggggtatctg cagcctgctg gagacatgtc caagagtgca gtggatggaa ctgctgaaaa ccctttcctg gacaaccctg atgccttcta ctactttcca gacagtgggt tcttctgtga agagaattcc agtgatgatg atgtgattct gaaagaagaa ttcagagggg tcattatcaa gcagggatgt ttactgaagc aggggcatag aaggaaaaac tggaaagtga ggaagttcat cttgagagaa gaccctgcct acctgcacta ctatgaccct gctggggcag aagatcccct gggagcaatt cacttgagag gctgtgtggt gacttcagtg gagagcaact caaatggcag gaagagtgag gaagagaacc tttttgagat catcacagca gatgaagtgc actatttctt gcaagcagcc acccccaagg agcgcacaga gtggatcaaa gccatccaga tggcctcccg aactgggaag taaagagact cctgcattcc tcctcccctc ctgagggaag cccatggaca agctcagtcc aggacctgtc cacttctgtg acaaatcaac gggaaacagc ccaggggtgg gaagttttca tttgcagggg ggtctgaatg taactcacca tgtggtgtgc aaggttcccc tgcattgtat tgctcactgc agcccctctg cccctatcca tgacccccaa gcagatataa caagctgtgc agcctcagta ggctgcttgc cctctccagc ctcagggcct cttctggaaa atgaagaaat tcaactagta gattcctgag gtccccctag cttaaaaaaa aaaaaatctg ccccatgatt ctaacactcg cagtagtgat agtgtatcta gttgttctgc tggtgtcctt ccttggctaa gtcttggcct tcagttatct tcaaatgtac cagaacctga gccaacgcct ccctgtgaaa ctgttgctga tctgtagtac agtaccagga agaaacctct tttgttctct ttagacatct tctacttgct cttggccttg agatcgtgta acaaaatgaa ggagggctct cttctttctt cctcatccta ctcaaaaact tcccgagagc agtggtggtt ttgagggttt tgacttctat tacttttggc agcctggaaa gttgtgtctt ctgggaaaga gacccgggga ggccaggagt agctgagggt cctttctgtg cccttaaacc gcccagagga gccctattcc actctggttt taggctgatc tgagagggtc tccctttgtt cctttctgga gcatttctct aacgtttatt acaattagga gggggacccc acatctgtga gattctgttt catttgaggt ttacagaaaa aaaaaagtgg ccagatgtgt tccccccatg ggtgagaggc ctgggcaact gcctggtgaa tgtgtcttgc ggcagctgca gcaagtggag gggctgaact actggccagc tcactggatg atgggttaat acaacaactg cactgtaagg actcagagcc acacagaact tctgagaggg gctgttagca ttgcgcagca tcttcagttc tccagtaaat gatattgcgt tcgtgcctca gctttaagca caagtagcag cagctcctgc ttgagttctg agggcatcat ggccctatga ttaaccagag tgatctaacc tagactaaaa ttgggaactt atttgcaatt tttgaccctg accactaact agtgattctt ctccaaaatt gagaaagaca gcacccattg aaacagatat gtgtgtgaaa gtatattttt caattccaga tttttaattt taaggctcca ggaaagaaag gagagtagaa catttttcct cattttatca aatcctctct tgccctccct caattcccct gtaacattcc tgaagctgtt cccactccca gatggtttta tcaatagcct agaggtaaag aactgtcttt ttctctgatt ctttaataaa ttatctttat agaatatgca caagtttttc tacactcagt gttaaagtat ttattaatgg gaagtcaact taatgttttg aaataaatat atgactctgt ttaat

FIGURE 85

Met Glu Pro Lys Arg Ile Arg Glu Gly Tyr Leu Val Lys Lys Gly Ser Val Phe Asn Thr Trp Lys Pro Met Trp Val Val Leu Leu Glu Asp Gly Ile Glu Phe Tyr Lys Lys Lys Ser Asp Asn Ser Pro Lys Gly Met Ile Pro Leu Lys Gly Ser Thr Leu Thr Ser Pro Cys Gln Asp Phe Gly Lys Arg Met Phe Val Phe Lys Ile Thr Thr Thr Lys Gln Gln Asp His Phe Phe Gln Ala Ala Phe Leu Glu Glu Arg Asp Ala Trp Val Arg Asp Ile Asn Lys Ala Ile Lys Cys Ile Glu Gly Gly Gln Lys Phe Ala Arg Lys Ser Thr Arg Arg Ser Ile Arg Leu Pro Glu Thr Ile Asp Leu Gly Ala Leu Tyr Leu Ser Met Lys Asp Thr Glu Lys Gly Ile Lys Glu Leu Asn Leu Glu Lys Asp Lys Lys Ile Phe Asn His Cys Phe Thr Gly Asn Cys Val Ile Asp Trp Leu Val Ser Asn Gln Ser Val Arg Asn Arg Gln Glu Gly Leu Met Ile Ala Ser Ser Leu Leu Asn Glu Gly Tyr Leu Gln Pro Ala Gly Asp Met Ser Lys Ser Ala Val Asp Gly Thr Ala Glu Asn Pro Phe Leu Asp Asn Pro Asp Ala Phe Tyr Tyr Phe Pro Asp Ser Gly Phe Phe Cys Glu Glu Asn Ser Ser Asp Asp Asp Val Ile Leu Lys Glu Glu Phe Arg Gly Val Ile Ile Lys Gln Gly Cys Leu Leu Lys Gln Gly His Arg Arg Lys Asn Trp Lys Val Arg Lys Phe Ile Leu Arg Glu Asp Pro Ala Tyr Leu His Tyr Tyr Asp Pro Ala Gly Ala Glu Asp Pro Leu Gly Ala Ile His Leu Arg Gly Cys Val Val Thr Ser Val Glu Ser Asn Ser Asn Gly Arg Lys Ser Glu Glu Glu Asn Leu Phe Glu Ile Ile Thr Ala Asp Glu Val His Tyr Phe Leu Gln Ala Ala Thr Pro Lys Glu Arg Thr Glu Trp Ile Lys Ala Ile Gln Met Ala Ser Arg Thr Gly Lys

FIGURE 86

cccagaggag cagactacaa gaatggcaca cgctatggaa aactcctgga caatcagtaa agagtaccat attgatgaag aagtgggctt tgctctgcca aatccacagg aaaatctacc tgatttttat aatgactgga tgttcattgc taaacatctg cctgatctca tagagtctgg ccagcttcga gaaagagttg agaagttaaa catgctcagc attgatcatc tcacagacca caagtcacag cgccttgcac gtctagttct gggatgcatc accatggcat atgtgtgggg caaaggtcat ggagatgtcc gtaaggtctt gccaagaaat attgctgttc cttactgcca actctccaag aaactggaac tgcctcctat tttggtttat gcagactgtg tcttggcaaa ctggaagaaa aaggatccta ataagcccct gacttatgag aacatggacg ttttgttctc atttcgtgat ggagactgca gtaaaggatt cttcctggtc tctctattgg tggaaatagc agctgcttct gcaatcaaag taattcctac tgtattcaag gcaatgcaaa tgcaagaacg ggacactttg ctaaaggcgc tgttggaaat agcttcttgc ttggagaaag cccttcaagt gtttcaccaa atccacgatc atgtgaaccc aaaagcattt ttcagtgttc ttcgcatata tttgtctggc tggaaaggca acccccagct atcagacggt ctggtgtatg aagggttctg ggaagaccca aaggagtttg caggggggcag tgcaggccaa agcagcgtct ttcagtgctt tgacgtcctg ctgggcatcc agcagactgc tggtggagga catgctgctc agttcctcca ggacatgaga agatatatgc caccagctca caggaacttc ctgtgctcat tagagtcaaa tccctcagtc cgtgagtttg tcctttcaaa aggtgatgct ggcctgcggg aagcttatga cgcctgtgtg aaagctctgg tctccctgag gagctaccat ctgcaaatcg tgactaagta catcctgatt cctgcaagcc agcagccaaa ggagaataag acctctgaag acccttcaaa actggaagcc aaaggaactg gaggcactga tttaatgaat ttcctgaaga ctgtaagaag tacaactgag aaatcccttt tgaaggaagg ttaatgtaac ccaacaagag cacattttat catagcagag acatctgtat gcattcctgt cattacccat tgtaacagag ccacaaacta atactatgca atgttttacc aataatgcaa tacaaaagac ctcaaaatac ctgtgcattt cttgtaggaa aacaacaaaa ggtaattatg tgtaattata ctagaagttt tgtaatctgt atcttatcat tggaataaaa tgacattcaa taaat

FIGURE 87

Met Ala His Ala Met Glu Asn Ser Trp Thr Ile Ser Lys Glu Tyr His Ile Asp Glu Glu Val Gly Phe Ala Leu Pro Asn Pro Gln Glu Asn Leu Pro Asp Phe Tyr Asn Asp Trp Met Phe Ile Ala Lys His Leu Pro Asp Leu Ile Glu Ser Gly Gln Leu Arg Glu Arg Val Glu Lys Leu Asn Met Leu Ser Ile Asp His Leu Thr Asp His Lys Ser Gln Arg Leu Ala Arg Leu Val Leu Gly Cys Ile Thr Met Ala Tyr Val Trp Gly Lys Gly His Gly Asp Val Arg Lys Val Leu Pro Arg Asn Ile Ala Val Pro Tyr Cys Gln Leu Ser Lys Lys Leu Glu Leu Pro Pro Ile Leu Val Tyr Ala Asp Cys Val Leu Ala Asn Trp Lys Lys Lys Asp Pro Asn Lys Pro Leu Thr Tyr Glu Asn Met Asp Val Leu Phe Ser Phe Arg Asp Gly Asp Cys Ser Lys Gly Phe Phe Leu Val Ser Leu Leu Val Glu Ile Ala Ala Ala Ser Ala Ile Lys Val Ile Pro Thr Val Phe Lys Ala Met Gln Met Gln Glu Arg Asp Thr Leu Leu Lys Ala Leu Leu Glu Ile Ala Ser Cys Leu Glu Lys Ala Leu Gln Val Phe His Gln Ile His Asp His Val Asn Pro Lys Ala Phe Phe Ser Val Leu Arg Ile Tyr Leu Ser Gly Trp Lys Gly Asn Pro Gln Leu Ser Asp Gly Leu Val Tyr Glu Gly Phe Trp Glu Asp Pro Lys Glu Phe Ala Gly Gly Ser Ala Gly Gln Ser Ser Val Phe Gln Cys Phe Asp Val Leu Leu Gly Ile Gln Gln Thr Ala Gly Gly Gly His Ala Ala Gln Phe Leu Gln Asp Met Arg Arg Tyr Met Pro Pro Ala His Arg Asn Phe Leu Cys Ser Leu Glu Ser Asn Pro Ser Val Arg Glu Phe Val Leu Ser Lys Gly Asp Ala Gly Leu Arg Glu Ala Tyr Asp Ala Cys Val Lys Ala Leu Val Ser Leu Arg Ser Tyr His Leu Gln Ile Val Thr Lys Tyr Ile Leu Ile Pro Ala Ser Gln Gln Pro Lys Glu Asn Lys Thr Ser Glu Asp Pro Ser Lys Leu Glu Ala Lys Gly Thr Gly Gly Thr Asp Leu Met Asn Phe Leu Lys Thr Val Arg Ser Thr Thr Glu Lys Ser Leu Leu Lys Glu Gly

FIGURE 88

gaattcggca cgagctcttc tcccctgatt caagactcct ctgctttgga ctgaagcact gcaggagttt gtgaccaaga acttcaagag tcaagacaga aggaagccaa gggagcagtg caatggattt ctcagtaaag gtagacatag agaaggaggt gacctgcccc atctgcctgg agctcctgac agaacctctg agcctagatt gtggccacag cttctgccaa gcctgcatca ctgcaaagat caaggagtca gtgatcatct caagagggga aagcagctgt cctgtgtgtc agaccagatt ccagcctggg aacctccgac ctaatcggca tctggccaac atagttgaga gagtcaaaga ggtcaagatg agcccacagg aggggcagaa gagagatgtc tgtgagcacc atggaaaaaa actccagatc ttctgtaagg aggatggaaa agtcatttgc tgggtttgtg aactgtctca ggaacaccaa ggtcaccaaa cattccgcat aaacgaggtg gtcaaggaat gtcaggaaaa gctgcaggta gccctgcaga ggctgataaa ggaggatcaa gaggctgaga agctggaaga tgacatcaga caagagagaa ccgcctggaa gatcgagaga cagaagattc tgaaagggtt caatgaaatg agagtcatct tggacaatga ggagcagaga gagctgcaaa agctggagga aggtgaggtg aatgtgctgg acaacctggc agcagctaca gaccagctgg tccagcagag gcaggatgcc agcacgctca tctcagatct ccagcggagg ttgacgggat cgtcagtaga gatgctgcag gatgtgattg acgtcatgaa aaggagtgaa agctggacat tgaagaagcc aaaatctgtt tccaagaaac taaagagtgt attccgagta ccagatctga gtgggatgct gcaagttctt aaagagctga cagatgtcca gtactactgg gtggacgtga tgctgaatcc aggcagtgcc acttcgaatg ttgctatttc tgtggatcag agacaagtga aaactgtacg cacctgcaca tttaagaatt caaatccatg tgatttttct gcttttggtg tcttcggctg ccaatatttc tcttcgggga aatattactg ggaagtagat gtgtctggaa agattgcctg gatcctgggc gtacacagta aaataagtag tctgaataaa aggaagagct ctgggtttgc ttttgatcca agtgtaaatt attcaaaagt ttactccaga tatagacctc aatatggcta ctgggttata ggattacaga atacatgtga atataatgct tttgaggact cctcctcttc tgatcccaag gttttgactc tctttatggc tgtgctccct gtcgtattgg ggttttccta gactatgagg caggcattgt ctcatttttc aatgtcacaa accacggagc actcatctac aagttctctg gatgtcgctt ttctcgacct gcttatccgt atttcaatcc ttggaactgc ctagtcccca tgactgtgtg cccaccgagc tcctgagtgt tctcattcct ttacccactt ctgcatagta gcccttgtgc tgagactcag attctgcacc tgagttcatc tctactgaga ccatctcttc ctttctttcc ccttctttta cttagaatgt ctttgtattc atttgctagg gcttccatag caaagcatca tagattgctg atttaaactg taattgtatt gccgtactgt gggctggaaa tcccaaatct agattccagc agagttggtt ctttctgagg tctgcaagga agggctctgt tccatgcctc tctccttggc ttgtagaagg catcttgtcc ctatgactct tcacattgtc tttatgtaca tctctgtgcc caagttttcc ctttttatta agacaccagt catactggct cagggcccac cgctaatgcc ttaatgaaat cattttaaca ttatattctc tacaaagacc ttatttccaa ataagataat atttggaggt attgggaata aaatttgagg aaggcacgat ttcactcata acaatcttac cctttcttgc aagagatgct tgtacattat tttcctaata ccttggtttc actagtagta aacattatta tttttttttat atttgcaaag gaaacatatc taatccttcc tatagaaaga acagtattgc tgtaattcct tttcttttct tcctcatttc ctctgcccct taaaagattg aagaaagaga aacttgtcaa ctcatatcca cgttatctag caaaagtcat aagaatctat cactaagtaa tgtatccttc agaatgtgtt ggtttaccag tgacacccca tattcatcac aaaattaaag caagaagtcc atagtaattt atttgctaat agtggatttt taatgctcag agtttctgag gtcaaatttt atcttttcac ttacaagctc tatgatctta aataatttac ttaatgtatt ttggtgtatt ttcctcaaat taatattggt gttcaagact atatctaatt cctctgatca ctttgagaaa caaacttta ttaaatgtaa ggcacttttc tatgaatttt aaatataaaa ataaatattg ttctgattat tactgaaaag atgtcagcca tttcaatgtc ttgggaaaca atttttgtt tttgttctgt tttcttttg cttcaataaa acaatagctg gctctaaaaa aaaaa

FIGURE 89

Met Asp Phe Ser Val Lys Val Asp Ile Glu Lys Glu Val Thr Cys Pro Ile Cys Leu Glu Leu Leu Thr Glu Pro Leu Ser Leu Asp Cys Gly His Ser Phe Cys Gln Ala Cys Ile Thr Ala Lys Ile Lys Glu Ser Val Ile Ile Ser Arg Gly Glu Ser Ser Cys Pro Val Cys Gln Thr Arg Phe Gln Pro Gly Asn Leu Arg Pro Asn Arg His Leu Ala Asn Ile Val Glu Arg Val Lys Glu Val Lys Met Ser Pro Gln Glu Gly Gln Lys Arg Asp Val Cys Glu His His Gly Lys Lys Leu Gln Ile Phe Cys Lys Glu Asp Gly Lys Val Ile Cys Trp Val Cys Glu Leu Ser Gln Glu His Gln Gly His Gln Thr Phe Arg Ile Asn Glu Val Val Lys Glu Cys Gln Glu Lys Leu Gln Val Ala Leu Gln Arg Leu Ile Lys Glu Asp Gln Glu Ala Glu Lys Leu Glu Asp Asp Ile Arg Gln Glu Arg Thr Ala Trp Lys Ile Glu Arg Gln Lys Ile Leu Lys Gly Phe Asn Glu Met Arg Val Ile Leu Asp Asn Glu Glu Gln Arg Glu Leu Gln Lys Leu Glu Glu Gly Glu Val Asn Val Leu Asp Asn Leu Ala Ala Ala Thr Asp Gln Leu Val Gln Gln Arg Gln Asp Ala Ser Thr Leu Ile Ser Asp Leu Gln Arg Arg Leu Thr Gly Ser Ser Val Glu Met Leu Gln Asp Val Ile Asp Val Met Lys Arg Ser Glu Ser Trp Thr Leu Lys Lys Pro Lys Ser Val Ser Lys Lys Leu Lys Ser Val Phe Arg Val Pro Asp Leu Ser Gly Met Leu Gln Val Leu Lys Glu Leu Thr Asp Val Gln Tyr Tyr Trp Val Asp Val Met Leu Asn Pro Gly Ser Ala Thr Ser Asn Val Ala Ile Ser Val Asp Gln Arg Gln Val Lys Thr Val Arg Thr Cys Thr Phe Lys Asn Ser Asn Pro Cys Asp Phe Ser Ala Phe Gly Val Phe Gly Cys Gln Tyr Phe Ser Ser Gly Lys Tyr Tyr Trp Glu Val Asp Val Ser Gly Lys Ile Ala Trp Ile Leu Gly Val His Ser Lys Ile Ser Ser Leu Asn Lys Arg Lys Ser Ser Gly Phe Ala Phe Asp Pro Ser Val Asn Tyr Ser Lys Val Tyr Ser Arg Tyr Arg Pro Gln Tyr Gly Tyr Trp Val Ile Gly Leu Gln Asn Thr Cys Glu Tyr Asn Ala Phe Glu Asp Ser Ser Ser Ser Asp Pro Lys Val Leu Thr Leu Phe Met Ala Val Leu Pro Val Val Leu Gly Phe Ser

FIGURE 90

cgaggatcca ggcgcaggag gacagagcaa tgggtgagag aactcttcac gctgcagtgc ccacaccagg ttatccagaa tctgaatcca tcatgatggc ccccatttgt ctagtggaaa accaggaaga gcagctgaca gtgaattcaa aggcattaga gattcttgac aagatttctc agcccgtggt ggtggtggcc attgtagggc tataccgcac aggaaaatcc tatctcatga atcgtcttgc aggaaagcgc aatggcttcc ctctgggctc cacggtgcag tctgaaacta agggcatctg gatgtggtgt gtgccccacc tctctaagcc aaaccacacc ctggtccttc tggacaccga gggcctgggc gatgtagaaa agagtaaccc taagaatgac tcgtggatct ttgccctggc tgtgcttcta agcagcagct ttgtctataa cagcgtgagc accatcaacc accaggccct ggagcagctg cactatgtga ctgagctagc agagctaatc agggcaaaat cctgccccag acctgatgaa gctgaggact ccagcgagtt tgcgagtttc tttccagact ttatttggac tgttcgggat tttaccctgg agctaaagtt agatggaaac cccatcacag aagatgagta cctggagaat gccttgaagc tgattccagg caagaatccc aaaattcaaa attcaaacat gcctagagag tgtatcaggc atttcttccg aaaacggaag tgctttgtct ttgaccggcc tacaaatgac aagcaatatt taaatcatat ggacgaagtg ccagaagaaa atctggaaag gcatttcctt atgcaatcag acaacttctg ttcttatatc ttcacccatg caaagaccaa gaccctgaga gagggaatca ttgtcactgg aaagcggctg gggactctgg tggtgactta tgtagatgcc atcaacagtg gagcagtacc ttgtctggag aatgcagtga cagcactggc ccagcttgag aacccagcgg ctgtgcagag ggcagccgac cactatagcc agcagatggc ccagcaactg aggctcccca cagacacgct ccaggagctg ctggacgtgc atgcagcctg tgagagggaa gccattgcag tcttcatgga gcactccttc aaggatgaaa accatgaatt ccagaagaag cttgtggaca ccatagagaa aaagaaggga gactttgtgc tgcagaatga agaggcatct gccaaatatt gccaggctga gcttaagcgg ctttcagagc acctgacaga aagcattttg agaggaattt tctcgttcct ggaggacaca atctctactt agaagaaaag aaacaggttg agtgggacta taagctagtg cccagaaaag gagttaaggc aaacgaggtc ctccagaact tcctgcagtc acaggtggtt gtagaggaat ccatcctgca gtcagacaaa gccctcactg ctggagagaa ggccatagca gcggagcggg ccatgaagga agcagctgag aaggaacagg agctgctaag agaaaaacag aaggagcagc agcaaatgat ggaggctcaa gagagaagct ttcaggaata catggnccaa atggagaaga agttggagga ngaaagggaa aaccntntca gagagccttg aaaaggttgc taaaacacaa gcttgaaggt ncagaagaaa atgcttaa

FIGURE 91

Arg Ile Gln Ala Gln Glu Asp Arg Ala Met Gly Glu Arg Thr Leu His Ala Ala Val Pro Thr Pro Gly Tyr Pro Glu Ser Glu Ser Ile Met Met Ala Pro Ile Cys Leu Val Glu Asn Gln Glu Glu Gln Leu Thr Val Asn Ser Lys Ala Leu Glu Ile Leu Asp Lys Ile Ser Gln Pro Val Val Val Val Ala Ile Val Gly Leu Tyr Arg Thr Gly Lys Ser Tyr Leu Met Asn Arg Leu Ala Gly Lys Arg Asn Gly Phe Pro Leu Gly Ser Thr Val Gln Ser Glu Thr Lys Gly Ile Trp Met Trp Cys Val Pro His Leu Ser Lys Pro Asn His Thr Leu Val Leu Leu Asp Thr Glu Gly Leu Gly Asp Val Glu Lys Ser Asn Pro Lys Asn Asp Ser Trp Ile Phe Ala Leu Ala Val Leu Leu Ser Ser Ser Phe Val Tyr Asn Ser Val Ser Thr Ile Asn His Gln Ala Leu Glu Gln Leu His Tyr Val Thr Glu Leu Ala Glu Leu Ile Arg Ala Lys Ser Cys Pro Arg Pro Asp Glu Ala Glu Asp Ser Ser Glu Phe Ala Ser Phe Phe Pro Asp Phe Ile Trp Thr Val Arg Asp Phe Thr Leu Glu Leu Lys Leu Asp Gly Asn Pro Ile Thr Glu Asp Glu Tyr Leu Glu Asn Ala Leu Lys Leu Ile Pro Gly Lys Asn Pro Lys Ile Gln Asn Ser Asn Met Pro Arg Glu Cys Ile Arg His Phe Phe Arg Lys Arg Lys Cys Phe Val Phe Asp Arg Pro Thr Asn Asp Lys Gln Tyr Leu Asn His Met Asp Glu Val Pro Glu Glu Asn Leu Glu Arg His Phe Leu Met Gln Ser Asp Asn Phe Cys Ser Tyr Ile Phe Thr His Ala Lys Thr Lys Thr Leu Arg Glu Gly Ile Ile Val Thr Gly Lys Arg Leu Gly Thr Leu Val Val Thr Tyr Val Asp Ala Ile Asn Ser Gly Ala Val Pro Cys Leu Glu Asn Ala Val Thr Ala Leu Ala Gln Leu Glu Asn Pro Ala Ala Val Gln Arg Ala Ala Asp His Tyr Ser Gln Gln Met Ala Gln Gln Leu Arg Leu Pro Thr Asp Thr Leu Gln Glu Leu Leu Asp Val His Ala Ala Cys Glu Arg Glu Ala Ile Ala Val Phe Met Glu His Ser Phe Lys Asp Glu Asn His Glu Phe Gln Lys Lys Leu Val Asp Thr Ile Glu Lys Lys Lys Gly Asp Phe Val Leu Gln Asn Glu Glu Ala Ser Ala Lys Tyr Cys Gln Ala Glu Leu Lys Arg Leu Ser Glu His Leu Thr Glu Ser Ile Leu Arg Gly Ile Phe Ser Phe Leu Glu Asp Thr Ile Ser Thr

FIGURE 92

cgctaagcgt cccagccgca tccctcccgc agcgacggcg gcccgggacc cgcgggctgt gaaccatgaa cacccgcaat agagtggtga actccgggct cggcgcctcc cctgcctccc gcccgacccg ggatccccag gacccttctg ggcggcaagg ggagctgagc cccgtggaag accagagaga gggtttggag gcagccccta agggcccttc gcgggagagc gtcgtgcacg cgggccagag gcgcacaagt gcatacacct tgatagcacc aaatataaac cggagaaatg agatacaaag aattgcggag caggagctgg ccaacctgga gaagtggaag gagcagaaca gagctaaacc ggttcacctg gtgcccagac ggctaggtgg aagccagtca gaaactgaag tcagacagaa acaacaactc cagctgatgc aatctaaata caagcaaaag ctaaaaagag aagaatctgt aagaatcaag aaggaagctg aagaagctga actccaaaaa atgaaggcaa ttcagagaga gaagagcaat aaactggagg agaaaaaaag acttcaagaa aaccttagaa gagaagcatt tagagagcat cagcaataca aaaccgctga gttcttgagc aaactgaaca cagaatcgcc agacagaagt gcctgtcaaa gtgctgtttg tggcccacaa tcctcaacat gggccagaag ctgggcttac agagattctc taaaggcaga agaaaacaga aaattgcaaa agatgaagga tgaacaacat caaaagagtg aattactgga actgaaacgg cagcagcaag agcaagaaag agccaaaatc caccagactg aacacaggag ggtaaataat gcttttctgg accgactcca aggcaaaagt caaccaggtg gcctcgagca atctggaggc tgttggaata tgaatagcgg taacagctgg ggtatatgag aaaatattga ctcctatctg gccttcatca actgacctcg aaaagcctca tgagatgctt tttcttaatg tgattttgtt cagcctcact gtttttacct taatttcaac tgcccacaca cttgaccgtg cagtcaggag tgactggctt ctccttgtcc tcatttatgc atgtttggag gagctgattc ctgaactcat atttaaactc tactgccagg gaaatgctac attatttttc taattggaag tataattaga gtgatgttgg tagggtagaa aaagagggag tcacttgatg ctttcaggtt aatcagagct atgggtgcta caggcttgtc tttctaagtg acatattctt atctaattct cagatcaggt tttgaaagct ttgggggtct ttttagattt taatccctac tttctttatg gtacaaatat gtacaaaaga aaaaggtctt atattctttt acacaaattt ataaataaat tttgaactcc ttctgtaaaa aaaaaaaa

FIGURE 93

Met Asn Thr Arg Asn Arg Val Val Asn Ser Gly Leu Gly Ala Ser Pro Ala Ser Arg Pro Thr Arg Asp Pro Gln Asp Pro Ser Gly Arg Gln Gly Glu Leu Ser Pro Val Glu Asp Gln Arg Glu Gly Leu Glu Ala Ala Pro Lys Gly Pro Ser Arg Glu Ser Val Val His Ala Gly Gln Arg Arg Thr Ser Ala Tyr Thr Leu Ile Ala Pro Asn Ile Asn Arg Arg Asn Glu Ile Gln Arg Ile Ala Glu Gln Glu Leu Ala Asn Leu Glu Lys Trp Lys Glu Gln Asn Arg Ala Lys Pro Val His Leu Val Pro Arg Arg Leu Gly Gly Ser Gln Ser Glu Thr Glu Val Arg Gln Lys Gln Gln Leu Gln Leu Met Gln Ser Lys Tyr Lys Gln Lys Leu Lys Arg Glu Glu Ser Val Arg Ile Lys Lys Glu Ala Glu Glu Ala Glu Leu Gln Lys Met Lys Ala Ile Gln Arg Glu Lys Ser Asn Lys Leu Glu Glu Lys Lys Arg Leu Gln Glu Asn Leu Arg Arg Glu Ala Phe Arg Glu His Gln Gln Tyr Lys Thr Ala Glu Phe Leu Ser Lys Leu Asn Thr Glu Ser Pro Asp Arg Ser Ala Cys Gln Ser Ala Val Cys Gly Pro Gln Ser Ser Thr Trp Ala Arg Ser Trp Ala Tyr Arg Asp Ser Leu Lys Ala Glu Glu Asn Arg Lys Leu Gln Lys Met Lys Asp Glu Gln His Gln Lys Ser Glu Leu Leu Glu Leu Lys Arg Gln Gln Gln Glu Gln Glu Arg Ala Lys Ile His Gln Thr Glu His Arg Arg Val Asn Asn Ala Phe Leu Asp Arg Leu Gln Gly Lys Ser Gln Pro Gly Gly Leu Glu Gln Ser Gly Gly Cys Trp Asn Met Asn Ser Gly Asn Ser Trp Gly Ile

FIGURE 94

tagagatggg gtctcactat gtcgcccagg gtagtctcaa actcctcggt cttggcctcc caaagtgttg ggattacaaa cgtgagaacc gtattttcaa atgtattcaa taacactaca gcgtttccaa ttttaagagg aagcaattgc cacaaaatca ctgcccctgg tctgggcaag gggcagttgg tgaacttgct gcctccagag aaccttccct ggtgtggagg cagccaggga cccaggatgc tccggacctg ttacgtgctc tgttcccaag ctggtccccc ctccaggggc tggcagtccc tgagctttga tggcggggcc ttccacctta agggcacagg agagctgaca cgggccttgc tggttctccg gctgtgtgcc tggcccccac tcgtcactca cgggctgttg ctccaggcct ggtctcggcg actcctgggc tcccggctct caggcgcatt tctccgagca tccgtctatg ggcagtttgt ggctggtgag acagcagagg aggtgaaggg ctgcgtgcag cagctgcgga ccctcagcct ccgaccactg ctggcagtgc ccactgagga ggagccggac tctgctgcca agagtggtga ggcgtggtat gaggggaacc tcggtgctat gctgcggtgt gtggacctgt cacggggcct cctggagccc cccagcctgg ctgaggccag cctcatgcag ctgaaggtga cggcgctgac cagtactcgg ctctgtaagg agctagcctc gtgggtcaga aggccaggag cctccttgga gctgagcccc gagaggctgg ctgaagctat ggactctggg cagaacctcc aggtctcctg cctcaatgct gagcagaacc agcacctccg ggcctccctc agccgcctgc atcgggtggc acagtatgcc cgggcccagc acgtgcggct cctggtggat gcggagtaca cctcactgaa ccctgcgctc tcgctgctgg tggctgccct ggctgtgcgc tggaacagcc cgggtgaagg cgggccctgg gtgtggaaca cctaccaggc ctgtctaaag gacacattcg agcggctggg gagggatgca gaggctgcgc acagggccgg cctggccttc ggagtgaagc tggtacgagg tgcatatctg gacaaggaga gagcggtggc ccagctccat gggatggaag accccactca gcctgactat gaggccacca gtcagagtta cagccgctgc ctggaactga tgctgacgca cgtggcccgc catggcccca tgtgccacct catggtggct tcccacaatg aggaatctgt tcgccaggca accaagcgca tgtgggagct gggcattcct ctggatggga ctgtctgttt cggacaactt ctgggcatgt gtgaccacgt ctctctagca ctggggcagg ccggctatgt agtgtataag tccattccct atggctcctt ggaggaggta atcccctacc tgatccggag ggcccaggag aaccggagcg tgcttcaggg tgcccgcagg gaacaggagc tgctcagcca agaactgtgg cggcggctgc tgccaggatg ccgaaggata ccccactagc acccctgagg gggtcatgtg gtcaataaaa gtccttaggt gctgcct

FIGURE 95

Met Ser Pro Arg Val Val Ser Asn Ser Ser Val Leu Ala Ser Gln Ser Val Gly Ile Thr Asn Val Arg Thr Val Phe Ser Asn Val Phe Asn Asn Thr Thr Ala Phe Pro Ile Leu Arg Gly Ser Asn Cys His Lys Ile Thr Ala Pro Gly Leu Gly Lys Gly Gln Leu Val Asn Leu Leu Pro Pro Glu Asn Leu Pro Trp Cys Gly Gly Ser Gln Gly Pro Arg Met Leu Arg Thr Cys Tyr Val Leu Cys Ser Gln Ala Gly Pro Pro Ser Arg Gly Trp Gln Ser Leu Ser Phe Asp Gly Gly Ala Phe His Leu Lys Gly Thr Gly Glu Leu Thr Arg Ala Leu Leu Val Leu Arg Leu Cys Ala Trp Pro Pro Leu Val Thr His Gly Leu Leu Leu Gln Ala Trp Ser Arg Arg Leu Leu Gly Ser Arg Leu Ser Gly Ala Phe Leu Arg Ala Ser Val Tyr Gly Gln Phe Val Ala Gly Glu Thr Ala Glu Glu Val Lys Gly Cys Val Gln Gln Leu Arg Thr Leu Ser Leu Arg Pro Leu Leu Ala Val Pro Thr Glu Glu Glu Pro Asp Ser Ala Ala Lys Ser Gly Glu Ala Trp Tyr Glu Gly Asn Leu Gly Ala Met Leu Arg Cys Val Asp Leu Ser Arg Gly Leu Leu Glu Pro Pro Ser Leu Ala Glu Ala Ser Leu Met Gln Leu Lys Val Thr Ala Leu Thr Ser Thr Arg Leu Cys Lys Glu Leu Ala Ser Trp Val Arg Arg Pro Gly Ala Ser Leu Glu Leu Ser Pro Glu Arg Leu Ala Glu Ala Met Asp Ser Gly Gln Asn Leu Gln Val Ser Cys Leu Asn Ala Glu Gln Asn Gln His Leu Arg Ala Ser Leu Ser Arg Leu His Arg Val Ala Gln Tyr Ala Arg Ala Gln His Val Arg Leu Leu Val Asp Ala Glu Tyr Thr Ser Leu Asn Pro Ala Leu Ser Leu Leu Val Ala Ala Leu Ala Val Arg Trp Asn Ser Pro Gly Glu Gly Gly Pro Trp Val Trp Asn Thr Tyr Gln Ala Cys Leu Lys Asp Thr Phe Glu Arg Leu Gly Arg Asp Ala Glu Ala Ala His Arg Ala Gly Leu Ala Phe Gly Val Lys Leu Val Arg Gly Ala Tyr Leu Asp Lys Glu Arg Ala Val Ala Gln Leu His Gly Met Glu Asp Pro Thr Gln Pro Asp Tyr Glu Ala Thr Ser Gln Ser Tyr Ser Arg Cys Leu Glu Leu Met Leu Thr His Val Ala Arg His Gly Pro Met Cys His Leu Met Val Ala Ser His Asn Glu Glu Ser Val Arg Gln Ala Thr Lys Arg Met Trp Glu Leu Gly Ile Pro Leu Asp Gly Thr Val Cys Phe Gly Gln Leu Leu Gly Met Cys Asp His Val Ser Leu Ala Leu Gly Gln Ala Gly Tyr Val Val Tyr Lys Ser Ile Pro Tyr Gly Ser Leu Glu Glu Val Ile Pro Tyr Leu Ile Arg Arg Ala Gln Glu Asn Arg Ser Val Leu Gln Gly Ala Arg Arg Glu Gln Glu Leu Leu Ser Gln Glu Leu Trp Arg Arg Leu Leu Pro Gly Cys Arg Arg Ile Pro His

FIGURE 96

gaaacaagca ctggattcca tatcccactg ccaaaaccgc atggttcaga ttatcgctat tgcagctttc atcataatac acacctttgc tgccgaaacg aagccagaca acagatttcc atcagcagga tgtgggggct caaggttctg ctgctacctg tggtgagctt tgctctgtac cctgaggaga tactggacac ccactgggag ctatggaaga agacccacag gaagcaatat aacaacaagg tggatgaaat ctctcggcgt ttaatttggg aaaaaaacct gaagtatatt tccatccata accttgaggc ttctcttggt gtccatacat atgaactggc tatgaaccac ctgggggaca tgaccagtga agaggtggtt cagaagatga ctggactcaa agtacccctg tctcattccc gcagtaatga cacccтttat atcccagaat gggaaggtag agccccagac tctgtcgact atcgaaagaa aggatatgtt actcctgtca aaaatcaggg tcagtgtggt tcctgttggg cttttagctc tgtgggtgcc ctggagggcc aactcaagaa gaaaactggc aaactcttaa atctgagtcc ccagaaccta gtggattgtg tgtctgagaa tgatggctgt ggaggggggct acatgaccaa tgccttccaa tatgtgcaga agaaccgggg tattgactct gaagatgcct acccatatgt gggacaggaa gagagttgta tgtacaaccc aacaggcaag gcagctaaat gcagagggta cagagagatc cccgagggga atgagaaagc cctgaagagg gcagtggccc gagtgggacc tgtctctgtg gccattgatg caagcctgac ctccttccag ttttacagca aaggtgtgta ttatgatgaa agctgcaata gcgataatct gaaccatgcg gttttggcag tgggatatgg aatccagaag ggaaacaagc actggataat taaaaacagc tggggagaaa actggggaaa caaaggatat atcctcatgg ctcgaaataa gaacaacgcc tgtggcattg ccaacctggc cagcttcccc aagatgtgac tccagccagc caaatccatc ctgctcttcc atttcttcca cgatggtgca gtgtaacgat gcactttgga agggagttgg tgtgctattt ttgaagcaga tgtggtgata ctgagattgt ctgttcagtt tccccatttg tttgtgcttc aaatgatcct tcctactttg cttctctcca cccatgacct ttttcactgt ggccatcagg actttccctg acagctgtgt actcttaggc taagagatgt gactacagcc tgcccctgac tgtgttgtcc cagggctgat gctgtacagg tacaggctgg agattttcac ataggttaga ttctcattca cgggactagt tagctttaag caccctagag gactagggta atctgacttc tcacttccta agttcccttc tatatcctca aggtagaaat gtctatgttt tctactccaa ttcataaatc tattcataag tctttggtac aagtttacat gataaaaaga aatgtgattt gtcttccctt ctttgcactt ttgaaataaa gtatttatc

FIGURE 97

Met Trp Gly Leu Lys Val Leu Leu Leu Pro Val Val Ser Phe Ala Leu Tyr Pro Glu Glu Ile Leu Asp Thr His Trp Glu Leu Trp Lys Lys Thr His Arg Lys Gln Tyr Asn Asn Lys Val Asp Glu Ile Ser Arg Arg Leu Ile Trp Glu Lys Asn Leu Lys Tyr Ile Ser Ile His Asn Leu Glu Ala Ser Leu Gly Val His Thr Tyr Glu Leu Ala Met Asn His Leu Gly Asp Met Thr Ser Glu Glu Val Val Gln Lys Met Thr Gly Leu Lys Val Pro Leu Ser His Ser Arg Ser Asn Asp Thr Leu Tyr Ile Pro Glu Trp Glu Gly Arg Ala Pro Asp Ser Val Asp Tyr Arg Lys Lys Gly Tyr Val Thr Pro Val Lys Asn Gln Gly Gln Cys Gly Ser Cys Trp Ala Phe Ser Ser Val Gly Ala Leu Glu Gly Gln Leu Lys Lys Lys Thr Gly Lys Leu Leu Asn Leu Ser Pro Gln Asn Leu Val Asp Cys Val Ser Glu Asn Asp Gly Cys Gly Gly Gly Tyr Met Thr Asn Ala Phe Gln Tyr Val Gln Lys Asn Arg Gly Ile Asp Ser Glu Asp Ala Tyr Pro Tyr Val Gly Gln Glu Glu Ser Cys Met Tyr Asn Pro Thr Gly Lys Ala Ala Lys Cys Arg Gly Tyr Arg Glu Ile Pro Glu Gly Asn Glu Lys Ala Leu Lys Arg Ala Val Ala Arg Val Gly Pro Val Ser Val Ala Ile Asp Ala Ser Leu Thr Ser Phe Gln Phe Tyr Ser Lys Gly Val Tyr Tyr Asp Glu Ser Cys Asn Ser Asp Asn Leu Asn His Ala Val Leu Ala Val Gly Tyr Gly Ile Gln Lys Gly Asn Lys His Trp Ile Ile Lys Asn Ser Trp Gly Glu Asn Trp Gly Asn Lys Gly Tyr Ile Leu Met Ala Arg Asn Lys Asn Asn Ala Cys Gly Ile Ala Asn Leu Ala Ser Phe Pro Lys Met

FIGURE 98

ttcggaaaca ggaaaacgag tcaggggtcg gaataaattt tagtatattt tgtgggcaat tcccagaaat taatggctat gagttctttt ttgatcaact caaactatgt cgaccccaag ttccctccat gcgaggaata ttcacagagc gattacctac ccagcgacca ctcgcccggg tactacgccg gcggccagag gcgagagagc agcttccagc cggaggcggg cttcgggcgg cgcgcggcgt gcaccgtgca gcgctacgcg gcctgccggg accctgggcc cccgccgcct ccgccaccac ccccgccgcc cccgccaccg cccggtctgt cccctcgggc tcctgcgccg ccacccgccg gggccctcct cccggagccc ggccagcgct gcgaggcggt cagcagcagc cccccgccgc ctccctgcgc ccagaacccc ctgcacccca gcccgtccca ctccgcgtgc aaagagcccg tcgtctaccc ctggatgcgc aaagttcacg tgagcacggt aaaccccaat tacgccggcg gggagcccaa gcgctctcgg accgcctaca cgcgccagca ggtcttggag ctggagaagg aatttcacta caaccgctac ctgacacggc gccggagggt ggagatcgcc cacgcgctct gcctctccga gcgccagatc aagatctggt tccagaaccg gcgcatgaag tggaaaaaag accacaagtt gcccaacacc aagatccgct cgggtggtgc ggcaggctca gccggagggc cccctggccg gcccaatgga ggcccccgcg cgctctagtg cccccgcacg cgggagccac gaacctcggg gtgggggtgg gcagtgagtg caggggatgg ggtgggggga caggaggggg ccctggggcc tgggccccgg aaaaatctat ctgccctccc ccacacttta tatacgaata aacgcagaag agggggaggg gaagctttat ttatagaaat gacaatagag ggccacgggg aggccccccc cagaagcaag attcaaatct cttgctttct ttcttaaaaa aaagaaaaaa aaa

FIGURE 99

Met Ala Met Ser Ser Phe Leu Ile Asn Ser Asn Tyr Val Asp Pro Lys Phe Pro Pro Cys Glu Glu Tyr Ser Gln Ser Asp Tyr Leu Pro Ser Asp His Ser Pro Gly Tyr Tyr Ala Gly Gly Gln Arg Arg Glu Ser Ser Phe Gln Pro Glu Ala Gly Phe Gly Arg Arg Ala Ala Cys Thr Val Gln Arg Tyr Ala Ala Cys Arg Asp Pro Gly Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Gly Leu Ser Pro Arg Ala Pro Ala Pro Pro Pro Ala Gly Ala Leu Leu Pro Glu Pro Gly Gln Arg Cys Glu Ala Val Ser Ser Ser Pro Pro Pro Pro Pro Cys Ala Gln Asn Pro Leu His Pro Ser Pro Ser His Ser Ala Cys Lys Glu Pro Val Val Tyr Pro Trp Met Arg Lys Val His Val Ser Thr Val Asn Pro Asn Tyr Ala Gly Gly Glu Pro Lys Arg Ser Arg Thr Ala Tyr Thr Arg Gln Gln Val Leu Glu Leu Glu Lys Glu Phe His Tyr Asn Arg Tyr Leu Thr Arg Arg Arg Arg Val Glu Ile Ala His Ala Leu Cys Leu Ser Glu Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys Asp His Lys Leu Pro Asn Thr Lys Ile Arg Ser Gly Gly Ala Ala Gly Ser Ala Gly Gly Pro Pro Gly Arg Pro Asn Gly Gly Pro Arg Ala Leu

FIGURE 100

ggatcccagt ggcccggcgt gctcggctcc cacaggcctg cagccagcat cgcaccgaac cttcgggggg ccgcggctgg agcgctcggc cggcgtggga gcgcaaggcc gcagatgcaa tcttcttacc gcgaagaagc caggggaata ggtagccaca tcttgtttgc agataagaaa ggaagctaac gcagtatctg caaagccagg agtctgactc agtacttttc tcactcatgc atacaagcag ctaaaaatga cacagcttat ttaccatgcc cctgacactg cactgagcac tttatgagct tgaactctgt taatctcacg accacctcat gagactctcc agaaagagca acagtaatgg agtacatgag cactggaagt gacaataaag aagagattga tttattaatt aaacatttaa atgtgtctga tgtaatagac attatggaaa atctttatgc aagtgaagag ccagcagttt atgaacccag tctaatgacc atgtgtcaag acagtaatca aaacgatgag cgttctaagt ctctgctgct tagtggccaa gaggtaccat ggttgtcatc agtcagatat ggaactgtgg aggatttgct tgcttttgca aaccatatat ccaacactgc aaagcatttt tatggacaac gaccacagga atctggaatt ttattaaaca tggtcatcac tccccaaaat ggacgttacc aaatagattc cgatgttctc ctgatcccct ggaagctgac ttacaggaat attggttctg attttattcc tcggggcgcc tttggaaagg tatacttggc tcaagatata aagacgaaga aaagaatggc gtgtaaactg atcccagtag atcaatttaa gccatctgat gtggaaattc aggcttgctt ccggcacgag aacatcgcag agctgtatgg cgcagtcctg tggggtgaaa ctgtccatct ctttatggaa gcaggcgagg gagggtctgt tctggagaaa ctggagagct gtggaccaat gagagaattt gaaattattt gggtgacaaa gcatgttctc aagggacttg attttctaca ctcaaagaaa gtgatccatc atgatattaa acctagcaac attgttttca tgtccacaaa agctgttttg gtggattttg gcctaagtgt tcaaatgacc gaagatgtct attttcctaa ggacctccga ggaacagaga tttacatgag cccagaggtc atcctgtgca ggggccattc aaccaaagca gacatctaca gcctgggggc cacgctcatc cacatgcaga cgggcacccc accctgggtg aagcgctacc ctcgctcagc ctatccctcc tacctgtaca taatccacaa gcaagcacct ccactggaag acattgcaga tgactgcagt ccagggatga gagagctgat agaagcttcc ctggagagaa accccaatca ccgcccaaga gccgcagacc tactaaaaca tgaggccctg aacccgccca gagaggatca gccacgctgt acgagtctgg actctgccct cttggagcgc aagaggctgc tgagtaggaa ggagctggaa cttcctgaga acattgctga ttcttcgtgc acaggaagca ccgaggaatc tgagatgctc aagaggcaac gctctctcta catcgacctc ggcgctctgg ctggctactt caatcttgtt cggggaccac caacgcttga atatggctga aggatgccat gtttgcctct aaattaagac agcattgatc tcctggaggc tggttctgct gcctctacac aggggcccgt tacagtgaat ggtgccattt tcgaaggagc agtgtgacct cctgtgaccc atgaatgtgc ctccaagcgg ccctgtgtgt ttgacatgtg aagctatttg atatgcacca ggtctcaagg ttctcatttc tcaggtgacg tgattctaag gcaggaattt gagagttcac agaaggatcg tgtctgctga ctgtttcatt cactgtgcac tttgctcaaa attttaaaaa taccaatcac aaggataata gagtagccta aaattactat tcttggttct tatttaagta tggaatattc attttactca gaatagcctg ttttgtgtat attggtgtat attatataac tctttgagcc tttattggta aattctggta tacattgaat tcattataat ttgggtgact agaacaactt gaagattgta gcaataagct ggactagtgt cctaaaaatg gctaactgat gaattagaag ccatctgaca gacggccact agtgacagtt tcttttgtgt tcctatggaa acattttata ctgtacatgc tatgctgaag acattcaaaa cgtgatgttt tgaatgtgga taaaactgtg taaaccacat aattttgtac atccaaggat gaggtgtgac ctttaagaaa aatgaaaact tttgtaaatt attgatgatt ttgtaattct tatgactaaa ttttctttta agcatttgta tattaaaata gcatactgtg tatgttttat atcaaatgcc ttcatgaatc tttcatacat atatatattt gtaacatgta aagtatgtga gtagtcttat gtaaagtatg tttttacatt atgcaaataa aacccaatac ttttgtccaa tgtggttggt caaatcaact gaataaattc agtattttgc ctt

FIGURE 101

Met Glu Tyr Met Ser Thr Gly Ser Asp Asn Lys Glu Glu Ile Asp Leu Leu Ile Lys His Leu Asn Val Ser Asp Val Ile Asp Ile Met Glu Asn Leu Tyr Ala Ser Glu Glu Pro Ala Val Tyr Glu Pro Ser Leu Met Thr Met Cys Gln Asp Ser Asn Gln Asn Asp Glu Arg Ser Lys Ser Leu Leu Leu Ser Gly Gln Glu Val Pro Trp Leu Ser Ser Val Arg Tyr Gly Thr Val Glu Asp Leu Leu Ala Phe Ala Asn His Ile Ser Asn Thr Ala Lys His Phe Tyr Gly Gln Arg Pro Gln Glu Ser Gly Ile Leu Leu Asn Met Val Ile Thr Pro Gln Asn Gly Arg Tyr Gln Ile Asp Ser Asp Val Leu Leu Ile Pro Trp Lys Leu Thr Tyr Arg Asn Ile Gly Ser Asp Phe Ile Pro Arg Gly Ala Phe Gly Lys Val Tyr Leu Ala Gln Asp Ile Lys Thr Lys Lys Arg Met Ala Cys Lys Leu Ile Pro Val Asp Gln Phe Lys Pro Ser Asp Val Glu Ile Gln Ala Cys Phe Arg His Glu Asn Ile Ala Glu Leu Tyr Gly Ala Val Leu Trp Gly Glu Thr Val His Leu Phe Met Glu Ala Gly Glu Gly Gly Ser Val Leu Glu Lys Leu Glu Ser Cys Gly Pro Met Arg Glu Phe Glu Ile Ile Trp Val Thr Lys His Val Leu Lys Gly Leu Asp Phe Leu His Ser Lys Lys Val Ile His His Asp Ile Lys Pro Ser Asn Ile Val Phe Met Ser Thr Lys Ala Val Leu Val Asp Phe Gly Leu Ser Val Gln Met Thr Glu Asp Val Tyr Phe Pro Lys Asp Leu Arg Gly Thr Glu Ile Tyr Met Ser Pro Glu Val Ile Leu Cys Arg Gly His Ser Thr Lys Ala Asp Ile Tyr Ser Leu Gly Ala Thr Leu Ile His Met Gln Thr Gly Thr Pro Pro Trp Val Lys Arg Tyr Pro Arg Ser Ala Tyr Pro Ser Tyr Leu Tyr Ile Ile His Lys Gln Ala Pro Pro Leu Glu Asp Ile Ala Asp Asp Cys Ser Pro Gly Met Arg Glu Leu Ile Glu Ala Ser Leu Glu Arg Asn Pro Asn His Arg Pro Arg Ala Ala Asp Leu Leu Lys His Glu Ala Leu Asn Pro Pro Arg Glu Asp Gln Pro Arg Cys Thr Ser Leu Asp Ser Ala Leu Leu Glu Arg Lys Arg Leu Leu Ser Arg Lys Glu Leu Glu Leu Pro Glu Asn Ile Ala Asp Ser Ser Cys Thr Gly Ser Thr Glu Glu Ser Glu Met Leu Lys Arg Gln Arg Ser Leu Tyr Ile Asp Leu Gly Ala Leu Ala Gly Tyr Phe Asn Leu Val Arg Gly Pro Pro Thr Leu Glu Tyr Gly

FIGURE 102

gcgggcctcc ctgtaccctc tccttccctc acctctttcc tccccacctc ccctcttctc ggtttcctcc cccatcccct tgactctccc ctcccagccc tcgctctctc gctcgccctc agcggggccc ccgccatgac ggaggcgggt gccggtgccg ttgccgccgc tgccgtcgca ggggggggagt cgggttccca gaaagtagct tgatgagtgt ccaaagtagc agtggaagtt tggaggggcc gccatcttgg tcccagctct ccacgtctcc aaccccgggc tcggcggcgg cggccaggtc cctgctgaat cacacgccgc catccgggag gcccagggaa ggtgcaatgg atgagcttca tagtctggat ccaagaaggc aagagttatt ggaagctaga tttactggag ttgcaagtgg gagcactgga agtacgggca gttgcagtgt tggagctaaa gcctcaacaa ataacgaaag ctctaatcac agttttggaa gcttggaatc tttaagtgat aaagaatcag agacaccgga gaagaaacaa tcggaatcat ccaggggaag aaagagaaaa gcagaaaacc agaatgaaag tagtcagggg ttccccaacc tcccggtctt ccagtccttg gcctattggg aaatgggtcg tacagcagga ggaaaaagta ttgggggacg tggccacaaa attagcgact attttgaata ccagggtgga aatggctcaa gtccagtaag aggcatacct cctgcaatcc gttctcctca aaattcacat tcacattcca ctccttcctc atctgttcga ccgaatagcc cttctcctac tgcattagca tttggggacc accctattgt acaaccaaag caattatcct ttaaaattat tcagactgat ctcacgatgc tgaaattagc agcattagaa agtaataaaa tcctagacct ggaaaagaag gagggacgta tagatgattt gctcagggcc aactgtgatc tcagacggca aatagatgaa caacaaaaat tacttgacaa atacaaggaa cgattaaata agtgcatatc aatgagcaag aaacttctta tagaaaagag tacacaagaa aagctgtcaa gcagagagaa gagtatgcaa gatcgattac gcctcgggca ctttacaaca gttagacatg gcgcttcatt tactgaacaa tggacagatg gttttgcatt tcagaatctt gtgaagcaac aagaatgggt gaatcagcaa agggaagata ttgaaaggca aaggaaactt ctagccaaac gcaaacctcc cacagctaat aattctcagg caccctctac caattctgag ccaaaacaaa ggaaaaacaa agcagtcaat ggagctgaga atgatcccct tgttagacca aatttgccac aactgttgac gttggcagaa tatcatgaac aggaagaaat tttcaaactt agactaggac atctcaaaaa ggaagaggca ggaatccagg cagaacttga acgtttggaa agagtcagga atcttcacat acgtgagctg aaaagaatac acaatgaaga taattcacag ttcaaagatc atccaacatt aaatgaaaga tatttattac ttcatctgct tggtagaggt ggctttagtg aagtggataa ggcttttgac ctttctgaac aaagatatgc tgctgtgaag atacatcagc ttaataaaag ctggagagat gagaagaaag aaaactacca caaacatgcc tgcagagagt atagaataca caaagaactg gatcacccca gaatagttaa actctatgat tatttctcct tggatacaga tacgttttgt acagtgttag aatactgtga aggcaatgac ttggatttct atctgaagca acacaagtta atgtcagaga aagaagctcg gtctattgta atgcagattg taaatgcatt aagatatctc aatgagatca aacccctat tatacattat gatcttaagc caggaaacat cctactggta gatggaacag catgtggtga aatcaaaatc actgattttg gtctgtccaa gattatggat gatgatagct atggtgtaga tggaatggtt ctaacttccc agggggcagg cacttactgg tatttacctc ctgagtgttt tgtggttgga aaagagccac caaagatttc caacaaggtt gatgtatggt cggttggagt catcttctat cagtgtcttt atggtagaaa gccatttggt cacaatcaat ctcaacaaga cattcttcaa gagaatacaa tattaaaagc cacagaagtc cagttccctg taaaaccggt tgtaagcagt gaagccaagg catttattag acgctgtttg gcatatcgaa aagaagatcg atttgatgtg caccagctgg catgtgaccc atacctctc ccacacatgc gaagatcaaa ttcttcagga aacctacaca tggctgggct gacagcatcc cctacacccc cttcttcaag cataattact tactgacttt cctccaagat tggcatgata tctttgaatt tgcttccaga tgcacactta agtttgagag catttgagtg tttgttttct ttttcttttt ttttttttt ttttttttta cacaagacgt ggttaagaac tgtttgtgaa ctgaagttcc tcatagtgtc atttgtatga gagaggatca tggacaatga ataaatgcac acttctgact ataattttga gcagtgaagg aaggatgact gcctgttaca caggaacagg aataccatgt taagatagag gaaaaaaatt ttgtttattt gggggaacac tgtaaataac gtttataata cttaaataca tttggttgtt actagagagt tctaatatga agggtagttt ttcattattt aaaaacacat ggataaatat gagacatatt tctaacatac gaactatagt gcctggatac attcttcagc atttggcagt taatctgctg aaaccaaagt aagaactgaa tgacagtgac agttgtgttt tatagtaata gaatgtgaca gttagaatct ttggacaaag ttaggctttg tcatttgcct attcagactt ttaccaagtt ggtcctcgag atcacatgtc cgttttcttt cactggttat attaaaggga gagctattat ttctaaatac tttacacctt tgacaagaat gagctgcttg tgttgaaatc agttgaattc actaaattat aatattgcca gtgttttcaa cacgttagaa ttgataacag gtatttttct tttgttacca ggccttgttc atcaaaacag gtgacagtga gtaaccaaat gcagaccagt tctatgcagg ataatgataa attcccttct agctctattg taaattgttg tacagatgtc atatttcaat tactaagttt cagcagctta ttcttgtaca aatgtttaaa atatggcttt tctaattgga tattgtattt tttttaagtc ttcttgaagg cactctaatt gctgctaaat gatgttgctt ctttgctaaa aaattaaatg acctagaagg tgcaagttga ctgtacatca tagatattaa aaagcagaca gtcattaaca atcaagatgt aaaagtgatc catgttggac ataattgagt ttttaaatca gtttattggg ttctagggct gtagaacaca tagatactag atttttaatt tgttcatggt tattctacat ttctagaaag ttcttatcag caagatggtc ccataaggaa atttcttgtg gtttgtccag atttgttaaa atgtgaacgt tttctaactg cctcgtaggg tagaaaccaa tatttttcag gatgctgtat ttcactcctg taaggacttt ttctttattg tcacattcat aatgctgata cttacatgta agttgttcat gttgcagaaa aaggttatac gtaccacgga ttctctttaa tattgtacag ttaaactgta tttctgatgt tgcaagccat tttgtttttt cattggacat agacacattg tctctttaaa atgctgctga

aattgtagag agtatagcca aaacagtaat aaacaatgac aggtaaaatg taaagactat gaaaattaca ttggaaggga gctttcaaga tggtaggata ttgactaact gagctccttc acttaaaaat cagctggata aattccttaa gtatacttc

FIGURE 103

Met Ser Val Gln Ser Ser Ser Gly Ser Leu Glu Gly Pro Pro Ser Trp Ser Gln Leu Ser Thr Ser Pro Thr Pro Gly Ser Ala Ala Ala Ala Arg Ser Leu Leu Asn His Thr Pro Pro Ser Gly Arg Pro Arg Glu Gly Ala Met Asp Glu Leu His Ser Leu Asp Pro Arg Arg Gln Glu Leu Leu Glu Ala Arg Phe Thr Gly Val Ala Ser Gly Ser Thr Gly Ser Thr Gly Ser Cys Ser Val Gly Ala Lys Ala Ser Thr Asn Asn Glu Ser Ser Asn His Ser Phe Gly Ser Leu Glu Ser Leu Ser Asp Lys Glu Ser Glu Thr Pro Glu Lys Lys Gln Ser Glu Ser Ser Arg Gly Arg Lys Arg Lys Ala Glu Asn Gln Asn Glu Ser Ser Gln Gly Phe Pro Asn Leu Pro Val Phe Gln Ser Leu Ala Tyr Trp Glu Met Gly Arg Thr Ala Gly Gly Lys Ser Ile Gly Gly Arg Gly His Lys Ile Ser Asp Tyr Phe Glu Tyr Gln Gly Gly Asn Gly Ser Ser Pro Val Arg Gly Ile Pro Pro Ala Ile Arg Ser Pro Gln Asn Ser His Ser His Ser Thr Pro Ser Ser Ser Val Arg Pro Asn Ser Pro Ser Pro Thr Ala Leu Ala Phe Gly Asp His Pro Ile Val Gln Pro Lys Gln Leu Ser Phe Lys Ile Ile Gln Thr Asp Leu Thr Met Leu Lys Leu Ala Ala Leu Glu Ser Asn Lys Ile Leu Asp Leu Glu Lys Lys Glu Gly Arg Ile Asp Asp Leu Leu Arg Ala Asn Cys Asp Leu Arg Arg Gln Ile Asp Glu Gln Gln Lys Leu Leu Asp Lys Tyr Lys Glu Arg Leu Asn Lys Cys Ile Ser Met Ser Lys Lys Leu Leu Ile Glu Lys Ser Thr Gln Glu Lys Leu Ser Ser Arg Glu Lys Ser Met Gln Asp Arg Leu Arg Leu Gly His Phe Thr Thr Val Arg His Gly Ala Ser Phe Thr Glu Gln Trp Thr Asp Gly Phe Ala Phe Gln Asn Leu Val Lys Gln Gln Glu Trp Val Asn Gln Gln Arg Glu Asp Ile Glu Arg Gln Arg Lys Leu Leu Ala Lys Arg Lys Pro Pro Thr Ala Asn Asn Ser Gln Ala Pro Ser Thr Asn Ser Glu Pro Lys Gln Arg Lys Asn Lys Ala Val Asn Gly Ala Glu Asn Asp Pro Phe Val Arg Pro Asn Leu Pro Gln Leu Leu Thr Leu Ala Glu Tyr His Glu Gln Glu Glu Ile Phe Lys Leu Arg Leu Gly His Leu Lys Lys Glu Glu Ala Gly Ile Gln Ala Glu Leu Glu Arg Leu Glu Arg Val Arg Asn Leu His Ile Arg Glu Leu Lys Arg Ile His Asn Glu Asp Asn Ser Gln Phe Lys Asp His Pro Thr Leu Asn Glu Arg Tyr Leu Leu Leu His Leu Leu Gly Arg Gly Gly Phe Ser Glu Val Asp Lys Ala Phe Asp Leu Ser Glu Gln Arg Tyr Ala Ala Val Lys Ile His Gln Leu Asn Lys Ser Trp Arg Asp Glu Lys Lys Glu Asn Tyr His Lys His Ala Cys Arg Glu Tyr Arg Ile His Lys Glu Leu Asp His Pro Arg Ile Val Lys Leu Tyr Asp Tyr Phe Ser Leu Asp Thr Asp Thr Phe Cys Thr Val Leu Glu Tyr Cys Glu Gly Asn Asp Leu Asp Phe Tyr Leu Lys Gln His Lys Leu Met Ser Glu Lys Glu Ala Arg Ser Ile Val Met Gln Ile Val Asn Ala Leu Arg Tyr Leu Asn Glu Ile Lys Pro Pro Ile Ile His Tyr Asp Leu Lys Pro Gly Asn Ile Leu Leu Val Asp Gly Thr Ala Cys Gly Glu Ile Lys Ile Thr Asp Phe Gly Leu Ser Lys Ile Met Asp Asp Asp Ser Tyr Gly Val Asp Gly Met Val Leu Thr Ser Gln Gly Ala Gly Thr Tyr Trp Tyr Leu Pro Pro Glu Cys Phe Val Val Gly Lys Glu Pro Pro Lys Ile Ser Asn Lys Val Asp Val Trp Ser Val Gly Val Ile Phe Tyr Gln Cys Leu Tyr Gly Arg Lys Pro Phe Gly His Asn Gln Ser Gln Gln Asp Ile Leu Gln Glu Asn Thr Ile Leu Lys Ala Thr Glu Val Gln Phe Pro Val Lys Pro Val Val Ser Ser Glu Ala Lys Ala Phe Ile Arg Arg Cys Leu Ala Tyr Arg Lys Glu Asp Arg Phe Asp Val His Gln Leu Ala Cys Asp Pro Tyr Leu Leu Pro His Met Arg Arg Ser Asn Ser Ser Gly Asn Leu His Met Ala Gly Leu Thr Ala Ser Pro Thr Pro Pro Ser Ser Ser Ile Ile Thr Tyr

FIGURE 104

gaaggaaaaa gagcaacaga tccagggagc attcacctgc cctgtctcca aacagccttg tgcctcacct acccccaacc tcccagaggg agcagctatt taaggggagc aggagtgcag aacaaacaag acggcctggg gatacaactc tggagtcctc tgagagagcc accaaggagg agcaggggag cgacggccgg ggcagaagtt gagaccaccc agcagaggag ctaggccagt ccatctgcat ttgtcaccca agaactctta ccatgaagac cctcctactg ttggcagtga tcatgatctt tggcctactg caggcccatg ggaatttggt gaatttccac agaatgatca agttgacgac aggaaaggaa gccgcactca gttatggctt ctacggctgc cactgtggcg tgggtggcag aggatccccc aaggatgcaa cggatcgctg ctgtgtcact catgactgtt gctacaaacg tctggagaaa cgtggatgtg gcaccaaatt tctgagctac aagtttagca actcggggag cagaatcacc tgtgcaaaac aggactcctg cagaagtcaa ctgtgtgagt gtgataaggc tgctgccacc tgttttgcta gaaacaagac gacctacaat aaaaagtacc agtactattc caataaacac tgcagaggga gcacccctcg ttgctgagtc ccctcttccc tggaaacctt ccacccagtg ctgaatttcc ctctctcata ccctccctcc ctaccctaac caagttcctt ggccatgcag aaagcatccc tcacccatcc tagaggccag gcaggagccc ttctataccc acccagaatg agacatccag cagatttcca gccttctact gctctcctcc acctcaactc cgtgcttaac caaagaagct gtactccggg gggtctcttc tgaataaagc aattagcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa

FIGURE 105

Met Lys Thr Leu Leu Leu Leu Ala Val Ile Met Ile Phe Gly Leu Leu Gln Ala His Gly Asn Leu Val Asn Phe His Arg Met Ile Lys Leu Thr Thr Gly Lys Glu Ala Ala Leu Ser Tyr Gly Phe Tyr Gly Cys His Cys Gly Val Gly Gly Arg Gly Ser Pro Lys Asp Ala Thr Asp Arg Cys Cys Val Thr His Asp Cys Cys Tyr Lys Arg Leu Glu Lys Arg Gly Cys Gly Thr Lys Phe Leu Ser Tyr Lys Phe Ser Asn Ser Gly Ser Arg Ile Thr Cys Ala Lys Gln Asp Ser Cys Arg Ser Gln Leu Cys Glu Cys Asp Lys Ala Ala Ala Thr Cys Phe Ala Arg Asn Lys Thr Thr Tyr Asn Lys Lys Tyr Gln Tyr Tyr Ser Asn Lys His Cys Arg Gly Ser Thr Pro Arg Cys

FIGURE 106

ctaaagctgg gttggtagct cctacctact gtgtggcaag aaggtatggg tcatgaacag aaccaaggag ctgcgctgct acagatgtta ccacttctgt ggctgctacc ccactcctgg gccgtccctg aagctcctac tccaatgtgg ccagatgacc tgcaaaacca cacattcctg cacacagtgt actgccagga tgggagtccc agtgtgggac tctctgaggc ctacgacgag gaccagcttt tcttcttcga cttttcccag aacactcggg tgcctcgcct gcccgaattt gctgactggg ctcaggaaca gggagatgct cctgccattt tatttgacaa agagttctgc gagtggatga tccagcaaat agggccaaaa cttgatggga aaatcccggt gtccagaggg tttcctatcg ctgaagtgtt cacgctgaag cccctggagt ttggcaagcc caacactttg gtctgttttg tcagtaatct cttcccaccc atgctgacag tgaactggca cgatcattcc gtccctgtgg aaggatttgg gcctactttt gtctcagctg tcgatggact cagcttccag gccttttctt acttaaactt cacaccagaa ccttctgaca ttttctcctg cattgtgact cacgaaattg accgctacac agcaattgcc tattgggtac cccggaacgc actgccctca gatctgctgg agaatgtgct gtgtggcgtg gcctttggcc tgggtgtgct gggcatcatc gtgggcattg ttctcatcat ctacttccgg aagccttgct caggtgactg attcttccag accagagttt gatgccagca gcttcggcca tccaaacaga ggatgctcag atttctcaca tcctgcccag gatctcctct tagggtagaa gaagtctctg ggacatccct ggggtgtgtg tgtagatttc ccacctgggg actctgctgt ccctgggctt gcatcccagg gatcccagag tggcctgcct atcacaacca catcccttcc ccccacaagg caataaatct catttcttta aaaaaaaaaa aaaaaaaaaa

FIGURE 107

Met Gly His Glu Gln Asn Gln Gly Ala Ala Leu Leu Gln Met Leu Pro Leu Leu Trp Leu Leu Pro His Ser Trp Ala Val Pro Glu Ala Pro Thr Pro Met Trp Pro Asp Asp Leu Gln Asn His Thr Phe Leu His Thr Val Tyr Cys Gln Asp Gly Ser Pro Ser Val Gly Leu Ser Glu Ala Tyr Asp Glu Asp Gln Leu Phe Phe Phe Asp Phe Ser Gln Asn Thr Arg Val Pro Arg Leu Pro Glu Phe Ala Asp Trp Ala Gln Glu Gln Gly Asp Ala Pro Ala Ile Leu Phe Asp Lys Glu Phe Cys Glu Trp Met Ile Gln Gln Ile Gly Pro Lys Leu Asp Gly Lys Ile Pro Val Ser Arg Gly Phe Pro Ile Ala Glu Val Phe Thr Leu Lys Pro Leu Glu Phe Gly Lys Pro Asn Thr Leu Val Cys Phe Val Ser Asn Leu Phe Pro Pro Met Leu Thr Val Asn Trp His Asp His Ser Val Pro Val Glu Gly Phe Gly Pro Thr Phe Val Ser Ala Val Asp Gly Leu Ser Phe Gln Ala Phe Ser Tyr Leu Asn Phe Thr Pro Glu Pro Ser Asp Ile Phe Ser Cys Ile Val Thr His Glu Ile Asp Arg Tyr Thr Ala Ile Ala Tyr Trp Val Pro Arg Asn Ala Leu Pro Ser Asp Leu Leu Glu Asn Val Leu Cys Gly Val Ala Phe Gly Leu Gly Val Leu Gly Ile Ile Val Gly Ile Val Leu Ile Ile Tyr Phe Arg Lys Pro Cys Ser Gly Asp

FIGURE 108

atggcgcccc gaagcctcct cctgctgctc tcaggggccc tggccctgac cgatacttgg gcgggctccc actccttgag gtatttcagc accgctgtgt cgcggcccgg ccgcggggag ccccgctaca tcgccgtgga gtacgtagac gacacgcaat tcctgcggtt cgacagcgac gccgcgattc cgaggatgga gccgcgggag ccgtgggtgg agcaagaggg gccgcagtat tgggagtgga ccacagggta cgccaaggcc aacgcacaga ctgaccgagt ggccctgagg aacctgctcc gccgctacaa ccagagcgag gctgggtctc acaccctcca gggaatgaat ggctgcgaca tggggcccga cggacgcctc ctccgcgggt atcaccagca cgcgtacgac ggcaaggatt acatctccct gaacgaggac ctgcgctcct ggaccgcggc ggacaccgtg gctcagatca cccagcgctt ctatgaggca gaggaatatg cagaggagtt caggacctac ctggagggcg agtgcctgga gttgctccgc agatacttgg agaatgggaa ggagacgcta cagcgcgcag atcctccaaa ggcacacgtt gcccaccacc ccatctctga ccatgaggcc accctgaggt gctgggccct gggcttctac cctgcggaga tcacgctgac ctggcagcgg gatggggagg aacagaccca ggacacagag cttgtggaga ccaggcctgc aggggatgga accttccaga agtgggccgc tgtggtggtg ccttctggag aggaacagag atacacatgc catgtgcagc acgaggggct gccccagccc ctcatcctga gatgggagca gtctccccag cccaccatcc ccatcgtggg catcgttgct ggccttgttg tccttggagc tgtggtcact ggagctgtgg tcgctgctgt gatgtggagg aagaagagct cagatagaaa cagagggagc tactctcagg ctgcagtcac tgacagtgcc cagggctctg gggtgtctct cacagctaat aaagtgtgag acagcttcct tgtgtgggac tgagaagcaa gatatcaatg tagcagaatt gcacttgtgc ctcacgaaca tacataaatt ttaaaaataa agaataaa

FIGURE 109

Met Ala Pro Arg Ser Leu Leu Leu Leu Leu Ser Gly Ala Leu Ala Leu Thr Asp Thr Trp Ala Gly Ser His Ser Leu Arg Tyr Phe Ser Thr Ala Val Ser Arg Pro Gly Arg Gly Glu Pro Arg Tyr Ile Ala Val Glu Tyr Val Asp Asp Thr Gln Phe Leu Arg Phe Asp Ser Asp Ala Ala Ile Pro Arg Met Glu Pro Arg Glu Pro Trp Val Glu Gln Glu Gly Pro Gln Tyr Trp Glu Trp Thr Thr Gly Tyr Ala Lys Ala Asn Ala Gln Thr Asp Arg Val Ala Leu Arg Asn Leu Leu Arg Arg Tyr Asn Gln Ser Glu Ala Gly Ser His Thr Leu Gln Gly Met Asn Gly Cys Asp Met Gly Pro Asp Gly Arg Leu Leu Arg Gly Tyr His Gln His Ala Tyr Asp Gly Lys Asp Tyr Ile Ser Leu Asn Glu Asp Leu Arg Ser Trp Thr Ala Ala Asp Thr Val Ala Gln Ile Thr Gln Arg Phe Tyr Glu Ala Glu Glu Tyr Ala Glu Glu Phe Arg Thr Tyr Leu Glu Gly Glu Cys Leu Glu Leu Leu Arg Arg Tyr Leu Glu Asn Gly Lys Glu Thr Leu Gln Arg Ala Asp Pro Pro Lys Ala His Val Ala His His Pro Ile Ser Asp His Glu Ala Thr Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Glu Ile Thr Leu Thr Trp Gln Arg Asp Gly Glu Glu Gln Thr Gln Asp Thr Glu Leu Val Glu Thr Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Ala Val Val Val Pro Ser Gly Glu Glu Gln Arg Tyr Thr Cys His Val Gln His Glu Gly Leu Pro Gln Pro Leu Ile Leu Arg Trp Glu Gln Ser Pro Gln Pro Thr Ile Pro Ile Val Gly Ile Val Ala Gly Leu Val Val Leu Gly Ala Val Val Thr Gly Ala Val Val Ala Ala Val Met Trp Arg Lys Lys Ser Ser Asp Arg Asn Arg Gly Ser Tyr Ser Gln Ala Ala Val Thr Asp Ser Ala Gln Gly Ser Gly Val Ser Leu Thr Ala Asn Lys Val

FIGURE 110

atggtagatg gaaccctcct tttactcctc tcggaggccc tggcccttac ccagacctgg gcgggctccc actccttgaa gtatttccac acttccgtgt cccggcccgg ccgcggggag ccccgcttca tctctgtggg ctacgtggac gacacccagt tcgtgcgctt cgacaacgac gccgcgagtc cgaggatggt gccgcgggcg ccgtggatgg agcaggaggg gtcagagtat tgggaccggg agacacggag cgccagggac accgcacaga ttttccgagt gaacctgcgg acgctgcgcg gctactacaa tcagagcgag gccgggtctc acaccctgca gtggatgcat ggctgcgagc tggggcccga cgggcgcttc ctccgcgggt atgaacagtt cgcctacgac ggcaaggatt atctcaccct gaatgaggac ctgcgctcct ggaccgcggt ggacacggcg gctcagatct ccgagcaaaa gtcaaatgat gcctctgagg cggagcacca gagagcctac ctggaagaca catgcgtgga gtggctccac aaatacctgg agaaggggaa ggagacgctg cttcacctgg agcccccaaa gacacacgtg actcaccacc ccatctctga ccatgaggcc accctgaggt gctgggccct gggcttctac cctgcggaga tcacactgac ctggcagcag gatggggagg gccataccca ggacacggag ctcgtggaga ccaggcctgc aggggatgga accttccaga agtgggcagc tgtggtggtg ccttctggag aggagcagag atacacgtgc catgtgcagc atgaggggct acccgagccc gtcaccctga gatggaagcc ggcttcccag cccaccatcc ccatcgtggg catcattgct ggcctggttc tccttggatc tgtggtctct ggagctgtgg ttgctgctgt gatatggagg aagaagagct caggacattt tcttccaaca ggtggaaaag gagggagcta ctctaaggct gagtggagcg acagtgccca ggggtctgag tctcacagct tgtaa

FIGURE 111

Met Val Asp Gly Thr Leu Leu Leu Leu Leu Ser Glu Ala Leu Ala Leu Thr Gln Thr Trp Ala Gly Ser His Ser Leu Lys Tyr Phe His Thr Ser Val Ser Arg Pro Gly Arg Gly Glu Pro Arg Phe Ile Ser Val Gly Tyr Val Asp Asp Thr Gln Phe Val Arg Phe Asp Asn Asp Ala Ala Ser Pro Arg Met Val Pro Arg Ala Pro Trp Met Glu Gln Glu Gly Ser Glu Tyr Trp Asp Arg Glu Thr Arg Ser Ala Arg Asp Thr Ala Gln Ile Phe Arg Val Asn Leu Arg Thr Leu Arg Gly Tyr Tyr Asn Gln Ser Glu Ala Gly Ser His Thr Leu Gln Trp Met His Gly Cys Glu Leu Gly Pro Asp Gly Arg Phe Leu Arg Gly Tyr Glu Gln Phe Ala Tyr Asp Gly Lys Asp Tyr Leu Thr Leu Asn Glu Asp Leu Arg Ser Trp Thr Ala Val Asp Thr Ala Ala Gln Ile Ser Glu Gln Lys Ser Asn Asp Ala Ser Glu Ala Glu His Gln Arg Ala Tyr Leu Glu Asp Thr Cys Val Glu Trp Leu His Lys Tyr Leu Glu Lys Gly Lys Glu Thr Leu Leu His Leu Glu Pro Pro Lys Thr His Val Thr His His Pro Ile Ser Asp His Glu Ala Thr Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Glu Ile Thr Leu Thr Trp Gln Gln Asp Gly Glu Gly His Thr Gln Asp Thr Glu Leu Val Glu Thr Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Ala Val Val Val Pro Ser Gly Glu Glu Gln Arg Tyr Thr Cys His Val Gln His Glu Gly Leu Pro Glu Pro Val Thr Leu Arg Trp Lys Pro Ala Ser Gln Pro Thr Ile Pro Ile Val Gly Ile Ile Ala Gly Leu Val Leu Leu Gly Ser Val Val Ser Gly Ala Val Val Ala Ala Val Ile Trp Arg Lys Lys Ser Ser Gly His Phe Leu Pro Thr Gly Gly Lys Gly Gly Ser Tyr Ser Lys Ala Glu Trp Ser Asp Ser Ala Gln Gly Ser Glu Ser His Ser Leu

FIGURE 112

cgagatgcgg gtcatggcgc cccgaaccct catcctgctg ctctcgggag ccctggccct gaccgagacc tgggcctgct cccactccat gaggtatttc gacaccgccg tgtcccggcc cggccgcgga gagccccgct tcatctcagt gggctacgtg gacgacacgc agttcgtgcg gttcgacagc gacgccgcga gtccgagagg ggagccccgg gcgccgtggg tggagcagga ggggccggag tattgggacc gggagacaca gaagtacaag cgccaggcac aggctgaccg agtgaacctg cggaaactgc gcggctacta caaccagagc gaggacgggt ctcacaccct ccagtggatg tatggctgcg acctggggcc cgacgggcgc ctcctccgcg ggtatgacca gtccgcctac gacggcaagg attacatcgc cctgaacgag gacctgcgct cctggaccgc cgcggacacg gcggctcaga tcacccagcg caagtgggag gcggcccgtg aggcggagca gtggagagcc tacctggagg gcacgtgcgt ggagtggctc cgcagatacc tggagaacgg gaaggagacg ctgcagcgcg cggaacaccc aaagacacac gtgacccacc atcccgtctc tgaccatgag gccaccctga ggtgctgggc cctgggcttc taccctgcgg agatcacact gacctggcag cgggatggcg aggaccaaac tcaggacacc gagcttgtgg agaccaggcc agcaggagat ggaaccttcc agaagtgggc agctgtggtg gtgccttctg gagaagagca gagatacacg tgccatgtgc agcacgaggg gctgccagag cccctcaccc tgagatggga gccatcttcc cagcccacca tccccatcgt gggcatcgtt gctggcctgg ctgtcctggc tgtcctagct gtcctaggag ctgtgatggc tgttgtgatg tgtaggagga agagctcagg tggaaaagga gggagctgct ctcaggctgc gtccagcaac agtgcccagg gctctgatga gtctctcatc gcttgtaaag cctgagacag ct

FIGURE 113

Met Arg Val Met Ala Pro Arg Thr Leu Ile Leu Leu Leu Ser Gly Ala Leu Ala Leu Thr Glu Thr Trp Ala Cys Ser His Ser Met Arg Tyr Phe Asp Thr Ala Val Ser Arg Pro Gly Arg Gly Glu Pro Arg Phe Ile Ser Val Gly Tyr Val Asp Asp Thr Gln Phe Val Arg Phe Asp Ser Asp Ala Ala Ser Pro Arg Gly Glu Pro Arg Ala Pro Trp Val Glu Gln Glu Gly Pro Glu Tyr Trp Asp Arg Glu Thr Gln Lys Tyr Lys Arg Gln Ala Gln Ala Asp Arg Val Asn Leu Arg Lys Leu Arg Gly Tyr Tyr Asn Gln Ser Glu Asp Gly Ser His Thr Leu Gln Trp Met Tyr Gly Cys Asp Leu Gly Pro Asp Gly Arg Leu Leu Arg Gly Tyr Asp Gln Ser Ala Tyr Asp Gly Lys Asp Tyr Ile Ala Leu Asn Glu Asp Leu Arg Ser Trp Thr Ala Ala Asp Thr Ala Ala Gln Ile Thr Gln Arg Lys Trp Glu Ala Ala Arg Glu Ala Glu Gln Trp Arg Ala Tyr Leu Glu Gly Thr Cys Val Glu Trp Leu Arg Arg Tyr Leu Glu Asn Gly Lys Glu Thr Leu Gln Arg Ala Glu His Pro Lys Thr His Val Thr His His Pro Val Ser Asp His Glu Ala Thr Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Glu Ile Thr Leu Thr Trp Gln Arg Asp Gly Glu Asp Gln Thr Gln Asp Thr Glu Leu Val Glu Thr Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Ala Val Val Val Pro Ser Gly Glu Glu Gln Arg Tyr Thr Cys His Val Gln His Glu Gly Leu Pro Glu Pro Leu Thr Leu Arg Trp Glu Pro Ser Ser Gln Pro Thr Ile Pro Ile Val Gly Ile Val Ala Gly Leu Ala Val Leu Ala Val Leu Ala Val Leu Gly Ala Val Met Ala Val Val Met Cys Arg Arg Lys Ser Ser Gly Gly Lys Gly Gly Ser Cys Ser Gln Ala Ala Ser Ser Asn Ser Ala Gln Gly Ser Asp Glu Ser Leu Ile Ala Cys Lys Ala

FIGURE 114

tagttctccc tgagtgagac ttgcctgctt ctctggcccc tggtcctgtc ctgttctcca gcatggtgtg tctgaagctc cctggaggct cctgcatgac agcgctgaca gtgacactga tggtgctgag ctccccactg gctttggctg gggacacccg accacgtttc ttgtggcagc ttaagtttga atgtcatttc ttcaatggga cggagcgggt gcggttgctg gaaagatgca tctataacca agaggagtcc gtgcgcttcg acagcgacgt gggggagtac cgggcggtga cggagctggg gcggcctgat gccgagtact ggaacagcca gaaggacctc ctggagcaga ggcgggccgc ggtggacacc tactgcagac acaactacgg ggttggtgag agcttcacag tgcagcggcg agttgagcct aaggtgactg tgtatccttc aaagacccag cccctgcagc accacaacct cctggtctgc tctgtgagtg gtttctatcc aggcagcatt gaagtcaggt ggttccggaa cggccaggaa gagaaggctg gggtggtgtc cacaggcctg atccagaatg gagattggac cttccagacc ctggtgatgc tggaaacagt tcctcggagt ggagaggttt acacctgcca agtggagcac ccaagtgtga cgagccctct cacagtggaa tggagagcac ggtctgaatc tgcacagagc aagatgctga gtggagtcgg gggcttcgtg ctgggcctgc tcttccttgg ggccgggctg ttcatctact tcaggaatca gaaaggacac tctggacttc agccaacagg attcctgagc tgaaatgcag atgaccacat tcaaggaaga accttctgtc ccagctttgc agaatgaaaa gctttcctgc ttggcagtta ttcttccaca agagagggct ttctcaggac ctggttgcta ctggttcggc aactgcagaa aatgtcctcc cttgtggctt cctcagctcc tgcccttggc ctgaagtccc agcattgatg acagcgcctc atcttcaact tttgtgctcc cctttgccta aaccgtatgg cctcccgtgc atctgtactc accctgtacg acaaacacat tacattatta aatgtttctc aaagatggag tt

FIGURE 115

Met Val Cys Leu Lys Leu Pro Gly Gly Ser Cys Met Thr Ala Leu Thr Val Thr Leu Met Val Leu Ser Ser Pro Leu Ala Leu Ala Gly Asp Thr Arg Pro Arg Phe Leu Trp Gln Leu Lys Phe Glu Cys His Phe Phe Asn Gly Thr Glu Arg Val Arg Leu Leu Glu Arg Cys Ile Tyr Asn Gln Glu Glu Ser Val Arg Phe Asp Ser Asp Val Gly Glu Tyr Arg Ala Val Thr Glu Leu Gly Arg Pro Asp Ala Glu Tyr Trp Asn Ser Gln Lys Asp Leu Leu Glu Gln Arg Arg Ala Ala Val Asp Thr Tyr Cys Arg His Asn Tyr Gly Val Gly Glu Ser Phe Thr Val Gln Arg Arg Val Glu Pro Lys Val Thr Val Tyr Pro Ser Lys Thr Gln Pro Leu Gln His His Asn Leu Leu Val Cys Ser Val Ser Gly Phe Tyr Pro Gly Ser Ile Glu Val Arg Trp Phe Arg Asn Gly Gln Glu Glu Lys Ala Gly Val Val Ser Thr Gly Leu Ile Gln Asn Gly Asp Trp Thr Phe Gln Thr Leu Val Met Leu Glu Thr Val Pro Arg Ser Gly Glu Val Tyr Thr Cys Gln Val Glu His Pro Ser Val Thr Ser Pro Leu Thr Val Glu Trp Arg Ala Arg Ser Glu Ser Ala Gln Ser Lys Met Leu Ser Gly Val Gly Gly Phe Val Leu Gly Leu Leu Phe Leu Gly Ala Gly Leu Phe Ile Tyr Phe Arg Asn Gln Lys Gly His Ser Gly Leu Gln Pro Thr Gly Phe Leu Ser

FIGURE 116

gctcacagtc atcaattata gaccccacaa catgcgccct gaagacagaa tgttccatat cagagctgtg atcttgagag ccctctcctt ggctttcctg ctgagtctcc gaggagctgg ggccatcaag gcggaccatg tgtcaactta tgccgcgttt gtacagacgc atagaccaac aggggagttt atgtttgaat ttgatgaaga tgagatgttc tatgtggatc tggacaagaa ggagaccgtc tggcatctgg aggagtttgg ccaagccttt tcctttgagg ctcagggcgg gctggctaac attgctatat tgaacaacaa cttgaatacc ttgatccagc gttccaacca cactcaggcc accaacgatc cccctgaggt gaccgtgttt cccaaggagc ctgtggagct gggccagccc aacaccctca tctgccacat tgacaagttc ttcccaccag tgctcaacgt cacgtggctg tgcaacgggg agctggtcac tgagggtgtc gctgagagcc tcttcctgcc cagaacagat tacagcttcc acaagttcca ttacctgacc tttgtgcccct cagcagagga cttctatgac tgcagggtgg agcactgggg cttggaccag ccgctcctca agcactggga ggcccaagag ccaatccaga tgcctgagac aacggagact gtgctctgtg ccctgggcct ggtgctgggc ctagtcggca tcatcgtggg caccgtcctc atcataaagt ctctgcgttc tggccatgac ccccgggccc aggggaccct gtgaaatact gtaaaggtga caaaatatct gaacagaaga ggacttagga gagatctgaa ctccagctgc cctacaaact ccatctcagc ttttcttctc acttcatgtg aaaactactc cagtggctga ctgaattgct gacccttcaa gctctgtcct tatccattac ctcaaagcag tcattcctta gtaaagtttc caacaaatag aaattaatga cactttggta gcactaatat ggagattatc ctttcattga gccttttatc ctctgttctc ctttgaagaa cccctcactg tcaccttccc gagaataccc taagaccaat aaatacttca gtatttc

FIGURE 117

Met Arg Pro Glu Asp Arg Met Phe His Ile Arg Ala Val Ile Leu Arg Ala Leu Ser Leu Ala Phe Leu Leu Ser Leu Arg Gly Ala Gly Ala Ile Lys Ala Asp His Val Ser Thr Tyr Ala Ala Phe Val Gln Thr His Arg Pro Thr Gly Glu Phe Met Phe Glu Phe Asp Glu Asp Glu Met Phe Tyr Val Asp Leu Asp Lys Lys Glu Thr Val Trp His Leu Glu Glu Phe Gly Gln Ala Phe Ser Phe Glu Ala Gln Gly Gly Leu Ala Asn Ile Ala Ile Leu Asn Asn Asn Leu Asn Thr Leu Ile Gln Arg Ser Asn His Thr Gln Ala Thr Asn Asp Pro Pro Glu Val Thr Val Phe Pro Lys Glu Pro Val Glu Leu Gly Gln Pro Asn Thr Leu Ile Cys His Ile Asp Lys Phe Phe Pro Pro Val Leu Asn Val Thr Trp Leu Cys Asn Gly Glu Leu Val Thr Glu Gly Val Ala Glu Ser Leu Phe Leu Pro Arg Thr Asp Tyr Ser Phe His Lys Phe His Tyr Leu Thr Phe Val Pro Ser Ala Glu Asp Phe Tyr Asp Cys Arg Val Glu His Trp Gly Leu Asp Gln Pro Leu Leu Lys His Trp Glu Ala Gln Glu Pro Ile Gln Met Pro Glu Thr Thr Glu Thr Val Leu Cys Ala Leu Gly Leu Val Leu Gly Leu Val Gly Ile Ile Val Gly Thr Val Leu Ile Ile Lys Ser Leu Arg Ser Gly His Asp Pro Arg Ala Gln Gly Thr Leu

FIGURE 118

atggtgctca tggcgccccg aaccctcctc ctgctgctct caggggccct ggccctgacc cagacctggg cgcgctccca ctccatgagg tatttctaca ccaccatgtc ccggccccggc cgcggggagc cccgcttcat ctccgtcggc tacgtggacg atacgcagtt cgtgcggttc gacagcgacg ccgcgagcca gaggatggag ccgcgggcgc cgtggatgga gcgggagggg ccggagtatt gggaccggaa cacacagatc tgcaaggccc aggcacagac tgaacgagag aacctgcgga tcgcgctccg ctactacaac cagagcgagg gcggttctca caccatgcag gtgatgtatg gctgcgacgt ggggcccgac gggcgcttcc tccgcgggta tgaacagcac gcctacgaca gcaaggatta catcgctctg aacgaggacc tgcgctcctg gaccgcggcg gacatggcag ctcagatcac caagcgcaag tgggaggcgg cccgtcaggc ggagcagctg agagcctacc tggagggcga gttcgtggag tggctccgca gatacctgga gaacgggaag gagacgctgc agcgcgcgga ccccccccaag acacatatga cccaccaccc catctctgac catgaggcca ccctgaggtg ctgggccctg ggcttctacc ctgcggagat cacactgacc tggcagcggg atggggagga ccagacccac acacggagct catggagacc aggcctgcag gggatggaac cttccagaag tgggcggctg tggtggtgcc ttctggagag gagcagagat acacctgcca tgtgcagcat gagggtctgc cagagcccct caccctgaga tgggagccat cttcccagcc caccatcccc atcgtgggca tcgttgctgg cctggttcta cttgtagctg tggtcactgg agctgtggtc gctgctgtaa tgtggaggaa gaagagctca gatagaaaag gagggagcta ctctcaggct gcaagcggca acagtgccca gggctctgat gtgtctctca cggcgtgaaa gtgtga

FIGURE 119

Met Val Leu Met Ala Pro Arg Thr Leu Leu Leu Leu Leu Ser Gly Ala Leu Ala Leu Thr Gln Thr Trp Ala Arg Ser His Ser Met Arg Tyr Phe Tyr Thr Thr Met Ser Arg Pro Gly Arg Gly Glu Pro Arg Phe Ile Ser Val Gly Tyr Val Asp Asp Thr Gln Phe Val Arg Phe Asp Ser Asp Ala Ala Ser Gln Arg Met Glu Pro Arg Ala Pro Trp Met Glu Arg Glu Gly Pro Glu Tyr Trp Asp Arg Asn Thr Gln Ile Cys Lys Ala Gln Ala Gln Thr Glu Arg Glu Asn Leu Arg Ile Ala Leu Arg Tyr Tyr Asn Gln Ser Glu Gly Gly Ser His Thr Met Gln Val Met Tyr Gly Cys Asp Val Gly Pro Asp Gly Arg Phe Leu Arg Gly Tyr Glu Gln His Ala Tyr Asp Ser Lys Asp Tyr Ile Ala Leu Asn Glu Asp Leu Arg Ser Trp Thr Ala Ala Asp Met Ala Ala Gln Ile Thr Lys Arg Lys Trp Glu Ala Ala Arg Gln Ala Glu Gln Leu Arg Ala Tyr Leu Glu Gly Glu Phe Val Glu Trp Leu Arg Arg Tyr Leu Glu Asn Gly Lys Glu Thr Leu Gln Arg Ala Asp Pro Pro Lys Thr His Met Thr His His Pro Ile Ser Asp His Glu Ala Thr Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Glu Ile Thr Leu Thr Trp Gln Arg Asp Gly Glu Asp Gln Thr His Thr Arg Ser Ser Trp Arg Pro Gly Leu Gln Gly Met Glu Pro Ser Arg Ser Gly Arg Leu Trp Trp Cys Leu Leu Glu Arg Ser Arg Asp Thr Pro Ala Met Cys Ser Met Arg Val Cys Gln Ser Pro Ser Pro

FIGURE 120

ttcccagatg cacaggagga gaagcaggag ctgtcgggaa gatcagaagc cagtcatgga tgaccagcgc gaccttatct ccaacaatga gcaactgccc atgctgggcc ggcgccctgg ggccccggag agcaagtgca gccgcggagc cctgtacaca ggcttttcca tcctggtgac tctgctcctc gctggccagg ccaccaccgc ctacttcctg taccagcagc agggccggct ggacaaactg acagtcacct cccagaacct gcagctggag aacctgcgca tgaagcttcc caagcctccc aagcctgtga gcaagatgcg catggccacc ccgctgctga tgcaggcgct gcccatggga gccctgcccc aggggcccat gcagaatgcc accaagtatg gcaacatgac agaggaccat gtgatgcacc tgctccagaa tgctgacccc ctgaaggtgt acccgccact gaaggggagc ttcccggaga acctgagaca ccttaagaac accatggaga ccatagactg gaaggtcttt gagagctgga tgcaccattg gctcctgttt gaaatgagca ggcactcctt ggagcaaaag cccactgacg ctccaccgaa agagtcactg gaactggagg acccgtcttc tgggctgggt gtgaccaagc aggatctggg cccagtcccc atgtgagagc agcagaggcg gtcttcaaca tcctgccagc cccacacagc tacagctttc ttgctccctt cagcccccag cccctccccc atgtcccacc ctgtacctca tcccatgaga cctggtgcct ggctctttcg tcacccttgt acaagacaaa ccaagtcgga acagcagata acaatgcagc aaggccctgc tgcccaatct ccatctgtca acaggggcgt gaggtcccag gaagtggcca aaagctagac agatccccgt tcctgacatc acagcagcct ccaacacaag gctccaagac ctaggctcat ggacgagatg ggaaggcaca gggagaaggg ataaccctac acccagaccc caggctggac atgctgactg tcctctcccc tccagccttt ggccttggct tttctagcct atttacctgc aggctgagcc actctcttcc ctttccccag catcactccc caaggaagag ccaatgtttt ggacccataa tcctttctgc cgacccctag ttccctctgc tcagccaagc ttgttatcag ctttcagggc catggttcac attagaataa aaggtagtaa ttag

FIGURE 121

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys Gln Asp Leu Gly Pro Val Pro Met

FIGURE 122

tccgcaggcg gaccgggggc aaaggaggtg gcatgtcggt caggcacagc agggtcctgt gtccgcgctg agccgcgctc tccctgctcc agcaaggacc atgagggcgc tggaggggcc aggcctgtcg ctgctgtgcc tggtgttggc gctgcctgcc ctgctgccgg tgccggctgt acgcggagtg gcagaaacac ccacctaccc ctggcgggac gcagagacag gggagcggct ggtgtgcgcc cagtgccccc caggcacctt tgtgcagcgg ccgtgccgcc gagacagccc cacgacgtgt ggcccgtgtc caccgcgcca ctacacgcag ttctggaact acctggagcg ctgccgctac tgcaacgtcc tctgcgggga gcgtgaggag gaggcacggg cttgccacgc cacccacaac cgtgcctgcc gctgccgcac cggcttcttc gcgcacgctg gtttctgctt ggagcacgca tcgtgtccac ctggtgccgg cgtgattgcc ccgggcaccc ccagccagaa cacgcagtgc cagccgtgcc ccccaggcac cttctcagcc agcagctcca gctcagagca gtgccagccc caccgcaact gcacggccct gggcctggcc ctcaatgtgc caggctcttc ctcccatgac accctgtgca ccagctgcac tggcttcccc ctcagcacca gggtaccagg agctgaggag tgtgagcgtg ccgtcatcga ctttgtggct ttccaggaca tctccatcaa gaggctgcag cggctgctgc aggccctcga ggccccggag ggctggggtc cgacaccaag ggcgggccgc gcggccttgc agctgaagct gcgtcggcgg ctcacggagc tcctgggggc gcaggacggg gcgctgctgg tgcggctgct gcaggcgctg cgcgtggcca ggatgcccgg gctggagcgg agcgtccgtg agcgcttcct ccctgtgcac tgatcctggc cccctcttat ttattctaca tccttggcac cccacttgca ctgaaagagg ctttttttta aatagaagaa atgaggtttc ttaaaaaaaa aaaaaaaaaa aaaa

FIGURE 123

Met Arg Ala Leu Glu Gly Pro Gly Leu Ser Leu Leu Cys Leu Val Leu Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His

FIGURE 124

gccccatctc cttgggctgc ccgtgcttcg tgctttggac taccgcccag cagtgtcctg ccctctgcct gggcctcggt ccctcctgca cctgctgcct ggatccccgg cctgcctggg cctgggcctt ggttctcccc atgacaccac ctgaacgtct cttcctccca agggtgtgtg gcaccaccct acacctcctc cttctggggc tgctgctggt tctgctgcct ggggcccagg ggctccctgg tgttggcctc acaccttcag ctgcccagac tgcccgtcag caccccaaga tgcatcttgc ccacagcacc ctcaaacctg ctgctcacct cattggagac cccagcaagc agaactcact gctctggaga gcaaacacgg accgtgcctt cctccaggat ggtttctcct tgagcaacaa ttctctcctg gtccccacca gtggcatcta cttcgtctac tcccaggtgg tcttctctgg gaaagcctac tctcccaagg ccacctcctc cccactctac ctggcccatg aggtccagct cttctcctcc cagtaccccc tccatgtgcc tctcctcagc tcccagaaga tggtgtatcc agggctgcag gaaccctggc tgcactcgat gtaccacggg gctgcgttcc agctcaccca gggagaccag ctatccaccc acacagatgg catcccccac ctagtcctca gccctagtac tgtcttcttt ggagccttcg ctctgtagaa cttggaaaaa tccagaaaga aaaaataatt gatttcaaga ccttctcccc attctgcctc cattctgacc atttcagggg tcgtcaccac ctctcctttg gccattccaa cagctcaagt cttccctgat caagtcaccg gagctttcaa agaaggaatt ctaggcatcc caggggacca cacctccctg aaccatccct gatgtctgtc tggctgagga tttcaagcct gcctaggaat tcccagccca aagctgttgg tctgtcccac cagctaggtg gggcctagat ccacacacag aggaagagca ggcacatgga ggagcttggg ggatgactag aggcagggag gggactattt atgaaggcaa aaaaattaaa ttatttattt atggaggatg gagagagggg aataatagaa gaacatccaa ggagaaacag agacaggccc aagagatgaa gagtgagagg gcatgcgcac aaggctgacc aagagagaaa gaagtaggca tgagggatca cagggcccca gaaggcaggg aaaggctctg aaagccagct gccgaccaga gccccacacg gaggcatctg caccctcgat gaagcccaat aaacctcttt tctctg

FIGURE 125

Met Thr Pro Pro Glu Arg Leu Phe Leu Pro Arg Val Cys Gly Thr Thr Leu His Leu Leu Leu Leu Gly Leu Leu Leu Val Leu Leu Pro Gly Ala Gln Gly Leu Pro Gly Val Gly Leu Thr Pro Ser Ala Ala Gln Thr Ala Arg Gln His Pro Lys Met His Leu Ala His Ser Thr Leu Lys Pro Ala Ala His Leu Ile Gly Asp Pro Ser Lys Gln Asn Ser Leu Leu Trp Arg Ala Asn Thr Asp Arg Ala Phe Leu Gln Asp Gly Phe Ser Leu Ser Asn Asn Ser Leu Leu Val Pro Thr Ser Gly Ile Tyr Phe Val Tyr Ser Gln Val Val Phe Ser Gly Lys Ala Tyr Ser Pro Lys Ala Thr Ser Ser Pro Leu Tyr Leu Ala His Glu Val Gln Leu Phe Ser Ser Gln Tyr Pro Phe His Val Pro Leu Leu Ser Ser Gln Lys Met Val Tyr Pro Gly Leu Gln Glu Pro Trp Leu His Ser Met Tyr His Gly Ala Ala Phe Gln Leu Thr Gln Gly Asp Gln Leu Ser Thr His Thr Asp Gly Ile Pro His Leu Val Leu Ser Pro Ser Thr Val Phe Phe Gly Ala Phe Ala Leu

FIGURE 126

ggatgtgcgt gggggctcgg cggctgggcc gcgggccgtg tgcggctctg ctcctcctgg gcctggggct gagcaccgtg acggggctcc actgtgtcgg ggacacctac cccagcaacg accggtgctg ccacgagtgc aggccaggca acgggatggt gagccgctgc agccgctccc agaacacggt gtgccgtccg tgcgggccgg gcttctacaa cgacgtggtc agctccaagc cgtgcaagcc ctgcacgtgg tgtaacctca gaagtgggag tgagcggaag cagctgtgca cggccacaca ggacacagtc tgccgctgcc gggcgggcac ccagcccctg gacagctaca agcctggagt tgactgtgcc ccctgccctc cagggcactt ctccccaggc gacaaccagg cctgcaagcc ctggaccaac tgcaccttgg ctgggaagca caccctgcag ccggccagca atagctcgga cgcaatctgt gaggacaggg acccccccagc cacgcagccc caggagaccc agggcccccc ggccaggccc atcactgtcc agcccactga agcctggccc agaacctcac agggaccctc cacccggccc gtggaggtcc ccgggggccg tgcggttgcc gccatcctgg gcctgggcct ggtgctgggg ctgctgggcc ccctggccat cctgctggcc ctgtacctgc tccggaggga ccagaggctg ccccccgatg cccacaagcc ccctggggga ggcagtttcc ggacccccat ccaagaggag caggccgacg cccactccac cctggccaag atctgacctg ggcccaccaa ggtggacgct gggccccgcc aggctggagc ccggagggtc tgctgggcga gcagggcagg tgcaggccgc ctgccccgcc acgctcctgg gccaactctg caccgttcta ggtgccgatg gctgcctccg gctctctgct tacgtatgcc atgcatacct cctgccccgc gggaccacaa taaaaacctt ggcagacaaa aaaaaaaaaa aaaa

FIGURE 127

Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu Leu Leu Leu Gly Leu Gly Leu Ser Thr Val Thr Gly Leu His Cys Val Gly Asp Thr Tyr Pro Ser Asn Asp Arg Cys Cys His Glu Cys Arg Pro Gly Asn Gly Met Val Ser Arg Cys Ser Arg Ser Gln Asn Thr Val Cys Arg Pro Cys Gly Pro Gly Phe Tyr Asn Asp Val Val Ser Ser Lys Pro Cys Lys Pro Cys Thr Trp Cys Asn Leu Arg Ser Gly Ser Glu Arg Lys Gln Leu Cys Thr Ala Thr Gln Asp Thr Val Cys Arg Cys Arg Ala Gly Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val Asp Cys Ala Pro Cys Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro Trp Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Ile Thr Val Gln Pro Thr Glu Ala Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu Val Pro Gly Gly Arg Ala Val Ala Ala Ile Leu Gly Leu Gly Leu Val Leu Gly Leu Leu Gly Pro Leu Ala Ile Leu Leu Ala Leu Tyr Leu Leu Arg Arg Asp Gln Arg Leu Pro Pro Asp Ala His Lys Pro Pro Gly Gly Gly Ser Phe Arg Thr Pro Ile Gln Glu Glu Gln Ala Asp Ala His Ser Thr Leu Ala Lys Ile

FIGURE 128

cagtgtttgg tgttgcaagc aggatccaaa ggagacctat agtgactccc aggagctctt agtgaccaag tgaaggtacc tgtggggctc attgtgccca ttgctctttc actgctttca actggtagtt gtgggttgaa gcactggaca atgccacata ctttgtggat ggtgtgggtc ttgggggtca tcatcagcct ctccaaggaa gaatcctcca atcaggcttc tctgtcttgt gaccgcaatg gtatctgcaa gggcagctca ggatctttaa actccattcc ctcagggctc acagaagctg taaaaagcct tgacctgtcc aacaacagga tcacctacat tagcaacagt gacctacaga ggtgtgtgaa cctccaggct ctggtgctga catccaatgg aattaacaca atagaggaag attctttttc ttccctgggc agtcttgaac atttagactt atcctataat tacttatcta atttatcgtc ttcctggttc aagccccttt cttctttaac attcttaaac ttactgggaa atccttacaa aaccctaggg gaaacatctc ttttttctca tctcacaaaa ttgcaaatcc tgagagtggg aaatatggac accttcacta agattcaaag aaaagatttt gctggactta ccttccttga ggaacttgag attgatgctt cagatctaca gagctatgag ccaaaaagtt tgaagtcaat tcagaatgta agtcatctga tccttcatat gaagcagcat attttactgc tggagatttt tgtagatgtt acaagttccg tggaatgttt ggaactgcga gatactgatt tggacacttt ccatttttca gaactatcca ctggtgaaac aaattcattg attaaaaagt ttacatttag aaatgtgaaa atcaccgatg aaagtttgtt tcaggttatg aaacttttga atcagatttc tggattgtta gaattagagt ttgatgactg tacccttaat ggagttggta attttagagc atctgataat gacagagtta tagatccagg taaagtggaa acgttaacaa tccggaggct gcatattcca aggttttact tattttatga tctgagcact ttatattcac ttacagaaag agttaaaaga atcacagtag aaaacagtaa agtttttctg gttccttgtt tactttcaca acatttaaaa tcattagaat acttggatct cagtgaaaat ttgatggttg aagaatactt gaaaaattca gcctgtgagg atgcctggcc ctctctacaa actttaattt taaggcaaaa tcatttggca tcattggaaa aaaccggaga gactttgctc actctgaaaa acttgactaa cattgatatc agtaagaata gttttcattc tatgcctgaa acttgtcagt ggccagaaaa gatgaaatat ttgaacttat ccagcacacg aatacacagt gtaacaggct gcattcccaa gacactggaa attttagatg ttagcaacaa caatctcaat ttatttttctt tgaatttgcc gcaactcaaa gaactttata tttccagaaa taagttgatg actctaccag atgcctccct cttacccatg ttactagtat tgaaaatcag taggaatgca ataactacgt tttctaagga gcaacttgac tcatttcaca cactgaagac tttggaagct ggtggcaata acttcatttg ctcctgtgaa ttcctctcct tcactcagga gcagcaagca ctggccaaag tcttgattga ttggccagca aattacctgt gtgactctcc atcccatgtg cgtggccagc aggttcagga tgtccgcctc tcggtgtcgg aatgtcacag gacagcactg gtgtctggca tgtgctgtgc tctgttcctg ctgatcctgc tcacgggggt cctgtgccac cgtttccatg gcctgtggta tatgaaaatg atgtgggcct ggctccaggc caaaaggaag cccaggaaag ctcccagcag gaacatctgc tatgatgcat ttgtttctta cagtgagcgg gatgcctact gggtggagaa ccttatggtc caggagctgg agaacttcaa tccccccttc aagttgtgtc ttcataagcg ggacttcatt cctggcaagt ggatcattga caatatcatt gactccattg aaaagagcca caaaactgtc tttgtgcttt ctgaaaactt tgtgaagagt gagtggtgca agtatgaact ggacttctcc catttccgtc tttttgatga gaacaatgat gctgccattc tcattcttct ggagcccatt gagaaaaaag ccattcccca gcgcttctgc aagctgcgga agataatgaa caccaagacc tacctggagt ggcccatgga cgaggctcag cgggaaggat tttgggtaaa tctgagagct gcgataaagt cctaggttcc catatttaag accagtcttt gtctagttgg gatctttatg tcactagtta tagttaagtt cattcagaca taattatata aaaactacgt ggatgtaccg tcatttgagg a

FIGURE 129

Met Pro His Thr Leu Trp Met Val Trp Val Leu Gly Val Ile Ile Ser Leu Ser Lys Glu Glu Ser Ser Asn Gln Ala Ser Leu Ser Cys Asp Arg Asn Gly Ile Cys Lys Gly Ser Ser Gly Ser Leu Asn Ser Ile Pro Ser Gly Leu Thr Glu Ala Val Lys Ser Leu Asp Leu Ser Asn Asn Arg Ile Thr Tyr Ile Ser Asn Ser Asp Leu Gln Arg Cys Val Asn Leu Gln Ala Leu Val Leu Thr Ser Asn Gly Ile Asn Thr Ile Glu Glu Asp Ser Phe Ser Ser Leu Gly Ser Leu Glu His Leu Asp Leu Ser Tyr Asn Tyr Leu Ser Asn Leu Ser Ser Ser Trp Phe Lys Pro Leu Ser Ser Leu Thr Phe Leu Asn Leu Leu Gly Asn Pro Tyr Lys Thr Leu Gly Glu Thr Ser Leu Phe Ser His Leu Thr Lys Leu Gln Ile Leu Arg Val Gly Asn Met Asp Thr Phe Thr Lys Ile Gln Arg Lys Asp Phe Ala Gly Leu Thr Phe Leu Glu Glu Leu Glu Ile Asp Ala Ser Asp Leu Gln Ser Tyr Glu Pro Lys Ser Leu Lys Ser Ile Gln Asn Val Ser His Leu Ile Leu His Met Lys Gln His Ile Leu Leu Leu Glu Ile Phe Val Asp Val Thr Ser Ser Val Glu Cys Leu Glu Leu Arg Asp Thr Asp Leu Asp Thr Phe His Phe Ser Glu Leu Ser Thr Gly Glu Thr Asn Ser Leu Ile Lys Lys Phe Thr Phe Arg Asn Val Lys Ile Thr Asp Glu Ser Leu Phe Gln Val Met Lys Leu Leu Asn Gln Ile Ser Gly Leu Leu Glu Leu Glu Phe Asp Asp Cys Thr Leu Asn Gly Val Gly Asn Phe Arg Ala Ser Asp Asn Asp Arg Val Ile Asp Pro Gly Lys Val Glu Thr Leu Thr Ile Arg Arg Leu His Ile Pro Arg Phe Tyr Leu Phe Tyr Asp Leu Ser Thr Leu Tyr Ser Leu Thr Glu Arg Val Lys Arg Ile Thr Val Glu Asn Ser Lys Val Phe Leu Val Pro Cys Leu Leu Ser Gln His Leu Lys Ser Leu Glu Tyr Leu Asp Leu Ser Glu Asn Leu Met Val Glu Glu Tyr Leu Lys Asn Ser Ala Cys Glu Asp Ala Trp Pro Ser Leu Gln Thr Leu Ile Leu Arg Gln Asn His Leu Ala Ser Leu Glu Lys Thr Gly Glu Thr Leu Leu Thr Leu Lys Asn Leu Thr Asn Ile Asp Ile Ser Lys Asn Ser Phe His Ser Met Pro Glu Thr Cys Gln Trp Pro Glu Lys Met Lys Tyr Leu Asn Leu Ser Ser Thr Arg Ile His Ser Val Thr Gly Cys Ile Pro Lys Thr Leu Glu Ile Leu Asp Val Ser Asn Asn Asn Leu Asn Leu Phe Ser Leu Asn Leu Pro Gln Leu Lys Glu Leu Tyr Ile Ser Arg Asn Lys Leu Met Thr Leu Pro Asp Ala Ser Leu Leu Pro Met Leu Leu Val Leu Lys Ile Ser Arg Asn Ala Ile Thr Thr Phe Ser Lys Glu Gln Leu Asp Ser Phe His Thr Leu Lys Thr Leu Glu Ala Gly Gly Asn Asn Phe Ile Cys Ser Cys Glu Phe Leu Ser Phe Thr Gln Glu Gln Gln Ala Leu Ala Lys Val Leu Ile Asp Trp Pro Ala Asn Tyr Leu Cys Asp Ser Pro Ser His Val Arg Gly Gln Gln Val Gln Asp Val Arg Leu Ser Val Ser Glu Cys His Arg Thr Ala Leu Val Ser Gly Met Cys Cys Ala Leu Phe Leu Leu Ile Leu Leu Thr Gly Val Leu Cys His Arg Phe His Gly Leu Trp Tyr Met Lys Met Met Trp Ala Trp Leu Gln Ala Lys Arg Lys Pro Arg Lys Ala Pro Ser Arg Asn Ile Cys Tyr Asp Ala Phe Val Ser Tyr Ser Glu Arg Asp Ala Tyr Trp Val Glu Asn Leu Met Val Gln Glu Leu Glu Asn Phe Asn Pro Pro Phe Lys Leu Cys Leu His Lys Arg Asp Phe Ile Pro Gly Lys Trp Ile Ile Asp Asn Ile Ile Asp Ser Ile Glu Lys Ser His Lys Thr Val Phe Val Leu Ser Glu Asn Phe Val Lys Ser Glu Trp Cys Lys Tyr Glu Leu Asp Phe Ser His Phe Arg Leu Phe Asp Glu Asn Asn Asp Ala Ala Ile Leu Ile Leu Leu Glu Pro Ile Glu Lys Lys Ala Ile Pro Gln Arg Phe Cys Lys Leu Arg Lys Ile Met Asn Thr Lys Thr Tyr Leu Glu Trp Pro Met Asp Glu Ala Gln Arg Glu Gly Phe Trp Val Asn Leu Arg Ala Ala Ile Lys Ser

FIGURE 130

gattcttggg ttccgcgcgt agtttcggaa ggagacatcg aagcagggcg aggcgcagag ggcgttgcgg actcatgccc cagtcggcag tgcggggtcc caagccctgc agtgctacag ctttgagcac acctactttg gccccttga cctcagggcc atgaagctgc ccagcatctc ctgtcctcat gagtgctttg aggctatcct gtctctggac accgggtatc gcgcgccggt gaccctggtg cggaagggct gctggaccgg gcctcctgcg ggccagacgc aatcgaaccc ggacgcgctg ccgccagact actcggtggt gcgcggctgc acaactgaca aatgcaacgc ccacctcatg actcatgacg ccctccccaa cctgagccaa gcacccgacc cgccgacgct cagcggcgcc gagtgctacg cctgtatcgg ggtccaccag gatgactgcg ctatcggcag gtcccgacga gtccagtgtc accaggacca gaccgcctgc ttccagggca gtggcagaat gacagttggc aatttctcag tccctgtgta catcagaacc tgccaccggc cctcctgcac caccgagggc accaccagcc cctggacagc catcgacctc cagggctcct gctgtgaggg gtacctctgc aacaggaaat ccatgaccca gcccttcacc agtgcttcag ccaccacccc tccccgagca ctacaggtcc tggccctgct cctcccagtc ctcctgctgg tggggctctc agcatagacc gcccctccag gatgctgggg acagggctca cacacctcat tcttgctgct tcagccccta tcacatagct cactggaaaa tgatgttaaa gtaagaattg cactcctgtc cctctggcct tccatctctc ctgcccttgt gccccacaac ctggccaaca gtactggaag aaactggaca cagtcaccag catcccaggg gagggcaaaa cagccatgtc gtgccctgat gaagagcaat tctgatcaca gctgttactc actgagcacc agccaggcac caggcacccc ataacacggc ttcctgtgct ctccttccag agcctgtcgc agctctaggg gggagctata caatgatgtc tttattagtg tcatcatgag aagcccaata agcagtatgc cctaacagtt agtaggccag gctctggagc taagctgcat gggttcacat cccagctcca ccattcagcc tgcagagacc atgagcgagt tacttaagcc aggctctgga gctaagctgc atgggttcaa atcccagctc cagcattcag cctacagaga ccatgggtga gttacttaag ccaggctctg gagctaagct gcatgggttc aaatcccagc tccaccattc agcctgcaga gactgtgggt gagttacttg agctctctgt gccaatattt tctcacctat aaggtggagg tgaaaataaa ctctataaca tgacaagaac tacttcacag tagttgcagt gaggattcaa cgagatgaac atttagtact tgggacacag cagtggccca gtataaatgg gctacttgtc ataagcccta agtcacaggt caacaaactg agaggtaaaa gcacttggtt gagcttgtgt atctagtgag tatggattca gggaccagat tcccagcccc acgaactgct aagcaacccc acctcctaaa cacatgagtg ccgattaact tcacagaaaa acacacaagg caaagttcag cgaggtgaaa ttctccaagc tataaagatc agggaagact tcctggagga attcaccctt gagcaaaatc ctaaaggatc aatagtagct ggcaaaaaga agcaggagga agcacatttt aggtagagga gacagcctgg acaaaggtct gagggaggaa ggaacacaag gagtgcagga cactttcata actgcatgaa cttcatagag atgggatcct ttagcatgtt ctctgtgcac atgcttgacc atgttctttc acatgctttt tgccacttga tctttccagc aactcagtga gagaagcaaa aaagtaagtt gcatcctg

FIGURE 131

Met Lys Leu Pro Ser Ile Ser Cys Pro His Glu Cys Phe Glu Ala Ile Leu Ser Leu Asp Thr Gly Tyr Arg Ala Pro Val Thr Leu Val Arg Lys Gly Cys Trp Thr Gly Pro Pro Ala Gly Gln Thr Gln Ser Asn Pro Asp Ala Leu Pro Pro Asp Tyr Ser Val Val Arg Gly Cys Thr Thr Asp Lys Cys Asn Ala His Leu Met Thr His Asp Ala Leu Pro Asn Leu Ser Gln Ala Pro Asp Pro Pro Thr Leu Ser Gly Ala Glu Cys Tyr Ala Cys Ile Gly Val His Gln Asp Asp Cys Ala Ile Gly Arg Ser Arg Arg Val Gln Cys His Gln Asp Gln Thr Ala Cys Phe Gln Gly Ser Gly Arg Met Thr Val Gly Asn Phe Ser Val Pro Val Tyr Ile Arg Thr Cys His Arg Pro Ser Cys Thr Thr Glu Gly Thr Thr Ser Pro Trp Thr Ala Ile Asp Leu Gln Gly Ser Cys Cys Glu Gly Tyr Leu Cys Asn Arg Lys Ser Met Thr Gln Pro Phe Thr Ser Ala Ser Ala Thr Thr Pro Pro Arg Ala Leu Gln Val Leu Ala Leu Leu Leu Pro Val Leu Leu Leu Val Gly Leu Ser Ala

FIGURE 132

ggcacgaggc ccagcactag aagtcggcgg tgtttccttt cggtgatcag cactgaacac agaggactcg ccatggagtt tgggctgagc tgggttttcc tcgttgctct tttaagaggt gtccagtgtc aggcgcagtt ggtggagtct gggggaggcg tggtccagcc cgggagctcc ctgagactct cctgtgcagc ctctggtttc aggttcagca attatggcat gcactgggtc cgccaggctc caggcaaggg gctggagtgg gtggcagttt tttcatatga tgaaagtgat aaatattatg cagcctccgt gaagggtcga tttaccatct ccagagacaa ctccaagaac acgttgtctc tgcaaatgaa cagcctgaga gttgaggaca cggctgttta ctactgtgcg aaagatcaga agccctggta cagcaacagc tggtttctaa ccaactttga ctcttggggc cggggcaccc tggtcaccgt ctcctcagcc tccaccaagg gcccatcggt cttccccctg gcaccctcct ccaagagcac ctctgggggc acagcggccc tgggctgcct ggtcaaggac tacttccccg aaccggtgac ggtgtcgtgg aactcaggcg ccctgaccag cggcgtgcac accttcccgg ctgtcctaca gtcctcagga ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac ccagacctac atctgcaacg tgaatcacaa gcccagcaac accaaggtgg acaagaaagt tgagcccaaa tcttgtgaca aaactcacac atgcccaccg tgcccagcac ctgaactcct ggggggaccg tcagtcttcc tcttcccccc aaaacccaag gacaccctca tgatctcccg gacccctgag gtcacatgcg tggtggtgga cgtgagccac gaagaccctg aggtcaagtt caactggtac gtggacggcg tggaggtgca taatgccaag acaaagccgc gggaggagca gtacaacagc acgtaccgtg tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa tggcaaggag tacaagtgca aggtctccaa caaagccctc ccagccccca tcgagaaaac catctccaaa gccaaagggc agccccgaga accacaggtg tacaccctgc ccccatcccg ggatgagctg accaagaacc aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc gtggagtggg agagcaatgg gcagccggag aacaactaca agaccacgcc tcccgtgctg gactccgacg gctccttctt cctctacagc aagctcaccg tggacaagag caggtggcag caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgcag aagagcctct ccctgtctcc ggagctgcaa ctggaggaga gctgtgcgga ggcgcaggac ggggagctgg acgggctgtg gacgaccatc accatcttca tcacactctt cctgttaagc gtgtgctaca gtgccaccgt caccttcttc aaggtgaagt ggatcttctc ctcggtggtg gacctgaagc agaccatcat ccccgactac aggaacatga tcggacaggg ggcctagggc caccctctgc ggggtgtcca gggccgccca gaccccacac accagccatg ggccatgctc agccaccacc caggccacac ctgcccccga cctcaccgcc ctcaacccca tggctctctg gcctcgcagt tgccctctga ccctgacaca cctgacacgc ccccttcca gaccctgtgc atagcaggtc taccccagac ctccgctgct tggtgcatgc agggcactgg gggccaggtg tcccctcagc aggacatcct tgccctccgg accacaaggt gctcacacaa aaggaggcag tgaccggtat cccaggcccc cacccaggca ggagctggcc ctggagccaa ccccgtccac gccagcctcc tgaacacagg cgtggtttcc agatggtgag tgggagcatc agccgccaag gtagggaagc cacagcacca tcaggccctg ttggggaggc ttccgagagc tgcgaaggct cactcagacg gccttcctcc cagcccgcag ccagccagcc tccattccgg gcactcccgt gaactcctga catgaggaat gaggttgttc tgatttcaag caaagaacgc tgctctctgg ctcctgggaa cagtctcggt gccagcacca ccccttggct gcctgcccac actgctggat tctcgggtgg aactggaccc gcagggacag ccagccccag agtccgcact ggggagagaa ggggccaggc ccaggacact gccacctccc acccactcca gtccaccgag atcactcaga gaagagcctg ggccatgtgg ccgctgcagg agccccacag tgcaagggtg aggatagccc aaggaagggc tgggcatctg cccagacagg cctcccagag aaggctggtg accaggtccc aggcgggcaa gactcagcct tggtggggcc tgaggacaga ggaggcccag gagcatcggg gagagaggtg gagggacacc gggagagcca ggagcgtgga cacagccaga actcatcaca gaggctggcg tccagtcccg ggtcacgtgc agcaggaaca agcagccact ctgggggcac caggtggaga ggcaagacga caaagagggt gcccgtgttc ttgcgaaagc ggggctgctg gccacgagtg ctggacagag gcccccacgc tctgctgccc ccatcacgcc gttccgtgac tgtcacgcag aatccgcaga caggaaggga gactcgagcg ggagtgcggc cagcgcctgc ctcggccgtc agggaggact cccgggctca ctcgaaggag gtgccaccat ttcagctttg gtagcttttc ttcttctttt aaattttcta aagctcatta attgtctttg atgtttcttt tgtgatgaca ataaaatatc ctttttaagt cttgtaaaaa aaaaaaaaaa aaa

FIGURE 133

Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Ala Leu Leu Arg Gly Val Gln Cys Gln Ala Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Ser Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Arg Phe Ser Asn Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Val Phe Ser Tyr Asp Glu Ser Asp Lys Tyr Tyr Ala Ala Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Ser Leu Gln Met Asn Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp Gln Lys Pro Trp Tyr Ser Asn Ser Trp Phe Leu Thr Asn Phe Asp Ser Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Glu Leu Gln Leu Glu Glu Ser Cys Ala Glu Ala Gln Asp Gly Glu Leu Asp Gly Leu Trp Thr Thr Ile Thr Ile Phe Ile Thr Leu Phe Leu Leu Ser Val Cys Tyr Ser Ala Thr Val Thr Phe Phe Lys Val Lys Trp Ile Phe Ser Ser Val Val Asp Leu Lys Gln Thr Ile Ile Pro Asp Tyr Arg Asn Met Ile Gly Gln Gly Ala

FIGURE 134

aattcactaa tgcattctgc tctttttgag agcacagctt ctcagatgtg ctccttggag ctggtgtgca gtgtcctgac tgtaagatca agtccaaacc tgttttggaa ttgaggaaac ttctcttttg atctcagccc ttggtggtcc aggtcttcat gctgctgtgg gtgatattac tggtcctggc tcctgtcagt ggacagtttg caaggacacc caggcccatt attttcctcc agcctccatg gaccacagtc ttccaaggag agagagtgac cctcacttgc aagggatttc gcttctactc accacagaaa acaaaatggt accatcggta cctcgggaaa gaaatactaa gagaaacccc agacaatatc cttgaggttc aggaatctgg agagtacaga tgccaggccc agggctcccc tctcagtagc cctgtgcact tggatttttc ttcagcttcg ctgatcctgc aagctccact ttctgtgttt gaaggagact ctgtggttct gaggtgccgg gcaaaggcgg aagtaacact gaataatact atttacaaga atgataatgt cctggcattc cttaataaaa gaactgactt ccatattcct catgcatgtc tcaaggacaa tggtgcatat cgctgtactg gatataagga aagttgttgc cctgtttctt ccaatacagt caaaatccaa gtccaagagc catttacacg tccagtgctg agagccagct ccttccagcc catcagcggg aacccagtga ccctgacctg tgagacccag ctctctctag agaggtcaga tgtcccgctc cggttccgct tcttcagaga tgaccagacc ctgggattag gctggagtct ctccccgaat ttccagatta ctgccatgtg gagtaaagat tcagggttct actggtgtaa ggcagcaaca atgcctcaca gcgtcatatc tgacagcccg agatcctgga tacaggtgca gatccctgca tctcatcctg tcctcactct cagccctgaa aaggctctga attttgaggg aaccaaggtg acacttcact gtgaaaccca ggaagattct ctgcgcactt tgtacaggtt ttatcatgag ggtgtccccc tgaggcacaa gtcagtccgc tgtgaaaggg gagcatccat cagcttctca ctgactacag agaattcagg gaactactac tgcacagctg acaatggcct tggcgccaag cccagtaagg ctgtgagcct ctcagtcact gttcccgtgt ctcatcctgt cctcaacctc agctctcctg aggacctgat ttttgaggga gccaaggtga cacttcactg tgaagcccag agaggttcac tccccatcct gtaccagttt catcatgagg atgctgccct ggagcgtagg tcggccaact ctgcaggagg agtggccatc agcttctctc tgactgcaga gcattcaggg aactactact gcacagctga caatggcttt ggccccccagc gcagtaaggc ggtgagcctc tccatcactg tccctgtgtc tcatcctgtc ctcaccctca gctctgctga ggccctgact tttgaaggag ccactgtgac acttcactgt gaagtccaga gaggttcccc acaaatccta taccagtttt atcatgagga catgccccctg tggagcagct caacaccctc tgtgggaaga gtgtccttca gcttctctct gactgaagga cattcaggga attactactg cacagctgac aatggctttg gtccccagcg cagtgaagtg gtgagccttt ttgtcactgt tccagtgtct cgccccatcc tcaccctcag ggttcccagg gcccaggctg tggtgggggа cctgctggag cttcactgtg aggccccgag aggctctccc ccaatcctgt actggtttta tcatgaggat gtcaccctgg ggagcagctc agccccctct ggaggagaag cttctttcaa cctctctctg actgcagaac attctggaaa ctactcatgt gaggccaaca atggcctagt ggcccagcac agtgacacaa tatcactcag tgttatagtt ccagtatctc gtcccatcct caccttcagg gctcccaggg cccaggctgt ggtgggggac ctgctggagc ttcactgtga ggccctgaga ggctcctccc caatcctgta ctggttttat catgaagatg tcaccctggg taagatctca gcccccctctg gaggaggggc ctccttcaac ctctctctga ctacagaaca ttctggaatc tactcctgtg aggcagacaa tggtccggag gcccagcgca gtgagatggt gacactgaaa gttgcagttc cggtgtctcg cccggtcctc accctcaggg ctcccgggac ccatgctgcg gtgggggacc tgctggagct tcactgtgag gccctgagag gctctcccct gatcctgtac cggtttttтc atgaggatgt caccctagga aataggtcgt ccccctctgg aggagcgtcc ttaaacctct ctctgactgc agagcactct ggaaactact cctgtgaggc cgacaatggc ctcggggccc agcgcagtga gacagtgaca ctttatatca cagggctgac cgcgaacaga agtggccctt ttgccacagg agtcgccggg ggcctgctca gcatagcagg ccttgctgcg ggggcactgc tgctctactg ctggctctcg agaaaagcag ggagaaagcc tgcctctgac cccgccagga gccctccaga ctcggactcc caagagccca cctatcacaa tgtaccagcc tgggaagagc tgcaaccagt gtacactaat gcaaatccta gaggagaaaa tgtggtttac tcagaagtac ggatcatcca agagaaaaag aaacatgcag tggcctctga ccccaggcat ctcaggaaca agggttcccc tatcatctac tctgaagtta aggtggcgtc aaccccggtt tccggatccc tgttcttggc ttcctcagct cctcacagat gagtccacac gtctctccaa ctgctgtttc agcctctgca ccccaaagtt ccccttgggg gagaagcagc attgaagtgg gaagatttag gctgccccag accatatcta ctggcctttg tttcacatgt cctcattctc agtctgacca gaatgcaggg ccctgctgga ctgtcacctg tttcccagtt aaagccctga ctggcaggtt ttttaatcca gtggcaaggt gctcccactc cagggcccag cacatctcct ggattcctta gtgggcttca gctgtgattg ctgttctgag tactgctctc atcacacccc cacagagggg gtcttaccac acaaagggag agtgggcctt caggagatgc cgggctggcc taacagctca ggtgctccta aactccgaca cagagttcct gctttgggtg gatgcatttc tcaattgtca tcagcctggt ggggctactg cagtgtgctg ccaaatggga cagcacacag cctgtgcaca tgggacatgt gatgggtctc cccacggggg ctgcatttca cactcctcca cctgtctcaa actctaaggt cggcacttga caccaaggta acttctctcc tgctcatgtg tcagtgtcta cctgcccaag taagtggctt tcatacacca agtcccaagt tcttcccatc ctaacagaag taacccagca agtcaaggcc aggaggacca ggggtgcaga cagaacacat actggaacac aggaggtgct

FIGURE 137 (Continued)

caattactat ttgactgact gactgaatga atgaatgaat gaggaagaaa actgtgggta atcaaactgg cataaaatcc agtgcactcc ctaggaaatc cgggaggtat tctggcttcc ctaagaaaca acggaagaga aggagcttgg atgaggaaac tgttcagcaa gaggaagggc ttctcacact ttcatgtgct tgtggatcac ctgaggatcc tgtgaaaata cagatactga ttcagtgggt ctgtgtagag cctgagactg ccattctaac atgttcccag gggatgctga tgctgctggc cctgggactg cactgcatgc atgtgaagcc ctataggtct cagcagaggc ccatggagag ggaatgtgtg gctctggctg cccagggccc aactcggttc acacggatcg tgctgctccc tggccagcct ttggccacag caccaccagc tgctgttgct gagagagctt cttctctgtg acatgttggc tttcatcagc caccctggga agcggaaagt agctgccact atctttgttt ccccacctca ggcctcacac tttcccatga aaagggtgaa tgtatataac ctgagccctc tccattcaga gttgttctcc catctctgag caatgggatg ttctgttccg cttttatgat atccatcaca tcttatcttg atctttgctc ccagtggatt gtacagtgat gacttttaag ccccacggcc ctgaaataaa atccttccaa gggcattgga agctctctcc acctgaacca tggcttttca tgcttccaag tgtcagggcc ttgcccagat agacagggct gactctgctg ccccaacctt tcaaggagga aaccagacac ctgagacagg agcctgtatg cagcccagtg cagccttgca gaggacaagg ctggaggcat ttgtcatcac tacagatatg caactaaaat agacgtggag caagagaaat gcattcccac cgaggccgct tttttaggcc tagttgaaag tcaagaagga cagcagcaag cataggctca ggattaaaga aaaaaatctg ctcacagttt gttctggagg tcacatcacc aacaaagctc acgccctatg cagttctgag aaggtggagg caccaggctc aaaagaggaa atttagaatt tctcattggg agagtaaggt acccccatcc cagaatgata actgcacagt ggcagaacaa actccaccct aatgtgggtg gaccccatcc agtctgttga aggcctgagt gtaacaaaag ggcttattct tcctcaagta agggggaact cctgctttgg gctgggacat aagtttttct gctttcagac gcaaactgaa aaatggctct tcttgggtct tgagcttgct ggcatatgga ctgaaagaaa ctatgctatt ggatctcctg gatctccagc ttgctgactg cagatcttga gatatgtcag cctctacagt cacaagagct aattcattct aataaaccaa tctttctgta aa

FIGURE 137

Met Leu Leu Trp Val Ile Leu Leu Val Leu Ala Pro Val Ser Gly Gln Phe Ala Arg Thr Pro Arg Pro Ile Ile Phe Leu Gln Pro Pro Trp Thr Thr Val Phe Gln Gly Glu Arg Val Thr Leu Thr Cys Lys Gly Phe Arg Phe Tyr Ser Pro Gln Lys Thr Lys Trp Tyr His Arg Tyr Leu Gly Lys Glu Ile Leu Arg Glu Thr Pro Asp Asn Ile Leu Glu Val Gln Glu Ser Gly Glu Tyr Arg Cys Gln Ala Gln Gly Ser Pro Leu Ser Ser Pro Val His Leu Asp Phe Ser Ser Ala Ser Leu Ile Leu Gln Ala Pro Leu Ser Val Phe Glu Gly Asp Ser Val Val Leu Arg Cys Arg Ala Lys Ala Glu Val Thr Leu Asn Asn Thr Ile Tyr Lys Asn Asp Asn Val Leu Ala Phe Leu Asn Lys Arg Thr Asp Phe His Ile Pro His Ala Cys Leu Lys Asp Asn Gly Ala Tyr Arg Cys Thr Gly Tyr Lys Glu Ser Cys Cys Pro Val Ser Ser Asn Thr Val Lys Ile Gln Val Gln Glu Pro Phe Thr Arg Pro Val Leu Arg Ala Ser Ser Phe Gln Pro Ile Ser Gly Asn Pro Val Thr Leu Thr Cys Glu Thr Gln Leu Ser Leu Glu Arg Ser Asp Val Pro Leu Arg Phe Arg Phe Phe Arg Asp Asp Gln Thr Leu Gly Leu Gly Trp Ser Leu Ser Pro Asn Phe Gln Ile Thr Ala Met Trp Ser Lys Asp Ser Gly Phe Tyr Trp Cys Lys Ala Ala Thr Met Pro His Ser Val Ile Ser Asp Ser Pro Arg Ser Trp Ile Gln Val Gln Ile Pro Ala Ser His Pro Val Leu Thr Leu Ser Pro Glu Lys Ala Leu Asn Phe Glu Gly Thr Lys Val Thr Leu His Cys Glu Thr Gln Glu Asp Ser Leu Arg Thr Leu Tyr Arg Phe Tyr His Glu Gly Val Pro Leu Arg His Lys Ser Val Arg Cys Glu Arg Gly Ala Ser Ile Ser Phe Ser Leu Thr Thr Glu Asn Ser Gly Asn Tyr Tyr Cys Thr Ala Asp Asn Gly Leu Gly Ala Lys Pro Ser Lys Ala Val Ser Leu Ser Val Thr Val Pro Val Ser His Pro Val Leu Asn Leu Ser Ser Pro Glu Asp Leu Ile Phe Glu Gly Ala Lys Val Thr Leu His Cys Glu Ala Gln Arg Gly Ser Leu Pro Ile Leu Tyr Gln Phe His His Glu Asp Ala Ala Leu Glu Arg Arg Ser Ala Asn Ser Ala Gly Gly Val Ala Ile Ser Phe Ser Leu Thr Ala Glu His Ser Gly Asn Tyr Tyr Cys Thr Ala Asp Asn Gly Phe Gly Pro Gln Arg Ser Lys Ala Val Ser Leu Ser Ile Thr Val Pro Val Ser His Pro Val Leu Thr Leu Ser Ser Ala Glu Ala Leu Thr Phe Glu Gly Ala Thr Val Thr Leu His Cys Glu Val Gln Arg Gly Ser Pro Gln Ile Leu Tyr Gln Phe Tyr His Glu Asp Met Pro Leu Trp Ser Ser Ser Thr Pro Ser Val Gly Arg Val Ser Phe Ser Phe Ser Leu Thr Glu Gly His Ser Gly Asn Tyr Tyr Cys Thr Ala Asp Asn Gly Phe Gly Pro Gln Arg Ser Glu Val Val Ser Leu Phe Val Thr Val Pro Val Ser Arg Pro Ile Leu Thr Leu Arg Val Pro Arg Ala Gln Ala Val Val Gly Asp Leu Leu Glu Leu His Cys Glu Ala Pro Arg Gly Ser Pro Pro Ile Leu Tyr Trp Phe Tyr His Glu Asp Val Thr Leu Gly Ser Ser Ser Ala Pro Ser Gly Gly Glu Ala Ser Phe Asn Leu Ser Leu Thr Ala Glu His Ser Gly Asn Tyr Ser Cys Glu Ala Asn Asn Gly Leu Val Ala Gln His Ser Asp Thr Ile Ser Leu Ser Val Ile Val Pro Val Ser Arg Pro Ile Leu Thr Phe Arg Ala Pro Arg Ala Gln Ala Val Val Gly Asp Leu Leu Glu Leu His Cys Glu Ala Leu Arg Gly Ser Ser Pro Ile Leu Tyr Trp Phe Tyr His Glu Asp Val Thr Leu Gly Lys Ile Ser Ala Pro Ser Gly Gly Gly Ala Ser Phe Asn Leu Ser Leu Thr Thr Glu His Ser Gly Ile Tyr Ser Cys Glu Ala Asp Asn Gly Pro Glu Ala Gln Arg Ser Glu Met Val Thr Leu Lys Val Ala Val Pro Val Ser Arg Pro Val Leu Thr Leu Arg Ala Pro Gly Thr His Ala Ala Val Gly Asp Leu Leu Glu Leu His Cys Glu Ala Leu Arg Gly Ser Pro Leu Ile Leu Tyr Arg Phe Phe His Glu Asp Val Thr Leu Gly Asn Arg Ser Ser Pro Ser Gly Gly Ala Ser Leu Asn Leu Ser Leu Thr Ala Glu His Ser Gly Asn Tyr Ser Cys Glu Ala Asp Asn Gly Leu Gly Ala Gln Arg Ser Glu Thr Val Thr Leu Tyr Ile Thr Gly Leu Thr Ala Asn Arg Ser Gly Pro Phe Ala Thr Gly Val Ala Gly Gly Leu Leu Ser Ile Ala Gly Leu Ala Ala Gly Ala Leu Leu Leu Tyr Cys Trp Leu Ser Arg Lys Ala Gly Arg Lys Pro Ala Ser Asp Pro Ala Arg Ser Pro Pro Asp Ser Asp Ser Gln Glu Pro Thr Tyr His Asn Val Pro Ala Trp Glu Glu Leu Gln Pro Val Tyr Thr Asn Ala Asn Pro Arg Gly Glu Asn Val Val Tyr Ser Glu Val Arg Ile Ile Gln Glu Lys Lys Lys His Ala Val Ala Ser Asp Pro Arg His Leu Arg Asn Lys Gly Ser Pro Ile Ile Tyr Ser Glu Val Lys Val Ala Ser Thr Pro Val Ser Gly Ser Leu Phe Leu Ala Ser Ser Ala Pro His Arg

FIGURE 136

gctctagaac tagtggatcc cccgggctgc aggaattctc taaagaagcc cctgggagca cagctcatca ccatggactg gacctggagg ttcctctttg tggtggcagc agctacaggt gtccagtccc aggtgcagct ggtgcagtct ggggctgagg tgaagaagcc tgggtcctcg gtgaaggtct cctgcaaggc ttctggaggc accttcagca gctatgctat cagctgggtg cgacaggccc ctggacaagg gcttgagtgg atgggaggga tcatccctat ctttggtaca gcaaactacg cacagaagtt ccagggcaga gtcacgatta ccgcggacga atccacgagc acagcctaca tggagctgag cagcctgaga tctgaggaca cggccgtgta ttactgtgcg aaaaccggga tcctggggcc gtatagcagt ggctggtacc cgaactcgga ctactactac tacggtatgg acgtctgggg ccaagggacc acggtcaccg tctcctcagg gagtgcatcc gccccaaccc ttttcccct cgtctcctgt gagaattccc cgtcggatac gagcagcgtg gccgttggct gcctcgcaca ggacttcctt cccgactcca tcactttctc ctggaaatac aagaacaact ctgacatcag cagcacccgg ggcttcccat cagtcctgag agggggcaag tacgcagcca cctcacaggt gctgctgcct tccaaggacg tcatgcaggg cacagacgaa cacgtggtgt gcaaagtcca gcaccccaac ggcaacaaag aaaagaacgt gcctcttcca gtgattgctg agctgcctcc caaagtgagc gtcttcgtcc caccccgcga cggcttcttc ggcaaccccc gcagcaagtc caagctcatc tgccaggcca cgggtttcag tccccggcag attcaggtgt cctggctgcg cgaggggaag caggtggggt ctggcgtcac cacggaccag gtgcaggctg aggccaaaga gtctgggccc acgacctaca aggtgaccag cacactgacc atcaaagaga gcgactggct cagccagagc atgttcacct gccgcgtgga tcacaggggc ctgaccttcc agcagaatgc gtcctccatg tgtgtccccg atcaagacac agccatccgg gtcttcgcca tccccccatc ctttgccagc atcttcctca ccaagtccac caagttgacc tgcctggtca cagacctgac cacctatgac agcgtgacca tctcctggac ccgccagaat ggcgaagctg tgaaaaccca caccaacatc tccgagagcc accccaatgc cactttcagc gccgtgggtg aggccagcat ctgcgaggat gactggaatt ccggggagag gttcacgtgc accgtgaccc acacagacct gccctcgcca ctgaagcaga ccatctcccg gcccaagggg gtggccctgc acaggcccga tgtctacttg ctgccaccag cccgggagca gctgaacctg cgggagtcgg ccaccatcac gtgcctggtg acgggcttct ctcccgcgga cgtcttcgtg cagtggatgc agaggggcca gcccttgtcc ccggagaagt atgtgaccag cgccccaatg cctgagcccc aggccccagg ccggtacttc gcccacagca tcctgaccgt gtccgaagag gaatggaaca cgggggagac ctacacctgc gtggtggccc atgaggccct gcccaacagg gtcaccgaga ggaccgtgga caagtccacc gaggggggagg tgagcgccga cgaggagggc tttgagaacc tgtgggccac cgcctccacc ttcatcgtcc tcttcctcct gagcctcttc tacagtacca ccgtcacctt gttcaaggtg aaatgatccc aacagaagaa catcggagac cagagagagg aactcaaagg ggcgctgcct ccgggtctgg ggtcctggcc tgcgtggcct gttggcacgt gtttctcttc ccgcccggcc tccagttgtg tgctctcaca caggcttcct tctcgaccgg caggggctgg ctggcttgca ggccacgagg tgggctctac cccacactgc tttgctgtgt atacgcttgt tgccctgaaa taaatatgca cattttatcc atg

FIGURE 137

Met Asp Trp Thr Trp Arg Phe Leu Phe Val Val Ala Ala Ala Thr Gly Val Gln Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Thr Gly Ile Leu Gly Pro Tyr Ser Ser Gly Trp Tyr Pro Asn Ser Asp Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Ser Ala Ser Ala Pro Thr Leu Phe Pro Leu Val Ser Cys Glu Asn Ser Pro Ser Asp Thr Ser Ser Val Ala Val Gly Cys Leu Ala Gln Asp Phe Leu Pro Asp Ser Ile Thr Phe Ser Trp Lys Tyr Lys Asn Asn Ser Asp Ile Ser Ser Thr Arg Gly Phe Pro Ser Val Leu Arg Gly Gly Lys Tyr Ala Ala Thr Ser Gln Val Leu Leu Pro Ser Lys Asp Val Met Gln Gly Thr Asp Glu His Val Val Cys Lys Val Gln His Pro Asn Gly Asn Lys Glu Lys Asn Val Pro Leu Pro Val Ile Ala Glu Leu Pro Pro Lys Val Ser Val Phe Val Pro Pro Arg Asp Gly Phe Phe Gly Asn Pro Arg Ser Lys Ser Lys Leu Ile Cys Gln Ala Thr Gly Phe Ser Pro Arg Gln Ile Gln Val Ser Trp Leu Arg Glu Gly Lys Gln Val Gly Ser Gly Val Thr Thr Asp Gln Val Gln Ala Glu Ala Lys Glu Ser Gly Pro Thr Thr Tyr Lys Val Thr Ser Thr Leu Thr Ile Lys Glu Ser Asp Trp Leu Ser Gln Ser Met Phe Thr Cys Arg Val Asp His Arg Gly Leu Thr Phe Gln Gln Asn Ala Ser Ser Met Cys Val Pro Asp Gln Asp Thr Ala Ile Arg Val Phe Ala Ile Pro Pro Ser Phe Ala Ser Ile Phe Leu Thr Lys Ser Thr Lys Leu Thr Cys Leu Val Thr Asp Leu Thr Thr Tyr Asp Ser Val Thr Ile Ser Trp Thr Arg Gln Asn Gly Glu Ala Val Lys Thr His Thr Asn Ile Ser Glu Ser His Pro Asn Ala Thr Phe Ser Ala Val Gly Glu Ala Ser Ile Cys Glu Asp Asp Trp Asn Ser Gly Glu Arg Phe Thr Cys Thr Val Thr His Thr Asp Leu Pro Ser Pro Leu Lys Gln Thr Ile Ser Arg Pro Lys Gly Val Ala Leu His Arg Pro Asp Val Tyr Leu Leu Pro Pro Ala Arg Glu Gln Leu Asn Leu Arg Glu Ser Ala Thr Ile Thr Cys Leu Val Thr Gly Phe Ser Pro Ala Asp Val Phe Val Gln Trp Met Gln Arg Gly Gln Pro Leu Ser Pro Glu Lys Tyr Val Thr Ser Ala Pro Met Pro Glu Pro Gln Ala Pro Gly Arg Tyr Phe Ala His Ser Ile Leu Thr Val Ser Glu Glu Glu Trp Asn Thr Gly Glu Thr Tyr Thr Cys Val Val Ala His Glu Ala Leu Pro Asn Arg Val Thr Glu Arg Thr Val Asp Lys Ser Thr Glu Gly Glu Val Ser Ala Asp Glu Glu Gly Phe Glu Asn Leu Trp Ala Thr Ala Ser Thr Phe Ile Val Leu Phe Leu Leu Ser Leu Phe Tyr Ser Thr Thr Val Thr Leu Phe Lys Val Lys

FIGURE 138

atggagaagt ttcgggcggt gctggacctg cacgtcaagc accacagcgc cttgggctac ggcctggtga ccctgctgac ggcgggcggg gagcgcatct tctccgccgt ggcattccag tgcccgtgca gcgccgcctg gaacctgccc tacggcctgg tcttcttgct ggtgccggcg ctcgcgctct tcctcctggg ctacgtgctg agcgcacgca cgtggcgcct gctcaccgga tgctgctcca gcgcccgcgc gagttgcgga tcggcgctgc gcggctccct ggtgtgcacg caaatcagcg cggccgccgc gctcgcgccc ctcacctggg tggccgtggc gctgctcggg ggcgcctttt acgagtgcgc ggccaccggg agcgcggcct tcgcgcagcg cctgtgcctc ggccgcaacc gcagctgcgc cgcggagctg ccgctggtgc cgtgcaacca ggccaaggcg tcggacgtgc aggacctcct gaaggatctg aaggctcagt cgcaggtgtt gggctggatc ttgatagcag ttgttatcat cattcttctg atttttacat ctgtcacccg atgcctatct ccagttagtt ttctgcagct gaaattctgg aaaatctatt tggaacagga gcagcagatc cttaaaagta aagccacaga gcatgcaact gaattggcaa aagagaatat taaatgtttc tttgagggct cgcatccaaa agaatataac actccaaggc atgaaaagag gtggcagcaa atttcatcac tgtatacttt caatccgaag ggccagtact acagcatgtt gcacaaatat gtcaacagaa aagagaagac tcacagtatc aggtctactg aaggagatac ggtgattcct gttcttggct ttgtagattc atctggtata aacagcactc ctgagttatg acctttgaa tgagtagaaa aaaaaattgt tttgaattat tgctttatta aaaaataaac attggttaaa aaagaaaaa

FIGURE 139

Met Glu Lys Phe Arg Ala Val Leu Asp Leu His Val Lys His His Ser Ala Leu Gly Tyr Gly Leu Val Thr Leu Leu Thr Ala Gly Gly Glu Arg Ile Phe Ser Ala Val Ala Phe Gln Cys Pro Cys Ser Ala Ala Trp Asn Leu Pro Tyr Gly Leu Val Phe Leu Leu Val Pro Ala Leu Ala Leu Phe Leu Leu Gly Tyr Val Leu Ser Ala Arg Thr Trp Arg Leu Leu Thr Gly Cys Cys Ser Ser Ala Arg Ala Ser Cys Gly Ser Ala Leu Arg Gly Ser Leu Val Cys Thr Gln Ile Ser Ala Ala Ala Ala Leu Ala Pro Leu Thr Trp Val Ala Val Ala Leu Leu Gly Gly Ala Phe Tyr Glu Cys Ala Ala Thr Gly Ser Ala Ala Phe Ala Gln Arg Leu Cys Leu Gly Arg Asn Arg Ser Cys Ala Ala Glu Leu Pro Leu Val Pro Cys Asn Gln Ala Lys Ala Ser Asp Val Gln Asp Leu Leu Lys Asp Leu Lys Ala Gln Ser Gln Val Leu Gly Trp Ile Leu Ile Ala Val Val Ile Ile Ile Leu Leu Ile Phe Thr Ser Val Thr Arg Cys Leu Ser Pro Val Ser Phe Leu Gln Leu Lys Phe Trp Lys Ile Tyr Leu Glu Gln Glu Gln Gln Ile Leu Lys Ser Lys Ala Thr Glu His Ala Thr Glu Leu Ala Lys Glu Asn Ile Lys Cys Phe Phe Glu Gly Ser His Pro Lys Glu Tyr Asn Thr Pro Arg His Glu Lys Arg Trp Gln Gln Ile Ser Ser Leu Tyr Thr Phe Asn Pro Lys Gly Gln Tyr Tyr Ser Met Leu His Lys Tyr Val Asn Arg Lys Glu Lys Thr His Ser Ile Arg Ser Thr Glu Gly Asp Thr Val Ile Pro Val Leu Gly Phe Val Asp Ser Ser Gly Ile Asn Ser Thr Pro Glu Leu

FIGURE 140

ttcctttcaa atacacaccc caacccgccc cggcatacac agaaatgggg actgcgagca gaagcaacat cgctcgccat ctgcaaacca atctcattct attttgtgtc ggtgctgtgg gcgcctgtac tctctctgtc acacaaccgt ggtacctaga agtggactac actcatgagg ccgtcaccat aaagtgtacc ttctccgcaa ccggatgccc ttctgagcaa ccaacatgcc tgtggtttcg ctacggtgct caccagcctg agaacctgtg cttggacggg tgcaaaagtg aggcagacaa gttcacagtg agggaggccc tcaaagaaaa ccaagtttcc ctcactgtaa acagagtgac ttcaaatgac agtgcaattt acatctgtgg aatagcattc cccagtgtgc cggaagcgag agctaaacag acaggaggag ggaccacact ggtggtaaga gaaattaagc tgctcagcaa ggaactgcgg agcttcctga cagctcttgt atcactgctc tctgtctatg tgaccggtgt gtgcgtggcc ttcatactcc tctccaaatc aaaatccaac cctctaagaa agaaagaaat aaaagaagac tcacaaaaga agaagagtgc tcggcgtatt tttcaggaaa ttgctcaaga actataccat aagagacatg tggaaacaaa tcagcaatct gagaaagata acaacactta tgaaaacaga agagtacttt ccaactatga aaggccatag aaacgtttta attttcaatg aagtcactga aaatccaact ccaggagcta tggcagtgtt aatgaacata tatcatcagg tcttaaaaaa aaaataaagg taaactgaaa agacaactgg ctacaaagaa ggatgtcaga atgtaaggaa actataacta atagtcatta ccaaaatact aaaacccaac aaaatgcaac tgaaaaatac cttccaaatt tgccaagaaa aaaaattcta ttyyaaact

FIGURE 141

Met Gly Thr Ala Ser Arg Ser Asn Ile Ala Arg His Leu Gln Thr Asn Leu Ile Leu Phe Cys Val Gly Ala Val Gly Ala Cys Thr Leu Ser Val Thr Gln Pro Trp Tyr Leu Glu Val Asp Tyr Thr His Glu Ala Val Thr Ile Lys Cys Thr Phe Ser Ala Thr Gly Cys Pro Ser Glu Gln Pro Thr Cys Leu Trp Phe Arg Tyr Gly Ala His Gln Pro Glu Asn Leu Cys Leu Asp Gly Cys Lys Ser Glu Ala Asp Lys Phe Thr Val Arg Glu Ala Leu Lys Glu Asn Gln Val Ser Leu Thr Val Asn Arg Val Thr Ser Asn Asp Ser Ala Ile Tyr Ile Cys Gly Ile Ala Phe Pro Ser Val Pro Glu Ala Arg Ala Lys Gln Thr Gly Gly Gly Thr Thr Leu Val Val Arg Glu Ile Lys Leu Leu Ser Lys Glu Leu Arg Ser Phe Leu Thr Ala Leu Val Ser Leu Leu Ser Val Tyr Val Thr Gly Val Cys Val Ala Phe Ile Leu Leu Ser Lys Ser Lys Ser Asn Pro Leu Arg Lys Lys Glu Ile Lys Glu Asp Ser Gln Lys Lys Lys Ser Ala Arg Arg Ile Phe Gln Glu Ile Ala Gln Glu Leu Tyr His Lys Arg His Val Glu Thr Asn Gln Gln Ser Glu Lys Asp Asn Asn Thr Tyr Glu Asn Arg Arg Val Leu Ser Asn Tyr Glu Arg Pro

FIGURE 142

atggcagtga caactcgttt gacatggttg cacgaaaaga tcctgcaaaa tcattttgga gggaagcggc ttagccttct ctataagggt agtgtccatg gattccgtaa tggagttttg cttgacagat gttgtaatca agggcctact ctaacagtga tttatagtga agatcatatt attggagcat atgcagaaga gagttaccag gaaggaaagt atgcttccat catccttttt gcacttcaag atactaaaat ttcagaatgg aaactaggac tatgtacacc agaaacactg ttttgttgtg atgttacaaa atataactcc ccaactaatt tccagataga tggaagaaat agaaaagtga ttatggactt aaagacaatg gaaaatcttg gacttgctca aaattgtact atctctattc aggattatga agtttttcga tgcgaagatt cactggatga aagaaagata aaaggggtca ttgagctcag gaagagctta ctgtctgcct tgagaactta tgaaccatat ggatccctgg ttcaacaaat acgaattctc ctcctgggtc caattggagc tcccaagtcc agctttttca actcagtgag gtctgttttc caagggcatg taacgcatca ggctttggtg ggcactaata caactgggat atctgagaag tataggacat actctattag agacgggaaa gatggcaaat acctgccgtt tattctgtgt gactcactgg ggctgagtga gaaagaaggc ggcctgtgca gggatgacat attctatatc ttgaacggta acattcgtga tagataccag tttaatccca tggaatcaat caaattaaat catcatgact acattgattc cccatcgctg aaggacagaa ttcattgtgt ggcatttgta tttgatgcca gctctattca atacttctcc tctcagatga tagtaaagat caaaagaatt caaagggagt tggtaaacgc tggtgtggta catgtggctt tgctcactca tgtggatagc atggatttga ttacaaaagg tgaccttata gaaatagaga gatgtgagcc tgtgaggtcc aagctagagg aagtccaaag aaaacttgga tttgctcttt ctgacatctc ggtggttagc aattattcct ctgagtggga gctggaccct gtaaaggatg ttctaattct ttctgctctg agacgaatgc tatgggctgc agatgacttc ttagaggatt tgccttttga gcaaataggg aatctaaggg aggaaattat caactgtgca caaggaaaaa aatag

FIGURE 143

Met Ala Val Thr Thr Arg Leu Thr Trp Leu His Glu Lys Ile Leu Gln Asn His Phe Gly Gly Lys Arg Leu Ser Leu Leu Tyr Lys Gly Ser Val His Gly Phe Arg Asn Gly Val Leu Leu Asp Arg Cys Cys Asn Gln Gly Pro Thr Leu Thr Val Ile Tyr Ser Glu Asp His Ile Ile Gly Ala Tyr Ala Glu Glu Ser Tyr Gln Glu Gly Lys Tyr Ala Ser Ile Ile Leu Phe Ala Leu Gln Asp Thr Lys Ile Ser Glu Trp Lys Leu Gly Leu Cys Thr Pro Glu Thr Leu Phe Cys Cys Asp Val Thr Lys Tyr Asn Ser Pro Thr Asn Phe Gln Ile Asp Gly Arg Asn Arg Lys Val Ile Met Asp Leu Lys Thr Met Glu Asn Leu Gly Leu Ala Gln Asn Cys Thr Ile Ser Ile Gln Asp Tyr Glu Val Phe Arg Cys Glu Asp Ser Leu Asp Glu Arg Lys Ile Lys Gly Val Ile Glu Leu Arg Lys Ser Leu Leu Ser Ala Leu Arg Thr Tyr Glu Pro Tyr Gly Ser Leu Val Gln Gln Ile Arg Ile Leu Leu Leu Gly Pro Ile Gly Ala Pro Lys Ser Ser Phe Phe Asn Ser Val Arg Ser Val Phe Gln Gly His Val Thr His Gln Ala Leu Val Gly Thr Asn Thr Thr Gly Ile Ser Glu Lys Tyr Arg Thr Tyr Ser Ile Arg Asp Gly Lys Asp Gly Lys Tyr Leu Pro Phe Ile Leu Cys Asp Ser Leu Gly Leu Ser Glu Lys Glu Gly Gly Leu Cys Arg Asp Asp Ile Phe Tyr Ile Leu Asn Gly Asn Ile Arg Asp Arg Tyr Gln Phe Asn Pro Met Glu Ser Ile Lys Leu Asn His His Asp Tyr Ile Asp Ser Pro Ser Leu Lys Asp Arg Ile His Cys Val Ala Phe Val Phe Asp Ala Ser Ser Ile Gln Tyr Phe Ser Ser Gln Met Ile Val Lys Ile Lys Arg Ile Gln Arg Glu Leu Val Asn Ala Gly Val Val His Val Ala Leu Leu Thr His Val Asp Ser Met Asp Leu Ile Thr Lys Gly Asp Leu Ile Glu Ile Glu Arg Cys Glu Pro Val Arg Ser Lys Leu Glu Glu Val Gln Arg Lys Leu Gly Phe Ala Leu Ser Asp Ile Ser Val Val Ser Asn Tyr Ser Ser Glu Trp Glu Leu Asp Pro Val Lys Asp Val Leu Ile Leu Ser Ala Leu Arg Arg Met Leu Trp Ala Ala Asp Asp Phe Leu Glu Asp Leu Pro Phe Glu Gln Ile Gly Asn Leu Arg Glu Glu Ile Ile Asn Cys Ala Gln Gly Lys Lys

FIGURE 144

gaggaggaac agaaaagaaa agaaaagaaa aagtgggaaa caaataatct aagaatgagg agaaagcaag aagagtgacc
cccttgtggg cactccattg gttttatggc gcctctactt tctggagttt gtgtaaaaca aaaatattat ggtctttgtg cacatttaca
tcaagctcag cctgggcggc acagccagat gcgagatgcg tctctgctga tctgagtctg cctgcagcat ggacctgggt
cttccctgaa gcatctccag ggctggaggg acgactgcca tgcaccgagg gctcatccat ccacagagca gggcagtggg
aggagacgcc atgaccccca tcctcacggt cctgatctgt ctcgggctga gtctgggccc ccggacccac gtgcaggcag
ggcacctccc caagcccacc ctctgggctg aaccaggctc tgtgatcacc caggggagtc ctgtgaccct caggtgtcag
gggggccagg agacccagga gtaccgtcta tatagagaaa agaaaacagc accctggatt acacggatcc cacaggagct
tgtgaagaag ggccagttcc ccatcccatc catcacctgg gaacatgcag ggcggtatcg ctgttactat ggtagcgaca
ctgcaggccg ctcagagagc agtgaccccc tggagctggt ggtgacagga gcctacatca aacccaccct ctcagcccag
cccagccccg tggtgaactc aggagggaat gtaaccctcc agtgtgactc acaggtggca tttgatggct tcattctgtg
taaggaagga gaagatgaac acccacaatg cctgaactcc cagccccatg cccgtgggtc gtcccgcgcc atcttctccg
tgggccccgt gagcccgagt cgcaggtggt ggtacaggtg ctatgcttat gactcgaact ctccctatga gtggtctcta
cccagtgatc tcctggagct cctggtccta ggtgtttcta agaagccatc actctcagtg cagccaggtc ctatcgtggc
ccctgaggag accctgactc tgcagtgtgg ctctgatgct ggctacaaca gatttgttct gtataaggac ggggaacgtg
acttccttca gctcgctggc gcacagcccc aggctgggct ctcccaggcc aacttcaccc tgggccctgt gagccgctcc
tacgggggcc agtacagatg ctacggtgca cacaacctct cctccgagtg gtcggccccc agcgaccccc tggacatcct
gatcgcagga cagttctatg acagagtctc cctctcggtg cagccgggcc ccacggtggc ctcaggagag aacgtgaccc
tgctgtgtca gtcacaggga tggatgcaaa ctttccttct gaccaaggag ggggcagctg atgacccatg gcgtctaaga
tcaacgtacc aatctcaaaa ataccaggct gaattcccca tgggtcctgt gacctcagcc catgcgggga cctacaggtg
ctacggctca cagagctcca aaccctacct gctgactcac cccagtgacc ccctggagct cgtggtctca ggaccgtctg
ggggccccag ctccccgaca acaggcccca cctccacatc tggccctgag gaccagcccc tcacccccac cgggtcggat
ccccagagtg gtctgggaag gcacctgggg gttgtgatcg gcatcttggt ggccgtcatc ctactgctcc tcctcctcct
cctcctcttc ctcatcctcc gacatcgacg tcagggcaaa cactggacat cgacccagag aaaggctgat ttccaacatc
ctgcaggggc tgtggggcca gagcccacag acagaggcct gcagtggagg tccagcccag ctgccgatgc ccaggaagaa
aacctctatg ctgccgtgaa gcacacacag cctgaggatg gggtggagat ggacactcgg agcccacacg atgaagaccc
ccaggcagtg acgtatgccg aggtgaaaca ctccagacct aggagagaaa tggcctctcc tccttcccca ctgtctgggg
aattcctgga cacaaaggac agacaggcgg aagaggacag gcagatggac actgaggctg ctgcatctga agccccccag
gatgtgacct acgcccagct gcacagcttg acccttagac ggaaggcaac tgagcctcct ccatcccagg aagggccctc
tccagctgtg cccagcatct acgccactct ggccatccac tagcccaggg ggggacgcag accccacact ccatggagtc
tggaatgcat gggagctgcc cccccagtgg acaccattgg accccaccca gcctggatct accccaggag actctgggaa
cttttagggg tcactcaatt ctgcagtata aataactaat gtctctacaa ttttgaaata aagcaacaga cttctcaata atcaatgaag
tagctgagaa aactaagtca gaaagtgcat taaactgaat cacaatgtaa atattacaca tcaagcgatg aaactggaaa
actacaagcc acgaatgaat gaattaggaa agaaaaaaag taggaaatga atgatcttgg ctttcctata agaaatttag
ggcagggcac ggtggctcac gcctgtaatt ccagcacttt gggaggccga ggcgggcaga tcacgagttc aggagatcga
gaccatcttg gccaacatgg tgaaaccctg tctctcctaa aaatacaaaa attagctgga tgtggtggca gtgcctgtaa
tcccagctat ttgggaggct gaggcaggag aatcgcttga accagggagt cagaggtttc agtgagccaa gatcgcacca
ctgctctcca gcctggcgac agagggagac tccatctcaa attaaaaaaa aaaaaaaaaa agaaagaaaa aaaaaaaaaa aaaa

FIGURE 145

Met Thr Pro Ile Leu Thr Val Leu Ile Cys Leu Gly Leu Ser Leu Gly Pro Arg Thr His Val Gln Ala Gly His Leu Pro Lys Pro Thr Leu Trp Ala Glu Pro Gly Ser Val Ile Thr Gln Gly Ser Pro Val Thr Leu Arg Cys Gln Gly Gly Gln Glu Thr Gln Glu Tyr Arg Leu Tyr Arg Glu Lys Lys Thr Ala Pro Trp Ile Thr Arg Ile Pro Gln Glu Leu Val Lys Lys Gly Gln Phe Pro Ile Pro Ser Ile Thr Trp Glu His Ala Gly Arg Tyr Arg Cys Tyr Tyr Gly Ser Asp Thr Ala Gly Arg Ser Glu Ser Ser Asp Pro Leu Glu Leu Val Val Thr Gly Ala Tyr Ile Lys Pro Thr Leu Ser Ala Gln Pro Ser Pro Val Val Asn Ser Gly Gly Asn Val Thr Leu Gln Cys Asp Ser Gln Val Ala Phe Asp Gly Phe Ile Leu Cys Lys Glu Gly Glu Asp Glu His Pro Gln Cys Leu Asn Ser Gln Pro His Ala Arg Gly Ser Ser Arg Ala Ile Phe Ser Val Gly Pro Val Ser Pro Ser Arg Arg Trp Trp Tyr Arg Cys Tyr Ala Tyr Asp Ser Asn Ser Pro Tyr Glu Trp Ser Leu Pro Ser Asp Leu Leu Glu Leu Leu Val Leu Gly Val Ser Lys Lys Pro Ser Leu Ser Val Gln Pro Gly Pro Ile Val Ala Pro Glu Glu Thr Leu Thr Leu Gln Cys Gly Ser Asp Ala Gly Tyr Asn Arg Phe Val Leu Tyr Lys Asp Gly Glu Arg Asp Phe Leu Gln Leu Ala Gly Ala Gln Pro Gln Ala Gly Leu Ser Gln Ala Asn Phe Thr Leu Gly Pro Val Ser Arg Ser Tyr Gly Gly Gln Tyr Arg Cys Tyr Gly Ala His Asn Leu Ser Ser Glu Trp Ser Ala Pro Ser Asp Pro Leu Asp Ile Leu Ile Ala Gly Gln Phe Tyr Asp Arg Val Ser Leu Ser Val Gln Pro Gly Pro Thr Val Ala Ser Gly Glu Asn Val Thr Leu Leu Cys Gln Ser Gln Gly Trp Met Gln Thr Phe Leu Leu Thr Lys Glu Gly Ala Ala Asp Asp Pro Trp Arg Leu Arg Ser Thr Tyr Gln Ser Gln Lys Tyr Gln Ala Glu Phe Pro Met Gly Pro Val Thr Ser Ala His Ala Gly Thr Tyr Arg Cys Tyr Gly Ser Gln Ser Ser Lys Pro Tyr Leu Leu Thr His Pro Ser Asp Pro Leu Glu Leu Val Val Ser Gly Pro Ser Gly Gly Pro Ser Ser Pro Thr Thr Gly Pro Thr Ser Thr Ser Gly Pro Glu Asp Gln Pro Leu Thr Pro Thr Gly Ser Asp Pro Gln Ser Gly Leu Gly Arg His Leu Gly Val Val Ile Gly Ile Leu Val Ala Val Ile Leu Leu Leu Leu Leu Leu Leu Leu Leu Leu Phe Leu Ile Leu Arg His Arg Arg Gln Gly Lys His Trp Thr Ser Thr Gln Arg Lys Ala Asp Phe Gln His Pro Ala Gly Ala Val Gly Pro Glu Pro Thr Asp Arg Gly Leu Gln Trp Arg Ser Ser Pro Ala Ala Asp Ala Gln Glu Glu Asn Leu Tyr Ala Ala Val Lys His Thr Gln Pro Glu Asp Gly Val Glu Met Asp Thr Arg Ser Pro His Asp Glu Asp Pro Gln Ala Val Thr Tyr Ala Glu Val Lys His Ser Arg Pro Arg Arg Glu Met Ala Ser Pro Pro Ser Pro Leu Ser Gly Glu Phe Leu Asp Thr Lys Asp Arg Gln Ala Glu Glu Asp Arg Gln Met Asp Thr Glu Ala Ala Ala Ser Glu Ala Pro Gln Asp Val Thr Tyr Ala Gln Leu His Ser Leu Thr Leu Arg Arg Lys Ala Thr Glu Pro Pro Pro Ser Gln Glu Gly Pro Ser Pro Ala Val Pro Ser Ile Tyr Ala Thr Leu Ala Ile His

FIGURE 146

tctttggtga cttgtccact ccagtgtggc atcatgtggc agctgctcct cccaactgct ctgctacttc tagtttcagc tggcatgcgg actgaagatc tcccaaaggc tgtggtgttc ctggagcctc aatggtacag cgtgcttgag aaggacagtg tgactctgaa gtgccaggga gcctactccc ctgaggacaa ttccacacag tggtttcaca atgagagcct catctcaagc caggcctcga gctacttcat tgacgctgcc acagtcaacg acagtggaga gtacaggtgc cagacaaacc tctccaccct cagtgacccg gtgcagctag aagtccatat cggctggctg ttgctccagg cccctcggtg ggtgttcaag gaggaagacc ctattcacct gaggtgtcac agctggaaga acactgctct gcataaggtc acatatttac agaatggcaa agacaggaag tattttcatc ataattctga cttccacatt ccaaaagcca cactcaaaga tagcggctcc tacttctgca gggggcttgt tgggagtaaa aatgtgtctt cagagactgt gaacatcacc atcactcaag gtttggcagt gtcaaccatc tcatcattct ctccacctgg gtaccaagtc tctttctgct tggtgatggt actccttttt gcagtggaca caggactata tttctctgtg aagacaaaca tttgaagctc aacaagagac tggaaggacc ataaacttaa atggagaaag gaccctcaag acaaatgacc cccatcccat gggagtaata agagcagtgg cagcagcatc tctgaacatt tctctggatt tgcaacccca tcatcctcag gcctctc

FIGURE 147

Met Trp Gln Leu Leu Leu Pro Thr Ala Leu Leu Leu Leu Val Ser Ala Gly Met Arg Thr Glu Asp Leu Pro Lys Ala Val Val Phe Leu Glu Pro Gln Trp Tyr Ser Val Leu Glu Lys Asp Ser Val Thr Leu Lys Cys Gln Gly Ala Tyr Ser Pro Glu Asp Asn Ser Thr Gln Trp Phe His Asn Glu Ser Leu Ile Ser Ser Gln Ala Ser Ser Tyr Phe Ile Asp Ala Ala Thr Val Asn Asp Ser Gly Glu Tyr Arg Cys Gln Thr Asn Leu Ser Thr Leu Ser Asp Pro Val Gln Leu Glu Val His Ile Gly Trp Leu Leu Leu Gln Ala Pro Arg Trp Val Phe Lys Glu Glu Asp Pro Ile His Leu Arg Cys His Ser Trp Lys Asn Thr Ala Leu His Lys Val Thr Tyr Leu Gln Asn Gly Lys Asp Arg Lys Tyr Phe His His Asn Ser Asp Phe His Ile Pro Lys Ala Thr Leu Lys Asp Ser Gly Ser Tyr Phe Cys Arg Gly Leu Val Gly Ser Lys Asn Val Ser Ser Glu Thr Val Asn Ile Thr Ile Thr Gln Gly Leu Ala Val Ser Thr Ile Ser Ser Phe Ser Pro Pro Gly Tyr Gln Val Ser Phe Cys Leu Val Met Val Leu Leu Phe Ala Val Asp Thr Gly Leu Tyr Phe Ser Val Lys Thr Asn Ile

FIGURE 148

cgccactttg ctggagcatt cactaggcga ggcgctccat cggactcact agccgcactc atgaatcggc accatctgca ggatcacttt ctggaaatag acaagaagaa ctgctgtgtg ttccgagatg acttcattgc caaggtgttg ccgccggtgt tggggctgga gtttatcttt gggcttctgg gcaatggcct tgccctgtgg attttctgtt tccacctcaa gtcctggaaa tccagccgga ttttcctgtt caacctggca gtagctgact ttctactgat catctgcctg ccgttcgtga tggactacta tgtgcggcgt tcagactgga actttgggga catcccttgc cggctggtgc tcttcatgtt tgccatgaac cgccagggca gcatcatctt cctcacggtg gtggcggtag acaggtattt ccgggtggtc catccccacc acgccctgaa caagatctcc aattggacag cagccatcat ctcttgcctt ctgtggggca tcactgttgg cctaacagtc cacctcctga agaagaagtt gctgatccag aatggccctg caaatgtgtg catcagcttc agcatctgcc ataccttccg gtggcacgaa gctatgttcc tcctggagtt cctcctgccc ctgggcatca tcctgttctg ctcagccaga attatctgga gcctgcggca gagacaaatg gaccggcatg ccaagatcaa gagagccatc accttcatca tggtggtggc catcgtcttt gtcatctgct tccttcccag cgtggttgtg cggatccgca tcttctggct cctgcacact tcgggcacgc agaattgtga agtgtaccgc tcggtggacc tggcgttctt tatcactctc agcttcacct acatgaacag catgctggac cccgtggtgt actacttctc cagcccatcc tttcccaact tcttctccac tttgatcaac cgctgcctcc agaggaagat gacaggtgag ccagataata accgcagcac gagcgtcgag ctcacagggg accccaacaa aaccagaggc gctccagagg cgttaatggc caactccggt gagccatgga gcccctctta tctgggccca acctcaaata accattccaa gaagggacat tgtcaccaag aaccagcatc tctggagaaa cagttgggct gttgcatcga gtaatgtcac tggactcggc ctaaggtttc ctggaacttc cagattcaga gaatctgatt tagggaaact gtggcagatg agtgggagac tggttgcaag gtgtgaccac aggaatcctg gaggaacaga gagtaaagct tctaggcatc tgaaacttgc ttcatctctg acgctcgcag gactgaagat gggcaaattg taggcgtttc tgctgagcag agttggagcc agagatctac ttgtgacttg ttggccttct tcccacatct gcctcagact gggggggggct cagctcctcg ggtgatatct agcctgcttg tgagctctag cagggataag gagagctgag attggaggga attgtgttgc tcctggagga agcccaggca tcattaaaca agccagtagg tcacctggct tccgtggacc aattcatctt tcagacaagc tttagagaaa tggactcagg gaagagactc acatgctttg gttagtatct gtgtttccgg tgggtgtaat aggggattag ccccagaagg gactgagcta aacagtgtta ttatgggaaa ggaaatggca ttgctgcttt caaccagcga ctaatgcaat ccattcctct cttgtttata gtaatctaag ggttgagcag ttaaaacggc ttcaggatag aaagctgttt cccacctgtt tcgttttacc attaaaaggg aaacgtgcct ctgccccacg ggtagagggg gtgcacgttc ctcctggttc cttcgcttgt gtttctgtac ttaccaaaaa tctaccactt caataaattt tgataggaga caaaaaaaaa a

FIGURE 149

Met Asn Ser Ser Lys Ser Ser Glu Thr Gln Cys Thr Glu Arg Gly Cys Phe Ser Ser Gln Met Phe Leu Trp Thr Val Ala Gly Ile Pro Ile Leu Phe Leu Ser Ala Cys Phe Ile Thr Arg Cys Val Val Thr Phe Arg Ile Phe Gln Thr Cys Asp Glu Lys Lys Phe Gln Leu Pro Glu Asn Phe Thr Glu Leu Ser Cys Tyr Asn Tyr Gly Ser Gly Ser Val Lys Asn Cys Cys Pro Leu Asn Trp Glu Tyr Phe Gln Ser Ser Cys Tyr Phe Phe Ser Thr Asp Thr Ile Ser Trp Ala Leu Ser Leu Lys Asn Cys Ser Ala Met Gly Ala His Leu Val Val Ile Asn Ser Gln Glu Glu Gln Glu Phe Leu Ser Tyr Lys Lys Pro Lys Met Arg Glu Phe Phe Ile Gly Leu Ser Asp Gln Val Val Glu Gly Gln Trp Gln Trp Val Asp Gly Thr Pro Leu Thr Lys Ser Leu Ser Phe Trp Asp Val Gly Glu Pro Asn Asn Ile Ala Thr Leu Glu Asp Cys Ala Thr Met Arg Asp Ser Ser Asn Pro Arg Gln Asn Trp Asn Asp Val Thr Cys Phe Leu Asn Tyr Phe Arg Ile Cys Glu Met Val Gly Ile Asn Pro Leu Asn Lys Gly Lys Ser Leu

FIGURE 150

tcggagctga acttcctaaa agacaaagtg tttatctttc aagattcatt ctccctgaat cttaccaaca aaacactcct gaggagaaag aaagagaggg agggagagaa aaagagagag agagaaacaa aaaaccaaag agagagaaaa aatgaattca tctaaatcat ctgaaacaca atgcacagag agaggatgct tctcttccca aatgttctta tggactgttg ctgggatccc catcctattt ctcagtgcct gtttcatcac cagatgtgtt gtgacatttc gcatctttca aacctgtgat gagaaaaagt ttcagctacc tgagaatttc acagagctct cctgctacaa ttatggatca ggttcagtca agaattgttg tccattgaac tgggaatatt ttcaatccag ctgctacttc ttttctactg acaccatttc ctgggcgtta agtttaaaga actgctcagc catgggggct cacctggtgg ttatcaactc acaggaggag caggaattcc tttcctacaa gaaacctaaa atgagagagt tttttattgg actgtcagac caggttgtcg agggtcagtg gcaatgggtg gacggcacac ctttgacaaa gtctctgagc ttctgggatg taggggagcc caacaacata gctaccctgg aggactgtgc caccatgaga gactcttcaa acccaaggca aaattggaat gatgtaacct gtttcctcaa ttattttcgg atttgtgaaa tggtaggaat aaatcctttg aacaaaggaa aatctcttta agaacagaag gcacaactca aatgtgtaaa gaaggaagag caagaacatg gccacaccca ccgccccaca cgagaaattt gtgcgctgaa cttcaaagga cttcataagt atttgttact ctgatataaa taaaaataag tagttttaaa tgttataatt catgttactg gctgaagtgc attttctctc tacgttagtc tcaggtcctc ttcccagaat ttacaaagca attcatacct tttgctacat ttgcctcatt ttttagtgtt cgtatgaaag tacagggaca cggagccaag acagagtcta gcaaagaagg ggattttgga aggtgccttc caaaaatctc ctgaatccgg gctctgtagc aggtcctctt ctttctagct tctgacaagt ctgtcttctc ttcttggttt cataccgttc ttatctcctg cccaagcata tatcgtctct ttactcccct gtataatgag taagaagctt cttcaagtca tgaaacttat tcctgctcag aataccggtg tggcctttct ggctacaggc ctccactgca ccttcttagg gaagggcatg ccagccatca gctccaaaca ggctgtaacc aagtccaccc atccctgggg cttcctttgc tctgccttat tttcaattga ctgaatggat ctcaccagat tttgtatcta ttgctcagct aggacccgag tccaatagtc aatttattct aagcgaacat tcatctccac actttcctgt ctcaagccca tccattattt cttaactttt attttagctt tcgggggtac atgttaaagg ctttttatat aggtaaactc atgtcgtgga ggtttgttgt acagattatt tcatcaccca ggtattaagc ccagtgccta atattgtttt tttcggctcc tctccctcct cctaccttcc gccctcaagt agactccagt gtctgttatt cccttctttg tgtttatgaa ttctcatcat ttagctccca cttataagtg aggacatgca gtatttggtt ttctgttccc atgtttgcta aggataatgg tttccagttc taccgatgtt cccacaaaag acataatttt ctttttaag gctgcttagt attccatggt atctatgtat cacattttct ctatccaatc tattgttgac tcacatttag attgattcca tgtttttgct attgtgaata gtgctgcaat gaacattcgt gtgcatgtgt ctttatggta gaaagattta tatttctctg agtatgtatc cagtaatagc ccattcattt attgcataaa attctaccaa tac

FIGURE 151

Met Asn Arg His His Leu Gln Asp His Phe Leu Glu Ile Asp Lys Lys Asn Cys Cys Val Phe Arg Asp Asp Phe Ile Ala Lys Val Leu Pro Pro Val Leu Gly Leu Glu Phe Ile Phe Gly Leu Leu Gly Asn Gly Leu Ala Leu Trp Ile Phe Cys Phe His Leu Lys Ser Trp Lys Ser Ser Arg Ile Phe Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu Ile Ile Cys Leu Pro Phe Val Met Asp Tyr Tyr Val Arg Arg Ser Asp Trp Asn Phe Gly Asp Ile Pro Cys Arg Leu Val Leu Phe Met Phe Ala Met Asn Arg Gln Gly Ser Ile Ile Phe Leu Thr Val Val Ala Val Asp Arg Tyr Phe Arg Val Val His Pro His His Ala Leu Asn Lys Ile Ser Asn Trp Thr Ala Ala Ile Ile Ser Cys Leu Leu Trp Gly Ile Thr Val Gly Leu Thr Val His Leu Leu Lys Lys Lys Leu Leu Ile Gln Asn Gly Pro Ala Asn Val Cys Ile Ser Phe Ser Ile Cys His Thr Phe Arg Trp His Glu Ala Met Phe Leu Leu Glu Phe Leu Leu Pro Leu Gly Ile Ile Leu Phe Cys Ser Ala Arg Ile Ile Trp Ser Leu Arg Gln Arg Gln Met Asp Arg His Ala Lys Ile Lys Arg Ala Ile Thr Phe Ile Met Val Val Ala Ile Val Phe Val Ile Cys Phe Leu Pro Ser Val Val Val Arg Ile Arg Ile Phe Trp Leu Leu His Thr Ser Gly Thr Gln Asn Cys Glu Val Tyr Arg Ser Val Asp Leu Ala Phe Phe Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met Leu Asp Pro Val Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Asn Phe Phe Ser Thr Leu Ile Asn Arg Cys Leu Gln Arg Lys Met Thr Gly Glu Pro Asp Asn Asn Arg Ser Thr Ser Val Glu Leu Thr Gly Asp Pro Asn Lys Thr Arg Gly Ala Pro Glu Ala Leu Met Ala Asn Ser Gly Glu Pro Trp Ser Pro Ser Tyr Leu Gly Pro Thr Ser Asn Asn His Ser Lys Lys Gly His Cys His Gln Glu Pro Ala Ser Leu Glu Lys Gln Leu Gly Cys Cys Ile Glu

FIGURE 152

aggtaatgat taatctgtca ggcacaaaag ggattgtttt ggggatttcg ggttctaagt cgcagattca aacaaatagc agcgaacagg gaatgacagt tccaccagaa gacgattaag ccacagcctc taattggaac ggcatttgta cagtcagaga ctcttaccag acatctccag gaatctgtga gccattgtca aaacgtccat tttcatctgg ctgtgaaagt gaggaccaca acaggtaggt attggtagaa acaggagtcc tcagagaagc cccaagatgc agcctgaggg agcagaaaag ggaaaaagct tcaagcagag actggtcttg aagagcagct tagcgaaaga aaccctctct gagttcttgg gcacgttcat cttgattgtc cttggatgtg gctgtgttgc ccaagctatt ctcagtcgag gacgttttgg aggggtcatc actatcaatg ttggattttc aatggcagtt gcaatggcca tttatgtggc tggcggtgtc tctggtggtc acatcaaccc agctgtgtct ttagcaatgt gtctctttgg acggatgaaa tggttcaaat tgccatttta tgtgggagcc cagttcttgg gagcctttgt gggggctgca accgtctttg gcatttacta tgatggactt atgtcctttg ctggtggaaa actgctgatc gtgggagaaa atgcaacagc acacattttt gcaacatacc cagctccgta tctatctctg gcgaacgcat ttgcagatca agtggtggcc accatgatac tcctcataat cgtctttgcc atttttgact ccagaaactt gggagccccc agaggcctag agcccattgc catcggcctc ctgattattg tcattgcttc ctccctggga ctgaacagtg gctgtgccat gaacccagct cgagacctga gtcccagact tttcactgcc ttggcaggct gggggtttga agtcttcaga gctggaaaca acttctggtg gattcctgta gtgggccctt tggttggtgc tgtcattgga ggcctcatct atgttcttgt cattgaaatc caccatccag agcctgactc agtctttaag gcagaacaat ctgaggacaa accagagaaa tatgaactca gtgtcatcat gtagtggcat gctcagctct ggatttgcag tcagtttggg attctcttca gaaagatggc atctaagtgt ctgtgttctt gtaagcctga ggtggaatcc acccagtttt gtctgctagc catatgggac atctaattgg aaaagcatct gcataaaagt ttggaaacaa tgaccacttc tctaccattg tcccccaccc caccccccag aataacgctg actgtcccct gaaacagcct tctctcctgc cctgtttatt tcatcctcga tgggaattct tgctaggtaa gcactaataa ctcggcatct tgacgatagt cccatttggg tggtttcagc tgcactatct gtatgaaatg gtgtcaccaa aacccttttc ttcagtatcg acaaagatta cattctgagt accaaccaaa ccctaaattg aaagacaaaa ctatggtttc agtcaacata ttcatgaatt agggagctaa tgggttaagc ttccagttcc cgctatgcta ctggatttgt ataaatactg atattctcca aacctagtgg tgtagggagc aagagaatgc agctggaagg cacaagggga ggacattgtg gcattcagaa actgcaggag acaagatgaa tttgagaagc caaatggaat ttttaatgga aaccatttat cagattaatc tcttgctctc ctgcatttta gaggacacca attaatttcc tggtctttag tatataataa cctaaaatac cattgtaacc tcagtcatga aaaatacatc actctgtctt tttagctcaa atgtattttc ctaattgccc acttgagaac agacatttga caagttatat caacgactgt gcttgtccat tattttacac atgccctaga agccaaaact gaaagccact ggatcctggt ctagctgaat cttcagagtg ggaggtctcc aaaaagatat taccttattg ggcttaacaa ttcacaaggc actttcacac ccattatcta atttaatcct cataatgact atgtgaggca aatgccacat tgcccatttt tcagataaag aaacaaaatc ttagggaaga taagttgagt tgtccaagag cacactgaaa gttgaatgtt atctaatgca ttcctctacc tttcagaaga tcagtagctg gctgagaatc tttgccaaat cttccttgct agccagaagt ggaattggca gcttctagaa tatgtacacc tctggacaaa atgttcctca atcttaagat acaaagaccc tcattgtctg ggtctattcc cacacttact gagtacagat gaaggaaagt ggtagcaatt taatcataac tttcatttgc tgaaaaacat tatgagaagg cctcccttcc taagccacct ctggtcttgc taagtcttga tcttgcttcc tgccagcacc aaacattaca ttcaggggat ttcctctggc tcagtctttt ccccttgaag ttctctaata gatgttactt ttgacaaaag atcgcctatg agttacaagc accaggggat gctctacatc aagggatgca ccttcagtca aactgtcaaa aagcccagaa ttcccaaagg cattaggttt cccaactgct ttgtgctgat atcagaacag cagaaattaa atgtgaaatg tttctgatga cttatgttct acaatctatg gacatacggg attttttttt cttgctttga agctacctgg atatttccta tttgaaataa aattgttcgg tcattgtt

FIGURE 153

Met Gln Pro Glu Gly Ala Glu Lys Gly Lys Ser Phe Lys Gln Arg Leu Val Leu Lys Ser Ser Leu Ala Lys Glu Thr Leu Ser Glu Phe Leu Gly Thr Phe Ile Leu Ile Val Leu Gly Cys Gly Cys Val Ala Gln Ala Ile Leu Ser Arg Gly Arg Phe Gly Gly Val Ile Thr Ile Asn Val Gly Phe Ser Met Ala Val Ala Met Ala Ile Tyr Val Ala Gly Gly Val Ser Gly Gly His Ile Asn Pro Ala Val Ser Leu Ala Met Cys Leu Phe Gly Arg Met Lys Trp Phe Lys Leu Pro Phe Tyr Val Gly Ala Gln Phe Leu Gly Ala Phe Val Gly Ala Ala Thr Val Phe Gly Ile Tyr Tyr Asp Gly Leu Met Ser Phe Ala Gly Gly Lys Leu Leu Ile Val Gly Glu Asn Ala Thr Ala His Ile Phe Ala Thr Tyr Pro Ala Pro Tyr Leu Ser Leu Ala Asn Ala Phe Ala Asp Gln Val Val Ala Thr Met Ile Leu Leu Ile Ile Val Phe Ala Ile Phe Asp Ser Arg Asn Leu Gly Ala Pro Arg Gly Leu Glu Pro Ile Ala Ile Gly Leu Leu Ile Ile Val Ile Ala Ser Ser Leu Gly Leu Asn Ser Gly Cys Ala Met Asn Pro Ala Arg Asp Leu Ser Pro Arg Leu Phe Thr Ala Leu Ala Gly Trp Gly Phe Glu Val Phe Arg Ala Gly Asn Asn Phe Trp Trp Ile Pro Val Val Gly Pro Leu Val Gly Ala Val Ile Gly Gly Leu Ile Tyr Val Leu Val Ile Glu Ile His His Pro Glu Pro Asp Ser Val Phe Lys Ala Glu Gln Ser Glu Asp Lys Pro Glu Lys Tyr Glu Leu Ser Val Ile Met

FIGURE 154

gctcactgag caccgtccca gcatccggac accacagcgg cccttcgctc cacgcagaaa accacacttc tcataccttc actcaacact tccttcccca aagccagaag atgcacaagg aggaacatga ggtggctgtg ctgggggcac cccccagcac catccttcca aggtccaccg tgattaacat ccacagcgag acctccgtgc ccgaccatgt cgtctggtcc ctgttcaaca ccctcttctt gaactggtgc tgtctgggct tcatagcatt cgcctactcc gtaaagtcta gggacaggaa gatggttggc gacgtgaccg gggcccaggc ctatgcctcc accgccaagt gcctgaacat ctgggccctg attctgggca tcctcatgac cattggattc atcctgttac tggtattcgg ctctgtaaca gtctaccata ttatgttaca gataatacag gaaaaacggg gttactagta gccgcccata gcctgcaacc tttgcactcc actgtgcaat gctggccctg cacgctgggg ctgttgcccc tgcccccttg gtcctgcccc tagatacagc agtttatacc cacacacctg tctacagtgt cattcaataa agtgcacgtg cttgtga

FIGURE 155

Met His Lys Glu Glu His Glu Val Ala Val Leu Gly Ala Pro Pro Ser Thr Ile Leu Pro Arg Ser Thr Val Ile Asn Ile His Ser Glu Thr Ser Val Pro Asp His Val Val Trp Ser Leu Phe Asn Thr Leu Phe Leu Asn Trp Cys Cys Leu Gly Phe Ile Ala Phe Ala Tyr Ser Val Lys Ser Arg Asp Arg Lys Met Val Gly Asp Val Thr Gly Ala Gln Ala Tyr Ala Ser Thr Ala Lys Cys Leu Asn Ile Trp Ala Leu Ile Leu Gly Ile Leu Met Thr Ile Gly Phe Ile Leu Leu Leu Val Phe Gly Ser Val Thr Val Tyr His Ile Met Leu Gln Ile Ile Gln Glu Lys Arg Gly Tyr

FIGURE 156

cttccagaga gcaatatggc tggttcccca acatgcctca ccctcatcta tatcctttgg cagctcacag ggtcagcagc ctctggaccc gtgaaagagc tggtcggttc cgttggtggg gccgtgactt tccccctgaa gtccaaagta aagcaagttg actctattgt ctggaccttc aacacaaccc ctcttgtcac catacagcca gaagggggca ctatcatagt gacccaaaat cgtaataggg agagagtaga cttcccagat ggaggctact ccctgaagct cagcaaactg aagaagaatg actcagggat ctactatgtg gggatataca gctcatcact ccagcagccc tccacccagg agtacgtgct gcatgtctac gagcacctgt caaagcctaa agtcaccatg ggtctgcaga gcaataagaa tggcacctgt gtgaccaatc tgacatgctg catggaacat ggggaagagg atgtgattta tacctggaag gccctggggc aagcagccaa tgagtcccat aatgggtcca tcctccccat ctcctggaga tggggagaaa gtgatatgac cttcatctgc gttgccagga accctgtcag cagaaacttc tcaagcccca tccttgccag gaagctctgt gaaggtgctg ctgatgaccc agattcctcc atggtcctcc tgtgtctcct gttggtgccc ctcctgctca gtctctttgt actggggcta tttctttggt ttctgaagag agagagacaa gaagagtaca ttgaagagaa gaagagagtg gacatttgtc gggaaactcc taacatatgc ccccattctg gagagaacac agagtacgac acaatccctc acactaatag aacaatccta aaggaagatc cagcaaatac ggtttactcc actgtggaaa taccgaaaaa gatggaaaat ccccactcac tgctcacgat gccagacaca ccaaggctat ttgcctatga gaatgttatc tagacagcag tgcactcccc taagtctctg ctcaaaaaaa aaacaattct cggcccaaag aaaacaatca gaagaattca ctgatttgac tagaaacatc aaggaagaat gaagaacgtt gacttttttc caggataaat tatctctgat gcttctttag atttaagagt tcataattcc atccactgct gagaaatctc ctcaaaccca gaaggtttaa tcacttcatc ccaaaaatgg gattgtgaat gtcagcaaac cataaaaaaa gtgcttagaa gtattcctat agaaatgtaa atgcaaggtc acacatatta atgacagcct gttgtattaa tgatggctcc aggtcagtgt ctggagtttc attccatccc agggcttgga tgtaaggatt ataccaagag tcttgctacc aggagggcaa gaagaccaaa acagacagac aagtccagca gaagcagatg cacctgacaa aaatggatgt attaattggc tctataaact atgtgcccag cactatgctg agcttacact aattggtcag acgtgctgtc tgccctcatg aaattggctc caaatgaatg aactactttc atgagcagtt gtagcaggcc tgaccacaga ttcccagagg gccaggtgtg gatccacagg acttgaaggt caaagttcac aaagatgaag aatcagggta gctgaccatg tttggcagat actataatgg agacacagaa gtgtgcatgg cccaaggaca aggacctcca gccaggcttc atttatgcac ttgtgctgca aaagaaaagt ctaggtttta aggctgtgcc agaacccatc ccaataaaga gaccgagtct gaagtcacat tgtaaatcta gtgtaggaga cttggagtca ggcagtgaga ctggtggggc acgggggggca gtgggtactt gtaaaccttt aaagatggtt aattcattca atagatattt attaagaacc tatgcggccc ggcatggtgg ctcacacctg taatcccagc actttgggag gccaaggtgg gtgggtcatc tgaggtcagg agttcaagac cagcctggcc aacatggtga aaccccatct ctactaaaga tacaaaaatt tgctgagcgt ggtggtgtgc acctgtaatc ccagctactc gagaggccaa ggcatgagaa tcgcttgaac ctgggaggtg gaggttgcag tgagctgaga tggcaccact gcactccggc ctaggcaacg agagcaaaac tccaatacaa acaaacaaac aaacacctgt gctaggtcag tctggcacgt aagatgaaca tccctaccaa cacagagctc accatctctt atacttaagt gaaaaacatg gggaagggga aaggggaatg gctgcttttg atatgttccc tgacacatat cttgaatgga gacctcccta ccaagtgatg aaagtgttga aaaacttaat aacaaatgct tgttgggcaa gaatgggatt gaggattatc ttctctcaga aaggcattgt gaaggaattg agccagatct ctctccctac tgcaaaaccc tattgtagta aaaaagtctt ctttactatc ttaataaaac agatattgtg agattcaaaa aaaaaaaaaa aa

FIGURE 157

Met Ala Gly Ser Pro Thr Cys Leu Thr Leu Ile Tyr Ile Leu Trp Gln Leu Thr Gly Ser Ala Ala Ser Gly Pro Val Lys Glu Leu Val Gly Ser Val Gly Gly Ala Val Thr Phe Pro Leu Lys Ser Lys Val Lys Gln Val Asp Ser Ile Val Trp Thr Phe Asn Thr Thr Pro Leu Val Thr Ile Gln Pro Glu Gly Gly Thr Ile Ile Val Thr Gln Asn Arg Asn Arg Glu Arg Val Asp Phe Pro Asp Gly Gly Tyr Ser Leu Lys Leu Ser Lys Leu Lys Lys Asn Asp Ser Gly Ile Tyr Tyr Val Gly Ile Tyr Ser Ser Ser Leu Gln Gln Pro Ser Thr Gln Glu Tyr Val Leu His Val Tyr Glu His Leu Ser Lys Pro Lys Val Thr Met Gly Leu Gln Ser Asn Lys Asn Gly Thr Cys Val Thr Asn Leu Thr Cys Cys Met Glu His Gly Glu Glu Asp Val Ile Tyr Thr Trp Lys Ala Leu Gly Gln Ala Ala Asn Glu Ser His Asn Gly Ser Ile Leu Pro Ile Ser Trp Arg Trp Gly Glu Ser Asp Met Thr Phe Ile Cys Val Ala Arg Asn Pro Val Ser Arg Asn Phe Ser Ser Pro Ile Leu Ala Arg Lys Leu Cys Glu Gly Ala Ala Asp Asp Pro Asp Ser Ser Met Val Leu Leu Cys Leu Leu Leu Val Pro Leu Leu Leu Ser Leu Phe Val Leu Gly Leu Phe Leu Trp Phe Leu Lys Arg Glu Arg Gln Glu Glu Tyr Ile Glu Glu Lys Lys Arg Val Asp Ile Cys Arg Glu Thr Pro Asn Ile Cys Pro His Ser Gly Glu Asn Thr Glu Tyr Asp Thr Ile Pro His Thr Asn Arg Thr Ile Leu Lys Glu Asp Pro Ala Asn Thr Val Tyr Ser Thr Val Glu Ile Pro Lys Lys Met Glu Asn Pro His Ser Leu Leu Thr Met Pro Asp Thr Pro Arg Leu Phe Ala Tyr Glu Asn Val Ile

FIGURE 158

cagggcagac tggtagcaaa gcccccacgc ccagccagga gcaccgccgc ggactccagc acaccgaggg acatgctggg cctgcgcccc ccactgctcg ccctggtggg gctgctctcc ctcgggtgcg tcctctctca ggagtgcacg aagttcaagg tcagcagctg ccgggaatgc atcgagtcgg ggcccggctg cacctggtgc cagaagctga acttcacagg gccgggggat cctgactcca ttcgctgcga cacccggcca cagctgctca tgaggggctg tgcggctgac gacatcatgg accccacaag cctcgctgaa acccaggaag accacaatgg gggccagaag cagctgtccc cacaaaaagt gacgctttac ctgcgaccag gccaggcagc agcgttcaac gtgaccttcc ggcgggccaa gggctacccc atcgacctgt actatctgat ggacctctcc tactccatgc ttgatgacct caggaatgtc aagaagctag gtggcgacct gctccgggcc ctcaacgaga tcaccgagtc cggccgcatt ggcttcgggt ccttcgtgga caagaccgtg ctgccgttcg tgaacacgca ccctgataag ctgcgaaacc catgccccaa caaggagaaa gagtgccagc ccccgtttgc cttcaggcac gtgctgaagc tgaccaacaa ctccaaccag tttcagaccg aggtcgggaa gcagctgatt tccggaaacc tggatgcacc cgagggtggg ctggacgcca tgatgcaggt cgccgcctgc ccggaggaaa tcggctggcg caacgtcacg cggctgctgg tgtttgccac tgatgacggc ttccatttcg cgggcgacgg aaagctgggc gccatcctga cccccaacga cggccgctgt cacctggagg acaacttgta caagaggagc aacgaattcg actacccatc ggtgggccag ctggcgcaca agctggctga aaacaacatc cagcccatct tcgcggtgac cagtaggatg gtgaagacct acgagaaact caccgagatc atccccaagt cagccgtggg ggagctgtct gaggactcca gcaatgtggt ccatctcatt aagaatgctt acaataaact ctcctccagg gtcttcctgg atcacaacgc cctccccgac accctgaaag tcacctacga ctccttctgc agcaatggag tgacgcacag gaaccagccc agaggtgact gtgatggcgt gcagatcaat gtcccgatca ccttccaggt gaaggtcacg gccacagagt gcatccagga gcagtcgttt gtcatccggg cgctgggctt cacggacata gtgaccgtgc aggttcttcc ccagtgtgag tgccggtgcc gggaccagag cagagaccgc agcctctgcc atggcaaggg cttcttggag tgcggcatct gcaggtgtga cactggctac attgggaaaa actgtgagtg ccagacacag ggccggagca gccaggagct ggaaggaagc tgccggaagg acaacaactc catcatctgc tcagggctgg gggactgtgt ctgcgggcag tgcctgtgcc acaccagcga cgtccccggc aagctgatat acgggcagta ctgcgagtgt gacaccatca actgtgagcg ctacaacggc caggtctgcg gcggcccggg gaggggctc tgcttctgcg ggaagtgccg ctgccacccg ggctttgagg gctcagcgtg ccagtgcgag aggaccactg agggctgcct gaacccgcgg cgtgttgagt gtagtggtcg tggccggtgc cgctgcaacg tatgcgagtg ccattcaggc taccagctgc ctctgtgcca ggagtgcccc ggctgccct caccctgtgg caagtacatc tcctgcgccg agtgcctgaa gttcgaaaag ggccccttg ggaagaactg cagcgcggcg tgtccgggcc tgcagctgtc gaacaacccc gtgaagggca ggacctgcaa ggagagggac tcagagggct gctgggtggc ctacacgctg gagcagcagg acgggatgga ccgctacctc atctatgtgg atgagagccg agagtgtgtg gcaggcccca acatcgccgc catcgtcggg ggcaccgtgg caggcatcgt gctgatcggc attctcctgc tggtcatctg gaaggctctg atccacctga gcgacctccg ggagtacagg cgctttgaga aggagaagct caagtcccag tggaacaatg ataatccct tttcaagagc gccaccacga cggtcatgaa ccccaagttt gctgagagtt aggagcactt ggtgaagaca aggccgtcag gacccaccat gtctgcccca tcacgcggcc gagacatggc ttggccacag ctcttgagga tgtcaccaat taaccagaaa tccagttatt ttccgccctc aaaatgacag ccatggccgg ccggtgcttc tgggggctcg tcgggggac agctccactc tgactggcac agtctttgca tggagacttg aggagggctt gaggttggtg aggttaggtg cgtgtttcct gtgcaagtca ggacatcagt ctgattaaag gtggtgccaa tttatttaca tttaaacttg tcagggtata aaatgacatc ccattaatta tattgttaat caatcacgtg tatagaaaaa aaaataaaac ttcaat

FIGURE 159

Met Leu Gly Leu Arg Pro Pro Leu Leu Ala Leu Val Gly Leu Leu Ser Leu Gly Cys Val Leu Ser Gln Glu Cys Thr Lys Phe Lys Val Ser Ser Cys Arg Glu Cys Ile Glu Ser Gly Pro Gly Cys Thr Trp Cys Gln Lys Leu Asn Phe Thr Gly Pro Gly Asp Pro Asp Ser Ile Arg Cys Asp Thr Arg Pro Gln Leu Leu Met Arg Gly Cys Ala Ala Asp Asp Ile Met Asp Pro Thr Ser Leu Ala Glu Thr Gln Glu Asp His Asn Gly Gly Gln Lys Gln Leu Ser Pro Gln Lys Val Thr Leu Tyr Leu Arg Pro Gly Gln Ala Ala Ala Phe Asn Val Thr Phe Arg Arg Ala Lys Gly Tyr Pro Ile Asp Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Leu Asp Asp Leu Arg Asn Val Lys Lys Leu Gly Gly Asp Leu Leu Arg Ala Leu Asn Glu Ile Thr Glu Ser Gly Arg Ile Gly Phe Gly Ser Phe Val Asp Lys Thr Val Leu Pro Phe Val Asn Thr His Pro Asp Lys Leu Arg Asn Pro Cys Pro Asn Lys Glu Lys Glu Cys Gln Pro Pro Phe Ala Phe Arg His Val Leu Lys Leu Thr Asn Asn Ser Asn Gln Phe Gln Thr Glu Val Gly Lys Gln Leu Ile Ser Gly Asn Leu Asp Ala Pro Glu Gly Gly Leu Asp Ala Met Met Gln Val Ala Ala Cys Pro Glu Glu Ile Gly Trp Arg Asn Val Thr Arg Leu Leu Val Phe Ala Thr Asp Asp Gly Phe His Phe Ala Gly Asp Gly Lys Leu Gly Ala Ile Leu Thr Pro Asn Asp Gly Arg Cys His Leu Glu Asp Asn Leu Tyr Lys Arg Ser Asn Glu Phe Asp Tyr Pro Ser Val Gly Gln Leu Ala His Lys Leu Ala Glu Asn Asn Ile Gln Pro Ile Phe Ala Val Thr Ser Arg Met Val Lys Thr Tyr Glu Lys Leu Thr Glu Ile Ile Pro Lys Ser Ala Val Gly Glu Leu Ser Glu Asp Ser Ser Asn Val Val His Leu Ile Lys Asn Ala Tyr Asn Lys Leu Ser Ser Arg Val Phe Leu Asp His Asn Ala Leu Pro Asp Thr Leu Lys Val Thr Tyr Asp Ser Phe Cys Ser Asn Gly Val Thr His Arg Asn Gln Pro Arg Gly Asp Cys Asp Gly Val Gln Ile Asn Val Pro Ile Thr Phe Gln Val Lys Val Thr Ala Thr Glu Cys Ile Gln Glu Gln Ser Phe Val Ile Arg Ala Leu Gly Phe Thr Asp Ile Val Thr Val Gln Val Leu Pro Gln Cys Glu Cys Arg Cys Arg Asp Gln Ser Arg Asp Arg Ser Leu Cys His Gly Lys Gly Phe Leu Glu Cys Gly Ile Cys Arg Cys Asp Thr Gly Tyr Ile Gly Lys Asn Cys Glu Cys Gln Thr Gln Gly Arg Ser Ser Gln Glu Leu Glu Gly Ser Cys Arg Lys Asp Asn Asn Ser Ile Ile Cys Ser Gly Leu Gly Asp Cys Val Cys Gly Gln Cys Leu Cys His Thr Ser Asp Val Pro Gly Lys Leu Ile Tyr Gly Gln Tyr Cys Glu Cys Asp Thr Ile Asn Cys Glu Arg Tyr Asn Gly Gln Val Cys Gly Gly Pro Gly Arg Gly Leu Cys Phe Cys Gly Lys Cys Arg Cys His Pro Gly Phe Glu Gly Ser Ala Cys Gln Cys Glu Arg Thr Thr Glu Gly Cys Leu Asn Pro Arg Arg Val Glu Cys Ser Gly Arg Gly Arg Cys Arg Cys Asn Val Cys Glu Cys His Ser Gly Tyr Gln Leu Pro Leu Cys Gln Glu Cys Pro Gly Cys Pro Ser Pro Cys Gly Lys Tyr Ile Ser Cys Ala Glu Cys Leu Lys Phe Glu Lys Gly Pro Phe Gly Lys Asn Cys Ser Ala Ala Cys Pro Gly Leu Gln Leu Ser Asn Asn Pro Val Lys Gly Arg Thr Cys Lys Glu Arg Asp Ser Glu Gly Cys Trp Val Ala Tyr Thr Leu Glu Gln Gln Asp Gly Met Asp Arg Tyr Leu Ile Tyr Val Asp Glu Ser Arg Glu Cys Val Ala Gly Pro Asn Ile Ala Ala Ile Val Gly Gly Thr Val Ala Gly Ile Val Leu Ile Gly Ile Leu Leu Leu Val Ile Trp Lys Ala Leu Ile His Leu Ser Asp Leu Arg Glu Tyr Arg Arg Phe Glu Lys Glu Lys Leu Lys Ser Gln Trp Asn Asn Asp Asn Pro Leu Phe Lys Ser Ala Thr Thr Thr Val Met Asn Pro Lys Phe Ala Glu Ser

FIGURE 160

ctccctttgg gcaaggacct gagacccttg tgctaagtca agaggctcaa tgggctgcag aagaactaga gaaggaccaa gcaaagccat gatatttcca tggaaatgtc agagcaccca gagggactta tggaacatct tcaagttgtg ggggtggaca atgctctgtt gtgatttcct ggcacatcat ggaaccgact gctggactta ccattattct gaaaaaccca tgaactggca aagggctaga agattctgcc gagacaatta cacagattta gttgccatac aaaacaaggc ggaaattgag tatctggaga agactctgcc tttcagtcgt tcttactact ggataggaat ccggaagata ggaggaatat ggacgtgggt gggaaccaac aaatctctta ctgaagaagc agagaactgg ggagatggtg agcccaacaa caagaagaac aaggaggact gcgtggagat ctatatcaag agaaacaaag atgcaggcaa atggaacgat gacgcctgcc acaaactaaa ggcagccctc tgttacacag cttcttgcca gccctggtca tgcagtggcc atggagaatg tgtagaaatc atcaataatt acacctgcaa ctgtgatgtg gggtactatg ggccccagtg tcagtttgtg attcagtgtg agcctttgga ggccccagag ctgggtacca tggactgtac tcacccttg ggaaacttca gcttcagctc acagtgtgcc ttcagctgct ctgaaggaac aaacttaact gggattgaag aaaccacctg tggaccattt ggaaactggt catctccaga accaacctgt caagtgattc agtgtgagcc tctatcagca ccagatttgg ggatcatgaa ctgtagccat cccctggcca gcttcagctt tacctctgca tgtaccttca tctgctcaga aggaactgag ttaattggga agaagaaaac catttgtgaa tcatctggaa tctggtcaaa tcctagtcca atatgtcaaa aattggacaa aagtttctca atgattaagg agggtgatta taacccccctc ttcattccag tggcagtcat ggttactgca ttctctgggt tggcatttat catttggctg gcaaggagat taaaaaaagg caagaaatcc aagagaagta tgaatgaccc atattaaatc gcccttggtg aaagaaaatt cttggaatac taaaaatcat gagatccttt aaatccttcc atgaaacgtt ttgtgtggtg gcacctccta cgtcaaacat gaagtgtgtt tccttcagtg catctgggaa gatttctacc tgaccaacag ttccttcagc ttccatttcg cccctcattt atccctcaac ccccagccca caggtgttta tacagctcag ctttttgtct tttctgagga gaaacaaata agaccataaa gggaaaggat tcatgtggaa tataaagatg gctgactttg ctctttcttg actcttgttt tcagtttcaa ttcagtgctg tacttgatga cagacacttc taaatgaagt gcaaatttga tacatatgtg aatatggact cagttttctt gcagatcaaa tttcacgtcg tcttctgtat actgtggagg tacactctta tagaaagttc aaaaagtcta cgctctcctt tctttctaac tccagtgaag taatggggtc ctgctcaagt tgaaagagtc ctatttgcac tgtagcctcg ccgtctgtga attggaccat cctatttaac tggcttcagc ctccccacct tcttcagcca cctctctttt tcagttggct gacttccaca cctagcatct catgagtgcc aagcaaaagg agagaagaga gaaatagcct gcgctgtttt ttagtttggg ggttttgctg tttcctttta tgagacccat tcctatttct tatagtcaat gtttctttta tcacgatatt attagtaaga aaacatcact gaaatgctag ctgcaagtga catctctttg atgtcatatg gaagagttaa aacaggtgga gaaattcctt gattcacaat gaaatgctct cctttcccct gcccccagac cttttatcca cttacctaga ttctacatat tctttaaatt tcatctcagg cctccctcaa ccccaccact tcttttataa ctagtccttt actaatccaa cccatgatga gctcctcttc ctggcttctt actgaaaggt taccctgtaa catgcaattt tgcatttgaa taaagcctgc tttttaagtg ttaa

FIGURE 161

Met Ile Phe Pro Trp Lys Cys Gln Ser Thr Gln Arg Asp Leu Trp Asn Ile Phe Lys Leu Trp Gly Trp Thr Met Leu Cys Cys Asp Phe Leu Ala His His Gly Thr Asp Cys Trp Thr Tyr His Tyr Ser Glu Lys Pro Met Asn Trp Gln Arg Ala Arg Arg Phe Cys Arg Asp Asn Tyr Thr Asp Leu Val Ala Ile Gln Asn Lys Ala Glu Ile Glu Tyr Leu Glu Lys Thr Leu Pro Phe Ser Arg Ser Tyr Tyr Trp Ile Gly Ile Arg Lys Ile Gly Gly Ile Trp Thr Trp Val Gly Thr Asn Lys Ser Leu Thr Glu Glu Ala Glu Asn Trp Gly Asp Gly Glu Pro Asn Asn Lys Lys Asn Lys Glu Asp Cys Val Glu Ile Tyr Ile Lys Arg Asn Lys Asp Ala Gly Lys Trp Asn Asp Asp Ala Cys His Lys Leu Lys Ala Ala Leu Cys Tyr Thr Ala Ser Cys Gln Pro Trp Ser Cys Ser Gly His Gly Glu Cys Val Glu Ile Ile Asn Asn Tyr Thr Cys Asn Cys Asp Val Gly Tyr Tyr Gly Pro Gln Cys Gln Phe Val Ile Gln Cys Glu Pro Leu Glu Ala Pro Glu Leu Gly Thr Met Asp Cys Thr His Pro Leu Gly Asn Phe Ser Phe Ser Ser Gln Cys Ala Phe Ser Cys Ser Glu Gly Thr Asn Leu Thr Gly Ile Glu Glu Thr Thr Cys Gly Pro Phe Gly Asn Trp Ser Ser Pro Glu Pro Thr Cys Gln Val Ile Gln Cys Glu Pro Leu Ser Ala Pro Asp Leu Gly Ile Met Asn Cys Ser His Pro Leu Ala Ser Phe Ser Phe Thr Ser Ala Cys Thr Phe Ile Cys Ser Glu Gly Thr Glu Leu Ile Gly Lys Lys Lys Thr Ile Cys Glu Ser Ser Gly Ile Trp Ser Asn Pro Ser Pro Ile Cys Gln Lys Leu Asp Lys Ser Phe Ser Met Ile Lys Glu Gly Asp Tyr Asn Pro Leu Phe Ile Pro Val Ala Val Met Val Thr Ala Phe Ser Gly Leu Ala Phe Ile Ile Trp Leu Ala Arg Arg Leu Lys Lys Gly Lys Lys Ser Lys Arg Ser Met Asn Asp Pro Tyr

FIGURE 162

cctgagacag aggcagcagt gatacccacc tgagagatcc tgtgtttgaa caactgcttc ccaaaacgga aagtatttca agcctaaacc tttgggtgaa aagaactctt gaagtcatga ttgcttcaca gtttctctca gctctcactt tggtgcttct cattaaagag agtggagcct ggtcttacaa cacctccacg gaagctatga cttatgatga ggccagtgct tattgtcagc aaaggtacac acacctggtt gcaattcaaa acaaagaaga gattgagtac ctaaactcca tattgagcta ttcaccaagt tattactgga ttggaatcag aaaagtcaac aatgtgtggg tctgggtagg aacccagaaa cctctgacag aagaagccaa gaactgggct ccaggtgaac ccaacaatag gcaaaaagat gaggactgcg tggagatcta catcaagaga gaaaaagatg tgggcatgtg gaatgatgag aggtgcagca agaagaagct tgccctatgc tacacagctg cctgtaccaa tacatcctgc agtggccacg gtgaatgtgt agagaccatc aataattaca cttgcaagtg tgaccctggc ttcagtggac tcaagtgtga gcaaattgtg aactgtacag ccctggaatc ccctgagcat ggaagcctgg tttgcagtca cccactggga aacttcagct acaattcttc ctgctctatc agctgtgata ggggttacct gccaagcagc atggagacca tgcagtgtat gtcctctgga gaatggagtg ctcctattcc agcctgcaat gtggttgagt gtgatgctgt gacaaatcca gccaatgggt tcgtggaatg tttccaaaac cctggaagct tcccatggaa cacaacctgt acatttgact gtgaagaagg atttgaacta atgggagccc agagccttca gtgtacctca tctgggaatt gggacaacga gaagccaacg tgtaaagctg tgacatgcag ggccgtccgc cagcctcaga atggctctgt gaggtgcagc cattcccctg ctggagagtt caccttcaaa tcatcctgca acttcacctg tgaggaaggc ttcatgttgc agggaccagc ccaggttgaa tgcaccactc aagggcagtg gacacagcaa atcccagttt gtgaagcttt ccagtgcaca gccttgtcca accccgagcg aggctacatg aattgtcttc ctagtgcttc tggcagtttc cgttatgggt ccagctgtga gttctcctgt gagcagggtt ttgtgttgaa gggatccaaa aggctccaat gtggccccac aggggagtgg gacaacgaga agcccacatg tgaagctgtg agatgcgatg ctgtccacca gcccccgaag ggtttggtga ggtgtgctca ttcccctatt ggagaattca cctacaagtc ctcttgtgcc ttcagctgtg aggagggatt tgaattatat ggatcaactc aacttgagtg cacatctcag ggacaatgga cagaagaggt tccttcctgc caagtggtaa aatgttcaag cctggcagtt ccgggaaaga tcaacatgag ctgcagtggg gagcccgtgt ttggcactgt gtgcaagttc gcctgtcctg aaggatggac gctcaatggc tctgcagctc ggacatgtgg agccacagga cactggtctg gcctgctacc tacctgtgaa gctcccactg agtccaacat tcccttggta gctggacttt ctgctgctgg actctccctc ctgacattag caccatttct cctctggctt cggaaatgct tacggaaagc aaagaaattt gttcctgcca gcagctgcca aagccttgaa tcagacggaa gctaccaaaa gccttcttac atcctttaag ttcaaaagaa tcagaaacag gtgcatctgg ggaactagag ggatacactg aagttaacag agacagataa ctctcctcgg gtctctggcc cttcttgcct actatgccag atgcctttat ggctgaaacc gcaacaccca tcaccacttc aatagatcaa agtccagcag gcaaggacgg ccttcaactg aaaagactca gtgttcccct tcctactctc aggatcaaga aagtgttggc taatgaaggg aaaggatatt ttcttccaag caaaggtgaa gagaccaaga ctctgaaatc tcagaattcc ttttctaact ctcccttgct cgctgtaaaa tcttggcaca gaaacacaat attttgtggc tttctttctt ttgcccttca cagtgtttcg acagctgatt acacagttgc tgtcataaga atgaataata attatccaga gtttagagga aaaaaatgac taaaaatatt ataacttaaa aaaatgacag atgttgaatg cccacaggca aatgcatgga gggttgttaa tggtgcaaat cctactgaat gctctgtgcg agggttacta tgcacaattt aatcactttc atccctatgg gattcagtgc ttcttaaaga gttcttaagg attgtgatat ttttacttgc attgaatata ttataatctt ccatacttct tcattcaata caagtgtggt agggacttaa aaaacttgta aatgctgtca actatgatat ggtaaaagtt acttattcta gattaccccc tcattgttta ttaacaaatt atgttacatc tgttttaaat ttatttcaaa aagggaaact attgtcccct agcaaggcat gatgttaacc agaataaagt tctgagtgtt tttactacag ttgtttttg aaaacatggt agaattggag agtaaaaact gaatggaagg tttgtatatt gtcagatatt ttttcagaaa tatgtggttt ccacgatgaa aaacttccat gaggccaaac gttttgaact aataaaagca taaatgcaaa cacacaaagg tataatttta tgaatgtctt tgttggaaaa gaatacagaa agatggatgt gctttgcatt cctacaaaga tgtttgtcag atgtgatatg taaacataat tcttgtatat tatggaagat tttaaattca caatagaaac tcaccatgta aaagagtcat ctggtagatt tttaacgaat gaagatgtct aatagttatt ccctatttgt tttcttctgt atgttagggt gctctggaag agaggaatgc ctgtgtgagc aagcatttat gtttatttat aagcagattt aacaattcca aaggaatctc cagttttcag ttgatcactg gcaatgaaaa attctcagtc agtaattgcc aaagctgctc tagccttgag gagtgtgaga atcaaaactc tcctacactt ccattaactt agcatgtgtt gaaaaaaaaa gtttcagaga agttctggct gaacactggc aacgacaaag ccaacagtca aaacagagat gtgataagga tcagaacagc agaggttctt ttaaaggggc agaaaaactc tgggaaataa gagagaacaa ctactgtgat caggctatgt atggaataca gtgttatttt ctttgaaatt gtttaagtgt tgtaaatatt tatgtaaact gcattagaaa ttagctgtgt gaaataccag tgtggtttgt gtttgagttt tattgagaat tttaaattat aacttaaaat attttataat ttttaaagta tatatttatt taagcttatg tcagacctat ttgacataac actataaagg ttgacaataa atgtgcttat gttt

FIGURE 163

Met Ile Ala Ser Gln Phe Leu Ser Ala Leu Thr Leu Val Leu Leu Ile Lys Glu Ser Gly Ala Trp Ser Tyr Asn Thr Ser Thr Glu Ala Met Thr Tyr Asp Glu Ala Ser Ala Tyr Cys Gln Gln Arg Tyr Thr His Leu Val Ala Ile Gln Asn Lys Glu Glu Ile Glu Tyr Leu Asn Ser Ile Leu Ser Tyr Ser Pro Ser Tyr Tyr Trp Ile Gly Ile Arg Lys Val Asn Asn Val Trp Val Trp Val Gly Thr Gln Lys Pro Leu Thr Glu Glu Ala Lys Asn Trp Ala Pro Gly Glu Pro Asn Asn Arg Gln Lys Asp Glu Asp Cys Val Glu Ile Tyr Ile Lys Arg Glu Lys Asp Val Gly Met Trp Asn Asp Glu Arg Cys Ser Lys Lys Lys Leu Ala Leu Cys Tyr Thr Ala Ala Cys Thr Asn Thr Ser Cys Ser Gly His Gly Glu Cys Val Glu Thr Ile Asn Asn Tyr Thr Cys Lys Cys Asp Pro Gly Phe Ser Gly Leu Lys Cys Glu Gln Ile Val Asn Cys Thr Ala Leu Glu Ser Pro Glu His Gly Ser Leu Val Cys Ser His Pro Leu Gly Asn Phe Ser Tyr Asn Ser Ser Cys Ser Ile Ser Cys Asp Arg Gly Tyr Leu Pro Ser Ser Met Glu Thr Met Gln Cys Met Ser Ser Gly Glu Trp Ser Ala Pro Ile Pro Ala Cys Asn Val Val Glu Cys Asp Ala Val Thr Asn Pro Ala Asn Gly Phe Val Glu Cys Phe Gln Asn Pro Gly Ser Phe Pro Trp Asn Thr Thr Cys Thr Phe Asp Cys Glu Glu Gly Phe Glu Leu Met Gly Ala Gln Ser Leu Gln Cys Thr Ser Ser Gly Asn Trp Asp Asn Glu Lys Pro Thr Cys Lys Ala Val Thr Cys Arg Ala Val Arg Gln Pro Gln Asn Gly Ser Val Arg Cys Ser His Ser Pro Ala Gly Glu Phe Thr Phe Lys Ser Ser Cys Asn Phe Thr Cys Glu Glu Gly Phe Met Leu Gln Gly Pro Ala Gln Val Glu Cys Thr Thr Gln Gly Gln Trp Thr Gln Gln Ile Pro Val Cys Glu Ala Phe Gln Cys Thr Ala Leu Ser Asn Pro Glu Arg Gly Tyr Met Asn Cys Leu Pro Ser Ala Ser Gly Ser Phe Arg Tyr Gly Ser Ser Cys Glu Phe Ser Cys Glu Gln Gly Phe Val Leu Lys Gly Ser Lys Arg Leu Gln Cys Gly Pro Thr Gly Glu Trp Asp Asn Glu Lys Pro Thr Cys Glu Ala Val Arg Cys Asp Ala Val His Gln Pro Pro Lys Gly Leu Val Arg Cys Ala His Ser Pro Ile Gly Glu Phe Thr Tyr Lys Ser Ser Cys Ala Phe Ser Cys Glu Glu Gly Phe Glu Leu Tyr Gly Ser Thr Gln Leu Glu Cys Thr Ser Gln Gly Gln Trp Thr Glu Glu Val Pro Ser Cys Gln Val Val Lys Cys Ser Ser Leu Ala Val Pro Gly Lys Ile Asn Met Ser Cys Ser Gly Glu Pro Val Phe Gly Thr Val Cys Lys Phe Ala Cys Pro Glu Gly Trp Thr Leu Asn Gly Ser Ala Ala Arg Thr Cys Gly Ala Thr Gly His Trp Ser Gly Leu Leu Pro Thr Cys Glu Ala Pro Thr Glu Ser Asn Ile Pro Leu Val Ala Gly Leu Ser Ala Ala Gly Leu Ser Leu Leu Thr Leu Ala Pro Phe Leu Leu Trp Leu Arg Lys Cys Leu Arg Lys Ala Lys Lys Phe Val Pro Ala Ser Ser Cys Gln Ser Leu Glu Ser Asp Gly Ser Tyr Gln Lys Pro Ser Tyr Ile Leu

FIGURE 164

gtagatgcag tccgccgccg ccgctgcctc agccagcaat gcaagattag atctctaaat gcagcaaaac actgcctgaa aacagaccgg cccgcgcagc aagcagacat ttcacggtgc gctggggaag cttcaaaata tatctgtgac tctgtcttcg ttgctcttca tccccatcaa tttcatcacg ggaggcgagc agcaagtaag aatttcactt tcggatctgc ctagagacac acctccctgc tccctccccc actcgatgtg aagagtattc cggagtctcc gggcgggagt agatttgcag caccctagcg ggagcgagga aaacctactg attctttagc tcattatcat ctctcccaga cgagatttcc ttcttatcgc ctgcctcatc gctcaagttt gagcctcccg aagtccgggc gggagagacg aaacccctgg ctcaccccca gccgcaggaa gccaccgcct tgctccaagc ccctgcagct ctgctgcacc gcagcttctc acccagtgcg gatgctgtag atcaacaggt tcagggaact tgagcagaat aaggagagac caccgggtgc cgcagctcgg gtgcagaggg aaaaaaggac ccatagactt gtggctcgcg tcgcgcgcgc acgctgcgcc agggccccag gctggcgcgc actcctctc tggctcctcc agtccgattg ckcctgcccc caccttacag gtctgggatg taccttcca tctgttgctg ctttcttcta tgggcccctg ccctcactct caagaacctc aactactccg tgccggagga gcaaggggcc ggcacggtga tcgggaacat cggcagggat gctcgactgc agcctgggct tccgcctgca gagcgcggcg gcggagggcg cagcaagtcg ggtagctacc gggtgctgga gaactccgca ccgcacctgc tggacgtgga cgcagacagc gggctccttt acaccaagca gcgcatcgac cgcgagtccc tgtgccgcca caatgccaag tgccagctgt ccctcgaggt gttcgccaac gacaaggaga tctgcatgat caaggtagag atccaggaca tcaacgacaa cgcgccctcc ttctcctcgg accagatcna tttggacatc tcggagaacg ctgctccggg cacccgcttc cccctcacca gcgcacatga ccccgacgcc ggcgagaatg ggctccgcac ctacctgctc acgcgcgacg atcacggcct ctttggactg gacgttaagt cccgcggcga cggcaccaag ttcccagaac tggtcatcca gaaggctctg gaccgcgagc aacagaatca ccatacgctc gtgctgactg ccctggacgg tggcgagcct ccacgttccg ccaccgtaca gatcaacgtg aaggtgattg actccaacga caacagcccg gtcttcgagg cgccatccta cttggtggaa ctgcccgaga acactccgct gggtacagtg gtcatcgatc tgaacgccac cgacgccgat gaaggtccca atggtgaagt gctctactct ttcagcagct acgtgcctga ccgcgtgcgg gagctcttct ccatcgaccc caagaccggc ctaatccgtg tgaagggcaa tctggactat gaggaaaacg ggatgctgga gattgacgtg caggcccgag acttggggcc taaccttatc ccagcccact gcaaagtcac ggtcaagctc atcgaccgca acgacaatgc gccgtccatc ggtttcgtct ccgtgcgcca gggggcgctg agcgaggccg cccctcccgg caccgtcatc gccctggtgc gggtcactga ccgggactct ggcaagaacg gacagctgca gtgtcgggtc ctaggcggag gagggacggg cggcggcggg ggcctgggcg ggcccggggg ttccgtcccc ttcaagcttg aggagaacta cgacaacttc tacacggtgg tgactgaccg cccgatggac cgcgagacac aagacgagta caacgtgacc atcgtggcgc gggacggggg ctctcctccc ctcaactcca ccaagtcgtt cgcgatcaag attctagacn ataacgacaa cccgcctcgg ttcaccaaag ggctctacgt gcttcaggtg cacgagaaca acatcccggg agattncctg ggctctgtgc tcgcccagga tcccgacctg ggccagaacg gcaccgtatc ctactctatc ctgccctcgc acatcggcga cgtgtctatc tacacctatg tgtctgtgaa tcccacgaac ggggccatct acgccctgcg ctcctttaac ttcgagcaga ccaaggcttt tgagttcaag gtgcttgcta aggactcggg ggcgcccgcg cacttggaga gcaacgccac ggtgagggtg acagtgctag acgtgaatga caacgcgcca gtgatcgtgc tccccacgct gcagaacgac accgcggagc tgcaggtgcc gcgcaacgct ggcctgggct atctggtgag cactgtgcgc gccctagaca gcgacttcgg cgagagcggg cgtctcacct acgagatcgt ggacggcaac gacgaccacc tgtttgagat cgacccgtcc agcggcgaga tccgcacgct gcacccttc tgggaggacg tgacgcccgt ggtggagctg gtggtgaagg tgaccgacca cggcaagcct accctgtccg cagtggccaa gctcatcatc cgctcggtga gcggatccct tcccgagggg gtaccacggg tgaatggcga gcagcaccac tgggacatgt cgctgccgct catcgtgact ctgagcacta tctccatcat cctcctagcg gccatgatca ccatcgccgt caagtgcaag cgcgagaaca aggagatccg cacttacaac tgccgcatcg ccgagtacag ccacccgcag ctgggtgggg gcaagggcaa gaagaagaag atcaacaaaa atgatatcat gctggtgcag agcgaagtgg aggagaggaa cgccatgaac gtcatgaacg tggtgagcag cccctccctg gccacctccc ccatgtactt cgactaccag acccgcctgc ccctcagctc gccccggtcg gaggtgatgt atctcaaacc ggcctccaac aacctgactg tccctcaggg gcacgcgggc tgccacacca gcttcaccgg acaagggact aatgcaagcg agacccctgc cactcggatg tccataattc agacagacaa ttttcccgca gagcccaatt acatgggcag caggcagcag tttgttcaaa gtatttcagt agctccacgt ttaaggaccc agaaagagcc agcctgagag acagtgggca cggggacagt gatcaggctg acagtgacca agacactaac aaaggctcct gctgtgacat gtctgttagg gaggcactca agatgaaaac tacttcaact aaaagccaac cacttgaaca agaaccagaa gagtgtgtta attgcacaga tgaatgccga gtgcttggtc attctgacag gtgctggatg ccacagttcc ctgcagccaa tcaggctgaa aatgcagatt accgcacaaa tctctttgta cctacagttg aagctaatgt tgagactgag acttacgaaa ctgtgaatcc cactgggaaa aagacttttt gtacatttgg aaaagacaag cgagagcaca ctattctcat tgccaacgtt aaaccttatt taaaagccaa acgtgccctg agccctctcc tccaagaggt cccctcagca tcaagcagcc caaccaaggc gtgcatcgag ccttgcacct caacaaaagg ctccctggat ggctgtgaag caaaaccagg agccctggct

gaagcaagca gtcagtactt gcccactgac agtcaatatc tgtcacctag taagcaacca agagaccctc ccttcatggc ttccgatcag atggcaaggg tctttgcaga tgtgcattcc agagccagcc gggattccag tgagatgggt gctgttcttg agcagcttga ccaccccaac agggatctgg gcagagagtc tgtggatgca gaggaagttg tgagagaaat tgataagctt ttgcaagact gccggggaaa cgaccctgtg gctgtgagaa agtgaaaaaa gaaaaaaaaa aaaggcattg gcattttctt gtctcttctg ttgatttaaa aatgatccct cctggtgata acccatttta cagggatgaa gaaagaccaa tgctgcttta aggcttttag tgaacatctg aagtgcccac aagtatgttc tttccactgc tgatttcttt ttcagagata acaatggttt cgttttgacc aaacttgtat taggacagaa ttaatgatgc ttaaagagaa aaaaaaaaaa aaaaaaaaaa aaaa

FIGURE 165

Cys Cys Cys Phe Leu Leu Trp Ala Pro Ala Leu Thr Leu Lys Asn Leu Asn Tyr Ser Val Pro Glu Glu Gln Gly Ala Gly Thr Val Ile Gly Asn Ile Gly Arg Asp Ala Arg Leu Gln Pro Gly Leu Pro Pro Ala Glu Arg Gly Gly Gly Gly Arg Ser Lys Ser Gly Ser Tyr Arg Val Leu Glu Asn Ser Ala Pro His Leu Leu Asp Val Asp Ala Asp Ser Gly Leu Leu Tyr Thr Lys Gln Arg Ile Asp Arg Glu Ser Leu Cys Arg His Asn Ala Lys Cys Gln Leu Ser Leu Glu Val Phe Ala Asn Asp Lys Glu Ile Cys Met Ile Lys Val Glu Ile Gln Asp Ile Asn Asp Asn Ala Pro Ser Phe Ser Ser Asp Gln Ile Xaa Leu Asp Ile Ser Glu Asn Ala Ala Pro Gly Thr Arg Phe Pro Leu Thr Ser Ala His Asp Pro Asp Ala Gly Glu Asn Gly Leu Arg Thr Tyr Leu Leu Thr Arg Asp Asp His Gly Leu Phe Gly Leu Asp Val Lys Ser Arg Gly Asp Gly Thr Lys Phe Pro Glu Leu Val Ile Gln Lys Ala Leu Asp Arg Glu Gln Gln Asn His His Thr Leu Val Leu Thr Ala Leu Asp Gly Gly Glu Pro Pro Arg Ser Ala Thr Val Gln Ile Asn Val Lys Val Ile Asp Ser Asn Asp Asn Ser Pro Val Phe Glu Ala Pro Ser Tyr Leu Val Glu Leu Pro Glu Asn Thr Pro Leu Gly Thr Val Val Ile Asp Leu Asn Ala Thr Asp Ala Asp Glu Gly Pro Asn Gly Glu Val Leu Tyr Ser Phe Ser Ser Tyr Val Pro Asp Arg Val Arg Glu Leu Phe Ser Ile Asp Pro Lys Thr Gly Leu Ile Arg Val Lys Gly Asn Leu Asp Tyr Glu Glu Asn Gly Met Leu Glu Ile Asp Val Gln Ala Arg Asp Leu Gly Pro Asn Leu Ile Pro Ala His Cys Lys Val Thr Val Lys Leu Ile Asp Arg Asn Asp Asn Ala Pro Ser Ile Gly Phe Val Ser Val Arg Gln Gly Ala Leu Ser Glu Ala Ala Pro Pro Gly Thr Val Ile Ala Leu Val Arg Val Thr Asp Arg Asp Ser Gly Lys Asn Gly Gln Leu Gln Cys Arg Val Leu Gly Gly Gly Gly Thr Gly Gly Gly Gly Gly Leu Gly Gly Pro Gly Gly Ser Val Pro Phe Lys Leu Glu Glu Asn Tyr Asp Asn Phe Tyr Thr Val Val Thr Asp Arg Pro Met Asp Arg Glu Thr Gln Asp Glu Tyr Asn Val Thr Ile Val Ala Arg Asp Gly Gly Ser Pro Pro Leu Asn Ser Thr Lys Ser Phe Ala Ile Lys Ile Leu Asp Xaa Asn Asp Asn Pro Pro Arg Phe Thr Lys Gly Leu Tyr Val Leu Gln Val His Glu Asn Asn Ile Pro Gly Asp Xaa Leu Gly Ser Val Leu Ala Gln Asp Pro Asp Leu Gly Gln Asn Gly Thr Val Ser Tyr Ser Ile Leu Pro Ser His Ile Gly Asp Val Ser Ile Tyr Thr Tyr Val Ser Val Asn Pro Thr Asn Gly Ala Ile Tyr Ala Leu Arg Ser Phe Asn Phe Glu Gln Thr Lys Ala Phe Glu Phe Lys Val Leu Ala Lys Asp Ser Gly Ala Pro Ala His Leu Glu Ser Asn Ala Thr Val Arg Val Thr Val Leu Asp Val Asn Asp Asn Ala Pro Val Ile Val Leu Pro Thr Leu Gln Asn Asp Thr Ala Glu Leu Gln Val Pro Arg Asn Ala Gly Leu Gly Tyr Leu Val Ser Thr Val Arg Ala Leu Asp Ser Asp Phe Gly Glu Ser Gly Arg Leu Thr Tyr Glu Ile Val Asp Gly Asn Asp Asp His Leu Phe Glu Ile Asp Pro Ser Ser Gly Glu Ile Arg Thr Leu His Pro Phe Trp Glu Asp Val Thr Pro Val Val Glu Leu Val Val Lys Val Thr Asp His Gly Lys Pro Thr Leu Ser Ala Val Ala Lys Leu Ile Ile Arg Ser Val Ser Gly Ser Leu Pro Glu Gly Val Pro Arg Val Asn Gly Glu Gln His His Trp Asp Met Ser Leu Pro Leu Ile Val Thr Leu Ser Thr Ile Ser Ile Ile Leu Leu Ala Ala Met Ile Thr Ile Ala Val Lys Cys Lys Arg Glu Asn Lys Glu Ile Arg Thr Tyr Asn Cys Arg Ile Ala Glu Tyr Ser His Pro Gln Leu Gly Gly Gly Lys Gly Lys Lys Lys Lys Ile Asn Lys Asn Asp Ile Met Leu Val Gln Ser Glu Val Glu Glu Arg Asn Ala Met Asn Val Met Asn Val Val Ser Ser Pro Ser Leu Ala Thr Ser Pro Met Tyr Phe Asp Tyr Gln Thr Arg Leu Pro Leu Ser Ser Pro Arg Ser Glu Val Met Tyr Leu Lys Pro Ala Ser Asn Asn Leu Thr Val Pro Gln Gly His Ala Gly Cys His Thr Ser Phe Thr Gly Gln Gly Thr Asn Ala Ser Glu Thr Pro Ala Thr Arg Met Ser Ile Ile Gln Thr Asp Asn Phe Pro Ala Glu Pro Asn Tyr Met Gly Ser Arg Gln Gln Phe Val Gln Ser Ile Ser Val Ala Pro Arg Leu Arg Thr Gln Lys Glu Pro Ala

FIGURE 166

atggtgcccc ctggtgtcta catgagaaat gccagctgtc atttccggaa ggtcctgaac aagggttttc aaagctccca agctctcagg gtctgcaaca actactggat tcgggagaac cccaatctga acagtaccca ggaggtgaat gagctgctgc tgggaatggc ctcccagatt tcggagttgg aggacaacat agtggttgaa gatctgaggg attactggcc tggccctggc aaattctccc gtacagacta tgtggccagc agcatccaac gtggccgaga tatggggctg cccagctata gccaggccct gctggccttt gggctggaca tcccaaggaa ctggagtgat ctcaacccta atgtggaccc ccaggtgctg gaggccacag ctgccctgta caaccaggac ctatcccagc tagagctgct ccttggcggg ctcctggaga gccatgggga ccctggaccc ctgttcagtg ccattgtcct cgaccagttt gtacggctgc gggatggtga ccgctactgg tttgagaaca ccaggaatgg gctgttctcc aagaaggaga ttgaagacat ccgaaatacc accctgcggg acgtgctggt cgctgttatc aacattgacc ccagtgccct gcagcccaat gtctttgtct ggcataaagg tgcaccctgc cctcaaccta agcagctcac aactgacggc ctgccccagt gtgcacccct gactgtgctt gacttctttg aaggcagcag ccctggtttt gccatcacca tcattgctct ctgctgcctt cccttagtga gtctgcttct ctctggagtg gtggcctatt tccggggccg agaacacaag aagctacaaa agaaactcaa agagagcgtg aagaaggaag cagccaaaga tggagtgcca gcgatggagt ggccaggccc caaggagagg agcagtccca tcatcatcca gctgctgtca gacaggtgtc tgcaggtcct gaacaggcat ctcactgtgc tccgtgtggt ccagctgcag cctctgcagc aggtcaacct catcctgtcc aacaaccgag gatgccgcac cctgctgctc aagatcccta aggagtatga cctggtgctg ctgtttagtt ctgaagagga acggggcgcc tttgtgcagc agctatggga cttctgcgtg cgctgggctc tgggcctcca tgtggctgag atgagcgaga aggagctatt taggaaggct gtgacaaagc agcagcggga acgcatcctg gagatcttct tcagacacct ttttgctcag gtgctggaca tcaaccaggc cgacgcaggg accctgcccc tggactcctc ccagaaggtg cgggaggccc tgacctgcga gctgagcagg gccgagtttg ccgagtccct gggcctcaag ccccaggaca tgtttgtgga gtccatgttc tctctggctg acaaggatgg caatggctac ctgtccttcc gagagttcct ggacatcctg gtggtcttca tgaaaggctc cccagaggat aagtcccgtc taatgtttac catgtatgac ctggatgaga atggcttcct ctccaaggac gaattcttca ccatgatgcg atccttcatc gagatctcca acaactgcct gtccaaggcc caactggccg aggtggtgga gtctatgttc cgggagtcgg gattccagga caaggaggag ctgacatggg aggattttca cttcatgctg cgggaccatg acagcgagct ccgcttcacg cagctctgtg tcaaaggtgg aggtggaggt ggaaatggta ttagagatat ctttaaacaa aacatcagct gtcgagtctc gttcatcact cggacacctg gggagcgctc ccacccccag ggactggggc cccctgcccc agaagcccca gagctgggag gccctggact gaagaagagg tttggcaaaa aggcagcagt gcccactccc cggctgtaca cagaggcgct gcaagagaag atgcagcgag gcttcctagc ccaaaagctg cagcagtaca agcgcttcgt ggagaactac cggaggcaca tcgtgtgtgt ggcaatcttc tcggccatct gtgttggcgt gtttgcagat cgtgcttact actatggctt tgccttgcca ccctcggaca ttgcacagac caccctcgtg ggcatcatcc tgtcacgagg cacggcggcc agcgtctcct tcatgttctc ttatatcttg ctcaccatgt gccgcaacct cataaccttc ctgcgagaga ctttcctcaa ccgctatgtg ccttttgatg ccgcagtgga cttccaccgc tggatcgcca tggctgctgt tgtcctggcc attttgcaca gtgctggcca cgcagtcaat gtctacatct tctcagtcag cccactcagc ctgctggcct gcatattccc caacgtcttt gtgaatgatg ggtccaagct tccccagaag ttctattggt ggttcttcca gaccgtccca ggtatgacag gtgtgcttct gctcctggtc ctggccatca tgtatgtctt cgcctcccac cacttccgcc gccgcagctt ccggggcttc tggctgaccc accacctcta catcctgctc tatgccctgc tcatcatcca tggcagctat gctctgatcc agctgcccac tttccacatc tacttcctgg tcccggcaat catctatgga ggtgacaagc tggtgagcct gagccggaag aaggtggaga tcagcgtggt gaaggcggag ctgctgccct caggagtgac ctacctgcaa ttccagaggc cccaaggctt tgagtacaag tcaggacagt gggtgcggat cgcctgcctg gctctgggga ccaccgagta ccaccccttc acactgacct ccgcgcccca tgaggacaca ctcagcctgc acatccgggc agtggggccc tggaccactc gcctcaggga gatctactca tccccaaagg gcaatggctg tgctggatac ccaaagctgt accttgatgg accgtttgga gagggccatc aggagtggca taaatttgag gtgtcagtgt tggtgggagg gggcattggg gtcacccccc ttgcctccat cctcaaagac ctggtcttca agtcatcctt gggcagccaa atgctgtgta agaagatcta cttcatctgg gtgacacgga cccagcgtca gtttgagtgg ctggctgaca tcatccaaga ggtggaggag aacgaccacc aggacctggt gtctgtgcac atttatgtca cccagctggc tgagaagttc gacctcagga ccaccatgct atacatctgc gagcggcact tccagaaagt gctgaaccgg agtctgttca cgggcctgcg ctccatcacc cactttggcc gtccccccct cgagcccttc ttcaactccc tgcaggaggt ccacccacag gtgcgcaaga tcggggtgtt cagctgcggc cctccaggaa tgaccaagaa tgtagagaag gcctgtcagc tcgtcaacag gcaggaccga gcccacttca tgcaccacta tgagaacttc tgagcctgtc ctccctggct gctgcttcca gtatcctgcc ttctcttctg tgcacctaag ttgcccagcc ctgctggcaa tctctccatc agaatccacc ttaggcctca gctggagggc tgcagagccc ctcccaatat tgggagaata ttgacccaga caattataca aatgagaaaa ggcaggagac

FIGURE 167(Continued)

tatgttctac aattgcagtg catgatgatt ataagtccac ctgtttatca acggcaccat tcctgcagcc ctccagactt cctgccctta gcaagtgcgc aaccagtcag gatctcccaa agaagataaa gaccactcct caccccagct caagccatgg caggcgtggc aagcaaagtg gggaggagac agtccctgct tgtgacaagt gtggaggtga aaaggtacaa tagtgcttgt ctccgatagc tccccacatc tctaattgac ttccacaaaa tcgatgcgtt gctttggtat ttgcttggac tgacatttga gggaggagga ggctgggatc ctctggctga gaatctcctc agagcccagt gcagaagctg tgatgcttag aacctggaca gcccgactgc ctcaactctg tctccaggtc tattccctcc agctccaaaa ggagcagccc tacttctacc ccttcccgtc cccaaagtgt cagcaacttt gaggagggca ccaggaaaca aagatgcctc cccagccctg atattcttga tgtcaccagt gatacccact gccctgaccc ctgggcaggc ccctctccgc atctactgga gtggtccctg ggctctgggg ctgaaggatt ccagcctctc tgccagatat tcagtactcg atctcaattc ccctcttcca caagagttgg gtgaccagct gtcctagttt gcccaggact ctccctgttt tagcactgaa agtctcttgc cccaggaaac cccatcagtc ccaggcagat tgggacagct ggtcacctta cgcaagagcc aggctgaaac atcccctcca tactcagctc tttaactttt cttttccttt ttcatcgggc tctttcctaa aaagctgagc tgtaaaatat tttacatcga ggtataataa ataatcatgt acatgtttta ccaccaccca ggtcaagaca tagaatgttt caacatttcc atcaccccag aaactccccc tgtacccccc tccacttcgt ctcccctagc tcctagaagc aaccactgat gtgatttcta ccaaatccag ttttggtcct actaaatata ctcttttgag actggcctct tttactcacc ataatgcctt tgtaattcat ccatgctgtt gtgtgtatca gcagtttgtt ccttttcatt gctgagtagt attctattgt agagatgtac cacagtttgt ttattcttct gttgatggac gtttgggttg tttctaattt tgaatgatta taaataaaaa ttctgtgagt gttcttgtac gtaaaaaaaa aaaaaaaaaa aaaaaaaaaa

FIGURE 167

Met Val Pro Pro Gly Val Tyr Met Arg Asn Ala Ser Cys His Phe Arg Lys Val Leu Asn Lys Gly Phe Gln Ser Ser Gln Ala Leu Arg Val Cys Asn Asn Tyr Trp Ile Arg Glu Asn Pro Asn Leu Asn Ser Thr Gln Glu Val Asn Glu Leu Leu Leu Gly Met Ala Ser Gln Ile Ser Glu Leu Glu Asp Asn Ile Val Val Glu Asp Leu Arg Asp Tyr Trp Pro Gly Pro Gly Lys Phe Ser Arg Thr Asp Tyr Val Ala Ser Ser Ile Gln Arg Gly Arg Asp Met Gly Leu Pro Ser Tyr Ser Gln Ala Leu Leu Ala Phe Gly Leu Asp Ile Pro Arg Asn Trp Ser Asp Leu Asn Pro Asn Val Asp Pro Gln Val Leu Glu Ala Thr Ala Ala Leu Tyr Asn Gln Asp Leu Ser Gln Leu Glu Leu Leu Leu Gly Gly Leu Leu Glu Ser His Gly Asp Pro Gly Pro Leu Phe Ser Ala Ile Val Leu Asp Gln Phe Val Arg Leu Arg Asp Gly Asp Arg Tyr Trp Phe Glu Asn Thr Arg Asn Gly Leu Phe Ser Lys Lys Glu Ile Glu Asp Ile Arg Asn Thr Thr Leu Arg Asp Val Leu Val Ala Val Ile Asn Ile Asp Pro Ser Ala Leu Gln Pro Asn Val Phe Val Trp His Lys Gly Ala Pro Cys Pro Gln Pro Lys Gln Leu Thr Thr Asp Gly Leu Pro Gln Cys Ala Pro Leu Thr Val Leu Asp Phe Phe Glu Gly Ser Ser Pro Gly Phe Ala Ile Thr Ile Ile Ala Leu Cys Cys Leu Pro Leu Val Ser Leu Leu Leu Ser Gly Val Val Ala Tyr Phe Arg Gly Arg Glu His Lys Lys Leu Gln Lys Lys Leu Lys Glu Ser Val Lys Lys Glu Ala Ala Lys Asp Gly Val Pro Ala Met Glu Trp Pro Gly Pro Lys Glu Arg Ser Ser Pro Ile Ile Ile Gln Leu Leu Ser Asp Arg Cys Leu Gln Val Leu Asn Arg His Leu Thr Val Leu Arg Val Val Gln Leu Gln Pro Leu Gln Gln Val Asn Leu Ile Leu Ser Asn Asn Arg Gly Cys Arg Thr Leu Leu Leu Lys Ile Pro Lys Glu Tyr Asp Leu Val Leu Leu Phe Ser Ser Glu Glu Glu Arg Gly Ala Phe Val Gln Gln Leu Trp Asp Phe Cys Val Arg Trp Ala Leu Gly Leu His Val Ala Glu Met Ser Glu Lys Glu Leu Phe Arg Lys Ala Val Thr Lys Gln Gln Arg Glu Arg Ile Leu Glu Ile Phe Phe Arg His Leu Phe Ala Gln Val Leu Asp Ile Asn Gln Ala Asp Ala Gly Thr Leu Pro Leu Asp Ser Ser Gln Lys Val Arg Glu Ala Leu Thr Cys Glu Leu Ser Arg Ala Glu Phe Ala Glu Ser Leu Gly Leu Lys Pro Gln Asp Met Phe Val Glu Ser Met Phe Ser Leu Ala Asp Lys Asp Gly Asn Gly Tyr Leu Ser Phe Arg Glu Phe Leu Asp Ile Leu Val Val Phe Met Lys Gly Ser Pro Glu Asp Lys Ser Arg Leu Met Phe Thr Met Tyr Asp Leu Asp Glu Asn Gly Phe Leu Ser Lys Asp Glu Phe Phe Thr Met Met Arg Ser Phe Ile Glu Ile Ser Asn Asn Cys Leu Ser Lys Ala Gln Leu Ala Glu Val Val Glu Ser Met Phe Arg Glu Ser Gly Phe Gln Asp Lys Glu Glu Leu Thr Trp Glu Asp Phe His Phe Met Leu Arg Asp His Asp Ser Glu Leu Arg Phe Thr Gln Leu Cys Val Lys Gly Gly Gly Gly Gly Gly Gly Asn Gly Ile Arg Asp Ile Phe Lys Gln Asn Ile Ser Cys Arg Val Ser Phe Ile Thr Arg Thr Pro Gly Glu Arg Ser His Pro Gln Gly Leu Gly Pro Pro Ala Pro Glu Ala Pro Glu Leu Gly Gly Pro Gly Leu Lys Lys Arg Phe Gly Lys Lys Ala Ala Val Pro Thr Pro Arg Leu Tyr Thr Glu Ala Leu Gln Glu Lys Met Gln Arg Gly Phe Leu Ala Gln Lys Leu Gln Gln Tyr Lys Arg Phe Val Glu Asn Tyr Arg Arg His Ile Val Cys Val Ala Ile Phe Ser Ala Ile Cys Val Gly Val Phe Ala Asp Arg Ala Tyr Tyr Tyr Gly Phe Ala Leu Pro Pro Ser Asp Ile Ala Gln Thr Thr Leu Val Gly Ile Ile Leu Ser Arg Gly Thr Ala Ala Ser Val Ser Phe Met Phe Ser Tyr Ile Leu Leu Thr Met Cys Arg Asn Leu Ile Thr Phe Leu Arg Glu Thr Phe Leu Asn Arg Tyr Val Pro Phe Asp Ala Ala Val Asp Phe His Arg Trp Ile Ala Met Ala Ala Val Val Leu Ala Ile Leu His Ser Ala Gly His Ala Val Asn Val Tyr Ile Phe Ser Val Ser Pro Leu Ser Leu Leu Ala Cys Ile Phe Pro Asn Val Phe Val Asn Asp Gly Ser Lys Leu Pro Gln Lys Phe Tyr Trp Trp Phe Phe Gln Thr Val Pro Gly Met Thr Gly Val Leu Leu Leu Leu Val Leu Ala Ile Met Tyr Val Phe Ala Ser His His Phe Arg Arg Arg Ser Phe Arg Gly Phe Trp Leu Thr His His Leu Tyr Ile Leu Leu Tyr Ala Leu Leu Ile Ile His Gly Ser Tyr Ala Leu Ile Gln Leu Pro Thr Phe His Ile Tyr Phe Leu Val Pro Ala Ile Ile Tyr Gly Gly Asp Lys Leu Val Ser Leu Ser Arg Lys Lys Val Glu Ile Ser Val Val Lys Ala Glu Leu Leu Pro Ser Gly Val Thr Tyr Leu Gln Phe Gln Arg Pro Gln Gly Phe Glu Tyr Lys Ser Gly Gln Trp Val Arg Ile Ala Cys Leu Ala Leu Gly Thr Thr Glu Tyr His Pro Phe Thr Leu Thr Ser Ala Pro His Glu Asp Thr Leu Ser Leu His Ile Arg Ala Val Gly Pro Trp Thr Thr Arg Leu Arg Glu Ile Tyr Ser Ser Pro Lys Gly Asn Gly Cys Ala Gly Tyr Pro Lys Leu Tyr Leu Asp Gly Pro Phe Gly Glu Gly His Gln Glu Trp His Lys Phe Glu Val Ser Val Leu Val Gly Gly Gly Ile Gly Val Thr Pro Phe Ala Ser Ile Leu Lys Asp Leu Val Phe Lys Ser Ser Leu Gly Ser Gln Met Leu Cys Lys Lys Ile Tyr Phe Ile Trp Val Thr Arg Thr Gln Arg Gln Phe Glu Trp

Leu Ala Asp Ile Ile Gln Glu Val Glu Glu Asn Asp His Gln Asp Leu Val Ser Val His Ile Tyr Val Thr Gln Leu Ala Glu Lys Phe Asp Leu Arg Thr Thr Met Leu Tyr Ile Cys Glu Arg His Phe Gln Lys Val Leu Asn Arg Ser Leu Phe Thr Gly Leu Arg Ser Ile Thr His Phe Gly Arg Pro Pro Phe Glu Pro Phe Phe Asn Ser Leu Gln Glu Val His Pro Gln Val Arg Lys Ile Gly Val Phe Ser Cys Gly Pro Pro Gly Met Thr Lys Asn Val Glu Lys Ala Cys Gln Leu Val Asn Arg Gln Asp Arg Ala His Phe Met His His Tyr Glu Asn Phe

FIGURE 168

gagatcatgg cccgcctctt cagcccccgg ccgcccccca gcgaagacct cttctacgag acctactaca gcctgagcca gcagtacccg ctgctgctgc tgctgctggg gatcgtgctc tgtgcgctcg cggcgctgct cgcagtggcc tgggccagcg gcagggagct gacctcagac ccgagcttcc tgaccactgt gctgtgcgcg ctgggcggct tctcgctgct gctgggcctc gcttcccggg agcagcgact gcagcgctgg acgcgtcccc tgtccggctt ggtatgggtc gcgctgctag cgctaggcca cgccttcctg ttcaccgggg gcgtggtgag cgcctgggac caggtgtcct attttctctt cgtcatcttc acggcgtatg ccatgctgcc cttgggcatg cgggacgccg ccgtcgcggg cctcgcctcc tcactctcgc atctgctggt cctcgggctg tatcttgggc cacagccgga ctcacggcct gcactgctgc cgcagttggc agcaaacgca gtgctgttcc tgtgcgggaa cgtggcagga gtgtaccaca aggcgctgat ggagcgcgcc ctgcgggcca cgttccggga ggcactcagc tccctgcact cacgccggcg gctggacacc gagaagaagc accaggaaca ccttctcttg tccatccttc ctgcctacct ggcccgagag atgaaggcag agatcatggc acggctgcag gcaggacagg ggtcacggcc agagagcact aacaatttcc acagcctcta tgtcaagagg caccagggag tcagcgtgct gtatgctgac atcgtgggct tcacgcggct ggccagcgag tgttccccta aggagctggt gctcatgctc aatgagctct ttggcaagtt cgaccagatt gccaaggagc atgaatgcat gcggatcaag atcctggggg actgttacta ctgtgtctct gggctgccac tctcactgcc agaccatgcc atcaactgcg tgcgcatggg cctggacatg tgccgggcca tcaggaaact gcgggcagcc actggcgtgg acatcaacat gcgtgtgggc gtgcactcag gcagcgtact gtgtggagtc atcgggctgc agaagtggca gtacgacgtt tggtcacatg atgtcacact ggctaaccac atggaggcag gcggtgtacc agggcgagtg cacatcacag gggctaccct ggccctgctg gcaggggctt atgctgtgga ggacgcaggc atggagcatc gggacccctа ccttcgggag ctaggggagc ctacctatct ggtcatcgat ccacgggcag aggaggagga tgagaagggc actgcaggag gcttgctgtc ctcgcttgag ggcctcaaga tgcgtccatc actgctgatg acccgttacc tggagtcctg gggcgcagcc aagccttttg cccacctgag ccacggagac agccctgtgt ccacctccac ccctctcccg gagaagaccc tggcttcctt cagcacccag tggagcctgg atcggagccg tacccccccgg ggactagatg atgaactgga caccggggat gccaagttct tccaggtcat tgagcagctc aactcgcaga aacagtggaa gcagtcgaag gacttcaacc cactgacact gtacttcaga gagaaggaga tggagaaaga gtaccgactc tctgcaatcc ccgccttcaa atactatgaa gcctgcacct tcctggtttt tctctccaac ttcatcatcc agatgctagt gacaaacagg cccccagctc tggccatcac gtatagcatc accttcctcc tcttcctcct catccttttt gtctgcttct cagaggacct gatgaggtgt gtcctgaaag gccccaagat gctgcactgg ctgcctgcac tgtctggcct ggtggccaca cgaccaggac tgagaatagc cttgggcacc gccaccatcc tccttgtctt tgccatggcc attaccagcc tgttcttctt cccaacatca tcagactgcc ctttccaagc tcccaatgtg tcctccatga tttccaacct ctcctgggag ctccctgggt ctctgcctct catcagtgtc ccatactcca tgcactgctg cacgctgggc ttcctctcct gctccctctt tctgcacatg agcttcgagc tgaagctgct gctgctcctg ctgtggctgg cggcatcctg ctccctcttc ctgcactccc atgcctggct gtcggaatgc ctcatcgtcc gcctctatct gggccccttg gactccaggc ccggagtgct gaaggagccc aaactgatgg gtgctatctc cttcttcatc ttcttcttca ccctccttgt cctggctcgc cagaatgagt actactgccg cctggacttc ctgtggaaga agaagctgag gcaggagagg gaggagacag agacgatgga gaacctgact cggctgctct tggagaacgt gctccctgca cacgtggccc cccagttcat tggccagaac cggcgcaacg aggatctcta ccaccagtcc tatgaatgcg tttgtgtcct cttcgcctca gtcccagact tcaaggagtt ctactctgaa tccaacatca atcatgaggg cctagagtgt ctgaggctgc tcaatgagat aattgctgat tttgatgagc tgctctccaa gcccaagttc agtggggtgg agaagatcaa gaccatcggc agcacctaca tggcagccac aggcttaaat gccacctctg gacaggatgc acaacaggat gctgaacgga gctgcagcca ccttggcact atggtggaat ttgccgtggc cctggggtct aagctggacg tcatcaacaa gcattcattc aacaacttcc gcctgcgagt ggggttgaac catggacccg tagtagctgg agttattggg gcccagaagc cgcaatatga catttggggc aacacagtga acgtggccag ccgcatggag agtacaggag tccttggcaa aatccaagtg actgaggaga cagcatgggc cctacagtcc ctgggctaca cctgctacag ccggggtgtc atcaaggtga aaggcaaagg gcagctctgc acctacttcc tgaacacaga cttgacacga actggacctc cttcagctac cctaggctga gattgcactc gccttctaag aacctcaata aagagactct ggggtgtctg gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa

FIGURE 169

Met Ala Arg Leu Phe Ser Pro Arg Pro Pro Pro Ser Glu Asp Leu Phe Tyr Glu Thr Tyr Tyr Ser Leu Ser Gln Gln Tyr Pro Leu Leu Leu Leu Leu Leu Gly Ile Val Leu Cys Ala Leu Ala Ala Leu Leu Ala Val Ala Trp Ala Ser Gly Arg Glu Leu Thr Ser Asp Pro Ser Phe Leu Thr Thr Val Leu Cys Ala Leu Gly Gly Phe Ser Leu Leu Leu Gly Leu Ala Ser Arg Glu Gln Arg Leu Gln Arg Trp Thr Arg Pro Leu Ser Gly Leu Val Trp Val Ala Leu Leu Ala Leu Gly His Ala Phe Leu Phe Thr Gly Gly Val Val Ser Ala Trp Asp Gln Val Ser Tyr Phe Leu Phe Val Ile Phe Thr Ala Tyr Ala Met Leu Pro Leu Gly Met Arg Asp Ala Ala Val Ala Gly Leu Ala Ser Ser Leu Ser His Leu Leu Val Leu Gly Leu Tyr Leu Gly Pro Gln Pro Asp Ser Arg Pro Ala Leu Leu Pro Gln Leu Ala Ala Asn Ala Val Leu Phe Leu Cys Gly Asn Val Ala Gly Val Tyr His Lys Ala Leu Met Glu Arg Ala Leu Arg Ala Thr Phe Arg Glu Ala Leu Ser Ser Leu His Ser Arg Arg Arg Leu Asp Thr Glu Lys Lys His Gln Glu His Leu Leu Leu Ser Ile Leu Pro Ala Tyr Leu Ala Arg Glu Met Lys Ala Glu Ile Met Ala Arg Leu Gln Ala Gly Gln Gly Ser Arg Pro Glu Ser Thr Asn Asn Phe His Ser Leu Tyr Val Lys Arg His Gln Gly Val Ser Val Leu Tyr Ala Asp Ile Val Gly Phe Thr Arg Leu Ala Ser Glu Cys Ser Pro Lys Glu Leu Val Leu Met Leu Asn Glu Leu Phe Gly Lys Phe Asp Gln Ile Ala Lys Glu His Glu Cys Met Arg Ile Lys Ile Leu Gly Asp Cys Tyr Tyr Cys Val Ser Gly Leu Pro Leu Ser Leu Pro Asp His Ala Ile Asn Cys Val Arg Met Gly Leu Asp Met Cys Arg Ala Ile Arg Lys Leu Arg Ala Ala Thr Gly Val Asp Ile Asn Met Arg Val Gly Val His Ser Gly Ser Val Leu Cys Gly Val Ile Gly Leu Gln Lys Trp Gln Tyr Asp Val Trp Ser His Asp Val Thr Leu Ala Asn His Met Glu Ala Gly Gly Val Pro Gly Arg Val His Ile Thr Gly Ala Thr Leu Ala Leu Leu Ala Gly Ala Tyr Ala Val Glu Asp Ala Gly Met Glu His Arg Asp Pro Tyr Leu Arg Glu Leu Gly Glu Pro Thr Tyr Leu Val Ile Asp Pro Arg Ala Glu Glu Glu Asp Glu Lys Gly Thr Ala Gly Gly Leu Leu Ser Ser Leu Glu Gly Leu Lys Met Arg Pro Ser Leu Leu Met Thr Arg Tyr Leu Glu Ser Trp Gly Ala Ala Lys Pro Phe Ala His Leu Ser His Gly Asp Ser Pro Val Ser Thr Ser Thr Pro Leu Pro Glu Lys Thr Leu Ala Ser Phe Ser Thr Gln Trp Ser Leu Asp Arg Ser Arg Thr Pro Arg Gly Leu Asp Asp Glu Leu Asp Thr Gly Asp Ala Lys Phe Phe Gln Val Ile Glu Gln Leu Asn Ser Gln Lys Gln Trp Lys Gln Ser Lys Asp Phe Asn Pro Leu Thr Leu Tyr Phe Arg Glu Lys Glu Met Glu Lys Glu Tyr Arg Leu Ser Ala Ile Pro Ala Phe Lys Tyr Tyr Glu Ala Cys Thr Phe Leu Val Phe Leu Ser Asn Phe Ile Ile Gln Met Leu Val Thr Asn Arg Pro Pro Ala Leu Ala Ile Thr Tyr Ser Ile Thr Phe Leu Leu Phe Leu Leu Ile Leu Phe Val Cys Phe Ser Glu Asp Leu Met Arg Cys Val Leu Lys Gly Pro Lys Met Leu His Trp Leu Pro Ala Leu Ser Gly Leu Val Ala Thr Arg Pro Gly Leu Arg Ile Ala Leu Gly Thr Ala Thr Ile Leu Leu Val Phe Ala Met Ala Ile Thr Ser Leu Phe Phe Phe Pro Thr Ser Ser Asp Cys Pro Phe Gln Ala Pro Asn Val Ser Ser Met Ile Ser Asn Leu Ser Trp Glu Leu Pro Gly Ser Leu Pro Leu Ile Ser Val Pro Tyr Ser Met His Cys Cys Thr Leu Gly Phe Leu Ser Cys Ser Leu Phe Leu His Met Ser Phe Glu Leu Lys Leu Leu Leu Leu Leu Leu Trp Leu Ala Ala Ser Cys Ser Leu Phe Leu His Ser His Ala Trp Leu Ser Glu Cys Leu Ile Val Arg Leu Tyr Leu Gly Pro Leu Asp Ser Arg Pro Gly Val Leu Lys Glu Pro Lys Leu Met Gly Ala Ile Ser Phe Phe Ile Phe Phe Phe Thr Leu Leu Val Leu Ala Arg Gln Asn Glu Tyr Tyr Cys Arg Leu Asp Phe Leu Trp Lys Lys Lys Leu Arg Gln Glu Arg Glu Glu Thr Glu Thr Met Glu Asn Leu Thr Arg Leu Leu Leu Glu Asn Val Leu Pro Ala His Val Ala Pro Gln Phe Ile Gly Gln Asn Arg Arg Asn Glu Asp Leu Tyr His Gln Ser Tyr Glu Cys Val Cys Val Leu Phe Ala Ser Val Pro Asp Phe Lys Glu Phe Tyr Ser Glu Ser Asn Ile Asn His Glu Gly Leu Glu Cys Leu Arg Leu Leu Asn Glu Ile Ile Ala Asp Phe Asp Glu Leu Leu Ser Lys Pro Lys Phe Ser Gly Val Glu Lys Ile Lys Thr Ile Gly Ser Thr Tyr Met Ala Ala Thr Gly Leu Asn Ala Thr Ser Gly Gln Asp Ala Gln Gln Asp Ala Glu Arg Ser Cys Ser His Leu Gly Thr Met Val Glu Phe Ala Val Ala Leu Gly Ser Lys Leu Asp Val Ile Asn Lys His Ser Phe Asn Asn Phe Arg Leu Arg Val Gly Leu Asn His Gly Pro Val Val Ala Gly Val Ile Gly Ala Gln Lys Pro Gln Tyr Asp Ile Trp Gly Asn Thr Val Asn Val Ala Ser Arg Met Glu Ser Thr Gly Val Leu Gly

Lys Ile Gln Val Thr Glu Glu Thr Ala Trp Ala Leu Gln Ser Leu Gly Tyr Thr Cys Tyr Ser Arg Gly Val Ile Lys Val Lys Gly Lys Gly Gln Leu Cys Thr Tyr Phe Leu Asn Thr Asp Leu Thr Arg Thr Gly Pro Pro Ser Ala Thr Leu Gly

FIGURE 170

ccggaggatt ttgaggacac ttgtggagag ctcgaattcc agaatgatga aattgttagg ttgtgacagt tggaagtgtc atgtacaaca tgcggcgatt aagtctttca cccacctttt caatgggatt tcatctgtta gttactgtga gtctcttatt ttcccatgtg gaccatgtaa ttgctgagac agaaatggaa ggagaaggaa atgaaactgg tgaatgtact ggatcatatt actgtaagaa aggggtgatt ttgcccattt gggaacccca agacccttct tttggggaca aaattgctag agctactgtg tattttgtgg ccatggtcta catgtttctt ggagtctcta tcatagctga tcggttcatg tcctctatag aagtcatcac atctcaagaa aaagaaataa ccataaagaa acccaatgga gagaccacca agacaactgt gaggatctgg aatgaaacag tttctaacct gaccttgatg gccctgggat cttctgctcc tgagattctc ctttcagtaa ttgaagtgtg tggccataac ttcactgcag gagacctcgg tcctagcacc atcgtgggaa gtgctgcatt caatatgttc atcattattg cactctgtgt ttatgtggtg cctgacggag agacaaggaa gattaagcat ttgcgtgtct tctttgtgac agcagcctgg agcatctttg cctacacctg gctttacatt attttgtctg tcatatctcc tggtgttgtg gaggtctggg aaggtttgct tactttcttc ttctttccca tctgtgttgt gttcgcttgg gtagcggata ggagacttct gttttacaag tatgtctaca agaggtatcg agctggcaag cagaggggga tgattattga acatgaagga gacaggccat cttctaagac tgaaattgaa atggacggga aagtggtcaa ttctcatgtt gaaaatttct tagatggtgc tctggttctg gaggtggatg agagggacca agatgatgaa gaagctaggc gagaaatggc taggattctg aaggaactta agcagaagca tccagataaa gaaatagagc aattaataga attagctaac taccaagtcc taagtcagca gcaaaaaagt agagcatttt atcgcattca agctactcgc ctcatgactg gagctggcaa cattttaaag aggcatgcag ctgaccaagc aaggaaggct gtcagcatgc acgaggtcaa cactgaagtg actgaaaatg accctgttag taagatcttc tttgaacaag ggacatatca gtgtctggag aactgtggta ctgtggccct taccattatc cgcagaggtg gtgatttgac taacactgtg tttgttgact tcagaacaga ggatggcaca gcaaatgctg ggtctgatta tgaatttact gaaggaactg tggtgtttaa gcctggtgat acccagaagg aaatcagagt gggtatcata gatgatgata tctttgagga ggatgaaaat ttccttgtgc atctcagcaa tgtcaaagta tcttctgaag cttcagaaga tggcatactg gaagccaatc atgtttctac acttgcttgc ctcggatctc cctccactgc cactgtaact atttttgatg atgaccacgc aggcattttt acttttgagg aacctgtgac tcatgtgagt gagagcattg gcatcatgga ggtgaaagta ttgagaacat ctggagctcg aggaaatgtt atcgttccat ataaaaccat cgaagggact gccagaggtg gaggggagga ttttgaggac acttgtggag agctcgaatt ccagaatgat gaaattgtca aaacaatatc agtcaaggta attgatgatg aggagtatga gaaaaacaag accttcttcc ttgagattgg agagccccgc ctggtggaga tgagtgagaa gaaagccctg ttattgaatg agcttggtgg cttcacaata acaggaaaat acctgtttgg ccaacctgtc ttcaggaagg ttcatgctag agaacatccg attctctcta ctgtaatcac cattgcagac gaatatgatg acaagcagcc actgaccagc aaagaggaag aggagaggcg cattgcagaa atggggcgcc ccatcctggg agagcacacc aagttggaag tgatcattga agaatcctat gaattcaaga gtactgtgga caaactcatt aagaagacaa acctggccct tgtggttggg actaacagct ggagagaaca gttcattgaa gctatcactg tcagtgctgg ggaagatgat gacgacgatg aatgtgggga agagaagctg ccctcctgtt tcgattacgt gatgcacttt ctgactgtgt tctggaaggt cctgtttgcc ttcgtccccc ctactgaata ctggaatggc tgggcgtgtt tcattgtctc catcctcatg attggcctac tgacagcttt cattggagac ctggcttccc actttggctg caccattggc ctgaaagatt ctgtgactgc agtcgtgttc gtcgcacttg gaacatcagt gccagacaca tttgccagca aagtggcagc cacccaggac cagtatgcag acgcctccat aggtaacgtc acgggcagca acgcggtgaa tgtcttcctg ggaatcggtg tggcctggtc catcgctgcc atctaccacg cagccaatgg ggaacagttc aaagtgtccc ctggcacact agctttctct gtcactctct tcaccatttt tgctttcatc aatgtggggg tgctgctgta tcggcggagg ccagaaatcg gaggtgagct gggtgggccc cggactgcca agctcctcac atcctgcctc tttgtgctcc tatggctctt gtacattttc ttctcctccc tggaggccta ctgccacata aaaggcttct aaaggaacta tcagatatag taaatttata tatatacata tatatacata aaaattatgt ataatggaca gaggaaactg acatttgtca tgttcactta cctgctgatg gaatccagct tcaagagcat actctgtact agggccgaag taaaaaacca tcacctccca ttcccagggg catcatcatg ttcaacaagg catggaggca gggccatctt tgcagctcag tctagaaggg ctgcactctc

FIGURE 171

Met Tyr Asn Met Arg Arg Leu Ser Leu Ser Pro Thr Phe Ser Met Gly Phe His Leu Leu Val Thr Val Ser Leu Leu Phe Ser His Val Asp His Val Ile Ala Glu Thr Glu Met Glu Gly Glu Gly Asn Glu Thr Gly Glu Cys Thr Gly Ser Tyr Tyr Cys Lys Lys Gly Val Ile Leu Pro Ile Trp Glu Pro Gln Asp Pro Ser Phe Gly Asp Lys Ile Ala Arg Ala Thr Val Tyr Phe Val Ala Met Val Tyr Met Phe Leu Gly Val Ser Ile Ile Ala Asp Arg Phe Met Ser Ser Ile Glu Val Ile Thr Ser Gln Glu Lys Glu Ile Thr Ile Lys Lys Pro Asn Gly Glu Thr Thr Lys Thr Thr Val Arg Ile Trp Asn Glu Thr Val Ser Asn Leu Thr Leu Met Ala Leu Gly Ser Ser Ala Pro Glu Ile Leu Leu Ser Val Ile Glu Val Cys Gly His Asn Phe Thr Ala Gly Asp Leu Gly Pro Ser Thr Ile Val Gly Ser Ala Ala Phe Asn Met Phe Ile Ile Ile Ala Leu Cys Val Tyr Val Val Pro Asp Gly Glu Thr Arg Lys Ile Lys His Leu Arg Val Phe Phe Val Thr Ala Ala Trp Ser Ile Phe Ala Tyr Thr Trp Leu Tyr Ile Ile Leu Ser Val Ile Ser Pro Gly Val Val Glu Val Trp Glu Gly Leu Leu Thr Phe Phe Phe Phe Pro Ile Cys Val Val Phe Ala Trp Val Ala Asp Arg Arg Leu Leu Phe Tyr Lys Tyr Val Tyr Lys Arg Tyr Arg Ala Gly Lys Gln Arg Gly Met Ile Ile Glu His Glu Gly Asp Arg Pro Ser Ser Lys Thr Glu Ile Glu Met Asp Gly Lys Val Val Asn Ser His Val Glu Asn Phe Leu Asp Gly Ala Leu Val Leu Glu Val Asp Glu Arg Asp Gln Asp Asp Glu Glu Ala Arg Arg Glu Met Ala Arg Ile Leu Lys Glu Leu Lys Gln Lys His Pro Asp Lys Glu Ile Glu Gln Leu Ile Glu Leu Ala Asn Tyr Gln Val Leu Ser Gln Gln Gln Lys Ser Arg Ala Phe Tyr Arg Ile Gln Ala Thr Arg Leu Met Thr Gly Ala Gly Asn Ile Leu Lys Arg His Ala Ala Asp Gln Ala Arg Lys Ala Val Ser Met His Glu Val Asn Thr Glu Val Thr Glu Asn Asp Pro Val Ser Lys Ile Phe Phe Glu Gln Gly Thr Tyr Gln Cys Leu Glu Asn Cys Gly Thr Val Ala Leu Thr Ile Ile Arg Arg Gly Gly Asp Leu Thr Asn Thr Val Phe Val Asp Phe Arg Thr Glu Asp Gly Thr Ala Asn Ala Gly Ser Asp Tyr Glu Phe Thr Glu Gly Thr Val Val Phe Lys Pro Gly Asp Thr Gln Lys Glu Ile Arg Val Gly Ile Ile Asp Asp Asp Ile Phe Glu Glu Asp Glu Asn Phe Leu Val His Leu Ser Asn Val Lys Val Ser Ser Glu Ala Ser Glu Asp Gly Ile Leu Glu Ala Asn His Val Ser Thr Leu Ala Cys Leu Gly Ser Pro Ser Thr Ala Thr Val Thr Ile Phe Asp Asp Asp His Ala Gly Ile Phe Thr Phe Glu Glu Pro Val Thr His Val Ser Glu Ser Ile Gly Ile Met Glu Val Lys Val Leu Arg Thr Ser Gly Ala Arg Gly Asn Val Ile Val Pro Tyr Lys Thr Ile Glu Gly Thr Ala Arg Gly Gly Gly Glu Asp Phe Glu Asp Thr Cys Gly Glu Leu Glu Phe Gln Asn Asp Glu Ile Val Lys Thr Ile Ser Val Lys Val Ile Asp Asp Glu Glu Tyr Glu Lys Asn Lys Thr Phe Phe Leu Glu Ile Gly Glu Pro Arg Leu Val Glu Met Ser Glu Lys Lys Ala Leu Leu Leu Asn Glu Leu Gly Gly Phe Thr Ile Thr Gly Lys Tyr Leu Phe Gly Gln Pro Val Phe Arg Lys Val His Ala Arg Glu His Pro Ile Leu Ser Thr Val Ile Thr Ile Ala Asp Glu Tyr Asp Asp Lys Gln Pro Leu Thr Ser Lys Glu Glu Glu Glu Arg Arg Ile Ala Glu Met Gly Arg Pro Ile Leu Gly Glu His Thr Lys Leu Glu Val Ile Ile Glu Glu Ser Tyr Glu Phe Lys Ser Thr Val Asp Lys Leu Ile Lys Lys Thr Asn Leu Ala Leu Val Val Gly Thr Asn Ser Trp Arg Glu Gln Phe Ile Glu Ala Ile Thr Val Ser Ala Gly Glu Asp Asp Asp Asp Asp Asp Glu Cys Gly Glu Glu Lys Leu Pro Ser Cys Phe Asp Tyr Val Met His Phe Leu Thr Val Phe Trp Lys Val Leu Phe Ala Phe Val Pro Pro Thr Glu Tyr Trp Asn Gly Trp Ala Cys Phe Ile Val Ser Ile Leu Met Ile Gly Leu Leu Thr Ala Phe Ile Gly Asp Leu Ala Ser His Phe Gly Cys Thr Ile Gly Leu Lys Asp Ser Val Thr Ala Val Val Phe Val Ala Leu Gly Thr Ser Val Pro Asp Thr Phe Ala Ser Lys Val Ala Ala Thr Gln Asp Gln Tyr Ala Asp Ala Ser Ile Gly Asn Val Thr Gly Ser Asn Ala Val Asn Val Phe Leu Gly Ile Gly Val Ala Trp Ser Ile Ala Ala Ile Tyr His Ala Ala Asn Gly Glu Gln Phe Lys Val Ser Pro Gly Thr Leu Ala Phe Ser Val Thr Leu Phe Thr Ile Phe Ala Phe Ile Asn Val Gly Val Leu Leu Tyr Arg Arg Arg Pro Glu Ile Gly Gly Glu Leu Gly Gly Pro Arg Thr Ala Lys Leu Leu Thr Ser Cys Leu Phe Val Leu Leu Trp Leu Leu Tyr Ile Phe Phe Ser Ser Leu Glu Ala Tyr Cys His Ile Lys Gly Phe

FIGURE 172

ctaacccggc gcgccatgac cgtcgcgcgg ccgagcgtgc ccgcggcgct gcccctcctc ggggagctgc cccggctgct gctgctggtg ctgttgtgcc tgccggccgt gtggggtgac tgtggccttc ccccagatgt acctaatgcc cagccagctt tggaaggccg tacaagtttt cccgaggata ctgtaataac gtacaaatgt gaagaaagct ttgtgaaaat tcctggcgag aaggactcag tgatctgcct taagggcagt caatggtcag atattgaaga gttctgcaat cgtagctgcg aggtgccaac aaggctaaat tctgcatccc tcaaacagcc ttatatcact cagaattatt ttccagtcgg tactgttgtg gaatatgagt gccgtccagg ttacagaaga gaaccttctc tatcaccaaa actaacttgc cttcagaatt taaaatggtc cacagcagtc gaattttgta aaaagaaatc atgccctaat ccgggagaaa tacgaaatgg tcagattgat gtaccaggtg gcatattatt tggtgcaacc atctccttct catgtaacac agggtacaaa ttatttggct cgacttctag tttttgtctt atttcaggca gctctgtcca gtggagtgac ccgttgccag agtgcagaga aatttattgt ccagcaccac cacaaattga caatggaata attcaagggg aacgtgacca ttatggatat agacagtctg taacgtatgc atgtaataaa ggattcacca tgattggaga gcactctatt tattgtactg tgaataatga tgaaggagag tggagtggcc caccacctga atgcagagga aaatctctaa cttccaaggt cccaccaaca gttcagaaac ctaccacagt aaatgttcca actacagaag tctcaccaac ttctcagaaa accaccacaa aaaccaccac accaaatgct caagcaacac ggagtacacc tgtttccagg acaaccaagc attttcatga aacaacccca aataaaggaa gtggaaccac ttcaggtact acccgtcttc tatctgggca cacgtgtttc acgttgacag gtttgcttgg gacgctagta accatgggct tgctgactta gccaaagaag agttaagaag aaaatacaca caagtataca gactgttcct agtttcttag acttatctgc atattggata aaataaatgc aattgtgctc ttcaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa

FIGURE 173

Met Thr Val Ala Arg Pro Ser Val Pro Ala Ala Leu Pro Leu Leu Gly Glu Leu Pro Arg Leu Leu Leu Leu Val Leu Leu Cys Leu Pro Ala Val Trp Gly Asp Cys Gly Leu Pro Pro Asp Val Pro Asn Ala Gln Pro Ala Leu Glu Gly Arg Thr Ser Phe Pro Glu Asp Thr Val Ile Thr Tyr Lys Cys Glu Glu Ser Phe Val Lys Ile Pro Gly Glu Lys Asp Ser Val Ile Cys Leu Lys Gly Ser Gln Trp Ser Asp Ile Glu Glu Phe Cys Asn Arg Ser Cys Glu Val Pro Thr Arg Leu Asn Ser Ala Ser Leu Lys Gln Pro Tyr Ile Thr Gln Asn Tyr Phe Pro Val Gly Thr Val Val Glu Tyr Glu Cys Arg Pro Gly Tyr Arg Arg Glu Pro Ser Leu Ser Pro Lys Leu Thr Cys Leu Gln Asn Leu Lys Trp Ser Thr Ala Val Glu Phe Cys Lys Lys Lys Ser Cys Pro Asn Pro Gly Glu Ile Arg Asn Gly Gln Ile Asp Val Pro Gly Gly Ile Leu Phe Gly Ala Thr Ile Ser Phe Ser Cys Asn Thr Gly Tyr Lys Leu Phe Gly Ser Thr Ser Ser Phe Cys Leu Ile Ser Gly Ser Ser Val Gln Trp Ser Asp Pro Leu Pro Glu Cys Arg Glu Ile Tyr Cys Pro Ala Pro Pro Gln Ile Asp Asn Gly Ile Ile Gln Gly Glu Arg Asp His Tyr Gly Tyr Arg Gln Ser Val Thr Tyr Ala Cys Asn Lys Gly Phe Thr Met Ile Gly Glu His Ser Ile Tyr Cys Thr Val Asn Asn Asp Glu Gly Glu Trp Ser Gly Pro Pro Pro Glu Cys Arg Gly Lys Ser Leu Thr Ser Lys Val Pro Pro Thr Val Gln Lys Pro Thr Thr Val Asn Val Pro Thr Thr Glu Val Ser Pro Thr Ser Gln Lys Thr Thr Thr Lys Thr Thr Thr Pro Asn Ala Gln Ala Thr Arg Ser Thr Pro Val Ser Arg Thr Thr Lys His Phe His Glu Thr Thr Pro Asn Lys Gly Ser Gly Thr Thr Ser Gly Thr Thr Arg Leu Leu Ser Gly His Thr Cys Phe Thr Leu Thr Gly Leu Leu Gly Thr Leu Val Thr Met Gly Leu Leu Thr

FIGURE 174

gaattccctg gctgcttgaa tctgttctgc cccctcccca cccatttcac caccaccatg acaccgggca cccagtctcc tttcttcctg ctgctgctcc tcacagtgct tacagttgtt acaggttctg gtcatgcaag ctctacccca ggtggagaaa aggagacttc ggctacccag agaagttcag tgcccagctc tactgagaag aatgctgtga gtatgaccag cagcgtactc tccagccaca gccccggttc aggctcctcc accactcagg gacaggatgt cactctggcc ccggccacgg aaccagcttc aggttcagct gccacctggg gacaggatgt cacctcggtc ccagtcacca ggccagccct gggctccacc accccgccag cccacgatgt cacctcagcc ccggacaaca agccagcccc gggctccacc gccccccag cccacggtgt cacctcggcc ccggacacca ggccgccccc gggctccacc gccccccag cccacggtgt cacctcggcc ccggacacca ggccgccccc gggctccacc gcgcccgcag cccacggtgt cacctcggcc ccggacacca ggccggcccc gggctccacc gccccccag cccatggtgt cacctcggcc ccggacaaca ggcccgcctt ggcgtccacc gcccctccag tccacaatgt cacctcggcc tcaggctctg catcaggctc agcttctact ctggtgcaca acggcacctc tgccagggct accacaaccc cagccagcaa gagcactcca ttctcaattc ccagccacca ctctgatact cctaccaccc ttgccagcca tagcaccaag actgatgcca gtagcactca ccatagcacg gtacctcctc tcacctcctc caatcacagc acttctcccc agttgtctac tggggtctct ttctttttcc tgtcttttca catttcaaac ctccagttta attcctctct ggaagatccc agcaccgact actaccaaga gctgcagaga gacatttctg aaatgttttt gcagatttat aaacaagggg gttttctggg cctctccaat attaagttca ggccaggatc tgtggtggta caattgactc tggccttccg agaaggtacc atcaatgtcc acgacgtgga gacacagttc aatcagtata aaacggaagc agcctctcga tataacctga cgatctcaga cgtcagcgtg agtgatgtgc catttccttt ctctgcccag tctggggctg gggtgccagg ctggggcatc gcgctgctgg tgctggtctg tgttctggtt gcgctggcca ttgtctatct cattgccttg gctgtctgtc agtgccgccg aaagaactac gggcagctgg acatctttcc agcccgggat acctaccatc ctatgagcga gtaccccacc taccacaccc atgggcgcta tgtgcccccc agcagtaccg atcgtagccc ctatgagaag gtttctgcag gtaatggtgg cagcagcctc tcttacacaa acccagcagt ggcagccact tctgccaact tgtaggggca cgtcgccctc tgagctgagt ggccagccag tgccattcca ctccactcag ggctctctgg gccagtcctc ctgggagccc ccaccacaac acttcccagg catggaattc c

FIGURE 175

Met Thr Pro Gly Thr Gln Ser Pro Phe Phe Leu Leu Leu Leu Thr Val Leu Thr Val Val Thr Gly Ser Gly His Ala Ser Ser Thr Pro Gly Gly Glu Lys Glu Thr Ser Ala Thr Gln Arg Ser Ser Val Pro Ser Ser Thr Glu Lys Asn Ala Val Ser Met Thr Ser Ser Val Leu Ser Ser His Ser Pro Gly Ser Gly Ser Ser Thr Thr Gln Gly Gln Asp Val Thr Leu Ala Pro Ala Thr Glu Pro Ala Ser Gly Ser Ala Ala Thr Trp Gly Gln Asp Val Thr Ser Val Pro Val Thr Arg Pro Ala Leu Gly Ser Thr Thr Pro Pro Ala His Asp Val Thr Ser Ala Pro Asp Asn Lys Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Pro Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Pro Pro Gly Ser Thr Ala Pro Ala Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Asn Arg Pro Ala Leu Ala Ser Thr Ala Pro Pro Val His Asn Val Thr Ser Ala Ser Gly Ser Ala Ser Gly Ser Ala Ser Thr Leu Val His Asn Gly Thr Ser Ala Arg Ala Thr Thr Thr Pro Ala Ser Lys Ser Thr Pro Phe Ser Ile Pro Ser His His Ser Asp Thr Pro Thr Thr Leu Ala Ser His Ser Thr Lys Thr Asp Ala Ser Ser Thr His His Ser Thr Val Pro Pro Leu Thr Ser Ser Asn His Ser Thr Ser Pro Gln Leu Ser Thr Gly Val Ser Phe Phe Phe Leu Ser Phe His Ile Ser Asn Leu Gln Phe Asn Ser Ser Leu Glu Asp Pro Ser Thr Asp Tyr Tyr Gln Glu Leu Gln Arg Asp Ile Ser Glu Met Phe Leu Gln Ile Tyr Lys Gln Gly Gly Phe Leu Gly Leu Ser Asn Ile Lys Phe Arg Pro Gly Ser Val Val Val Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn Val His Asp Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala Ala Ser Arg Tyr Asn Leu Thr Ile Ser Asp Val Ser Val Ser Asp Val Pro Phe Pro Phe Ser Ala Gln Ser Gly Ala Gly Val Pro Gly Trp Gly Ile Ala Leu Leu Val Leu Val Cys Val Leu Val Ala Leu Ala Ile Val Tyr Leu Ile Ala Leu Ala Val Cys Gln Cys Arg Arg Lys Asn Tyr Gly Gln Leu Asp Ile Phe Pro Ala Arg Asp Thr Tyr His Pro Met Ser Glu Tyr Pro Thr Tyr His Thr His Gly Arg Tyr Val Pro Pro Ser Ser Thr Asp Arg Ser Pro Tyr Glu Lys Val Ser Ala Gly Asn Gly Gly Ser Ser Leu Ser Tyr Thr Asn Pro Ala Val Ala Ala Thr Ser Ala Asn Leu

FIGURE 176

gttttgagtc ggttcaggtc acccaatttc gaaatggaag catcgttgct gggtatgaag ttgttggctc cagcagtgca tctgaactgc tgtcagccat tgaacatgtt gccgagaagg ctaagacagc ccttcacaag ctgtttccat tagaagacgg ctctttcaga gtgttcggaa aagcccagtg taatgacatt gtctttggat ttgggtccaa ggatgatgaa tataccctgc cctgcagcag tggctacagg ggaaacatca cagccaagtg tgagtcctct gggtggcagg tcatcaggga gacttgtgtg ctctctctgc ttgaagaact gaacaagaat ttcagtatga ttgtaggcaa tgccactgag gcagctgtgt catccttcgt gcaaaatctt tctgtcatca ttcggcaaaa cccatcaacc acagtgggga atctggcttc ggtggtgtcg attctgagca atatttcatc tctgtcactg gccagccatt tcagggtgtc caattcaaca atggaggatg tcatcagtat agctgacaat atccttaatt cagcctcagt aaccaactgg acagtcttac tgcgggaaga aaagtatgcc agctcacggt tactagagac attagaaaac atcagcactc tggtgcctcc gacagctctt cctctgaatt tttctcggaa attcattgac tggaaaggga ttccagtgaa caaaagccaa ctcaaaaggg gttacagcta tcagattaaa atgtgtcccc aaaatacatc tattcccatc agaggccgtg tgttaattgg gtcagaccaa ttccagagat cccttccaga aactattatc agcatggcct cgttgactct ggggaacatt ctacccgttt ccaaaaatgg aaatgctcag gtcaatggac ctgtgatatc cacggttatt caaaactatt ccataaatga agttttccta ttttttttcca agatagagtc aaacctgagc cagcctcatt gtgtgttttg ggatttcagt catttgcagt ggaacgatgc aggctgccac ctagtgaatg aaactcaaga catcgtgacg tgccaatgta ctcacttgac ctccttctcc atattgatgt caccttttgt cccctctaca atcttccccg ttgtaaaatg gatcacctat gtgggactgg gtatctccat tggaagtctc attttatgcc tgatcatcga ggctttgttt tggaagcaga ttaaaaaaag ccaaacctct cacacacgtc gtatttgcat ggtgaacata gccctgtccc tcttgattgc tgatgtctgg tttattgttg gtgccacagt ggacaccacg gtaaaccctt ctggagtctg cacagctgct gtgttcttta cacacttctt ctacctctct ttgttcttct ggatgctcat gcttggcatc ctgctggctt accggatcat cctcgtgttc catcacatgg cccagcattt gatgatggct gttggatttt gcctgggtta tgggtgccct ctcattatat ctgtcattac cattgctgtc acgcaaccta gcaataccta caaaaggaaa gatgtgtgtt ggcttaactg gtccaatgga agcaaaccac tcctggcttt tgttgtccct gcactggcta ttgtggctgt gaacttcgtt gtggtgctgc tagttctcac aaagctctgg aggccgactg ttggggaaag actgagtcgg gatgacaagg ccaccatcat ccgcgtgggg aagagcctcc tcattctgac ccctctgcta gggctcacct ggggctttgg aataggaaca atagtggaca gccagaatct ggcttggcat gttatttttg ctttactcaa tgcattccag ggatttttta tcttatgctt tggaatactc ttggacagta agctgcgaca acttctgttc aacaagttgt ctgccttaag ttcttggaag caaacagaaa agcaaaactc atcagattta tctgccaaac ccaaattctc aaagcctttc aacccactgc aaaacaaagg ccattatgca ttttctcata ctggagattc ctccgacaac atcatgctaa ctcagtttgt ctcaaatgaa taaggcaagg aatcataaaa tcaagaaaaa atttccagaa caacttgaca tttagagaca aatgtcaatg aagaaattat gctcagtatt cgatcgggtt ttctgattta ggggtctggg aataaaacaa gaatgtctca gtggcttcat tactgctccc ttttgtcttc aattaaatga aaagaagatt tatttccatg tgatttgatt caaagaaagt gctccataaa tgcagaagag taggttttgt tggaaatcgt gtcagttgta ccctgaccat aaaatatggt ttctattttc ataaaacagc attattcaca tggcatttcc aataatctgg attgaaggaa gaaaatttta tgaaatagct ttagataaat taataggcca cgttcatttt cttgtcaaaa agttactggt ggggggatgg tgggaaaaag ttattagtgc aaatttccta gagaaaaaac catttctctt tcaaattttc cagttgaatt ttatgttcgc ttttgcttct taggttctat cacttaatat tgaaagttaa tcagaaataa aatgtaaact tctatttcag atagctttgt aaccatttat cagaaagtat aataatgtga tatgatatat aatgtggtat ttttcagttt acaaggcact tccatctggt cctaaaccct gcaaacaaaa gtgtcaaggc agacctagtg cagagatgag ggcatggggg ctcagagagg taaagtgact tgccaaagat tgtgaagcca gttaagggaa attggggatt tttaggacat ttgtctccca gaccatttct acagccaata aaagccttga aaattaaaaa aa

FIGURE 177

Phe Glu Ser Val Gln Val Thr Gln Phe Arg Asn Gly Ser Ile Val Ala Gly Tyr Glu Val Val Gly Ser Ser Ser Ala Ser Glu Leu Leu Ser Ala Ile Glu His Val Ala Glu Lys Ala Lys Thr Ala Leu His Lys Leu Phe Pro Leu Glu Asp Gly Ser Phe Arg Val Phe Gly Lys Ala Gln Cys Asn Asp Ile Val Phe Gly Phe Gly Ser Lys Asp Asp Glu Tyr Thr Leu Pro Cys Ser Ser Gly Tyr Arg Gly Asn Ile Thr Ala Lys Cys Glu Ser Ser Gly Trp Gln Val Ile Arg Glu Thr Cys Val Leu Ser Leu Leu Glu Glu Leu Asn Lys Asn Phe Ser Met Ile Val Gly Asn Ala Thr Glu Ala Ala Val Ser Ser Phe Val Gln Asn Leu Ser Val Ile Ile Arg Gln Asn Pro Ser Thr Thr Val Gly Asn Leu Ala Ser Val Val Ser Ile Leu Ser Asn Ile Ser Ser Leu Ser Leu Ala Ser His Phe Arg Val Ser Asn Ser Thr Met Glu Asp Val Ile Ser Ile Ala Asp Asn Ile Leu Asn Ser Ala Ser Val Thr Asn Trp Thr Val Leu Leu Arg Glu Glu Lys Tyr Ala Ser Ser Arg Leu Leu Glu Thr Leu Glu Asn Ile Ser Thr Leu Val Pro Pro Thr Ala Leu Pro Leu Asn Phe Ser Arg Lys Phe Ile Asp Trp Lys Gly Ile Pro Val Asn Lys Ser Gln Leu Lys Arg Gly Tyr Ser Tyr Gln Ile Lys Met Cys Pro Gln Asn Thr Ser Ile Pro Ile Arg Gly Arg Val Leu Ile Gly Ser Asp Gln Phe Gln Arg Ser Leu Pro Glu Thr Ile Ile Ser Met Ala Ser Leu Thr Leu Gly Asn Ile Leu Pro Val Ser Lys Asn Gly Asn Ala Gln Val Asn Gly Pro Val Ile Ser Thr Val Ile Gln Asn Tyr Ser Ile Asn Glu Val Phe Leu Phe Phe Ser Lys Ile Glu Ser Asn Leu Ser Gln Pro His Cys Val Phe Trp Asp Phe Ser His Leu Gln Trp Asn Asp Ala Gly Cys His Leu Val Asn Glu Thr Gln Asp Ile Val Thr Cys Gln Cys Thr His Leu Thr Ser Phe Ser Ile Leu Met Ser Pro Phe Val Pro Ser Thr Ile Phe Pro Val Val Lys Trp Ile Thr Tyr Val Gly Leu Gly Ile Ser Ile Gly Ser Leu Ile Leu Cys Leu Ile Ile Glu Ala Leu Phe Trp Lys Gln Ile Lys Lys Ser Gln Thr Ser His Thr Arg Arg Ile Cys Met Val Asn Ile Ala Leu Ser Leu Leu Ile Ala Asp Val Trp Phe Ile Val Gly Ala Thr Val Asp Thr Thr Val Asn Pro Ser Gly Val Cys Thr Ala Ala Val Phe Phe Thr His Phe Phe Tyr Leu Ser Leu Phe Phe Trp Met Leu Met Leu Gly Ile Leu Leu Ala Tyr Arg Ile Ile Leu Val Phe His His Met Ala Gln His Leu Met Met Ala Val Gly Phe Cys Leu Gly Tyr Gly Cys Pro Leu Ile Ile Ser Val Ile Thr Ile Ala Val Thr Gln Pro Ser Asn Thr Tyr Lys Arg Lys Asp Val Cys Trp Leu Asn Trp Ser Asn Gly Ser Lys Pro Leu Leu Ala Phe Val Val Pro Ala Leu Ala Ile Val Ala Val Asn Phe Val Val Val Leu Leu Val Leu Thr Lys Leu Trp Arg Pro Thr Val Gly Glu Arg Leu Ser Arg Asp Asp Lys Ala Thr Ile Ile Arg Val Gly Lys Ser Leu Leu Ile Leu Thr Pro Leu Leu Gly Leu Thr Trp Gly Phe Gly Ile Gly Thr Ile Val Asp Ser Gln Asn Leu Ala Trp His Val Ile Phe Ala Leu Leu Asn Ala Phe Gln Gly Phe Phe Ile Leu Cys Phe Gly Ile Leu Leu Asp Ser Lys Leu Arg Gln Leu Leu Phe Asn Lys Leu Ser Ala Leu Ser Ser Trp Lys Gln Thr Glu Lys Gln Asn Ser Ser Asp Leu Ser Ala Lys Pro Lys Phe Ser Lys Pro Phe Asn Pro Leu Gln Asn Lys Gly His Tyr Ala Phe Ser His Thr Gly Asp Ser Ser Asp Asn Ile Met Leu Thr Gln Phe Val Ser Asn Glu

FIGURE 178

gaggctccgt gccccgcccc ccgggtgccc cgccccttg cgcggctggc gcggccagcc ggccaggctc ccctcggcaa acctgtctaa ttggggcggg gagcggagct tcctcctctg agggccgtgc cgcgctgcca gatttgttct tccgcccctg cctccgcggc tcggaggcga gcggaaggtg ccccggggcc gaggcccgtg acggggcggg cgggagcccc ggcagtccgg ggtcgccggc gagggccatg tcgctgttgg gggacccgct acaggccctg ccgccctcgg ccgcccccac ggggccgctg ctcgccccte cggccggcgc gaccctcaac cgcctgcggg agccgctgct gcggaggctc agcgagctcc tggatcaggc gcccgagggc cggggctgga ggagactggc ggagctggcg gggagtcgcg ggcgcctccg cctcagttgc ctagacctgg agcagtgttc tcttaaggta ctggagcctg aaggaagccc cagcctgtgt ctgctgaagt taatgggtga aaaaggttgc acagtcacag aattgagtga tttcctgcag gctatggaac acactgaagt tcttcagctt ctcagccccc caggaataaa gattactgta aacccagagt caaaggcagt cttggctgga cagtttgtga aactgtgttg ccgggcaact ggacatcctt ttgttcaata tcagtggttc aaaatgaata aagagattcc aaatggaaat acatcagagc ttatttttaa tgcagtgcat gtaaaagatg caggctttta tgtctgtcga gttaataaca atttcacctt tgaattcagc cagtggtcac agctggatgt ttgcgacatc ccagagagct tccagagaag tgttgatggc gtctctgaat ccaagttgca aatctgtgtt gaaccaactt cccaaaagct gatgccaggc agcacattgg ttttacagtg tgttgctgtt ggaagcccta ttcctcacta ccagtggttc aaaaatgaat taccattaac acatgagacc aaaaagctat acatggtgcc ttatgtggat ttggaacacc aaggaaccta ctggtgtcat gtatataatg atcgagacag tcaagatagc aagaaggtag aaatcatcat aggaagaaca gatgaggcag tggagtgcac tgaagatgaa ttaaataatc ttggtcatcc tgataataaa gagcaaacaa ctgaccagcc tttggcgaag gacaaggttg ccctttgat aggaaatatg aattaccggg agcaccccaa gctcaaagct cctttggtgg atgtgtacga attgactaac ttactgagac agctggactt caaagtggtt tcactgttgg atcttactga atatgagatg cgtaatgctg tggatgagtt tttactcctt ttagacaagg gagtatatgg gttattatat tatgcaggac atggttatga aaattttggg aacagcttca tggtccccgt tgatgctcca aatccatata ggtctgaaaa ttgtctgtgt gtacaaaata tactgaaatt gatgcaagaa aaagaaactg gacttaatgt gttcttattg gatatgtgta ggaaaagaaa tgactacgat gataccattc caatcttgga tgcactaaaa gtcaccgcca atattgtgtt tggatatgcc acgtgtcaag gagcagaagc ttttgaaatc cagcattctg gattggcaaa tggaatcttt atgaaatttt taaaagacag attattagaa gataagaaaa tcactgtgtt actggatgaa gttgcagaag atatgggtaa gtgtcacctt accaaaggca aacaggctct agagattcga agtagtttat ctgagaagag agcacttact gatccaatac agggaacaga atattctgct gaatctcttg tgcggaatct acagtgggcc aaggctcatg aacttccaga aagtatgtgt cttaagtttg actgtggtgt tcagattcaa ttaggatttg cagctgagtt ttccaatgtc atgatcatct atacaagtat agtttacaaa ccaccggaga taataatgtg tgatgcctac gttactgatt ttccacttga tctagatatt gatccaaaag atgcaaataa aggcacacct gaagaaactg gcagctactt ggtatcaaag gatcttccca agcattgcct ctataccaga ctcagttcac tgcaaaaatt aaaggaacat ctagtcttca cagtatgttt atcatatcag tactcaggat tggaagatac tgtagaggac aagcaggaag tgaatgttgg gaaacctctc attgctaaat tagacatgca tcgaggtttg ggaaggaaga cttgctttca aacttgtctt atgtctaatg gtccttacca gagttctgca gccacctcag gaggagcagg gcattatcac tcattgcaag acccattcca tggtgtttac cattcacatc ctggtaatcc aagtaatgtt acaccagcag atagctgtca ttgcagccgg actccagatg catttatttc aagtttcgct caccatgctt catgtcattt tagtagaagt aatgtgccag tagagacaac tgatgaaata ccatttagtt tctctgacag gctcagaatt tctgaaaaat gacctccttg tttttgaaag ttagcataat tttagatgcc tgtgaaatag tactgcactt acataaagtg agacattgtg aaaaggcaaa tttgtatatg tagagaaaga atagtagtaa ctgtttcata gcaaacttca ggactttgag atgttgaaat tacattattt aattac

FIGURE 179

Met Ser Leu Leu Gly Asp Pro Leu Gln Ala Leu Pro Pro Ser Ala Ala Pro Thr Gly Pro Leu Leu Ala Pro Pro Ala Gly Ala Thr Leu Asn Arg Leu Arg Glu Pro Leu Leu Arg Arg Leu Ser Glu Leu Leu Asp Gln Ala Pro Glu Gly Arg Gly Trp Arg Arg Leu Ala Glu Leu Ala Gly Ser Arg Gly Arg Leu Arg Leu Ser Cys Leu Asp Leu Glu Gln Cys Ser Leu Lys Val Leu Glu Pro Glu Gly Ser Pro Ser Leu Cys Leu Leu Lys Leu Met Gly Glu Lys Gly Cys Thr Val Thr Glu Leu Ser Asp Phe Leu Gln Ala Met Glu His Thr Glu Val Leu Gln Leu Leu Ser Pro Pro Gly Ile Lys Ile Thr Val Asn Pro Glu Ser Lys Ala Val Leu Ala Gly Gln Phe Val Lys Leu Cys Cys Arg Ala Thr Gly His Pro Phe Val Gln Tyr Gln Trp Phe Lys Met Asn Lys Glu Ile Pro Asn Gly Asn Thr Ser Glu Leu Ile Phe Asn Ala Val His Val Lys Asp Ala Gly Phe Tyr Val Cys Arg Val Asn Asn Asn Phe Thr Phe Glu Phe Ser Gln Trp Ser Gln Leu Asp Val Cys Asp Ile Pro Glu Ser Phe Gln Arg Ser Val Asp Gly Val Ser Glu Ser Lys Leu Gln Ile Cys Val Glu Pro Thr Ser Gln Lys Leu Met Pro Gly Ser Thr Leu Val Leu Gln Cys Val Ala Val Gly Ser Pro Ile Pro His Tyr Gln Trp Phe Lys Asn Glu Leu Pro Leu Thr His Glu Thr Lys Lys Leu Tyr Met Val Pro Tyr Val Asp Leu Glu His Gln Gly Thr Tyr Trp Cys His Val Tyr Asn Asp Arg Asp Ser Gln Asp Ser Lys Lys Val Glu Ile Ile Ile Gly Arg Thr Asp Glu Ala Val Glu Cys Thr Glu Asp Glu Leu Asn Asn Leu Gly His Pro Asp Asn Lys Glu Gln Thr Thr Asp Gln Pro Leu Ala Lys Asp Lys Val Ala Leu Leu Ile Gly Asn Met Asn Tyr Arg Glu His Pro Lys Leu Lys Ala Pro Leu Val Asp Val Tyr Glu Leu Thr Asn Leu Leu Arg Gln Leu Asp Phe Lys Val Val Ser Leu Leu Asp Leu Thr Glu Tyr Glu Met Arg Asn Ala Val Asp Glu Phe Leu Leu Leu Leu Asp Lys Gly Val Tyr Gly Leu Leu Tyr Tyr Ala Gly His Gly Tyr Glu Asn Phe Gly Asn Ser Phe Met Val Pro Val Asp Ala Pro Asn Pro Tyr Arg Ser Glu Asn Cys Leu Cys Val Gln Asn Ile Leu Lys Leu Met Gln Glu Lys Glu Thr Gly Leu Asn Val Phe Leu Leu Asp Met Cys Arg Lys Arg Asn Asp Tyr Asp Asp Thr Ile Pro Ile Leu Asp Ala Leu Lys Val Thr Ala Asn Ile Val Phe Gly Tyr Ala Thr Cys Gln Gly Ala Glu Ala Phe Glu Ile Gln His Ser Gly Leu Ala Asn Gly Ile Phe Met Lys Phe Leu Lys Asp Arg Leu Leu Glu Asp Lys Lys Ile Thr Val Leu Leu Asp Glu Val Ala Glu Asp Met Gly Lys Cys His Leu Thr Lys Gly Lys Gln Ala Leu Glu Ile Arg Ser Ser Leu Ser Glu Lys Arg Ala Leu Thr Asp Pro Ile Gln Gly Thr Glu Tyr Ser Ala Glu Ser Leu Val Arg Asn Leu Gln Trp Ala Lys Ala His Glu Leu Pro Glu Ser Met Cys Leu Lys Phe Asp Cys Gly Val Gln Ile Gln Leu Gly Phe Ala Ala Glu Phe Ser Asn Val Met Ile Ile Tyr Thr Ser Ile Val Tyr Lys Pro Pro Glu Ile Ile Met Cys Asp Ala Tyr Val Thr Asp Phe Pro Leu Asp Leu Asp Ile Asp Pro Lys Asp Ala Asn Lys Gly Thr Pro Glu Glu Thr Gly Ser Tyr Leu Val Ser Lys Asp Leu Pro Lys His Cys Leu Tyr Thr Arg Leu Ser Ser Leu Gln Lys Leu Lys Glu His Leu Val Phe Thr Val Cys Leu Ser Tyr Gln Tyr Ser Gly Leu Glu Asp Thr Val Glu Asp Lys Gln Glu Val Asn Val Gly Lys Pro Leu Ile Ala Lys Leu Asp Met His Arg Gly Leu Gly Arg Lys Thr Cys Phe Gln Thr Cys Leu Met Ser Asn Gly Pro Tyr Gln Ser Ser Ala Ala Thr Ser Gly Gly Ala Gly His Tyr His Ser Leu Gln Asp Pro Phe His Gly Val Tyr His Ser His Pro Gly Asn Pro Ser Asn Val Thr Pro Ala Asp Ser Cys His Cys Ser Arg Thr Pro Asp Ala Phe Ile Ser Ser Phe Ala His His Ala Ser Cys His Phe Ser Arg Ser Asn Val Pro Val Glu Thr Thr Asp Glu Ile Pro Phe Ser Phe Ser Asp Arg Leu Arg Ile Ser Glu Lys

FIGURE 180

agctggctca gggcgtccgc taggctcgga cgacctgctg agcctcccaa accgcttcca taaggctttg ctttccaact tcagctacag tgttagctaa gtttggaaag aaggaaaaaa gaaaatccct gggccccttt tcttttgttc tttgccaaag tcgtcgttgt agtctttttg cccaaggctg ttgtgttttt agaggtgcta tctccagttc cttgcactcc tgttaacaag cacctcagcg agagcagcag cagcgatagc agccgcagaa gagccagcgg ggtcgcctag tgtcatgacc agggcgggag atcacaaccg ccagagagga tgctgtggat ccttggccga ctacctgacc tctgcaaaat tccttctcta ccttggtcat tctctctcta cttggggaga tcggatgtgg cactttgcgg tgtctgtgtt tctggtagag ctctatggaa acagcctcct tttgacagca gtctacgggc tggtggtggc agggtctgtt ctggtcctgg gagccatcat cggtgactgg gtggacaaga atgctagact taaagtggcc cagacctcgc tggtggtaca gaatgtttca gtcatcctgt gtggaatcat cctgatgatg gttttcttac ataaacatga rcttctgacc atgtaccatg gatgggttct cacttcctgc tatatcctga tcatcactat tgcaaatatt gcaaatttgg ccagtactgc tactgcaatc acaatccaaa gggattggat tgttgttgtt gcaggagaag acagaagcaa actagcaaat atgaatgcca caatacgaag gattgaccag ttaaccaaca tcttagcccc catggctgtt ggccagatta tgacatttgg ctccccagtc atcggctgtg gctttatttc gggatggaac ttggtatcca tgtgcgtgga gtacgtcctg ctctggaagg tttaccagaa aaccccagct ctagctgtga aagctggtct taaagaagag gaaactgaat tgaaacagct gaatttacac aaagatactg agccaaaacc cctggaggga actcatctaa tgggtgtgaa ggactctaac atccatgagc ttgaacatga gcaagagcct acttgtgcct cccagatggc tgagcccttc cgtaccttcc gagatggatg ggtctcctac tacaaccagc ctgtgtttct ggctggcatg ggtcttgctt tcctttatat gactgtcctg ggctttgact gcatcaccac agggtacgcc tacactcagg gactgagtgg ttccatcctc agtattttga tgggagcatc agctataact ggaataatgg gaactgtagc ttttacttgg ctacgtcgaa aatgtggttt ggttcggaca ggtctgatct caggattggc acagctttcc tgtttgatct tgtgtgtgat ctctgtattc atgcctggaa gccccctgga cttgtccgtt tctccttttg aagatatccg atcaaggttc attcaaggag agtcaattac acctaccaag atacctgaaa ttacaactga aatatacatg tctaatgggt ctaattctgc taatattgtc ccggagacaa gtcctgaatc tgtgcccata atctctgtca gtctgctgtt tgcaggcgtc attgctgcta gaatcggtct ttggtccttt gatttaactg tgacacagtt gctgcaagaa aatgtaattg aatctgaaag aggcattata aatggtgtac agaactccat gaactatctt cttgatcttc tgcatttcat catggtcatc ctggctccaa atcctgaagc ttttggcttg ctcgtattga tttcagtctc ctttgtggca atgggccaca ttatgtattt ccgatttgcc caaaatactc tgggaaacaa gctctttgct tgcggtcctg atgcaaaaga agttaggaag gaaaatcaag caaatacatc tgttgtttga gacagtttaa ctgttgctat cctgttacta gattatatag agcacatgtg cttattttgt actgcagaat tccaataaat ggctgggtgt tttgctctgt ttttaccaca gctgtgcctt gagaactaaa agctgtttag gaaacctaag tcagcagaaa ttaactgatt aatttccctt atgttgaggc atggraaaaa aattggraaa aggaaaaact cagttttaaa tacgggagac tataatggat aacactgrat tcccctattt ctcatgagta gatacaatct tacgtaaaag agtggttagt cacgtgaatt cagttatcat ttgacagatt cttatctgta ctagaattca gatatgtcag ttttctgcaa aactcactct tgttcaagac tagctaattt atttttttgc atc

FIGURE 181

Met Thr Arg Ala Gly Asp His Asn Arg Gln Arg Gly Cys Cys Gly Ser Leu Ala Asp Tyr Leu Thr Ser Ala Lys Phe Leu Leu Tyr Leu Gly His Ser Leu Ser Thr Trp Gly Asp Arg Met Trp His Phe Ala Val Ser Val Phe Leu Val Glu Leu Tyr Gly Asn Ser Leu Leu Leu Thr Ala Val Tyr Gly Leu Val Val Ala Gly Ser Val Leu Val Leu Gly Ala Ile Ile Gly Asp Trp Val Asp Lys Asn Ala Arg Leu Lys Val Ala Gln Thr Ser Leu Val Val Gln Asn Val Ser Val Ile Leu Cys Gly Ile Ile Leu Met Met Val Phe Leu His Lys His Glu Leu Leu Thr Met Tyr His Gly Trp Val Leu Thr Ser Cys Tyr Ile Leu Ile Ile Thr Ile Ala Asn Ile Ala Asn Leu Ala Ser Thr Ala Thr Ala Ile Thr Ile Gln Arg Asp Trp Ile Val Val Val Ala Gly Glu Asp Arg Ser Lys Leu Ala Asn Met Asn Ala Thr Ile Arg Arg Ile Asp Gln Leu Thr Asn Ile Leu Ala Pro Met Ala Val Gly Gln Ile Met Thr Phe Gly Ser Pro Val Ile Gly Cys Gly Phe Ile Ser Gly Trp Asn Leu Val Ser Met Cys Val Glu Tyr Val Leu Leu Trp Lys Val Tyr Gln Lys Thr Pro Ala Leu Ala Val Lys Ala Gly Leu Lys Glu Glu Glu Thr Glu Leu Lys Gln Leu Asn Leu His Lys Asp Thr Glu Pro Lys Pro Leu Glu Gly Thr His Leu Met Gly Val Lys Asp Ser Asn Ile His Glu Leu Glu His Glu Gln Glu Pro Thr Cys Ala Ser Gln Met Ala Glu Pro Phe Arg Thr Phe Arg Asp Gly Trp Val Ser Tyr Tyr Asn Gln Pro Val Phe Leu Ala Gly Met Gly Leu Ala Phe Leu Tyr Met Thr Val Leu Gly Phe Asp Cys Ile Thr Thr Gly Tyr Ala Tyr Thr Gln Gly Leu Ser Gly Ser Ile Leu Ser Ile Leu Met Gly Ala Ser Ala Ile Thr Gly Ile Met Gly Thr Val Ala Phe Thr Trp Leu Arg Arg Lys Cys Gly Leu Val Arg Thr Gly Leu Ile Ser Gly Leu Ala Gln Leu Ser Cys Leu Ile Leu Cys Val Ile Ser Val Phe Met Pro Gly Ser Pro Leu Asp Leu Ser Val Ser Pro Phe Glu Asp Ile Arg Ser Arg Phe Ile Gln Gly Glu Ser Ile Thr Pro Thr Lys Ile Pro Glu Ile Thr Thr Glu Ile Tyr Met Ser Asn Gly Ser Asn Ser Ala Asn Ile Val Pro Glu Thr Ser Pro Glu Ser Val Pro Ile Ile Ser Val Ser Leu Leu Phe Ala Gly Val Ile Ala Ala Arg Ile Gly Leu Trp Ser Phe Asp Leu Thr Val Thr Gln Leu Leu Gln Glu Asn Val Ile Glu Ser Glu Arg Gly Ile Ile Asn Gly Val Gln Asn Ser Met Asn Tyr Leu Leu Asp Leu Leu His Phe Ile Met Val Ile Leu Ala Pro Asn Pro Glu Ala Phe Gly Leu Leu Val Leu Ile Ser Val Ser Phe Val Ala Met Gly His Ile Met Tyr Phe Arg Phe Ala Gln Asn Thr Leu Gly Asn Lys Leu Phe Ala Cys Gly Pro Asp Ala Lys Glu Val Arg Lys Glu Asn Gln Ala Asn Thr Ser Val Val

FIGURE 182

ggaagtttag gttaactgtc ttaaatttcc aaagctgtaa tcattatttt cattctcaaa gtgatggcct tgtgttttgc tcctctcctc cagggccaga ctgagcccag gttgatttca ggcggacacc aatagactcc acagcagctc caggagccca gacaccggcg gccagaagca aggctaggag ctgctgcagc catgtcggcc ctcagcctcc tcattctggg cctgctcacg gcagtgccac ctgccagctg tcagcaaggc ctggggaacc ttcagccctg gatgcagggc cttatcgcgg tggccgtgtt cctggtcctc gttgcaatcg cctttgcagt caaccacttc tggtgccagg aggagccgga gcctgcacac atgatcctga ccgtcggaaa caaggcagat ggagtcctgg tgggaacaga tggaaggtac tcttcgatgg cggccagttt caggtccagt gagcatgaga atgcctatga gaatgtgccc gaggaggaag gcaaggtccg cagcaccccg atgtaacctt ctctgtggct ccaaccccaa gactcccagg cacatgggat ggatgtccag tgctaccacc caagcccccc ccttctttgt gtggaatctg caatagtggg ctgactccct ccagccccat gccggcccta cccgcccttg aagtatagcc agccaaggtt ggagctcaga ccgtgtctag gttggggctc ggctgtggcc ctggggtctc ctgctcagct cagaagagcc ttctggagag gacagtcagc tgagcacctc ccatcctgct cacacgtcct tccccataac tatggaaatg gccctaattt ctgtgaaata aagacttttt gtatttctgg ggctgaggct cagcaacagc ccctcaggct tccaaaa

FIGURE 183

Met Ser Ala Leu Ser Leu Leu Ile Leu Gly Leu Leu Thr Ala Val Pro Pro Ala Ser Cys Gln Gln Gly Leu Gly Asn Leu Gln Pro Trp Met Gln Gly Leu Ile Ala Val Ala Val Phe Leu Val Leu Val Ala Ile Ala Phe Ala Val Asn His Phe Trp Cys Gln Glu Glu Pro Glu Pro Ala His Met Ile Leu Thr Val Gly Asn Lys Ala Asp Gly Val Leu Val Gly Thr Asp Gly Arg Tyr Ser Ser Met Ala Ala Ser Phe Arg Ser Ser Glu His Glu Asn Ala Tyr Glu Asn Val Pro Glu Glu Glu Gly Lys Val Arg Ser Thr Pro Met

FIGURE 184

tgctcccttg ggctctagag aggaggcccc tcttagccct cagcccctcc ttcctctcta tcttaaagta atttgatcct caggaatttg ttccgccctc atctggcccg gccaaatccc gatttgacaa atgccaggaa aaggaaactg ttgagaaacc gaaactactg gggaaaggga gggctcactg agtaaccatc ccagtaaccc gaccgccgct ggtcttcgct ggacaccatg agtcacactg tccaaacctt cttctctcct gtcaacagtg gccagccccc caactatgag atgctcaagg aggagcacga ggtggctgtg ctgggggggc cccacaaccc tgctcccccg acgtccaccg tgatccacat ccgcagcgag acctccgtgc ccgaccatgt cgtctggtcc ctgttcaaca ccctcttcat gaacccctgc tgcctgggct tcatagcatt cgcctactcc gtgaagtcta gggacaggaa gatggttggc gacgtgaccg gggcccaggc ctatgcctcc accgccaagt gcctgaacat ctgggccctg attctgggca tcctcatgac cattctgctc atcgtcatcc cagtgctgat cttccaggcc tatggataga tcaggaggca tcactgaggc caggagctct gcccatgacc tgtatcccac gtactccaac ttccattcct cgccctgccc ccggagccga gtcctgtatc agccctttat cctcacacgc ttttctacaa tggcattcaa taaagtgcac gtgtttctgg tgctgctg

FIGURE 185

Met Ser His Thr Val Gln Thr Phe Phe Ser Pro Val Asn Ser Gly Gln Pro Pro Asn Tyr Glu Met Leu Lys Glu Glu His Glu Val Ala Val Leu Gly Gly Pro His Asn Pro Ala Pro Pro Thr Ser Thr Val Ile His Ile Arg Ser Glu Thr Ser Val Pro Asp His Val Val Trp Ser Leu Phe Asn Thr Leu Phe Met Asn Pro Cys Cys Leu Gly Phe Ile Ala Phe Ala Tyr Ser Val Lys Ser Arg Asp Arg Lys Met Val Gly Asp Val Thr Gly Ala Gln Ala Tyr Ala Ser Thr Ala Lys Cys Leu Asn Ile Trp Ala Leu Ile Leu Gly Ile Leu Met Thr Ile Leu Leu Ile Val Ile Pro Val Leu Ile Phe Gln Ala Tyr Gly

FIGURE 186

cactggcgtt ataaatatcc cggtgccagc gcggagatcc gctcgggtgg cctctctctt cccctctccc cttctcttcc ccgaggctat gtccacccgg tgcggcgagg cgggcagcgc cagaggcacg cagccgcaca ggggctacag agcccagaat cagccctaca agatgcactt aggacccccg cggctggaag aatgagcttg tccttcctcc tcctcctctt cttcagccac ctgatcctca gcgcctgggc tcacggggag aagcgtctcg cccccaaagg gcaacccgga cccgctgcca ctgataggaa ccctagaggc tccagcagca gacagagcag cagtagcgct atgtcttcct cttctgcctc ctcctccccc gcagcttctc tgggcagcca aggaagtggc ttggagcaga gcagtttcca gtggagcccc tcggggcgcc ggaccggcag cctctactgc agagtgggca tcggtttcca tctgcagatc tacccggatg gcaaagtcaa tggatcccac gaagccaata tgttaagtgt tttggaaata tttgctgtgt ctcaggggat tgtaggaata cgaggagttt tcagcaacaa atttttagcg atgtcaaaaa aaggaaaact ccatgcaagt gccaagttca cagatgactg caagttcagg gagcgttttc aagaaaatag ctataatacc tatgcctcag caatacatag aactgaaaaa acagggcggg agtggtatgt ggccctgaat aaaagaggaa aagccaaacg agggtgcagc ccccgggtta aaccccagca tatctctacc cattttctgc caagattcaa gcagtcggag cagccagaac tttctttcac ggttactgtt cctgaaaaga aaaagccacc tagccctatc aagccaaaga ttccccttc tgcacctcgg aaaaatacca actcagtgaa atacagactc aagtttcgct ttggataata ttcctcttgg ccttgtgaga aaccattctt tcccctcagg agtttctata ggtgtcttca gagttctgaa gaaaaattac tggacacagc ttcagctata cttacactgt attgaagtca cgtcatttgt ttcagtgtga ctgaaacaaa atgtttttg ataggaagga aactggaatt ctttgtacta atacagggag cacactcctt cagttcagca agacataaat ccttttgctt tatgcttgag ggatatttag aactttgtat tttcggaaag ttaaataaca gggactacgt atttttctga cttttacaga ttaacctgaa agaacataca tgatacattt ttatttttgg tttccaaaga atattttgat gcagataaaa tattttgtta acttttgttt ttttttgttt gttttcttaa aagtacctct gcattgagca tattttctta cttttattat tttaattaat atgacataag caatcatttt atgctgttta tgaattataa atgtgtttat agctcatttg taatatggaa atcttttaca ttttttcctat tcactgcact tttttattgt ttttatttct agccatacct cagataatat gtttagtttt acattttaaa atgtttaaat tctctttcaa aaaaaaaaaa aaaggcc

FIGURE 187

Met Ser Leu Ser Phe Leu Leu Leu Leu Phe Phe Ser His Leu Ile Leu Ser Ala Trp Ala His Gly Glu Lys Arg Leu Ala Pro Lys Gly Gln Pro Gly Pro Ala Ala Thr Asp Arg Asn Pro Arg Gly Ser Ser Ser Arg Gln Ser Ser Ser Ser Ala Met Ser Ser Ser Ser Ala Ser Ser Ser Pro Ala Ala Ser Leu Gly Ser Gln Gly Ser Gly Leu Glu Gln Ser Ser Phe Gln Trp Ser Pro Ser Gly Arg Arg Thr Gly Ser Leu Tyr Cys Arg Val Gly Ile Gly Phe His Leu Gln Ile Tyr Pro Asp Gly Lys Val Asn Gly Ser His Glu Ala Asn Met Leu Ser Val Leu Glu Ile Phe Ala Val Ser Gln Gly Ile Val Gly Ile Arg Gly Val Phe Ser Asn Lys Phe Leu Ala Met Ser Lys Lys Gly Lys Leu His Ala Ser Ala Lys Phe Thr Asp Asp Cys Lys Phe Arg Glu Arg Phe Gln Glu Asn Ser Tyr Asn Thr Tyr Ala Ser Ala Ile His Arg Thr Glu Lys Thr Gly Arg Glu Trp Tyr Val Ala Leu Asn Lys Arg Gly Lys Ala Lys Arg Gly Cys Ser Pro Arg Val Lys Pro Gln His Ile Ser Thr His Phe Leu Pro Arg Phe Lys Gln Ser Glu Gln Pro Glu Leu Ser Phe Thr Val Thr Val Pro Glu Lys Lys Lys Pro Pro Ser Pro Ile Lys Pro Lys Ile Pro Leu Ser Ala Pro Arg Lys Asn Thr Asn Ser Val Lys Tyr Arg Leu Lys Phe Arg Phe Gly

FIGURE 188

gttggtatgg actcttcacc ctggagtggt aaactgtccc agcatttgca attactcagg gacagtttac cactccaggg tgaagagtcc ataccaacat gtctgcctac tacaggaata actggtctga ggaagaccca gattaccctg actattcagg gtctcagaac cgtacgcagg ggtatttgaa aactcaaggt tatccagatg ttccaggtcc tctgaacaat ccagactacc ccggcaccag gagcaatcca tactctgtag cctccagaac acgtccagac tatcctgggt ctctggcaga accaaattat cctagatctc tgagtaatcc agactattct ggcaccagaa gcaatgcata ctctgcagcc tctagaacaa gcccagacca tcctacctct ctaccagagc cagattatag tgaatttcag agtcatccct accaccgagc atcatccaga caaccagact accctggatc tcaacgaaat cctgattttg caggctccag cagcagtgga aactatgcag gctccagaac acatccagat cattttggct ccttagaacc ggactaccct ggagctcaga gcaactctga tcatcctgga cccagagcca atttgaacca tccaggatcc agaaagaatc tggaacatac aagttttaga atcaatccat acgcagactc tctgggaaag cctgattatc caggcgctga cattcaacct aactctccac ccttttttgg ggagccagac tatcccagtg ctgaggacaa tcagaacttg ccaagcactt ggagagaacc tgattattca gatgctgaga atggtcatga ttatggctct tctgagaccc caaagatgac caggggggtg ctcagcagaa catcttcaat ccagccctca tttcgtcaca ggagtgatga ccccgtgggc agtctttggg gagagaatga ttaccctgaa ggcattgaaa tggcatccat ggagatggca aactcatatg gccactctct gccaggtgct cctggaagtg gctatgtgaa ccctgcttat gtaggtgaaa gtggtcctgt ccatgcttat ggaaacccac cattgtctga atgtgattgg cacaagtcac cccaaggaca gaagttaatc gcatccctta tacccatgac atccagagac agaattaaag ccatcaggaa ccagccaagg accatggaag agaaaaggaa ccttaggaaa atagttgaca aagaaaaaag caaacagacc catcgtatcc ttcagctcaa ttgctgtatt cagtgtctga actccatttc ccgggcttat cggagatcca agaacagcct gtcggaaatt ctgaattcca tcagcctgtg gcagaagacg ctgaagatca ttggaggcaa gtttggaacc agcgtcctct cctatttcaa ctttctgaga tggcttttga agttcaacat tttctcattc atcctgaact tcagcttcat cataatccct cagtttaccg tggccaaaaa gaacaccctc cagttcactg ggctggagtt tttcactggg gtgggttatt ttagggacac agtgatgtac tatggctttt acaccaattc caccatccag cacgggaaca gcggggcatc ctacaacatg cagctggcct acatcttcac aatcggagca tgcttgacca cctgcttctt cagtttgctg ttcagcatgg ccaagtattt ccggaacaac ttcattaatc cccacattta ctccggaggg atcaccaagc tgatcttttg ctgggacttc actgtcactc atgaaaaagc tgtgaagcta aaacagaaga atcttagcac tgagataagg gagaacctgt cagagctccg tcaggagaat tccaagttga cgttcaatca gctgctgacc cgcttctctg cctacatggt agcctgggtt gtctctacag gagtggccat agcctgctgt gcagccgttt attacctggc tgagtacaac ttagagttcc tgaagacaca cagtaaccct ggggcggtgc tgttactgcc tttcgttgtg tcctgcatta atctggccgt gccatgcatc tactccatgt tcaggcttgt ggagaggtac gagatgccac ggcacgaagt ctacgttctc ctgatccgaa acatcttttt gaaaatatca atcattggca ttctttgtta ctattggctc aacaccgtgg ccctgtctgg tgaagagtgt tgggaaaccc tcattggcca ggacatctac cggctccttc tgatggattt tgtgttctct ttagtcaatt ccttcctggg ggagtttctg aggagaatca ttgggatgca actgatcaca agtcttggcc ttcaggagtt tgacattgcc aggaacgttc tagaactgat ctatgcacaa actctggtgt ggattggcat cttcttctgc cccctgctgc cctttatcca aatgattatg cttttcatca tgttctactc caaaaatatc agcctgatga tgaatttcca gcctccgagc aaagcctggc gggcctcaca gatgatgact ttcttcatct tcttgctctt tttcccatcc ttcaccgggg tcttgtgcac cctggccatc accatctgga gaatcatcac ctatctttac tggcagatca cagagggaag gaagattatg ataaggctgc tccatgagca gatcattaat gagggcaaag ataaaatgtt cctgatagaa aaattgatca agctgcagga tatggagaag aaagcaaacc ccagctcact tgttctggaa aggagagagg tggagcaaca aggctttttg catttggggg aacatgatgg cagtcttgac ttgcgatcta gaagatcagt tcaagaaggt aatccaaggg cctgatgact cttttggtaa ccagacacca atcaaataag gggaggagat gaaaatggaa tgatttcttc catgccacct gtgcctttag gaactgccca gaagaaaatc caaggcttta gccaggagcg gaaactgact accatgtaat tatcaaagta aaattgggca ttccatgcta ttttttaatac ctggattgct gatttttcaa gacaaaatac ttggggtttt ccaataaaga ttgttgtaat attgaaatga gcctacaaaa acctaggaag agataactag ggaataatgt atattatctt caagaaatgt gtgcaggaat gattggttct tagaaatctc tcctgccaga cttcccagac ctggcaaagg tttagaaact gttgctaaga aaagtggtcc atcctgaata aacatgtaat actccagcag ggatatgaag cctctgaatt gtagaacctg catttatttg tgactttgaa ctaaagacat cccccatgtc ccaaaggtgg aatacaacca gaggtctcat ctctgaactt tcttgcgtac tgattacatg agtctttgga gtcggggatg gaggaggttc tgcccctgtg aggtgttata catgaccatc aaagtcctac gtcaagctag ctttgcacag tggcagtacc gtagccaatg agatttatcc gagacgcgat tattgctaat tggaaatttt cccaataccc caccgtgatg acttgaaata taatcagcgc tggcaatttt tgacagtctc tacggagact gaataagaaa aaagaaaaga aaagaaatta gctgggtgcg atggcttatg cctgtaatcc cggcactttg ggaggctgag gcaagcggat cacttaatgt caggagttca agaccagcct ggccaacatg

gtgaaacccc gtctctacta aaaataaaaa aactagctgg gcgtggtagt acatgcctat aatcccagct actcgggagg ctgaggcagg agaattgctt gaacctggga ggcagaggtt gcagtgaggc gagattgtac cactgcattc cagcctgggc aacagtgaga ctctgcctca aaaaaataaa taaataaata aagtaaatta aaagtcttat tc

FIGURE 189

Met Ser Ala Tyr Tyr Arg Asn Asn Trp Ser Glu Glu Asp Pro Asp Tyr Pro Asp Tyr Ser Gly Ser Gln Asn Arg Thr Gln Gly Tyr Leu Lys Thr Gln Gly Tyr Pro Asp Val Pro Gly Pro Leu Asn Asn Pro Asp Tyr Pro Gly Thr Arg Ser Asn Pro Tyr Ser Val Ala Ser Arg Thr Arg Pro Asp Tyr Pro Gly Ser Leu Ala Glu Pro Asn Tyr Pro Arg Ser Leu Ser Asn Pro Asp Tyr Ser Gly Thr Arg Ser Asn Ala Tyr Ser Ala Ala Ser Arg Thr Ser Pro Asp His Pro Thr Ser Leu Pro Glu Pro Asp Tyr Ser Glu Phe Gln Ser His Pro Tyr His Arg Ala Ser Ser Arg Gln Pro Asp Tyr Pro Gly Ser Gln Arg Asn Pro Asp Phe Ala Gly Ser Ser Ser Ser Gly Asn Tyr Ala Gly Ser Arg Thr His Pro Asp His Phe Gly Ser Leu Glu Pro Asp Tyr Pro Gly Ala Gln Ser Asn Ser Asp His Pro Gly Pro Arg Ala Asn Leu Asn His Pro Gly Ser Arg Lys Asn Leu Glu His Thr Ser Phe Arg Ile Asn Pro Tyr Ala Asp Ser Leu Gly Lys Pro Asp Tyr Pro Gly Ala Asp Ile Gln Pro Asn Ser Pro Pro Phe Phe Gly Glu Pro Asp Tyr Pro Ser Ala Glu Asp Asn Gln Asn Leu Pro Ser Thr Trp Arg Glu Pro Asp Tyr Ser Asp Ala Glu Asn Gly His Asp Tyr Gly Ser Ser Glu Thr Pro Lys Met Thr Arg Gly Val Leu Ser Arg Thr Ser Ser Ile Gln Pro Ser Phe Arg His Arg Ser Asp Asp Pro Val Gly Ser Leu Trp Gly Glu Asn Asp Tyr Pro Glu Gly Ile Glu Met Ala Ser Met Glu Met Ala Asn Ser Tyr Gly His Ser Leu Pro Gly Ala Pro Gly Ser Gly Tyr Val Asn Pro Ala Tyr Val Gly Glu Ser Gly Pro Val His Ala Tyr Gly Asn Pro Pro Leu Ser Glu Cys Asp Trp His Lys Ser Pro Gln Gly Gln Lys Leu Ile Ala Ser Leu Ile Pro Met Thr Ser Arg Asp Arg Ile Lys Ala Ile Arg Asn Gln Pro Arg Thr Met Glu Glu Lys Arg Asn Leu Arg Lys Ile Val Asp Lys Glu Lys Ser Lys Gln Thr His Arg Ile Leu Gln Leu Asn Cys Cys Ile Gln Cys Leu Asn Ser Ile Ser Arg Ala Tyr Arg Arg Ser Lys Asn Ser Leu Ser Glu Ile Leu Asn Ser Ile Ser Leu Trp Gln Lys Thr Leu Lys Ile Ile Gly Gly Lys Phe Gly Thr Ser Val Leu Ser Tyr Phe Asn Phe Leu Arg Trp Leu Leu Lys Phe Asn Ile Phe Ser Phe Ile Leu Asn Phe Ser Phe Ile Ile Ile Pro Gln Phe Thr Val Ala Lys Lys Asn Thr Leu Gln Phe Thr Gly Leu Glu Phe Phe Thr Gly Val Gly Tyr Phe Arg Asp Thr Val Met Tyr Tyr Gly Phe Tyr Thr Asn Ser Thr Ile Gln His Gly Asn Ser Gly Ala Ser Tyr Asn Met Gln Leu Ala Tyr Ile Phe Thr Ile Gly Ala Cys Leu Thr Thr Cys Phe Phe Ser Leu Leu Phe Ser Met Ala Lys Tyr Phe Arg Asn Asn Phe Ile Asn Pro His Ile Tyr Ser Gly Gly Ile Thr Lys Leu Ile Phe Cys Trp Asp Phe Thr Val Thr His Glu Lys Ala Val Lys Leu Lys Gln Lys Asn Leu Ser Thr Glu Ile Arg Glu Asn Leu Ser Glu Leu Arg Gln Glu Asn Ser Lys Leu Thr Phe Asn Gln Leu Leu Thr Arg Phe Ser Ala Tyr Met Val Ala Trp Val Val Ser Thr Gly Val Ala Ile Ala Cys Cys Ala Ala Val Tyr Tyr Leu Ala Glu Tyr Asn Leu Glu Phe Leu Lys Thr His Ser Asn Pro Gly Ala Val Leu Leu Leu Pro Phe Val Val Ser Cys Ile Asn Leu Ala Val Pro Cys Ile Tyr Ser Met Phe Arg Leu Val Glu Arg Tyr Glu Met Pro Arg His Glu Val Tyr Val Leu Leu Ile Arg Asn Ile Phe Leu Lys Ile Ser Ile Ile Gly Ile Leu Cys Tyr Tyr Trp Leu Asn Thr Val Ala Leu Ser Gly Glu Glu Cys Trp Glu Thr Leu Ile Gly Gln Asp Ile Tyr Arg Leu Leu Leu Met Asp Phe Val Phe Ser Leu Val Asn Ser Phe Leu Gly Glu Phe Leu Arg Arg Ile Ile Gly Met Gln Leu Ile Thr Ser Leu Gly Leu Gln Glu Phe Asp Ile Ala Arg Asn Val Leu Glu Leu Ile Tyr Ala Gln Thr Leu Val Trp Ile Gly Ile Phe Phe Cys Pro Leu Leu Pro Phe Ile Gln Met Ile Met Leu Phe Ile Met Phe Tyr Ser Lys Asn Ile Ser Leu Met Met Asn Phe Gln Pro Pro Ser Lys Ala Trp Arg Ala Ser Gln Met Met Thr Phe Phe Ile Phe Leu Leu Phe Phe Pro Ser Phe Thr Gly Val Leu Cys Thr Leu Ala Ile Thr Ile Trp Arg Ile Ile Thr Tyr Leu Tyr Trp Gln Ile Thr Glu Gly Arg Lys Ile Met Ile Arg Leu Leu His Glu Gln Ile Ile Asn Glu Gly Lys Asp Lys Met Phe Leu Ile Glu Lys Leu Ile Lys Leu Gln Asp Met Glu Lys Lys Ala Asn Pro Ser Ser Leu Val Leu Glu Arg Arg Glu Val Glu Gln Gln Gly Phe Leu His Leu Gly Glu His Asp Gly Ser Leu Asp Leu Arg Ser Arg Arg Ser Val Gln Glu Gly Asn Pro Arg Ala

FIGURE 190

atggcggccg gagttgcggc ctggctgcct tttgcccggg ctgcggccat cgggtggatg ccggtggcca actgccccat gcccctggcc ccggccgaca agaacaagcg gcaggatgag ctgattgtcc tcaacgtgag tgggcggagg ttccagacct ggaggaccac gctggagcgc tacccggaca ccctgctggg cagcacggag aaggagttct tcttcaacga ggacaccaag gagtacttct tcgaccggga ccccgaggtg ttccgctgcg tgctcaactt ctaccgcacg gggaagctgc actacccgcg ctacgagtgc atctctgcct acgacgacga gctggccttc tacggcatcc tcccggagat catcggggac tgctgctacg aggagtacaa ggaccgcaag agggagaacg ccgagcggct catggacgac aacgactcgg agaacaacca ggagtccatg ccctcgctca gcttccgcca gaccatgtgg cgggccttcg agaaccccca caccagcacg ctggccctgg tcttctacta cgtgactggc ttcttcatcg ctgtctcggt catcaccaac gtggtggaga cggtgccgtg cggcacggtc ccgggcagca aggagctgcc gtgcggggag cgctactcgg tggccttctt ctgcctggac acggcgtgcg tcatgatctt caccggggag tacctcctgc ggctcttcgc ggctcccagc cgctaccgct tcatccgcag cgtcatgagc atcatcgacg tggtggccat catgccctac tacatcggtc tggtcatgac caacaacgag gacgtgtccg gcgccttcgt cacgctccgg gtcttccgcg tcttcaggat cttcaagttt tcccgccact cccagggcct gcggatcctg ggctacacac tgaagagctg tgcctccgaa ctgggctttc ttctcttctc cctcaccatg gccatcatca tctttgccac tgtgatgttt tatgccgaga agggctcctc ggccagcaag ttcacaagca tccctgcctc gttttggtac accattgtca ccatgaccac actggggtac ggagacatgg tgcttaagac gattgcaggg aagatcttcg gctccatctg ctccttgagt ggcgtcctgg tcattgccct gccagtccct gtgattgttt ccaactttag ccggatttac caccagaatc agagagctga taaacgcagg gcacaaaaga aggcccgcct tgccaggatc cgtgtggcca aaacaggcag ttcgaatgca tacctgcaca gcaagcgcaa cgggctcctc aacgaggcgc tggagctgac gggcacccca gaagaggagc acatgggcaa gaccacctca ctcatcgaga gccagcatca tcacctgctg cactgcctgg aaaaaaccac tgggttgtcc tatcttgtgg atgatcccct gttatctgta cgaacctcca ccatcaagaa ccacgagttt attgatgagc agatgtttga gcagaactgc atggagagtt caatgcagaa ctacccatcc acaagaagtc cctcactgtc cagccaccca ggcctcacta ccacctgctg ctcccgtcgt agtaagaaga ccacacacct gcccaattct aacctgccag ctactcgcct gcgcagcatg caagagctca gcacgatcca catccagggc agtgagcagc cctccctcac aaccagtcgc tccagcctta atttgaaagc agacgacgga ctgagaccaa actgcaaaac atcccagatc accacagcca tcatcagcat ccccactccc ccagcgctaa ccccagaggg ggaaagtcgg ccacccccctg ccagcccagg ccccaacacg aacattcctt ccataaccag caatgttgtc aaggtctctg tcttgtaa

FIGURE 191

Met Ala Ala Gly Val Ala Ala Trp Leu Pro Phe Ala Arg Ala Ala Ala Ile Gly Trp Met Pro Val Ala Asn Cys Pro Met Pro Leu Ala Pro Ala Asp Lys Asn Lys Arg Gln Asp Glu Leu Ile Val Leu Asn Val Ser Gly Arg Arg Phe Gln Thr Trp Arg Thr Thr Leu Glu Arg Tyr Pro Asp Thr Leu Leu Gly Ser Thr Glu Lys Glu Phe Phe Phe Asn Glu Asp Thr Lys Glu Tyr Phe Phe Asp Arg Asp Pro Glu Val Phe Arg Cys Val Leu Asn Phe Tyr Arg Thr Gly Lys Leu His Tyr Pro Arg Tyr Glu Cys Ile Ser Ala Tyr Asp Asp Glu Leu Ala Phe Tyr Gly Ile Leu Pro Glu Ile Ile Gly Asp Cys Cys Tyr Glu Glu Tyr Lys Asp Arg Lys Arg Glu Asn Ala Glu Arg Leu Met Asp Asp Asn Asp Ser Glu Asn Asn Gln Glu Ser Met Pro Ser Leu Ser Phe Arg Gln Thr Met Trp Arg Ala Phe Glu Asn Pro His Thr Ser Thr Leu Ala Leu Val Phe Tyr Tyr Val Thr Gly Phe Phe Ile Ala Val Ser Val Ile Thr Asn Val Val Glu Thr Val Pro Cys Gly Thr Val Pro Gly Ser Lys Glu Leu Pro Cys Gly Glu Arg Tyr Ser Val Ala Phe Phe Cys Leu Asp Thr Ala Cys Val Met Ile Phe Thr Gly Glu Tyr Leu Leu Arg Leu Phe Ala Ala Pro Ser Arg Tyr Arg Phe Ile Arg Ser Val Met Ser Ile Ile Asp Val Val Ala Ile Met Pro Tyr Tyr Ile Gly Leu Val Met Thr Asn Asn Glu Asp Val Ser Gly Ala Phe Val Thr Leu Arg Val Phe Arg Val Phe Arg Ile Phe Lys Phe Ser Arg His Ser Gln Gly Leu Arg Ile Leu Gly Tyr Thr Leu Lys Ser Cys Ala Ser Glu Leu Gly Phe Leu Leu Phe Ser Leu Thr Met Ala Ile Ile Ile Phe Ala Thr Val Met Phe Tyr Ala Glu Lys Gly Ser Ser Ala Ser Lys Phe Thr Ser Ile Pro Ala Ser Phe Trp Tyr Thr Ile Val Thr Met Thr Thr Leu Gly Tyr Gly Asp Met Val Leu Lys Thr Ile Ala Gly Lys Ile Phe Gly Ser Ile Cys Ser Leu Ser Gly Val Leu Val Ile Ala Leu Pro Val Pro Val Ile Val Ser Asn Phe Ser Arg Ile Tyr His Gln Asn Gln Arg Ala Asp Lys Arg Arg Ala Gln Lys Lys Ala Arg Leu Ala Arg Ile Arg Val Ala Lys Thr Gly Ser Ser Asn Ala Tyr Leu His Ser Lys Arg Asn Gly Leu Leu Asn Glu Ala Leu Glu Leu Thr Gly Thr Pro Glu Glu Glu His Met Gly Lys Thr Thr Ser Leu Ile Glu Ser Gln His His His Leu Leu His Cys Leu Glu Lys Thr Thr Gly Leu Ser Tyr Leu Val Asp Asp Pro Leu Leu Ser Val Arg Thr Ser Thr Ile Lys Asn His Glu Phe Ile Asp Glu Gln Met Phe Glu Gln Asn Cys Met Glu Ser Ser Met Gln Asn Tyr Pro Ser Thr Arg Ser Pro Ser Leu Ser Ser His Pro Gly Leu Thr Thr Thr Cys Cys Ser Arg Arg Ser Lys Lys Thr Thr His Leu Pro Asn Ser Asn Leu Pro Ala Thr Arg Leu Arg Ser Met Gln Glu Leu Ser Thr Ile His Ile Gln Gly Ser Glu Gln Pro Ser Leu Thr Thr Ser Arg Ser Ser Leu Asn Leu Lys Ala Asp Asp Gly Leu Arg Pro Asn Cys Lys Thr Ser Gln Ile Thr Thr Ala Ile Ile Ser Ile Pro Thr Pro Pro Ala Leu Thr Pro Glu Gly Glu Ser Arg Pro Pro Pro Ala Ser Pro Gly Pro Asn Thr Asn Ile Pro Ser Ile Thr Ser Asn Val Val Lys Val Ser Val Leu

FIGURE 192

ggaattccct gatatacacc tggaccacca ccaatggata tacaaatggc aaacaatttt actccgccct ctgcaactcc tcagggaaat gactgtgacc tctatgcaca tcacagcacg gccaggatag taatgcctct gcattacagc ctcgtcttca tcattgggct cgtgggaaac ttactagcct tggtcgtcat tgttcaaaac aggaaaaaaa tcaactctac caccctctat tcaacaaatt tggtgatttc tgatatactt tttaccacgg ctttgcctac acgaatagcc tactatgcaa tgggctttga ctggagaatc ggagatgcct tgtgtaggat aactgcgcta gtgttttaca tcaacacata tgcaggtgtg aactttatga cctgcctgag tattgaccgc ttcattgctg tggtgcaccc tctacgctac aacaagataa aaaggattga acatgcaaaa ggcgtgtgca tatttgtctg gattctagta tttgctcaga cactcccact cctcatcaac cctatgtcaa agcaggaggc tgaaaggatt acatgcatgg agtatccaaa ctttgaagaa actaaatctc ttccctggat tctgcttggg gcatgtttca taggatatgt acttccactt ataatcattc tcatctgcta ttctcagatc tgctgcaaac tcttcagaac tgccaaacaa aacccactca ctgagaaatc tggtgtaaac aaaaaggctc tcaacacaat tattcttatt attgttgtgt ttgttctctg tttcacacct taccatgttg caattattca acatatgatt aagaagcttc gtttctctaa tttcctggaa tgtagccaaa gacattcgtt ccagatttct ctgcacttta cagtatgcct gatgaacttc aattgctgca tggacccttt tatctacttc tttgcatgta aagggtataa gagaaaggtt atgaggatgc tgaaacggca agtcagtgta tcgatttcta gtgctgtgaa gtcagcccct gaagaaaatt cacgtgaaat gacagaaacg cagatgatga tacattccaa gtcttcaaat ggaaagtgaa atggattgta ttttggttta tagtgacgta aactgtatga caaactttgc aggacttccc ttataaagca aaataattgt tcagcttcca attagtattc ttttatattt ctttcattgg gcgctttccc atctccaact cggaagtaag cccaagagaa caacataaag caaacaacat aaagcacaat aaaaatgcaa ataaatattt tcatttttat ttgtaaacga atacaccaaa aggaggcgct cttaataact cccaatgtaa aaagttttgt tttaataaaa aattaattat tattcttgcc aacaaatggc tagaaaggac tgaatagatt atatattgcc agatgttaat actgtaacat acttttaaa taacatattt cttaaatcca aatttctctc aatgttagat ttaattccct caataacacc aatgttttgt tttgtttcgt tctgggtcat aaaactttgt taaggaactc ttttggaata aagagcagga tgctgcggaa ttc

FIGURE 193

Met Asp Ile Gln Met Ala Asn Asn Phe Thr Pro Pro Ser Ala Thr Pro Gln Gly Asn Asp Cys Asp Leu Tyr Ala His His Ser Thr Ala Arg Ile Val Met Pro Leu His Tyr Ser Leu Val Phe Ile Ile Gly Leu Val Gly Asn Leu Leu Ala Leu Val Val Ile Val Gln Asn Arg Lys Lys Ile Asn Ser Thr Thr Leu Tyr Ser Thr Asn Leu Val Ile Ser Asp Ile Leu Phe Thr Thr Ala Leu Pro Thr Arg Ile Ala Tyr Tyr Ala Met Gly Phe Asp Trp Arg Ile Gly Asp Ala Leu Cys Arg Ile Thr Ala Leu Val Phe Tyr Ile Asn Thr Tyr Ala Gly Val Asn Phe Met Thr Cys Leu Ser Ile Asp Arg Phe Ile Ala Val Val His Pro Leu Arg Tyr Asn Lys Ile Lys Arg Ile Glu His Ala Lys Gly Val Cys Ile Phe Val Trp Ile Leu Val Phe Ala Gln Thr Leu Pro Leu Leu Ile Asn Pro Met Ser Lys Gln Glu Ala Glu Arg Ile Thr Cys Met Glu Tyr Pro Asn Phe Glu Glu Thr Lys Ser Leu Pro Trp Ile Leu Leu Gly Ala Cys Phe Ile Gly Tyr Val Leu Pro Leu Ile Ile Ile Leu Ile Cys Tyr Ser Gln Ile Cys Cys Lys Leu Phe Arg Thr Ala Lys Gln Asn Pro Leu Thr Glu Lys Ser Gly Val Asn Lys Lys Ala Leu Asn Thr Ile Ile Leu Ile Ile Val Val Phe Val Leu Cys Phe Thr Pro Tyr His Val Ala Ile Ile Gln His Met Ile Lys Lys Leu Arg Phe Ser Asn Phe Leu Glu Cys Ser Gln Arg His Ser Phe Gln Ile Ser Leu His Phe Thr Val Cys Leu Met Asn Phe Asn Cys Cys Met Asp Pro Phe Ile Tyr Phe Phe Ala Cys Lys Gly Tyr Lys Arg Lys Val Met Arg Met Leu Lys Arg Gln Val Ser Val Ser Ile Ser Ser Ala Val Lys Ser Ala Pro Glu Glu Asn Ser Arg Glu Met Thr Glu Thr Gln Met Met Ile His Ser Lys Ser Ser Asn Gly Lys

FIGURE 194

taggaacagg ggagagtgca cctgctacca gtcaagctca gccagactgc aagaggaggc gaggcggagc cagccgaggg agtgaaccat ggacaagttg aaatgcccga gtttcttcaa gtgcagggag aaggagaaag tgtcggcttc atcagagaat ttccatgttg gtgaaaatga tgagaatcag gaccgtggta actggtccaa aaaatcggat tatcttctat ctatgattgg atacgcagtg ggattaggaa atgtgtggag atttccatat ctgacctaca gcaatggtgg aggcgccttc ttgatacctt atgcaattat gttagcattg gctggtttac ctttgttctt tctggagtgt tcactgggac aatttgctag cttaggtcca gtttcagttt ggaggattct tccattgttt caaggtgtgg gaattacaat ggtcctgatc tccatttttg tgacaatcta ttacaatgtc ataattgcct atagtcttta ctacatgttt gcttcttttc aaagtgaact accatggaaa aattgttctt cgtggtcaga taaaaactgt agcagatcac caatagtaac tcactgtaat gtgagtacag tgaataaagg aatacaagag atcatccaaa tgaataaaag ctgggtagac atcaacaatt ttacctgcat caacggcagt gaaatttatc agccagggca gcttcccagt gaacaatatt ggaataaagt ggcgctccaa cggtcaagtg gaatgaatga gactggagta attgtttggt atttagcact ttgtcttctt ctggcttggc tcatagttgg agcagcacta tttaaaggaa tcaaatcgtc tggcaaggtg gtatatttta cagctctttt cccctatgtg gtcctactca tcctgttagt acgaggtgca actctggagg gtgcttcaaa aggcatttca tactatattg gagcccagtc aaattttaca aaacttaagg aagctgaggt atggaaagat gctgccactc agatatttta ctccctttca gtggcttggg gtggcttagt tgctctatca tcttacaata agttcaaaaa caactgcttc tctgatgcca ttgtggtttg tttgacaaac tgtctcacta gcgtgtttgc tggatttgct atttttttcta tattgggaca catggcccat atatctggaa aggaagtttc tcaagttgta aaatcaggtt ttgatttggc attcattgcc tatccagagg ctctagccca actcccaggt ggtccatttt ggtccatatt atttttttc atgcttttaa ctttgggtct cgattctcag tttgcttcga ttgaaacgat cacaacaaca attcaagatt tatttcccaa agtgatgaag aaaatgaggg ttcccataac tttgggctgc tgcttggttt tgtttctcct tggtctcgtc tgtgtgactc aggctggaat ttactgggtt catctgattg accacttctg tgctggatgg ggcattttaa ttgcagctat actggagcta gttggaatca tctggattta tggagggaac agattcattg aggatacaga aatgatgatt ggagcaaaga ggtggatatt ctggctatgg tggagagctt gctggtttgt aattacgcct atccttttga ttgcaatatt tatctggtca ttggtgcaat ttcatagacc taattatggc gcaattccat accctgactg gggagttgct ttaggctggt gtatgattgt tttctgcatt atttggatac caattatggc tatcataaaa ataattcagg ctaaaggaaa catctttcaa cgccttataa gttgctgcag accagcttct aactggggtc catacctgga acaacatcgt ggggaaagat ataaagacat ggtagatcct aaaaaagagg ctgaccatga aatacctact gttagtggca gcagaaaacc ggaatgagat ctcattgaaa aaaatatatg attgtataat gtgatttttt ttagaatagg gggaacctta tttatttgtg tgttaactga ataggaaaat gtacatacta tgttcatgat agtgtgattt ttttcacatt taagcaggaa tgcaatataa aaatgtgaat ctcttaattc tcagccatgt gcttattata tttcttttta gattgtctat ctgtataaca cacacacaca cacctaagag tctctatttc acaattatat ttttgtaaat agtatatgca tttttaatac attggaggct ttattttgaa ctaatttctt agagaatagt tatattttct attacacaag tttaaaaata ttattaactt gtattttctt aatatacaat ctatcttttc cacaaatatg agtgggaaat aaatcagcac atttgaaaga aagtgttaaa actgaaggcc tcacttaatt agaaacgtga taaatatatg gacaaatgga ctatacatac tataagagga ctgtagttta atacttttta cccaaatatg tttaaaaaca tcgtgcattt gttacagctc atgttttcta tatgaactta gtcattaatg ttctttataa aaagtgaaat aagatggaaa aattaggatc ctacagccag tacgtgataa atctagaaaa ttgagttttg agtacctctt ttcccatata caatcttcct tccttaggta atttggaaga aaactatgac ccatttaatt tctattgtgt ttcaccaaat tcagtgttgt tcattatacc tctctgaaat ataggtttaa tttcaaatag aatatggact taaatgttaa tgagaaactg gctttaatca attctagcat tttattactg taatacaggg ctgatagagt gattttgtct tatatgagtc agttactact tacaggtgat aacttgcata ctattggaag ataaagttgt caaacttgtc aagaatgaga aaagccaaat tagaaaatcc tatgtcctag tttccttacc aaggataatt aaatatatca ctaagagctt tatatattga ttatatattg ttgacaactg gtttaagcat catagcctat gatgataaac actgcctata tatgtaaata gcttttcatc aattcttaaa tttcttaacc taggcttcag ggagcatatg aaaccaaaat tatatggaac attttctgtg tgtacatgta catgcatttt tctagggaga gagtccgtag gtttatcaga atatcaagga aaactgtgac ccaaagaagt ttaagaatca catacagtgc tgctggcttt ttgtgcttgg caaatgagtg acaatagaag aaataatttt tcttacacat tttaaaacgt tttctcttcc ttgtgattga agatgaaagg agtaagaaat taaggcattt gtttaattta tactggtaac ttatttaggg gggaggggac atgaaggtag gtaaataggt aggcctctaa ttgaaccacc tctctaagtt atgtacgtat atataagctg aaattgtgtt tgacattctg agggttttct ttttcttttt ccttttttt ttttttggt gggggggctgg gggtcagagt cttgttctgt tgcctgggct ggagtgcagt ggcatgatct cagctcactg caacctctgc cttctggatt caagtgattc tcctgcctca gcctcttgag tagctgggac tacaggtgcc cgccaccaca ccagctaatt tttgtatttt tagtagaggc gaagtttccc catgttggcc aggctggtct tgaactcccg acctcaagtg atctgtctac ctcggcctcc taaagtgctg agattacagg tgtgagccac cgtgcccggc ccattctaag ggttttcttt gaagacaggt caaatgctgt tagtaagttt caggagattg ttaattcctc agttatacca gattttataa aatatttgag aatagatggc taacaagagg ttagaaatac ttttccttaa ttttaatcca cagtatgtta catgcattct accactacat tttggtgcta tttaaggtgt gcaatttttct ataggtgact tttgcaattc agggaagatt tgggcatatt aaatgaaaga atatctaatt gggggaggtg tgaagggaaa gaaattcttt tcaaaagctg accacaaaga gtagttaaaa gtttttgtca ctatcttcac aagtgtgtaa agcacagatt tcaacagagt

gcttggcata ttgtagggtg ctcaatggtg gtttttatta ttattactca gattccacag tggcaagaaa catcattcta cataatggaa aacatttaca tcaaatccca cttactttaa tgcgaacttg gagataattt atggtattgt attgtaaacc attaatgaaa actttttcac agttgagtga aattaaaatc actatatctc

FIGURE 195

Met Asp Lys Leu Lys Cys Pro Ser Phe Phe Lys Cys Arg Glu Lys Glu Lys Val Ser Ala Ser Ser Glu Asn Phe His Val Gly Glu Asn Asp Glu Asn Gln Asp Arg Gly Asn Trp Ser Lys Lys Ser Asp Tyr Leu Leu Ser Met Ile Gly Tyr Ala Val Gly Leu Gly Asn Val Trp Arg Phe Pro Tyr Leu Thr Tyr Ser Asn Gly Gly Gly Ala Phe Leu Ile Pro Tyr Ala Ile Met Leu Ala Leu Ala Gly Leu Pro Leu Phe Phe Leu Glu Cys Ser Leu Gly Gln Phe Ala Ser Leu Gly Pro Val Ser Val Trp Arg Ile Leu Pro Leu Phe Gln Gly Val Gly Ile Thr Met Val Leu Ile Ser Ile Phe Val Thr Ile Tyr Tyr Asn Val Ile Ile Ala Tyr Ser Leu Tyr Tyr Met Phe Ala Ser Phe Gln Ser Glu Leu Pro Trp Lys Asn Cys Ser Ser Trp Ser Asp Lys Asn Cys Ser Arg Ser Pro Ile Val Thr His Cys Asn Val Ser Thr Val Asn Lys Gly Ile Gln Glu Ile Ile Gln Met Asn Lys Ser Trp Val Asp Ile Asn Asn Phe Thr Cys Ile Asn Gly Ser Glu Ile Tyr Gln Pro Gly Gln Leu Pro Ser Glu Gln Tyr Trp Asn Lys Val Ala Leu Gln Arg Ser Ser Gly Met Asn Glu Thr Gly Val Ile Val Trp Tyr Leu Ala Leu Cys Leu Leu Leu Ala Trp Leu Ile Val Gly Ala Ala Leu Phe Lys Gly Ile Lys Ser Ser Gly Lys Val Val Tyr Phe Thr Ala Leu Phe Pro Tyr Val Val Leu Leu Ile Leu Leu Val Arg Gly Ala Thr Leu Glu Gly Ala Ser Lys Gly Ile Ser Tyr Tyr Ile Gly Ala Gln Ser Asn Phe Thr Lys Leu Lys Glu Ala Glu Val Trp Lys Asp Ala Ala Thr Gln Ile Phe Tyr Ser Leu Ser Val Ala Trp Gly Gly Leu Val Ala Leu Ser Ser Tyr Asn Lys Phe Lys Asn Asn Cys Phe Ser Asp Ala Ile Val Val Cys Leu Thr Asn Cys Leu Thr Ser Val Phe Ala Gly Phe Ala Ile Phe Ser Ile Leu Gly His Met Ala His Ile Ser Gly Lys Glu Val Ser Gln Val Val Lys Ser Gly Phe Asp Leu Ala Phe Ile Ala Tyr Pro Glu Ala Leu Ala Gln Leu Pro Gly Gly Pro Phe Trp Ser Ile Leu Phe Phe Phe Met Leu Leu Thr Leu Gly Leu Asp Ser Gln Phe Ala Ser Ile Glu Thr Ile Thr Thr Thr Ile Gln Asp Leu Phe Pro Lys Val Met Lys Lys Met Arg Val Pro Ile Thr Leu Gly Cys Cys Leu Val Leu Phe Leu Leu Gly Leu Val Cys Val Thr Gln Ala Gly Ile Tyr Trp Val His Leu Ile Asp His Phe Cys Ala Gly Trp Gly Ile Leu Ile Ala Ala Ile Leu Glu Leu Val Gly Ile Ile Trp Ile Tyr Gly Gly Asn Arg Phe Ile Glu Asp Thr Glu Met Met Ile Gly Ala Lys Arg Trp Ile Phe Trp Leu Trp Trp Arg Ala Cys Trp Phe Val Ile Thr Pro Ile Leu Leu Ile Ala Ile Phe Ile Trp Ser Leu Val Gln Phe His Arg Pro Asn Tyr Gly Ala Ile Pro Tyr Pro Asp Trp Gly Val Ala Leu Gly Trp Cys Met Ile Val Phe Cys Ile Ile Trp Ile Pro Ile Met Ala Ile Ile Lys Ile Ile Gln Ala Lys Gly Asn Ile Phe Gln Arg Leu Ile Ser Cys Cys Arg Pro Ala Ser Asn Trp Gly Pro Tyr Leu Glu Gln His Arg Gly Glu Arg Tyr Lys Asp Met Val Asp Pro Lys Lys Glu Ala Asp His Glu Ile Pro Thr Val Ser Gly Ser Arg Lys Pro Glu

FIGURE 196

gaattcggca cgagtcaggg aagcagcccc ggcggccagc agggagctca ggacagagca ggctccctgg gaagcctccg ggtgataggg gtgttccagc tgcggcgctc tgggggttca gaggggggatc ttgaatgaac aaatgaatga actgctttct gggcaaacag ccacagccag aggagcctgt gattggcaga aagaagccag ggtgtgcaag tctccccaac agcctcgagt ggcctgcagt cacagggaac cctcaggaag accttccggg cagagaccag agggaagccc atctctccag cagaactgct tggatttttc taccaggagg ctcagggctc tgcaacaatg atagcagaag ctgatggcat ctagagatct aggctgggac tagcacagca tcacttctac cactttctgt tggtcacagc aactcaccat gccagtgcag attcaagggg aggagaaata gagtccactt cttgatggga ggcgtgacat agaatggagg atgaagatta caacacttcc atcagttacg gtgatgaata ccctgattat ttagactcca ttgtggtttt ggaggactta tccccttgg aagccagggt gaccaggatc ttcctggtgg tggtctacag catcgtctgc ttcctcggga ttctgggcaa tggtctggtg atcatcattg ccaccttcaa gatgaagaag acagtgaaca tggtctggtt cctcaacctg gcagtggcag atttcctgtt caacgtcttc ctcccaatcc atatcaccta tgccgccatg gactaccact gggttttcgg gacagccatg tgcaagatca gcaacttcct tctcatccac aacatgttca ccagcgtctt cctgctgacc atcatcagct ctgaccgctg catctctgtg ctcctccctg tctggtccca gaaccaccgc agcgttcgcc tggcttacat ggcctgcatg gtcatctggg tcctggcttt cttcttgagt tccccatctc tcgtcttccg ggacacagcc aacctgcatg ggaaaatatc ctgcttcaac aacttcagcc tgtccacacc tgggtcttcc tcgtggccca ctcactccca aatggaccct gtggggtata gccggcacat ggtggtgact gtcacccgct tcctctgtgg cttcctggtc ccagtcctca tcatcacagc ttgctacctc accatcgtgt gcaaactgca gcgcaaccgc ctggccaaga ccaagaagcc cttcaagatt attgtgacca tcatcattac cttcttcctc tgctggtgcc cctaccacac actcaacctc ctagagctcc accacactgc catgcctggc tctgtcttca gcctgggttt gcccctggcc actgcccttg ccattgccaa cagctgcatg aaccccattc tgtatgtttt catgggtcag gacttcaaga agttcaaggt ggccctcttc tctcgcctgg tcaatgctct aagtgaagat acaggccact cttcctaccc cagccataga agctttacca agatgtcatc aatgaatgag aggacttcta tgaatgagag ggagaccggc atgctttgat cctcactgtg gaacccctca atggactctc tcaacccagg gacacccaag gatatgtctt ctgaagatca aggcaagaac ctctttagca tccaccaatt ttcactgcat tttgcatggg atgaacagtg ttttatgctg ggaatctagg gcctggaacc cctttcttct agtggacaga acatgctgtg ttccatacag ccttggacta gcaatttatg cttcttggga ggccagcctt gactgactca aagcaaaaaa ggaagaattc

FIGURE 197

Met Glu Asp Glu Asp Tyr Asn Thr Ser Ile Ser Tyr Gly Asp Glu Tyr Pro Asp Tyr Leu Asp Ser Ile Val Val Leu Glu Asp Leu Ser Pro Leu Glu Ala Arg Val Thr Arg Ile Phe Leu Val Val Val Tyr Ser Ile Val Cys Phe Leu Gly Ile Leu Gly Asn Gly Leu Val Ile Ile Ile Ala Thr Phe Lys Met Lys Lys Thr Val Asn Met Val Trp Phe Leu Asn Leu Ala Val Ala Asp Phe Leu Phe Asn Val Phe Leu Pro Ile His Ile Thr Tyr Ala Ala Met Asp Tyr His Trp Val Phe Gly Thr Ala Met Cys Lys Ile Ser Asn Phe Leu Leu Ile His Asn Met Phe Thr Ser Val Phe Leu Leu Thr Ile Ile Ser Ser Asp Arg Cys Ile Ser Val Leu Leu Pro Val Trp Ser Gln Asn His Arg Ser Val Arg Leu Ala Tyr Met Ala Cys Met Val Ile Trp Val Leu Ala Phe Phe Leu Ser Ser Pro Ser Leu Val Phe Arg Asp Thr Ala Asn Leu His Gly Lys Ile Ser Cys Phe Asn Asn Phe Ser Leu Ser Thr Pro Gly Ser Ser Ser Trp Pro Thr His Ser Gln Met Asp Pro Val Gly Tyr Ser Arg His Met Val Val Thr Val Thr Arg Phe Leu Cys Gly Phe Leu Val Pro Val Leu Ile Ile Thr Ala Cys Tyr Leu Thr Ile Val Cys Lys Leu Gln Arg Asn Arg Leu Ala Lys Thr Lys Lys Pro Phe Lys Ile Ile Val Thr Ile Ile Ile Thr Phe Phe Leu Cys Trp Cys Pro Tyr His Thr Leu Asn Leu Leu Glu Leu His His Thr Ala Met Pro Gly Ser Val Phe Ser Leu Gly Leu Pro Leu Ala Thr Ala Leu Ala Ile Ala Asn Ser Cys Met Asn Pro Ile Leu Tyr Val Phe Met Gly Gln Asp Phe Lys Lys Phe Lys Val Ala Leu Phe Ser Arg Leu Val Asn Ala Leu Ser Glu Asp Thr Gly His Ser Ser Tyr Pro Ser His Arg Ser Phe Thr Lys Met Ser Ser Met Asn Glu Arg Thr Ser Met Asn Glu Arg Glu Thr Gly Met Leu

FIGURE 198

gagaaaaaca acaggaagca gcttacaaac tcggtgaaca actgagggaa ccaaaccaga gacgcgctga acagagagaa tcaggctcaa agcaagtgga agtgggcaga gattccacca ggactggtgc aaggcgcaga gccagccaga tttgagaaga aggcaaaaag atgctgggga gcagagctgt aatgctgctg ttgctgctgc cctggacagc tcagggcaga gctgtgcctg ggggcagcag ccctgcctgg actcagtgcc agcagctttc acagaagctc tgcacactgg cctggagtgc acatccacta gtgggacaca tggatctaag agaagaggga gatgaagaga ctacaaatga tgttccccat atccagtgtg gagatggctg tgacccccaa ggactcaggg acaacagtca gttctgcttg caaaggatcc accagggtct gatttttat gagaagctgc taggatcgga tattttcaca ggggagcctt ctctgctccc tgatagccct gtgggccagc ttcatgcctc cctactgggc ctcagccaac tcctgcagcc tgagggtcac cactgggaga ctcagcagat tccaagcctc agtcccagcc agccatggca gcgtctcctt ctccgcttca aaatccttcg cagcctccag gcctttgtgg ctgtagccgc ccgggtcttt gcccatggag cagcaaccct gagtccctaa aggcagcagc tcaaggatgg cactcagatc tccatggccc agcaaggcca agataaatct accaccccag gcacctgtga gccaacaggt taattagtcc attaatttta gtgggacctg catatgttga aaattaccaa tactgactga catgtgatgc tgacctatga taaggttgag tatttattag atgggaaggg aaatttgggg attatttatc ctcctgggga cagtttgggg aggattattt attgtattta tattgaatta tgtacttttt tcaataaagt cttatttttg tggctaaaaa aaaaaaaa

FIGURE 199

Met Leu Gly Ser Arg Ala Val Met Leu Leu Leu Leu Leu Pro Trp Thr Ala Gln Gly Arg Ala Val Pro Gly Gly Ser Ser Pro Ala Trp Thr Gln Cys Gln Gln Leu Ser Gln Lys Leu Cys Thr Leu Ala Trp Ser Ala His Pro Leu Val Gly His Met Asp Leu Arg Glu Glu Gly Asp Glu Glu Thr Thr Asn Asp Val Pro His Ile Gln Cys Gly Asp Gly Cys Asp Pro Gln Gly Leu Arg Asp Asn Ser Gln Phe Cys Leu Gln Arg Ile His Gln Gly Leu Ile Phe Tyr Glu Lys Leu Leu Gly Ser Asp Ile Phe Thr Gly Glu Pro Ser Leu Leu Pro Asp Ser Pro Val Gly Gln Leu His Ala Ser Leu Leu Gly Leu Ser Gln Leu Leu Gln Pro Glu Gly His His Trp Glu Thr Gln Gln Ile Pro Ser Leu Ser Pro Ser Gln Pro Trp Gln Arg Leu Leu Leu Arg Phe Lys Ile Leu Arg Ser Leu Gln Ala Phe Val Ala Val Ala Ala Arg Val Phe Ala His Gly Ala Ala Thr Leu Ser Pro

FIGURE 200

gctgccacct ctctagaggc acctggcggg gagcctctca acataagaca gtgaccagtc tggtgactca cagccggcac agccatgaac tacccgctaa cgctggaaat ggacctcgag aacctggagg acctgttctg ggaactggac agattggaca actataacga cacctccctg gtggaaaatc atctctgccc tgccacagag ggtcccctca tggcctcctt caaggccgtg ttcgtgcccg tggcctacag cctcatcttc ctcctgggcg tgatcggcaa cgtcctggtg ctggtgatcc tggagcggca ccggcagaca cgcagttcca cggagacctt cctgttccac ctggccgtgg ccgacctcct gctggtcttc atcttgccct ttgccgtggc cgagggctct gtgggctggg tcctggggac cttcctctgc aaaactgtga ttgccctgca caaagtcaac ttctactgca gcagcctgct cctggcctgc atcgccgtgg accgctacct ggccattgtc cacgccgtcc atgcctaccg ccaccgccgc ctcctctcca tccacatcac ctgtgggacc atctggctgg tgggcttcct ccttgccttg ccagagattc tcttcgccaa agtcagccaa ggccatcaca acaactccct gccacgttgc accttctccc aagagaacca agcagaaacg catgcctggt tcacctcccg attcctctac catgtggcgg gattcctgct gcccatgctg gtgatgggct ggtgctacgt ggggggtagtg cacaggttgc gccaggccca gcggcgccct cagcggcaga aggcagtcag ggtggccatc ctggtgacaa gcatcttctt cctctgctgg tcaccctacc acatcgtcat cttcctggac accctggcga ggctgaaggc cgtggacaat acctgcaagc tgaatggctc tctccccgtg gccatcacca tgtgtgagtt cctgggcctg gcccactgct gcctcaaccc catgctctac actttcgccg gcgtgaagtt ccgcagtgac ctgtcgcggc tcctgaccaa gctgggctgt accggccctg cctccctgtg ccagctcttc cctagctggc gcaggagcag tctctctgag tcagagaatg ccacctctct caccacgttc taggtcccag tgtccccttt tattgctgct tttccttggg gcaggcagtg atgctggatg ctccttccaa caggagctgg gatcctaagg gctcaccgtg gctaagagtg tcctaggagt atcctcattt ggggtagcta gaggaaccaa ccccatttct agaacatccc tgccagctct tctgccggcc ctggggctag gctggagccc agggagcgga aagcagctcg aaggcacagt gaaggctgtc cttacccatc tgcacccccc tgggctgaga gaacctcacg cacctcccat cctaatcatc caatgctcaa gaaacaactt ctacttctgc ccttgccaac ggagagcgcc tgcccctccc agaacacact ccatcagctt aggggctgct gacctccaca gcttcccctc tctcctcctg cccacctgtc aaacaaagcc agaagctgag caccagggga tgagtggagg ttaaggctga ggaaaggcca gctggcagca gagtgtggct tcggacaact cagtccctaa aaacacagac attctgccag gcccccaagc ctgcagtcat cttgaccaag caggaagctc agactggttg agttcaggta gctgcccctg gctctgaccg aaacagcgct gggtccaccc catgtcaccg gatcctgggt ggtctgcagg cagggctgac tctaggtgcc cttggaggcc agccagtgac ctgaggaagc gtgaaggccg agaagcaaga aagaaacccg acagagggaa gaaaagagct ttcttcccga accccaagga gggagatgga tcaatcaaac ccggctgtcc cctccgccca ggcgagatgg ggtgggggga gaactcctag ggtggctggg tccaggggat gggaggttgt gggcattgat ggggaaggag gctggcttgt cccctcctca ctcccttccc ataagctata gacccgagga aactcagagt cggaacggag aaaggtggac tggaaggggc ccgtgggagt catctcaacc atcccctccg ttggcatcac cttaggcagg gaagtgtaag aaacacactg aggcaggaac tcccaggccc aggaagccgt gccctgcccc cgtgaggatg tcactcagat ggaaccgcag gaagctgctc cgtgcttgtt tgctcacctg gggtgtggga ggcccgtccg gcagttctgg gtgctcccta ccacctcccc agcctttgat caggtgggga gtcagggacc cctgcccttg tcccactcaa gccaagcagc caagctcctt gggaggcccc actggggaaa taacagctgt ggctcacgtg agagtgtctt cacggcagga caacgagaaa gccctaagac gtccctttt tctctgagta tctcctcgca agctgggtaa tcgatgggga gtctgaagca gatgcaaaga ggcagaggat ggattttgaa ttttcttttt aataaaaagg cacctataaa acaggtcaat acagtacagg cagcacagag acccccggaa caagcctaaa aattgtttca aaataaaaac caagaagatg tcttcaaaaa aaaaaaaaaa aaaaaaaa

FIGURE 201

Met Asn Tyr Pro Leu Thr Leu Glu Met Asp Leu Glu Asn Leu Glu Asp Leu Phe Trp Glu Leu Asp Arg Leu Asp Asn Tyr Asn Asp Thr Ser Leu Val Glu Asn His Leu Cys Pro Ala Thr Glu Gly Pro Leu Met Ala Ser Phe Lys Ala Val Phe Val Pro Val Ala Tyr Ser Leu Ile Phe Leu Leu Gly Val Ile Gly Asn Val Leu Val Leu Val Ile Leu Glu Arg His Arg Gln Thr Arg Ser Ser Thr Glu Thr Phe Leu Phe His Leu Ala Val Ala Asp Leu Leu Leu Val Phe Ile Leu Pro Phe Ala Val Ala Glu Gly Ser Val Gly Trp Val Leu Gly Thr Phe Leu Cys Lys Thr Val Ile Ala Leu His Lys Val Asn Phe Tyr Cys Ser Ser Leu Leu Leu Ala Cys Ile Ala Val Asp Arg Tyr Leu Ala Ile Val His Ala Val His Ala Tyr Arg His Arg Arg Leu Leu Ser Ile His Ile Thr Cys Gly Thr Ile Trp Leu Val Gly Phe Leu Leu Ala Leu Pro Glu Ile Leu Phe Ala Lys Val Ser Gln Gly His His Asn Asn Ser Leu Pro Arg Cys Thr Phe Ser Gln Glu Asn Gln Ala Glu Thr His Ala Trp Phe Thr Ser Arg Phe Leu Tyr His Val Ala Gly Phe Leu Leu Pro Met Leu Val Met Gly Trp Cys Tyr Val Gly Val Val His Arg Leu Arg Gln Ala Gln Arg Arg Pro Gln Arg Gln Lys Ala Val Arg Val Ala Ile Leu Val Thr Ser Ile Phe Phe Leu Cys Trp Ser Pro Tyr His Ile Val Ile Phe Leu Asp Thr Leu Ala Arg Leu Lys Ala Val Asp Asn Thr Cys Lys Leu Asn Gly Ser Leu Pro Val Ala Ile Thr Met Cys Glu Phe Leu Gly Leu Ala His Cys Cys Leu Asn Pro Met Leu Tyr Thr Phe Ala Gly Val Lys Phe Arg Ser Asp Leu Ser Arg Leu Leu Thr Lys Leu Gly Cys Thr Gly Pro Ala Ser Leu Cys Gln Leu Phe Pro Ser Trp Arg Arg Ser Ser Leu Ser Glu Ser Glu Asn Ala Thr Ser Leu Thr Thr Phe

FIGURE 202

ggcggaccga tcttcccatc ccacatcctc cggcgcgatg ccaaaaagag gctgacggca actgggcctt ctgcagagaa agacctccgc ttcactgccc cggctggtcc caagggtcag gaagatggat tcatacctgc tgatgtgggg actgctcacg ttcatcatgg tgcctggctg ccaggcagag ctctgtgacg atgacccgcc agagatccca cacgccacat tcaaagccat ggcctacaag gaaggaacca tgttgaactg tgaatgcaag agaggtttcc gcagaataaa aagcgggtca ctctatatgc tctgtacagg aaactctagc cactcgtcct gggacaacca atgtcaatgc acaagctctg ccactcggaa cacaacgaaa caagtgacac ctcaacctga agaacagaaa gaaaggaaaa ccacagaaat gcaaagtcca atgcagccag tggaccaagc gagccttcca ggtcactgca gggaacctcc accatgggaa aatgaagcca cagagagaat ttatcatttc gtggtggggc agatggttta ttatcagtgc gtccagggat acagggctct acacagaggt cctgctgaga gcgtctgcaa aatgacccac gggaagacaa ggtggaccca gccccagctc atatgcacag gtgaaatgga gaccagtcag tttccaggtg aagagaagcc tcaggcaagc cccgaaggcc gtcctgagag tgagacttcc tgcctcgtca caacaacaga ttttcaaata cagacagaaa tggctgcaac catggagacg tccatattta caacagagta ccaggtagca gtggccggct gtgttttcct gctgatcagc gtcctcctcc tgagtgggct cacctggcag cggagacaga ggaagagtag aagaacaatc tagaaaacca aaagaacaag aatttcttgg taagaagccg ggaacagaca acagaagtca tgaagcccaa gtgaaatcaa aggtgctaaa tggtcgccca ggagacatcc gttgtgcttg cctgcgtttt ggaagctctg aagtcacatc acaggacacg gggcagtggc aaccttgtct ctatgccagc tcagtcccat cagagagcga gcgctaccca cttctaaata gcaatttcgc cgttgaagag gaagggcaaa accactagaa ctctccatct tattttcatg tatatgtgtt cattaaagca tgaatggta

FIGURE 203

Met Asp Ser Tyr Leu Leu Met Trp Gly Leu Leu Thr Phe Ile Met Val Pro Gly Cys Gln Ala Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro Gln Pro Glu Glu Gln Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro Met Gln Pro Val Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro Gln Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln Phe Pro Gly Glu Glu Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu Ser Glu Thr Ser Cys Leu Val Thr Thr Thr Asp Phe Gln Ile Gln Thr Glu Met Ala Ala Thr Met Glu Thr Ser Ile Phe Thr Thr Glu Tyr Gln Val Ala Val Ala Gly Cys Val Phe Leu Leu Ile Ser Val Leu Leu Leu Ser Gly Leu Thr Trp Gln Arg Arg Gln Arg Lys Ser Arg Arg Thr Ile

FIGURE 204

ctgctttcag cgcacacggg aagatatcag aaacatccta ggatcaggac accccagatc ttctcaactg gaaccacgaa ggctgtttct tccacacagt actttgatct ccatttaagc aggcacctct gtcctgcgtt ccggagctgc gttcccgatg gtcctccttt ggctcacgct gctcctgatc gccctgccct gtctcctgca aacgaaggaa gatccaaacc caccaatcac gaacctaagg atgaaagcaa aggctcagca gttgacctgg gaccttaaca gaaatgtgac cgatatcgag tgtgttaaag acgccgacta ttctatgccg gcagtgaaca atagctattg ccagtttgga gcaatttcct tatgtgaagt gaccaactac accgtccgag tggccaaccc accattctcc acgtggatcc tcttccctga gaacagtggg aagccttggg caggtgcgga gaatctgacc tgctggattc atgacgtgga tttcttgagc tgcagctggg cggtaggccc gggggccccc gcggacgtcc agtacgacct gtacttgaac gttgccaagc gtcaacagta cgagtgtctt cactacaaaa cggatgctca gggaacacgt atcgggtgtc gtttcgatga catctctcga ctctccagcg gttctcaaag ttcccacatc ctggtgcggg gcaggagcgc agccttcggt atcccctgca cagataagtt tgtcgtcttt tcacagattg agatattaac tccacccaac atgactgcaa agtgtaataa gacacattcc tttatgcact ggaaaatgag aagtcatttc aatcgcaaat ttcgctatga gcttcagata caaaagagaa tgcagcctgt aatcacagaa caggtcagag acagaacctc cttccagcta ctcaatcctg gaacgtacac agtacaaata agagcccggg aaagagtgta tgaattcttg agcgcctgga gcacccccca gcgcttcgag tgcgaccagg aggagggcgc aaacacacgt gcctggcgga cgtcgctgct gatcgcgctg gggacgctgc tggccctggt ctgtgtcttc gtgatctgca gaaggtatct ggtgatgcag agactctttc cccgcatccc tcacatgaaa gaccccatcg gtgacagctt ccaaaacgac aagctggtgg tctgggaggc gggcaaagcc ggcctggagg agtgtctggt gactgaagta caggtcgtgc agaaaacttg agactggggt tcagggcttg tgggggtctg cctcaatctc cctggccggg ccaggcgcct gcacagactg gctgctggac ctgcgcacgc agcccaggaa tggacattcc taacgggtgg tgggcatggg agatgcctgt gtaatttcgt ccgaagctgc caggaagaag aacagaactt tgtgtgttta tttcatgata aagtgatttt ttttttttt aacccccaaaa aaaaaaaaaa aaa

FIGURE 205

Met Val Leu Leu Trp Leu Thr Leu Leu Leu Ile Ala Leu Pro Cys Leu Leu Gln Thr Lys Glu Asp Pro Asn Pro Pro Ile Thr Asn Leu Arg Met Lys Ala Lys Ala Gln Gln Leu Thr Trp Asp Leu Asn Arg Asn Val Thr Asp Ile Glu Cys Val Lys Asp Ala Asp Tyr Ser Met Pro Ala Val Asn Asn Ser Tyr Cys Gln Phe Gly Ala Ile Ser Leu Cys Glu Val Thr Asn Tyr Thr Val Arg Val Ala Asn Pro Pro Phe Ser Thr Trp Ile Leu Phe Pro Glu Asn Ser Gly Lys Pro Trp Ala Gly Ala Glu Asn Leu Thr Cys Trp Ile His Asp Val Asp Phe Leu Ser Cys Ser Trp Ala Val Gly Pro Gly Ala Pro Ala Asp Val Gln Tyr Asp Leu Tyr Leu Asn Val Ala Lys Arg Gln Gln Tyr Glu Cys Leu His Tyr Lys Thr Asp Ala Gln Gly Thr Arg Ile Gly Cys Arg Phe Asp Asp Ile Ser Arg Leu Ser Ser Gly Ser Gln Ser Ser His Ile Leu Val Arg Gly Arg Ser Ala Ala Phe Gly Ile Pro Cys Thr Asp Lys Phe Val Val Phe Ser Gln Ile Glu Ile Leu Thr Pro Pro Asn Met Thr Ala Lys Cys Asn Lys Thr His Ser Phe Met His Trp Lys Met Arg Ser His Phe Asn Arg Lys Phe Arg Tyr Glu Leu Gln Ile Gln Lys Arg Met Gln Pro Val Ile Thr Glu Gln Val Arg Asp Arg Thr Ser Phe Gln Leu Leu Asn Pro Gly Thr Tyr Thr Val Gln Ile Arg Ala Arg Glu Arg Val Tyr Glu Phe Leu Ser Ala Trp Ser Thr Pro Gln Arg Phe Glu Cys Asp Gln Glu Glu Gly Ala Asn Thr Arg Ala Trp Arg Thr Ser Leu Leu Ile Ala Leu Gly Thr Leu Leu Ala Leu Val Cys Val Phe Val Ile Cys Arg Arg Tyr Leu Val Met Gln Arg Leu Phe Pro Arg Ile Pro His Met Lys Asp Pro Ile Gly Asp Ser Phe Gln Asn Asp Lys Leu Val Val Trp Glu Ala Gly Lys Ala Gly Leu Glu Glu Cys Leu Val Thr Glu Val Gln Val Val Gln Lys Thr

FIGURE 206

gccgcaggca cctcctcgcc agctcttccg ctcctctcac agccgccaga cccgcctgct gagccccatg gcccgcgctg ctctctccgc cgcccccagc aatccccggc tcctgcgagt ggcactgctg ctcctgctcc tggtagccgc tggccggcgc gcagcaggag cgtccgtggc cactgaactg cgctgccagt gcttgcagac cctgcaggga attcacccca agaacatcca aagtgtgaac gtgaagtccc ccggacccca ctgcgcccaa accgaagtca tagccacact caagaatggg cggaaagctt gcctcaatcc tgcatccccc atagttaaga aaatcatcga aaagatgctg aacagtgaca aatccaactg accagaaggg aggaggaagc tcactggtgg ctgttcctga aggaggccct gcccttatag gaacagaaga ggaaagagag acacagctgc agaggccacc tggattgtgc ctaatgtgtt tgagcatcgc ttaggagaag tcttctattt atttatttat tcattagttt tgaagattct atgttaatat tttaggtgta aaataattaa gggtatgatt aactctacct gcacactgtc ctattatatt cattcttttt gaaatgtcaa ccccaagtta gttcaatctg gattcatatt taatttgaag gtagaatgtt ttcaaatgtt ctccagtcat tatgttaata tttctgagga gcctgcaaca tgccagccac tgtgatagag gctggcggat ccaagcaaat ggccaatgag atcattgtga aggcagggga atgtatgtgc acatctgttt tgtaactgtt tagatgaatg tcagttgtta tttattgaaa tgatttcaca gtgtgtggtc aacatttctc atgttgaaac tttaagaact aaaatgttct aaatatccct tggacatttt atgtctttct tgtaaggcat actgccttgt ttaatggtag ttttacagtg tttctggctt agaacaaagg ggcttaatta ttgatgtttt catagagaat ataaaaataa agcacttata gaaaaaaaaa a

FIGURE 207

Met Ala Arg Ala Ala Leu Ser Ala Ala Pro Ser Asn Pro Arg Leu Leu Arg Val Ala Leu Leu Leu Leu Leu Leu Val Ala Ala Gly Arg Arg Ala Ala Gly Ala Ser Val Ala Thr Glu Leu Arg Cys Gln Cys Leu Gln Thr Leu Gln Gly Ile His Pro Lys Asn Ile Gln Ser Val Asn Val Lys Ser Pro Gly Pro His Cys Ala Gln Thr Glu Val Ile Ala Thr Leu Lys Asn Gly Arg Lys Ala Cys Leu Asn Pro Ala Ser Pro Ile Val Lys Lys Ile Ile Glu Lys Met Leu Asn Ser Asp Lys Ser Asn

FIGURE 208

ggcacgagcc agtctccgcg cctccaccca gctcaggaac ccgcgaaccc tctcttgacc actatgagcc tcccgtccag ccgcgcggcc cgtgtcccgg gtccttcggg ctccttgtgc gcgctgctcg cgctgctgct cctgctgacg ccgccggggc ccctcgccag cgctggtcct gtctctgctg tgctgacaga gctgcgttgc acttgtttac gcgttacgct gagagtaaac cccaaaacga ttggtaaact gcaggtgttc cccgcaggcc cgcagtgctc caaggtggaa gtggtagcct ccctgaagaa cgggaagcaa gtttgtctgg acccggaagc ccctttcta aagaaagtca tccagaaaat tttggacagt ggaaacaaga aaaactgagt aacaaaaaag accatgcatc ataaaattgc ccagtcttca gcggagcagt tttctggaga tccctggacc cagtaagaat aagaaggaag ggttggtttt tttccatttt ctacatggat tccctacttt gaagagtgtg ggggaaagcc tacgcttctc cctgaagttt acagctcagc taatgaagta ctaatatagt atttccacta tttactgtta ttttacctga taagttattg aacccttgg caattgacca tattgtgagc aaagaatcac tggttattag tctttcaatg aatattgaat tgaagataac tattgtattt ctatcataca ttccttaaag tcttaccgaa aaggctgtgg atttcgtatg gaaataatgt tttattagtg tgctgttgag ggaggtatcc tgttgttctt actcactctt ctcataaaat aggaaatatt ttagttctgt tttcttgggg aatatgttac tctttaccct aggatgctat ttaagttgta ctgtattaga acactgggtg tgtcataccg ttatctgtgc agaatatatt tccttattca gaatttctaa aaatttaagt tctgtaaggg ctaatatatt ctcttcctat ggttttagat gtttgatgtc ttcttagtat ggcataatgt catgatttac tcattaaact ttgattttgt atgctatttt ttcactatag gatgactata attctggtca ctaaatatac actttagata gatgaagaag cccaaaaaca gataaattcc tgattgctaa tttacataga aatgtattct cttggttttt taaataaaag caaaattaac aatgatctgt gctctgcaaa gttttgaaaa tatatttgaa caatttgaat ataaattcat catttagtcc tcaaaatata tacagcattg ctaagatttt cagatatcta ttgtggatct tttaaaggtt ttgaccattt tgttatgagg aattatacat gtatcacatt cactatatta aaattgcact tttatttttt cctgtgtgtc atgttggttt ttggtacttg tattgtcatt tggagaaaca ataaaagatt tctaaaccaa aaaaaaaaaa aaaaaaa

FIGURE 209

Met Ser Leu Pro Ser Ser Arg Ala Ala Arg Val Pro Gly Pro Ser Gly Ser Leu Cys Ala Leu Leu Ala Leu Leu Leu Leu Leu Thr Pro Pro Gly Pro Leu Ala Ser Ala Gly Pro Val Ser Ala Val Leu Thr Glu Leu Arg Cys Thr Cys Leu Arg Val Thr Leu Arg Val Asn Pro Lys Thr Ile Gly Lys Leu Gln Val Phe Pro Ala Gly Pro Gln Cys Ser Lys Val Glu Val Val Ala Ser Leu Lys Asn Gly Lys Gln Val Cys Leu Asp Pro Glu Ala Pro Phe Leu Lys Lys Val Ile Gln Lys Ile Leu Asp Ser Gly Asn Lys Lys Asn

FIGURE 210

gaaagatcag ttaagtcctt tggacctgat cagcttgata caagaactac tgatttcaac ttctttggct taattctctc ggaaacgatg aaatatacaa gttatatctt ggcttttcag ctctgcatcg ttttgggttc tcttggctgt tactgccagg acccatatgt aaaagaagca gaaaacctta agaaatattt taatgcaggt cattcagatg tagcggataa tggaactctt ttcttaggca ttttgaagaa ttggaaagag gagagtgaca gaaaaataat gcagagccaa attgtctcct tttacttcaa actttttaaa aactttaaag atgaccagag catccaaaag agtgtggaga ccatcaagga agacatgaat gtcaagtttt tcaatagcaa caaaaagaaa cgagatgact tcgaaaagct gactaattat tcggtaactg acttgaatgt ccaacgcaaa gcaatacatg aactcatcca agtgatggct gaactgtcgc cagcagctaa aacagggaag cgaaaaagga gtcagatgct gtttcgaggt cgaagagcat cccagtaatg gttgtcctgc ctgcaatatt tgaattttaa atctaaatct atttattaat atttaacatt atttatatgg ggaatatatt tttagactca tcaatcaaat aagtatttat aatagcaact tttgtgtaat gaaaatgaat atctattaat atatgtatta tttataattc ctatatcctg tgactgtctc acttaatcct ttgttttctg actaattagg caaggctatg tgattacaag gctttatctc aggggccaac taggcagcca acctaagcaa gatcccatgg gttgtgtgtt tatttcactt gatgatacaa tgaacactta taagtgaagt gatactatcc agttactgcc ggtttgaaaa tatgcctgca atctgagcca gtgctttaat ggcatgtcag acagaacttg aatgtgtcag gtgaccctga tgaaaacata gcatctcagg agatttcatg cctggtgctt ccaaatattg ttgacaactg tgactgtacc caaatggaaa gtaactcatt tgttaaaatt atcaatatct aatatatatg aataaagtgt aagttcacaa ctaa

FIGURE 211

Met Lys Tyr Thr Ser Tyr Ile Leu Ala Phe Gln Leu Cys Ile Val Leu Gly Ser Leu Gly Cys Tyr Cys Gln Asp Pro Tyr Val Lys Glu Ala Glu Asn Leu Lys Lys Tyr Phe Asn Ala Gly His Ser Asp Val Ala Asp Asn Gly Thr Leu Phe Leu Gly Ile Leu Lys Asn Trp Lys Glu Glu Ser Asp Arg Lys Ile Met Gln Ser Gln Ile Val Ser Phe Tyr Phe Lys Leu Phe Lys Asn Phe Lys Asp Asp Gln Ser Ile Gln Lys Ser Val Glu Thr Ile Lys Glu Asp Met Asn Val Lys Phe Phe Asn Ser Asn Lys Lys Lys Arg Asp Asp Phe Glu Lys Leu Thr Asn Tyr Ser Val Thr Asp Leu Asn Val Gln Arg Lys Ala Ile His Glu Leu Ile Gln Val Met Ala Glu Leu Ser Pro Ala Ala Lys Thr Gly Lys Arg Lys Arg Ser Gln Met Leu Phe Arg Gly Arg Arg Ala Ser Gln

FIGURE 212

ctcagagctc aagtctgaac tctacctcca gacagaatga agttcatctc gacatctctg cttctcatgc tgctggtcag cagcctctct ccagtccaag gtgttctgga ggtctattac acaagcttga ggtgtagatg tgtccaagag agctcagtct ttatccctag acgcttcatt gatcgaattc aaatcttgcc ccgtgggaat ggttgtccaa gaaaagaaat catagtctgg aagaagaaca agtcaattgt gtgtgtggac cctcaagctg aatggataca aagaatgatg gaagtattga gaaaaagaag ttcttcaact ctaccagttc cagtgtttaa gagaaagatt ccctgatgct gatatttcca ctaagaacac ctgcattctt cccttatccc tgctctggat tttagttttg tgcttagtta aatcttttcc aggaaaaaga acttccccat acaaataagc atgagactat gtaaaaataa ccttgcagaa gctgatgggg caaactcaag cttcttcact cacagcaccc tatatacact tggagtttgc attcttattc atcagggagg aaagtttctt tgaaaatagt tattcagtta taagtaatac aggattattt tgattatata cttgttgttt aatgtttaaa atttcttaga aaacaatgga atgagaattt aagcctcaaa tttgaacatg tggcttgaat taagaagaaa attatggcat atattaaaag caggcttcta tgaaagactc aaaaagctgc ctgggaggca gatggaactt gagcctgtca agaggcaaag gaatccatgt agtagatatc ctctgcttaa aaactcacta cggaggagaa ttaagtccta cttttaaaga atttctttat aaaatttact gtctaagatt aatagcattc gaagatcccc agacttcata gaatactcag ggaaagcatt taaagggtga tgtacacatg tatcctttca cacatttgcc ttgacaaact tctttcactc acatcttttt cactgacttt ttttgtgggg ggcggggccg gggggactct ggtatctaat tctttaatga ttcctataaa tctaatgaca ttcaataaag ttgagcaaac attttactta aa

FIGURE 213

Met Lys Phe Ile Ser Thr Ser Leu Leu Leu Met Leu Leu Val Ser Ser Leu Ser Pro Val Gln Gly Val Leu Glu Val Tyr Tyr Thr Ser Leu Arg Cys Arg Cys Val Gln Glu Ser Ser Val Phe Ile Pro Arg Arg Phe Ile Asp Arg Ile Gln Ile Leu Pro Arg Gly Asn Gly Cys Pro Arg Lys Glu Ile Ile Val Trp Lys Lys Asn Lys Ser Ile Val Cys Val Asp Pro Gln Ala Glu Trp Ile Gln Arg Met Met Glu Val Leu Arg Lys Arg Ser Ser Ser Thr Leu Pro Val Pro Val Phe Lys Arg Lys Ile Pro

FIGURE 214

atttctactc cttccaagaa gagcagcaaa gctgaagtag cagcaacagc accagcagca acaacaaaaa acaaacatga gtgtgaaggg catggctata gccttggctg tgatattgtg tgctacagtt gttcaaggct tccccatgtt caaaagagga cgctgtcttt gcataggccc tggggtaaaa gcagtgaaag tggcagatat tgagaaagcc tccataatgt acccaagtaa caactgtgac aaaatagaag tgattattac cctgaaagaa aataaaggac aacgatgcct aaatcccaaa tcgaagcaag caaggcttat aatcaaaaaa gttgaaagaa agaattttta aaaatatcaa aacatatgaa gtcctggaaa agggcatctg aaaaacctag aacaagttta actgtgacta ctgaaatgac aagaattcta cagtaggaaa ctgagacttt tctatggttt tgtgactttc aacttttgta cagttatgtg aaggatgaaa ggtgggtgaa aggaccaaaa acagaaatac agtcttcctg aatgaatgac aatcagaatt ccactgccca aaggagtcca acaattaaat ggatttctag gaaaagctac cttaagaaag gctggttacc atcggagttt acaaagtgct ttcacgttct tacttgttgt attatacatt catgcatttc taggctagag aaccttctag atttgatgct tacaactatt ctgttgtgac tatgagaaca tttctgtctc tagaagttat ctgtctgtat tgatctttat gctatattac tatctgtggt tacagtggag acattgacat tattactgga gtcaagccct tataagtcaa aagcatctat gtgtcgtaaa gcattcctca aacatttttt catgcaaata cacacttctt tccccaaata tcatgtagca catcaatatg tagggaaaca ttcttatgca tcatttggtt tgttttataa ccaattcatt aaatgtaatt cataaaatgt actatgaaaa aaattatacg ctatgggata ctggcaacag tgcacatatt tcataaccaa attagcagca ccggtcttaa tttgatgttt ttcaactttt attcattgag atgttttgaa gcaattagga tatgtgtgtt tactgtactt tttgttttga tccgtttgta taaatgatag caatatcttg gacacatttg aaatacaaaa tgtttttgtc taccaaagaa aaatgttgaa aaataagcaa atgtatacct agcaatcact tttacttttt gtaattctgt ctcttagaaa aatacataat ctaatcaaaa aaaaaaaaaa aaaaaaaaaa aa

FIGURE 215

Met Ser Val Lys Gly Met Ala Ile Ala Leu Ala Val Ile Leu Cys Ala Thr Val Val Gln Gly Phe Pro Met Phe Lys Arg Gly Arg Cys Leu Cys Ile Gly Pro Gly Val Lys Ala Val Lys Val Ala Asp Ile Glu Lys Ala Ser Ile Met Tyr Pro Ser Asn Asn Cys Asp Lys Ile Glu Val Ile Ile Thr Leu Lys Glu Asn Lys Gly Gln Arg Cys Leu Asn Pro Lys Ser Lys Gln Ala Arg Leu Ile Ile Lys Lys Val Glu Arg Lys Asn Phe

FIGURE 216

ctatagaaga gctatgacgt cgcatgcacg cgtacgtaag ctcggaattc ggctcgaggc ttctcgcaca gcttcccgac gcgtctgctg agccccatgg cccacgccac gctctccgcc gcccccagca atccccggct cctgcgggtg gcgctgctgc tcctgctcct ggtggccgcc agccggcgcg cagcaggagc gtccgtggtc actgaactgc gctgccagtg cttgcagaca ctgcagggaa ttcacctcaa gaacatccaa agtgtgaatg ttaggtcccc cggaccccac tgcgcccaaa ccgaagtcat agccacactc aagaatggga agaaagcttg tctcaacccc gcatccccca tggttcagaa aatcatcgaa aagatactga acaaggggag caccaactga caggagagaa gtaagaagct tatcagcgta tcattgacac ttcctgcagg gtggtccctg cccttaccag agctgaaaat gaaaaagaga acagcagctt tctagggaca gctggaaagg acttaatgtg tttgactatt tcttacgagg gttctactta tttatgtatt tatttttgaa agcttgtatt ttaatatttt acatgctgtt atttaaagat gtgagtgtgt ttcatcaaac atagctcagt cctgattatt taattggaat atgatgggtt ttaaatgtgt cattaaacta atatttagtg ggagaccata atgtgtcagc caccttgata aatgacaggg tggggaactg gagggtgggg ggattgaaat gcaagcaatt agtggatcac tgttagggta agggaatgta tgtacacatc tatttttat actttttttt taaaaaaaaa atgtcagttg ttatttattc aaattatctc acattatgtg ttcaacattt ttatgctgaa gtttccctta gacattttat gtcttgcttg tagggcataa tgccttgttt aatgtccatt ctgcagcgtt tctctttccc ttggaaaaga gaatttatca ttactgttac atttgtacaa atgacatgat aataaaagtt ttatgaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa agg

FIGURE 217

Met Ala His Ala Thr Leu Ser Ala Ala Pro Ser Asn Pro Arg Leu Leu Arg Val Ala Leu Leu Leu Leu Leu Leu Val Ala Ala Ser Arg Arg Ala Ala Gly Ala Ser Val Val Thr Glu Leu Arg Cys Gln Cys Leu Gln Thr Leu Gln Gly Ile His Leu Lys Asn Ile Gln Ser Val Asn Val Arg Ser Pro Gly Pro His Cys Ala Gln Thr Glu Val Ile Ala Thr Leu Lys Asn Gly Lys Lys Ala Cys Leu Asn Pro Ala Ser Pro Met Val Gln Lys Ile Ile Glu Lys Ile Leu Asn Lys Gly Ser Thr Asn

FIGURE 218

acaaggcaca acaggctgct ctgggattct cttcagccaa tcttcattgc tcaagtgtct gaagcagcca tggcagaagt acctgagctc gccagtgaaa tgatggctta ttacagtggc aatgaggatg acttgttctt tgaagctgat ggccctaaac agatgaagtg ctccttccag gacctggacc tctgccctct ggatggcggc atccagctac gaatctccga ccaccactac agcaagggct tcaggcaggc cgcgtcagtt gttgtggcca tggacaagct gaggaagatg ctggttccct gcccacagac cttccaggag aatgacctga gcaccttctt tcccttcatc tttgaagaag aacctatctt cttcgacaca tgggataacg aggcttatgt gcacgatgca cctgtacgat cactgaactg cacgctccgg gactcacagc aaaaaagctt ggtgatgtct ggtccatatg aactgaaagc tctccacctc cagggacagg atatggagca acaagtggtg ttctccatgt cctttgtaca aggagaagaa agtaatgaca aaatacctgt ggccttgggc ctcaaggaaa agaatctgta cctgtcctgc gtgttgaaag atgataagcc cactctacag ctggagagtg tagatcccaa aaattaccca aagaagaaga tggaaaagcg atttgtcttc aacaagatag aaatcaataa caagctggaa tttgagtctg cccagttccc caactggtac atcagcacct ctcaagcaga aaacatgccc gtcttcctgg gagggaccaa aggcggccag gatataactg acttcaccat gcaatttgtg tcttcctaaa gagagctgta cccagagagt cctgtgctga atgtggactc aatccctagg gctggcagaa agggaacaga aaggtttttg agtacggcta tagcctggac tttcctgttg tctacaccaa tgcccaactg cctgccttag ggtagtgcta agaggatctc ctgtccatca gccaggacag tcagctctct cctttcaggg ccaatcccca gccctttgt tgagccaggc ctctctcacc tctcctactc acttaaagcc cgcctgacag aaaccacggc cacatttggt tctaagaaac cctctgtcat tcgctcccac attctgatga gcaaccgctt ccctatttat ttatttattt gtttgtttgt tttattcatt ggtctaattt attcaaaggg ggcaagaagt agcagtgtct gtaaaagagc ctagttttta atagctatgg aatcaattca atttggactg gtgtgctctc tttaaatcaa gtcctttaat taagactgaa aatatataag ctcagattat ttaaatggga atatttataa atgagcaaat atcatactgt tcaatggttc tgaaataaac ttccctgaag aaaaaaaaa

FIGURE 219

Met Ala Glu Val Pro Glu Leu Ala Ser Glu Met Met Ala Tyr Tyr Ser Gly Asn Glu Asp Asp Leu Phe Phe Glu Ala Asp Gly Pro Lys Gln Met Lys Cys Ser Phe Gln Asp Leu Asp Leu Cys Pro Leu Asp Gly Gly Ile Gln Leu Arg Ile Ser Asp His His Tyr Ser Lys Gly Phe Arg Gln Ala Ala Ser Val Val Val Ala Met Asp Lys Leu Arg Lys Met Leu Val Pro Cys Pro Gln Thr Phe Gln Glu Asn Asp Leu Ser Thr Phe Phe Pro Phe Ile Phe Glu Glu Glu Pro Ile Phe Phe Asp Thr Trp Asp Asn Glu Ala Tyr Val His Asp Ala Pro Val Arg Ser Leu Asn Cys Thr Leu Arg Asp Ser Gln Gln Lys Ser Leu Val Met Ser Gly Pro Tyr Glu Leu Lys Ala Leu His Leu Gln Gly Gln Asp Met Glu Gln Gln Val Val Phe Ser Met Ser Phe Val Gln Gly Glu Glu Ser Asn Asp Lys Ile Pro Val Ala Leu Gly Leu Lys Glu Lys Asn Leu Tyr Leu Ser Cys Val Leu Lys Asp Asp Lys Pro Thr Leu Gln Leu Glu Ser Val Asp Pro Lys Asn Tyr Pro Lys Lys Lys Met Glu Lys Arg Phe Val Phe Asn Lys Ile Glu Ile Asn Asn Lys Leu Glu Phe Glu Ser Ala Gln Phe Pro Asn Trp Tyr Ile Ser Thr Ser Gln Ala Glu Asn Met Pro Val Phe Leu Gly Gly Thr Lys Gly Gly Gln Asp Ile Thr Asp Phe Thr Met Gln Phe Val Ser Ser

FIGURE 220

aaggacacgg gcagcagaca gtggtcagtc ctttcttggc tctgctgaca ctcgagccca cattccgtca cctgctcaga atcatgcagg tctccactgc tgcccttgct gtcctcctct gcaccatggc tctctgcaac cagttctctg catcacttgc tgctgacacg ccgaccgcct gctgcttcag ctacacctcc cggcagattc cacagaattt catagctgac tactttgaga cgagcagcca gtgctccaag cccggtgtca tcttcctaac caagcgaagc cggcaggtct gtgctgaccc cagtgaggag tgggtccaga aatatgtcag cgacctagag ctgagtgcct gaggggtcca gaagcttcga ggcccagcga cctcggtggg ccagtgggga ggagcaggag cctgagcctt gggaaacatg cgtgtgacct ccacagctac ctcttctatg gactggttgt tgccaaacag ccacactgtg ggactcttct taacttaaat tttaatttat ttatactatt tagtttttgt aatttatttt cgatttcaca gtgtgtttgt gattgtttgc tctgagagtt cccctgtccc ctccccccttc cctcacaccg cgtctggtga caaccgagtg gctgtcatca gcctgtgtag gcagtcatgg caccaaagcc accagactga caaatgtgta tcggatgctt ttgttcaggg ctgtgatcgg cctggggaaa taataaagca cgctctttta aaaggt

FIGURE 221

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala Leu Cys Asn Gln Phe Ser Ala Ser Leu Ala Ala Asp Thr Pro Thr Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Gly Val Ile Phe Leu Thr Lys Arg Ser Arg Gln Val Cys Ala Asp Pro Ser Glu Glu Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala

FIGURE 222

tctccgtcag ccgcattgcc cgctcggcgt ccggcccccg acccgtgctc gtccgcccgc ccgcccgccc gcccgcgcca tgaacgccaa ggtcgtggtc gtgctggtcc tcgtgctgac cgcgctctgc ctcagcgacg ggaagcccgt cagcctgagc tacagatgcc catgccgatt cttcgaaagc catgttgcca gagccaacgt caagcatctc aaaattctca acactccaaa ctgtgccctt cagattgtag cccggctgaa gaacaacaac agacaagtgt gcattgaccc gaagctaaag tggattcagg agtacctgga gaaagcttta aacaagaggt tcaagatgtg agagggtcag acgcctgagg aacccttaca gtaggagccc agctctgaaa ccagtgttag ggaagggcct gccacagcct cccctgccag ggcagggccc caggcattgc caagggcttt gttttgcaca ctttgccata ttttcaccat ttgattatgt agcaaaatac atgacattta tttttcattt agtttgatta ttcagtgtca ctggcgacac gtagcagctt agactaaggc cattattgta cttgccttat tagagtgtct ttccacggag ccactcctct gactcagggc tcctgggttt tgtattctct gagctgtgca ggtggggaga ctgggctgag ggagcctggc cccatggtca gccctagggt ggagagccac caagagggac gcctgggggt gccaggacca gtcaacctgg gcaaagccta gtgaaggctt ctctctgtgg gatgggatgg tggagggcca catgggaggc tcacccccct ctccatccac atgggagccg ggtctgcctc ttctgggagg gcagcagggc taccctgagc tgaggcagca gtgtgaggcc agggcagagt gagacccagc cctcatcccg agcacctcca catcctccac gttctgctca tcattctctg tctcatccat catcatgtgt gtccacgact gtctccatgg ccccgcaaaa ggactctcag gaccaaagct ttcatgtaaa ctgtgcacca agcaggaaat gaaaatgtct tgtgttacct gaaaacactg tgcacatctg tgtcttgtgt ggaatattgt ccattgtcca atcctatgtt tttgttcaaa gccagcgtcc tcctctgtga ccaatgtctt gatgcatgca ctgttccccc tgtgcagccg ctgagcgagg agatgctcct tgggcccttt gagtgcagtc ctgatcagag ccgtggtcct ttggggtgaa ctaccttggt tcccccactg atcacaaaaa catggtgggt ccatgggcag agcccaaggg aattcggtgt gcaccagggt tgaccccaga ggattgctgc cccatcagtg ctccctcaca tgtcagtacc ttcaaactag ggccaagccc agcactgctt gaggaaaaca agcattcaca acttgttttt ggtttttaaa acccagtcca caaaataacc aatcctggac atgaagattc tttcccaatt cacatctaac ctcatcttct tcaccatttg gcaatgccat catctcctgc cttcctcctg ggccctctct gctctgcgtg tcacctgtgc ttcgggccct tcccacagga catttctcta agagaacaat gtgctatgtg aagagtaagt caacctgcct gacatttgga gtgttcccct cccactgagg gcagtcgata gagctgtatt aagccactta aaatgttcac ttttgacaaa ggcaagcact tgtgggtttt tgttttgttt ttcattcagt cttacgaata cttttgccct ttgattaaag actccagtta aaaaaaattt taatgaagaa agtggaaaac aaggaagtca aagcaaggaa actatgtaac atgtaggaag taggaagtaa attatagtga tgtaatcttg aattgtaact gttcgtgaat ttaataatct gtagggtaat tagtaacatg tgttaagtat tttcataagt atttcaaatt ggagcttcat ggcagaaggc aaacccatca acaaaaattg tcccttaaac aaaaattaaa atcctcaatc cagctatgtt atattgaaaa aatagagcct gagggatctt tactagttat aaagatacag aactctttca aaacctttg aaattaacct ctcactatac cagtataatt gagttttcag tggggcagtc attatccagg taatccaaga tattttaaaa tctgtcacgt agaacttgga tgtacctgcc cccaatccat gaaccaagac cattgaattc ttggttgagg aaacaaacat gaccctaaat cttgactaca gtcaggaaag gaatcatttc tatttctcct ccatgggaga aaatagataa gagtagaaac tgcagggaaa attatttgca taacaattcc tctactaaca atcagctcct tcctggagac tgcccagcta aagcaatatg catttaaata cagtcttcca tttgcaaggg aaaagtctct tgtaatccga atctcttttt gctttcgaac tgctagtcaa gtgcgtccac gagctgttta ctagggatcc ctcatctgtc cctccgggac ctggtgctgc ctctacctga cactcccttg ggctccctgt aacctcttca gaggccctcg ctgccagctc tgtatcagga cccagaggaa ggggccagag gctcgttgac tggctgtgtg ttgggattga gtctgtgcca cgtgtatgtg ctgtggtgtg tccccctctg tccaggcact gagataccag cgaggaggct ccagagggca ctctgcttgt tattagagat tacctcctga gaaaaaagct tccgcttgga gcagaggggc tgaatagcag aaggttgcac ctcccccaac cttagatgtt ctaagtcttt ccattggatc tcattggacc cttccatggt gtgatcgtct gactggtgtt atcaccgtgg gctccctgac tgggagttga tcgcctttcc caggtgctac acccttttcc agctggatga gaatttgagt gctctgatcc ctctacagag cttccctgac tcattctgaa ggagccccat tcctgggaaa tattccctag aaacttccaa atcccctaag cagaccactg ataaaaccat gtagaaaatt tgttattttg caacctcgct ggactctcag tctctgagca gtgaatgatt cagtgttaaa tgtgatgaat actgtatttt gtattgtttc aagtgcatct cccagataat gtgaaaatgg tccaggagaa ggccaattcc tatacgcagc gtgctttaaa aaataaataa gaaacaactc tttgagaaac aacaatttct actttgaagt cataccaatg aaaaaatgta tatgcactta taattttcct aataaagttc tgtactcaaa tgta

FIGURE 223

Met Asn Ala Lys Val Val Val Val Leu Val Leu Val Leu Thr Ala Leu Cys Leu Ser Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn Lys Arg Phe Lys Met

FIGURE 224

gaagaaacca ccggaaggaa ccatctcact gtgtgtaaac atgacttcca agctggccgt ggctctcttg gcagccttcc tgatttctgc agctctgtgt gaaggtgcag ttttgccaag gagtgctaaa gaacttagat gtcagtgcat aaagacatac tccaaacctt tccaccccaa atttatcaaa gaactgagag tgattgagag tggaccacac tgcgccaaca cagaaattat tgtaaagctt tctgatggaa gagagctctg tctggacccc aaggaaaact gggtgcagag ggttgtggag aagtttttga agagggctga gaattcataa aaaaattcat tctctgtggt atccaagaat cagtgaagat gccagtgaaa cttcaagcaa atctacttca acacttcatg tattgtgtgg gtctgttgta gggttgccag atgcaataca agattcctgg ttaaatttga atttcagtaa acaatgaata gtttttcatt gtaccatgaa atatccagaa catacttata tgtaaagtat tatttatttg aatctacaaa aaacaacaaa taatttttaa atataaggat tttcctagat attgcacggg agaatataca aatagcaaaa ttgaggccaa gggccaagag aatatccgaa ctttaatttc aggaattgaa tgggtttgct agaatgtgat atttgaagca tcacataaaa atgatgggac aataaatttt gccataaagt caaatttagc tggaaatcct ggatttttt ctgttaaatc tggcaaccct agtctgctag ccaggatcca caagtccttg ttccactgtg ccttggtttc tcctttattt ctaagtggaa aaagtattag ccaccatctt acctcacagt gatgttgtga ggacatgtgg aagcacttta agtttttca tcataacata aattattttc aagtgtaact tattaaccta tttattattt atgtatttat ttaagcatca aatatttgtg caagaatttg gaaaaataga agatgaatca ttgattgaat agttataaag atgttatagt aaatttattt tattttagat attaaatgat gttttattag ataaatttca atcagggttt ttagattaaa caaacaaaca attgggtacc cagttaaatt ttcatttcag atatacaaca aataattttt tagtataagt acattattgt ttatctgaaa ttttaattga actaacaatc ctagtttgat actcccagtc ttgtcattgc cagctgtgtt ggtagtgctg tgttgaatta cggaataatg agttagaact attaaaacag ccaaaactcc acagtcaata ttagtaattt cttgctggtt gaaacttgtt tattatgtac aaatagattc ttataatatt atttaaatga ctgcattttt aaatacaagg ctttatattt ttaactttaa gatgttttta tgtgctctcc aaatttttt tactgtttct gattgtatgg aaatataaaa gtaaatatga aacatttaaa atataatttg ttgtcaaagt aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa

FIGURE 225

Met Thr Ser Lys Leu Ala Val Ala Leu Leu Ala Ala Phe Leu Ile Ser Ala Ala Leu Cys Glu Gly Ala Val Leu Pro Arg Ser Ala Lys Glu Leu Arg Cys Gln Cys Ile Lys Thr Tyr Ser Lys Pro Phe His Pro Lys Phe Ile Lys Glu Leu Arg Val Ile Glu Ser Gly Pro His Cys Ala Asn Thr Glu Ile Ile Val Lys Leu Ser Asp Gly Arg Glu Leu Cys Leu Asp Pro Lys Glu Asn Trp Val Gln Arg Val Val Glu Lys Phe Leu Lys Arg Ala Glu Asn Ser

FIGURE 226

gacatattct gagcctacag cagaggaacc tccagtctca gcaccatgaa tcaaactgcc attctgattt gctgccttat ctttctgact ctaagtggca ttcaaggagt acctctctct agaactgtac gctgtacctg catcagcatt agtaatcaac ctgttaatcc aaggtcttta gaaaaacttg aaattattcc tgcaagccaa ttttgtccac gtgttgagat cattgctaca atgaaaaaga agggtgagaa gagatgtctg aatccagaat cgaaggccat caagaattta ctgaaagcag ttagcaagga aaggtctaaa agatctcctt aaaaccagag gggagcaaaa tcgatgcagt gcttccaagg atggaccaca cagaggctgc ctctcccatc acttccctac atggagtata tgtcaagcca taattgttct tagtttgcag ttacattaaa aggtgaccaa tcatggtcac caaatcagct gctactactc ctgtaggaag gttaatgttc atcatcctaa gctattcagt aataactcta ccctggcact ataatgtaag ctctactgag gtgctatgtt cttagtggat gttctgaccc tgcttcaaat atttccctca cctttcccat cttccaaggg tataaggaat ctttctgctt tggggtttat cagaattctc agaatctcaa ataactaaaa ggtatgcaat caaatctgct ttttaaagaa tgctctttac ttcatggact tccactgcca tcctcccaag gggcccaaat tctttcagtg gctacctaca tacaattcca aacacataca ggaaggtaga aatatctgaa aatgtatgtg taagtattct tatttaatga aagactgtac aaagtagaag tcttagatgt atatatttcc tatattgttt tcagtgtaca tggaataaca tgtaattaag tactatgtat caatgagtaa caggaaaatt ttaaaaatac agatagatat atgctctgca tgttacataa gataaatgtg ctgaatggtt ttcaaaataa aaatgaggta ctctcctgga aatattaaga aagactatct aaatgttgaa agaccaaaag gttaataaag taattataac taaga

FIGURE 227

Met Asn Gln Thr Ala Ile Leu Ile Cys Cys Leu Ile Phe Leu Thr Leu Ser Gly Ile Gln Gly Val Pro Leu Ser Arg Thr Val Arg Cys Thr Cys Ile Ser Ile Ser Asn Gln Pro Val Asn Pro Arg Ser Leu Glu Lys Leu Glu Ile Ile Pro Ala Ser Gln Phe Cys Pro Arg Val Glu Ile Ile Ala Thr Met Lys Lys Lys Gly Glu Lys Arg Cys Leu Asn Pro Glu Ser Lys Ala Ile Lys Asn Leu Leu Lys Ala Val Ser Lys Glu Arg Ser Lys Arg Ser Pro

FIGURE 228

atccaataca ggagtgactt ggaactccat tctatcacta tgaagaaaag tggtgttctt ttcctcttgg gcatcatctt gctggttctg attggagtgc aaggaacccc agtagtgaga aagggtcgct gttcctgcat cagcaccaac caagggacta tccacctaca atccttgaaa gaccttaaac aatttgcccc aagcccttcc tgcgagaaaa ttgaaatcat tgctacactg aagaatggag ttcaaacatg tctaaaccca gattcagcag atgtgaagga actgattaaa aagtgggaga aacaggtcag ccaaaagaaa aagcaaaaga atgggaaaaa acatcaaaaa aagaaagttc tgaaagttcg aaaatctcaa cgttctcgtc aaaagaagac tacataagag accacttcac caataagtat tctgtgttaa aaatgttcta ttttaattat accgctatca ttccaaagga ggatggcata taatacaaag gcttattaat ttgactagaa aatttaaaac attactctga aattgtaact aaagttagaa agttgatttt aagaatccaa acgttaagaa ttgttaaagg ctatgattgt ctttgttctt ctaccaccca ccagttgaat ttcatcatgc ttaaggccat gattttagca atacccatgt ctacacagat gttcacccaa ccacatccca ctcacaacag ctgcctggaa gagcagccct aggcttccac gtactgcagc ctccagagag tatctgaggc acatgtcagc aagtcctaag cctgttagca tgctggtgag ccaagcagtt tgaaattgag ctggacctca ccaagctgct gtggccatca acctctgtat ttgaatcagc ctacaggcct cacacacaat gtgtctgaga gattcatgct gattgttatt gggtatcacc actggagatc accagtgtgt ggctttcaga gcctcctttc tggctttgga agccatgtga ttccatcttg cccgctcagg ctgaccactt tatttctttt tgttcccctt tgcttcattc aagtcagctc ttctccatcc taccacaatg cagtgccttt cttctctcca gtgcacctgt catatgctct gatttatctg agtcaactcc tttctcatct tgtccccaac accccacaga agtgctttct tctcccaatt catcctcact cagtccagct tagttcaagt cctgcctctt aaataaacct ttttggacac acaaattatc ttaaaactcc tgtttcactt ggttcagtac cacatgggtg aacactcaat ggttaactaa ttcttgggtg tttatcctat ctctccaacc agattgtcag ctccttgagg gcaagagcca cagtatattt ccctgtttct tccacagtgc ctaataatac tgtggaacta ggttttaata atttttaat tgatgttgtt atgggcagga tggcaaccag accattgtct cagagcaggt gctggctctt tcctggctac tccatgttgg ctagcctctg gtaacctctt acttattatc ttcaggacac tcactacagg gaccagggat gatgcaacat ccttgtcttt ttatgacagg atgtttgctc agcttctcca acaataagaa gcacgtggta aaacacttgc ggatattctg gactgttttt aaaaaatata cagtttaccg aaaatcatat aatcttacaa tgaaaaggac tttatagatc agccagtgac caacctttc ccaaccatac aaaaattcct tttcccgaag gaaaagggct ttctcaataa gcctcagctt tctaagatct aacaagatag ccaccgagat ccttatcgaa actcatttta ggcaaatatg agttttattg tccgtttact tgtttcagag tttgtattgt gattatcaat taccacacca tctcccatga agaaagggaa cggtgaagta ctaagcgcta gaggaagcag ccaagtcggt tagtggaagc atgattggtg cccagttagc ctctgcagga tgtggaaacc tccttccagg ggaggttcag tgaattgtgt aggagaggtt gtctgtggcc agaatttaaa cctatactca ctttcccaaa ttgaatcact gctcacactg ctgatgattt agagtgctgt ccggtggaga tcccacccga acgtcttatc taatcatgaa actccctagt tccttcatgt aacttccctg aaaaatctaa gtgtttcata aatttgagag tctgtgaccc acttaccttg catctcacag gtagacagta tataactaac aaccaaagac tacatattgt cactgacaca cacgttataa tcatttatca tatatataca tacatgcata cactctcaaa gcaaataatt tttcacttca aaacagtatt gacttgtata ccttgtaatt tgaaatattt tctttgttaa aatagaatgg tatcaataaa tagaccatta atcag

FIGURE 229

Met Lys Lys Ser Gly Val Leu Phe Leu Leu Gly Ile Ile Leu Leu Val Leu Ile Gly Val Gln Gly Thr Pro Val Val Arg Lys Gly Arg Cys Ser Cys Ile Ser Thr Asn Gln Gly Thr Ile His Leu Gln Ser Leu Lys Asp Leu Lys Gln Phe Ala Pro Ser Pro Ser Cys Glu Lys Ile Glu Ile Ile Ala Thr Leu Lys Asn Gly Val Gln Thr Cys Leu Asn Pro Asp Ser Ala Asp Val Lys Glu Leu Ile Lys Lys Trp Glu Lys Gln Val Ser Gln Lys Lys Lys Gln Lys Asn Gly Lys Lys His Gln Lys Lys Lys Val Leu Lys Val Arg Lys Ser Gln Arg Ser Arg Gln Lys Lys Thr Thr

FIGURE 230

gcactcccaa agaactgggt actcaacact gagcagatct gttctttgag ctaaaaacca tgtgctgtac caagagtttg ctcctggctg ctttgatgtc agtgctgcta ctccacctct gcggcgaatc agaagcagca agcaactttg actgctgtct tggatacaca gaccgtattc ttcatcctaa atttattgtg ggcttcacac ggcagctggc caatgaaggc tgtgacatca atgctatcat ctttcacaca aagaaaaagt tgtctgtgtg cgcaaatcca aaacagactt gggtgaaata tattgtgcgt ctcctcagta aaaaagtcaa gaacatgtaa aaactgtggc ttttctggaa tggaattgga catagcccaa gaacagaaag aaccttgctg gggttggagg tttcacttgc acatcatgga gggtttagtg cttatctaat ttgtgcctca ctggacttgt ccaattaatg aagttgattc atattgcatc atagtttgct ttgtttaagc atcacattaa agttaaactg tattttatgt tatttatagc tgtaggtttt ctgtgtttag ctatttaata ctaattttcc ataagctatt ttggtttagt gcaaagtata aaattatatt tgggggggaa taagattata tggactttct tgcaagcaac aagctatttt ttaaaaaaaa ctatttaaca ttcttttgtt tatattgttt tgtctcctaa attgttgtaa ttgcattata aaataagaaa aatattaata agacaaatat tgaaaataaa gaaacaaaaa gttcttctgt ta

FIGURE 231

Met Cys Cys Thr Lys Ser Leu Leu Leu Ala Ala Leu Met Ser Val Leu Leu Leu His Leu Cys Gly Glu Ser Glu Ala Ala Ser Asn Phe Asp Cys Cys Leu Gly Tyr Thr Asp Arg Ile Leu His Pro Lys Phe Ile Val Gly Phe Thr Arg Gln Leu Ala Asn Glu Gly Cys Asp Ile Asn Ala Ile Ile Phe His Thr Lys Lys Lys Leu Ser Val Cys Ala Asn Pro Lys Gln Thr Trp Val Lys Tyr Ile Val Arg Leu Leu Ser Lys Lys Val Lys Asn Met

FIGURE 232

gcgggaggga gcgaagcagc gcgggcagcg agcgagatgc agcaccgagg cttcctcctc ctcaccctcc tcgccctgct ggcgctcacc tccgcggtcg ccaaaaagaa agataaggtg aagaagggcg gcccggggag cgagtgcgct gagtgggcct gggggccctg caccccccagc agcaaggatt gcggcgtggg tttccgcgag ggcacctgcg gggcccagac ccagcgcatc cggtgcaggg tgccctgcaa ctggaagaag gagtttggag ccgactgcaa gtacaagttt gagaactggg gtgcgtgtga tgggggcaca ggcaccaaag tccgccaagg caccctgaag aaggcgcgct acaatgctca gtgccaggag accatccgcg tcaccaagcc ctgcaccccc aagaccaaag caaaggccaa agccaagaaa gggaagggaa aggactagac gccaagcctg gatgccaagg agcccctggt gtcacatggg gcctggccca cgccctccct ctcccaggcc cgagatgtga cccaccagtg ccttctgtct gctcgttagc tttaatcaat catgccctgc cttgtccctc tcactcccca gccccacccc taagtgccca aagtggggag ggacaaggga ttctgggaag cttgagcctc ccccaaagca atgtgagtcc cagagcccgc ttttgttctt ccccacaatt ccattactaa gaaacacatc aaataaactg acttttccc cccaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaa

FIGURE 233

Met Gln His Arg Gly Phe Leu Leu Leu Thr Leu Leu Ala Leu Leu Ala Leu Thr Ser Ala Val Ala Lys Lys Lys Asp Lys Val Lys Lys Gly Gly Pro Gly Ser Glu Cys Ala Glu Trp Ala Trp Gly Pro Cys Thr Pro Ser Ser Lys Asp Cys Gly Val Gly Phe Arg Glu Gly Thr Cys Gly Ala Gln Thr Gln Arg Ile Arg Cys Arg Val Pro Cys Asn Trp Lys Lys Glu Phe Gly Ala Asp Cys Lys Tyr Lys Phe Glu Asn Trp Gly Ala Cys Asp Gly Gly Thr Gly Thr Lys Val Arg Gln Gly Thr Leu Lys Lys Ala Arg Tyr Asn Ala Gln Cys Gln Glu Thr Ile Arg Val Thr Lys Pro Cys Thr Pro Lys Thr Lys Ala Lys Ala Lys Ala Lys Lys Gly Lys Gly Lys Asp

FIGURE 234

gcatttttc aagttttatg atttatttaa cttgtggaac aaaaataaac cagaaaccac cacctctcac gccaaagctc acaccttcag cctccaacat gaaggtctcc gcagcacttc tgtggctgct gctcatagca gctgccttca gcccccaggg gctcgctggg ccagcttctg tcccaaccac ctgctgcttt aacctggcca ataggaagat acccccttcag cgactagaga gctacaggag aatcaccagt ggcaaatgtc cccagaaagc tgtgatcttc aagaccaaac tggccaagga tatctgtgcc gaccccaaga agaagtgggt gcaggattcc atgaagtatc tggaccaaaa atctccaact ccaaagccat aaataatcac catttttgaa accaaaccag agcctgagtg ttgcctaatt tgttttccct tcttacaatg cattctgagg taacctcatt atcagtccaa agggcatggg ttttattata tatatatata ttttttttt aaaaaaaaac gtattgcatt taatttattg aggctttaaa acttatcctc catgaatatc agttatttt aaactgtaaa gctttgtgca gattctttac cccctgggag ccccaattcg atcccctgtc acgtgtgggc aatgttcccc ctctcctctc ttcctccctg gaatcttgta aaggtcctgg caaagatgat cagtatgaaa atgtcattgt tcttgtgaac ccaaagtgtg actcattaaa tggaagtaaa tgttgtttta ggaatac

FIGURE 235

Met Lys Val Ser Ala Ala Leu Leu Trp Leu Leu Leu Ile Ala Ala Ala Phe Ser Pro Gln Gly Leu Ala Gly Pro Ala Ser Val Pro Thr Thr Cys Cys Phe Asn Leu Ala Asn Arg Lys Ile Pro Leu Gln Arg Leu Glu Ser Tyr Arg Arg Ile Thr Ser Gly Lys Cys Pro Gln Lys Ala Val Ile Phe Lys Thr Lys Leu Ala Lys Asp Ile Cys Ala Asp Pro Lys Lys Lys Trp Val Gln Asp Ser Met Lys Tyr Leu Asp Gln Lys Ser Pro Thr Pro Lys Pro

FIGURE 236

acaaggaggc aggcaagaca gcaaggcata gagacaacat agagctaagt aaagccagtg gaaatgaaga gtcttccaat cctactgttg ctgtgcgtgg cagtttgctc agcctatcca ttggatggag ctgcaagggg tgaggacacc agcatgaacc ttgttcagaa atatctagaa aactactacg acctcaaaaa agatgtgaaa cagtttgtta ggagaaagga cagtggtcct gttgttaaaa aaatccgaga aatgcagaag ttccttggat tggaggtgac ggggaagctg gactccgaca ctctggaggt gatgcgcaag cccaggtgtg gagttcctga tgttggtcac ttcagaacct ttcctggcat cccgaagtgg aggaaaaccc accttacata caggattgtg aattatacac cagatttgcc aaaagatgct gttgattctg ctgttgagaa agctctgaaa gtctgggaag aggtgactcc actcacattc tccaggctgt atgaaggaga ggctgatata atgatctctt ttgcagttag agaacatgga gacttttacc cttttgatgg acctggaaat gttttggccc atgcctatgc ccctgggcca gggattaatg gagatgccca ctttgatgat gatgaacaat ggacaaagga tacaacaggg accaatttat ttctcgttgc tgctcatgaa attggccact ccctgggtct ctttcactca gccaacactg aagctttgat gtacccactc tatcactcac tcacagacct gactcggttc cgcctgtctc aagatgatat aaatggcatt cagtccctct atggacctcc ccctgactcc cctgagaccc ccctggtacc cacggaacct gtccctccag aacctgggac gccagccaac tgtgatcctg ctttgtcctt tgatgctgtc agcactctga ggggagaaat cctgatcttt aaagacaggc acttttggcg caaatccctc aggaagcttg aacctgaatt gcatttgatc tcttcatttt ggccatctct tccttcaggc gtggatgccg catatgaagt tactagcaag gacctcgttt tcatttttaa aggaaatcaa ttctgggcca tcagaggaaa tgaggtacga gctggatacc caagaggcat ccacacccta ggtttccctc caaccgtgag gaaaatcgat gcagccattt ctgataagga aaagaacaaa acatatttct ttgtagagga caaatactgg agatttgatg agaagagaaa ttccatggag ccaggctttc ccaagcaaat agctgaagac tttccaggga ttgactcaaa gattgatgct gtttttgaag aatttgggtt cttttatttc tttactggat cttcacagtt ggagtttgac ccaaatgcaa agaaagtgac acacactttg aagagtaaca gctggcttaa ttgttgaaag agatatgtag aaggcacaat atgggcactt taaatgaagc taataattct tcacctaagt ctctgtgaat tgaaatgttc gttttctcct gcctgtgctg tgactcgagt cacactcaag ggaacttgag cgtgaatctg tatcttgccg gtcatttta tgttattaca gggcattcaa atgggctgct gcttagcttg caccttgtca catagagtga tctttcccaa gagaagggga agcactcgtg tgcaacagac aagtgactgt atctgtgtag actatttgct tatttaataa agacgatttg tcagttgttt t

FIGURE 237

Met Lys Ser Leu Pro Ile Leu Leu Leu Leu Cys Val Ala Val Cys Ser Ala Tyr Pro Leu Asp Gly Ala Ala Arg Gly Glu Asp Thr Ser Met Asn Leu Val Gln Lys Tyr Leu Glu Asn Tyr Tyr Asp Leu Lys Lys Asp Val Lys Gln Phe Val Arg Arg Lys Asp Ser Gly Pro Val Val Lys Lys Ile Arg Glu Met Gln Lys Phe Leu Gly Leu Glu Val Thr Gly Lys Leu Asp Ser Asp Thr Leu Glu Val Met Arg Lys Pro Arg Cys Gly Val Pro Asp Val Gly His Phe Arg Thr Phe Pro Gly Ile Pro Lys Trp Arg Lys Thr His Leu Thr Tyr Arg Ile Val Asn Tyr Thr Pro Asp Leu Pro Lys Asp Ala Val Asp Ser Ala Val Glu Lys Ala Leu Lys Val Trp Glu Glu Val Thr Pro Leu Thr Phe Ser Arg Leu Tyr Glu Gly Glu Ala Asp Ile Met Ile Ser Phe Ala Val Arg Glu His Gly Asp Phe Tyr Pro Phe Asp Gly Pro Gly Asn Val Leu Ala His Ala Tyr Ala Pro Gly Pro Gly Ile Asn Gly Asp Ala His Phe Asp Asp Asp Glu Gln Trp Thr Lys Asp Thr Thr Gly Thr Asn Leu Phe Leu Val Ala Ala His Glu Ile Gly His Ser Leu Gly Leu Phe His Ser Ala Asn Thr Glu Ala Leu Met Tyr Pro Leu Tyr His Ser Leu Thr Asp Leu Thr Arg Phe Arg Leu Ser Gln Asp Asp Ile Asn Gly Ile Gln Ser Leu Tyr Gly Pro Pro Pro Asp Ser Pro Glu Thr Pro Leu Val Pro Thr Glu Pro Val Pro Pro Glu Pro Gly Thr Pro Ala Asn Cys Asp Pro Ala Leu Ser Phe Asp Ala Val Ser Thr Leu Arg Gly Glu Ile Leu Ile Phe Lys Asp Arg His Phe Trp Arg Lys Ser Leu Arg Lys Leu Glu Pro Glu Leu His Leu Ile Ser Ser Phe Trp Pro Ser Leu Pro Ser Gly Val Asp Ala Ala Tyr Glu Val Thr Ser Lys Asp Leu Val Phe Ile Phe Lys Gly Asn Gln Phe Trp Ala Ile Arg Gly Asn Glu Val Arg Ala Gly Tyr Pro Arg Gly Ile His Thr Leu Gly Phe Pro Pro Thr Val Arg Lys Ile Asp Ala Ala Ile Ser Asp Lys Glu Lys Asn Lys Thr Tyr Phe Phe Val Glu Asp Lys Tyr Trp Arg Phe Asp Glu Lys Arg Asn Ser Met Glu Pro Gly Phe Pro Lys Gln Ile Ala Glu Asp Phe Pro Gly Ile Asp Ser Lys Ile Asp Ala Val Phe Glu Glu Phe Gly Phe Phe Tyr Phe Phe Thr Gly Ser Ser Gln Leu Glu Phe Asp Pro Asn Ala Lys Lys Val Thr His Thr Leu Lys Ser Asn Ser Trp Leu Asn Cys

FIGURE 238

aagaacaatt gtctctggac ggcagctatg cgactcaccg tgctgtgtgc tgtgtgcctg ctgcctggca gcctggccct gccgctgcct caggaggcgg gaggcatgag tgagctacag tgggaacagg ctcaggacta tctcaagaga ttttatctct atgactcaga aacaaaaaat gccaacagtt tagaagccaa actcaaggag atgcaaaaat tctttggcct acctataact ggaatgttaa actcccgcgt catagaaata atgcagaagc ccagatgtgg agtgccagat gttgcagaat actcactatt tccaaatagc ccaaaatgga cttccaaagt ggtcacctac aggatcgtat catatactcg agacttaccg catattacag tggatcgatt agtgtcaaag gctttaaaca tgtggggcaa agagatcccc ctgcatttca ggaaagttgt atggggaact gctgacatca tgattggctt tgcgcgagga gctcatgggg actcctaccc atttgatggg ccaggaaaca cgctggctca tgcctttgcg cctgggacag gtctcggagg agatgctcac ttcgatgagg atgaacgctg gacggatggt agcagtctag ggattaactt cctgtatgct gcaactcatg aacttggcca ttctttgggt atgggacatt cctctgatcc taatgcagtg atgtatccaa cctatggaaa tggagatccc caaaatttta aactttccca ggatgatatt aaaggcattc agaaactata tggaaagaga agtaattcaa gaaagaaata gaaacttcag gcagaacatc cattcattca ttcattggat tgtatatcat tgttgcacaa tcagaattga taagcactgt tcctccactc catttagcaa ttatgtcacc ctttttttatt gcagttggtt tttgaatgtc tttcactcct tttattggtt aaactccttt atggtgtgac tgtgtcttat tccatctatg agctttgtca gtgcgcgtag atgtcaataa atgttacata cacaaataaa taaaatattt aggccatggt aaatttacc

FIGURE 239

Met Arg Leu Thr Val Leu Cys Ala Val Cys Leu Leu Pro Gly Ser Leu Ala Leu Pro Leu Pro Gln Glu Ala Gly Gly Met Ser Glu Leu Gln Trp Glu Gln Ala Gln Asp Tyr Leu Lys Arg Phe Tyr Leu Tyr Asp Ser Glu Thr Lys Asn Ala Asn Ser Leu Glu Ala Lys Leu Lys Glu Met Gln Lys Phe Phe Gly Leu Pro Ile Thr Gly Met Leu Asn Ser Arg Val Ile Glu Ile Met Gln Lys Pro Arg Cys Gly Val Pro Asp Val Ala Glu Tyr Ser Leu Phe Pro Asn Ser Pro Lys Trp Thr Ser Lys Val Val Thr Tyr Arg Ile Val Ser Tyr Thr Arg Asp Leu Pro His Ile Thr Val Asp Arg Leu Val Ser Lys Ala Leu Asn Met Trp Gly Lys Glu Ile Pro Leu His Phe Arg Lys Val Val Trp Gly Thr Ala Asp Ile Met Ile Gly Phe Ala Arg Gly Ala His Gly Asp Ser Tyr Pro Phe Asp Gly Pro Gly Asn Thr Leu Ala His Ala Phe Ala Pro Gly Thr Gly Leu Gly Gly Asp Ala His Phe Asp Glu Asp Glu Arg Trp Thr Asp Gly Ser Ser Leu Gly Ile Asn Phe Leu Tyr Ala Ala Thr His Glu Leu Gly His Ser Leu Gly Met Gly His Ser Ser Asp Pro Asn Ala Val Met Tyr Pro Thr Tyr Gly Asn Gly Asp Pro Gln Asn Phe Lys Leu Ser Gln Asp Asp Ile Lys Gly Ile Gln Lys Leu Tyr Gly Lys Arg Ser Asn Ser Arg Lys Lys

FIGURE 240

agacacctct gccctcacca tgagcctctg gcagcccctg gtcctggtgc tcctggtgct gggctgctgc tttgctgccc ccagacagcg ccagtccacc cttgtgctct tccctggaga cctgagaacc aatctcaccg acaggcagct ggcagaggaa tacctgtacc gctatggtta cactcgggtg gcagagatgc gtggagagtc gaaatctctg gggcctgcgc tgctgcttct ccagaagcaa ctgtccctgc ccgagaccgg tgagctggat agcgccacgc tgaaggccat gcgaacccca cggtgcgggg tcccagacct gggcagattc caaacctttg agggcgacct caagtggcac caccacaaca tcacctattg gatccaaaac tactcggaag acttgccgcg ggcggtgatt gacgacgcct ttgcccgcgc cttcgcactg tggagcgcgg tgacgccgct caccttcact cgcgtgtaca gccgggacgc agacatcgtc atccagtttg gtgtcgcgga gcacggagac gggtatccct tcgacgggaa ggacgggctc ctggcacacg cctttcctcc tggccccggc attcagggag acgcccattt cgacgatgac gagttgtggt ccctgggcaa gggcgtcgtg gttccaactc ggtttggaaa cgcagatggc gcggcctgcc acttcccctt catcttcgag ggccgctcct actctgcctg caccaccgac ggtcgctccg acggcttgcc ctggtgcagt accacggcca actacgacac cgacgaccgg tttggcttct gccccagcga gagactctac acccgggacg gcaatgctga tgggaaaccc tgccagtttc cattcatctt ccaaggccaa tcctactccg cctgcaccac ggacggtcgc tccgacggct accgctggtg cgccaccacc gccaactacg accgggacaa gctcttcggc ttctgcccga cccgagctga ctcgacggtg atgggggcca actcggcggg ggagctgtgc gtcttcccct tcactttcct gggtaaggag tactcgacct gtaccagcga gggccgcgga gatgggcgcc tctggtgcgc taccacctcg aactttgaca gcgacaagaa gtggggcttc tgcccggacc aaggatacag tttgttcctc gtggcggcgc atgagttcgg ccacgcgctg ggcttagatc attcctcagt gccggaggcg ctcatgtacc ctatgtaccg cttcactgag gggccccccct tgcataagga cgacgtgaat ggcatccggc acctctatgg tcctcgccct gaacctgagc cacggcctcc aaccaccacc acaccgcagc ccacggctcc cccgacggtc tgccccaccg gacccccccac tgtccacccc tcagagcgcc ccacagctgg ccccacaggt ccccccctcag ctggccccac aggtcccccc actgctggcc cttctacggc cactactgtg cctttgagtc cggtggacga tgcctgcaac gtgaacatct tcgacgccat cgcggagatt gggaaccagc tgtatttgtt caaggatggg aagtactggc gattctctga gggcaggggg agccggccgc agggcccctt ccttatcgcc gacaagtggc ccgcgctgcc ccgcaagctg gactcggtct ttgaggagcc gctctccaag aagcttttct tcttctctgg gcgccaggtg tgggtgtaca caggcgcgtc ggtgctgggc ccgaggcgtc tggacaagct gggcctggga gccgacgtgg cccaggtgac cggggccctc cggagtggca gggggaagat gctgctgttc agcgggcggc gcctctggag gttcgacgtg aaggcgcaga tggtggatcc ccggagcgcc agcgaggtgg accggatgtt ccccggggtg cctttggaca cgcacgacgt cttccagtac cgagagaaag cctatttctg ccaggaccgc ttctactggc gcgtgagttc ccggagtgag ttgaaccagg tggaccaagt gggctacgtg acctatgaca tcctgcagtg ccctgaggac tagggctccc gtcctgcttt gcagtgccat gtaaatcccc actgggacca accctgggga aggagccagt ttgccggata caaactggta ttctgttctg gaggaaaggg aggagtggag gtgggctggg ccctctcttc tcacctttgt tttttgttgg agtgtttcta ataaacttgg attctctaac cttt

FIGURE 241

Met Ser Leu Trp Gln Pro Leu Val Leu Val Leu Leu Val Leu Gly Cys Cys Phe Ala Ala Pro Arg Gln Arg Gln Ser Thr Leu Val Leu Phe Pro Gly Asp Leu Arg Thr Asn Leu Thr Asp Arg Gln Leu Ala Glu Glu Tyr Leu Tyr Arg Tyr Gly Tyr Thr Arg Val Ala Glu Met Arg Gly Glu Ser Lys Ser Leu Gly Pro Ala Leu Leu Leu Leu Gln Lys Gln Leu Ser Leu Pro Glu Thr Gly Glu Leu Asp Ser Ala Thr Leu Lys Ala Met Arg Thr Pro Arg Cys Gly Val Pro Asp Leu Gly Arg Phe Gln Thr Phe Glu Gly Asp Leu Lys Trp His His His Asn Ile Thr Tyr Trp Ile Gln Asn Tyr Ser Glu Asp Leu Pro Arg Ala Val Ile Asp Asp Ala Phe Ala Arg Ala Phe Ala Leu Trp Ser Ala Val Thr Pro Leu Thr Phe Thr Arg Val Tyr Ser Arg Asp Ala Asp Ile Val Ile Gln Phe Gly Val Ala Glu His Gly Asp Gly Tyr Pro Phe Asp Gly Lys Asp Gly Leu Leu Ala His Ala Phe Pro Pro Gly Pro Gly Ile Gln Gly Asp Ala His Phe Asp Asp Asp Glu Leu Trp Ser Leu Gly Lys Gly Val Val Val Pro Thr Arg Phe Gly Asn Ala Asp Gly Ala Ala Cys His Phe Pro Phe Ile Phe Glu Gly Arg Ser Tyr Ser Ala Cys Thr Thr Asp Gly Arg Ser Asp Gly Leu Pro Trp Cys Ser Thr Thr Ala Asn Tyr Asp Thr Asp Asp Arg Phe Gly Phe Cys Pro Ser Glu Arg Leu Tyr Thr Arg Asp Gly Asn Ala Asp Gly Lys Pro Cys Gln Phe Pro Phe Ile Phe Gln Gly Gln Ser Tyr Ser Ala Cys Thr Thr Asp Gly Arg Ser Asp Gly Tyr Arg Trp Cys Ala Thr Thr Ala Asn Tyr Asp Arg Asp Lys Leu Phe Gly Phe Cys Pro Thr Arg Ala Asp Ser Thr Val Met Gly Gly Asn Ser Ala Gly Glu Leu Cys Val Phe Pro Phe Thr Phe Leu Gly Lys Glu Tyr Ser Thr Cys Thr Ser Glu Gly Arg Gly Asp Gly Arg Leu Trp Cys Ala Thr Thr Ser Asn Phe Asp Ser Asp Lys Lys Trp Gly Phe Cys Pro Asp Gln Gly Tyr Ser Leu Phe Leu Val Ala Ala His Glu Phe Gly His Ala Leu Gly Leu Asp His Ser Ser Val Pro Glu Ala Leu Met Tyr Pro Met Tyr Arg Phe Thr Glu Gly Pro Pro Leu His Lys Asp Asp Val Asn Gly Ile Arg His Leu Tyr Gly Pro Arg Pro Glu Pro Glu Pro Arg Pro Pro Thr Thr Thr Thr Pro Gln Pro Thr Ala Pro Pro Thr Val Cys Pro Thr Gly Pro Pro Thr Val His Pro Ser Glu Arg Pro Thr Ala Gly Pro Thr Gly Pro Pro Ser Ala Gly Pro Thr Gly Pro Pro Thr Ala Gly Pro Ser Thr Ala Thr Thr Val Pro Leu Ser Pro Val Asp Asp Ala Cys Asn Val Asn Ile Phe Asp Ala Ile Ala Glu Ile Gly Asn Gln Leu Tyr Leu Phe Lys Asp Gly Lys Tyr Trp Arg Phe Ser Glu Gly Arg Gly Ser Arg Pro Gln Gly Pro Phe Leu Ile Ala Asp Lys Trp Pro Ala Leu Pro Arg Lys Leu Asp Ser Val Phe Glu Glu Pro Leu Ser Lys Lys Leu Phe Phe Phe Ser Gly Arg Gln Val Trp Val Tyr Thr Gly Ala Ser Val Leu Gly Pro Arg Arg Leu Asp Lys Leu Gly Leu Gly Ala Asp Val Ala Gln Val Thr Gly Ala Leu Arg Ser Gly Arg Gly Lys Met Leu Leu Phe Ser Gly Arg Arg Leu Trp Arg Phe Asp Val Lys Ala Gln Met Val Asp Pro Arg Ser Ala Ser Glu Val Asp Arg Met Phe Pro Gly Val Pro Leu Asp Thr His Asp Val Phe Gln Tyr Arg Glu Lys Ala Tyr Phe Cys Gln Asp Arg Phe Tyr Trp Arg Val Ser Ser Arg Ser Glu Leu Asn Gln Val Asp Gln Val Gly Tyr Val Thr Tyr Asp Ile Leu Gln Cys Pro Glu Asp

FIGURE 242

tagaagttta caatgaagtt tcttctaata ctgctcctgc aggccactgc ttctggagct cttcccctga acagctctac aagcctggaa aaaaataatg tgctatttgg tgagagatac ttagaaaaat tttatggcct tgagataaac aaacttccag tgacaaaaat gaaatatagt ggaaacttaa tgaaggaaaa aatccaagaa atgcagcact tcttgggtct gaaagtgacc gggcaactgg acacatctac cctggagatg atgcacgcac ctcgatgtgg agtccccgat ctccatcatt tcagggaaat gccaggggg cccgtatgga ggaaacatta tatcacctac agaatcaata attacacacc tgacatgaac cgtgaggatg ttgactacgc aatccggaaa gctttccaag tatggagtaa tgttaccccc ttgaaattca gcaagattaa cacaggcatg gctgacattt tggtggtttt tgcccgtgga gctcatggag acttccatgc ttttgatggc aaaggtggaa tcctagccca tgcttttgga cctggatctg gcattggagg ggatgcacat ttcgatgagg acgaattctg gactacacat tcaggaggca caaacttgtt cctcactgct gttcacgaga ttggccattc cttaggtctt ggccattcta gtgatccaaa ggctgtaatg ttccccacct acaaatatgt cgacatcaac acatttcgcc tctctgctga tgacatacgt ggcattcagt ccctgtatgg agacccaaaa gagaaccaac gcttgccaaa tcctgacaat tcagaaccag ctctctgtga ccccaatttg agttttgatg ctgtcactac cgtgggaaat aagatctttt tcttcaaaga caggttcttc tggctgaagg tttctgagag accaaagacc agtgttaatt taatttcttc cttatggcca accttgccat ctggcattga agctgcttat gaaattgaag ccagaaatca agtttttctt tttaaagatg acaaatactg gttaattagc aatttaagac cagagccaaa ttatcccaag agcatacatt cttttggttt tcctaacttt gtgaaaaaaa ttgatgcagc tgtttttaac ccacgttttt ataggaccta cttctttgta gataaccagt attggaggta tgatgaaagg agacagatga tggaccctgg ttatcccaaa ctgattacca agaacttcca aggaatcggg cctaaaattg atgcagtctt ctattctaaa aacaaatact actatttctt ccaaggatct aaccaatttg aatatgactt cctactccaa cgtatcacca aaacactgaa aagcaatagc tggtttggtt gttagaaatg gtgtaattaa tggtttttgt tagttcactt cagcttaata agtatttatt gcatatttgc tatgtcctca gtgtaccact acttagagat atgtatcata aaaataaaat ctgtaaacca taggtaatga ttatataaaa tacataatat ttttcaattt tgaaaactct aattgtccat tcttgcttga ctctactatt aagtttgaaa atagttacct tcaaagcaag ataattctat ttgaagcatg ctctgtaagt tgcttcctaa catccttgga ctgagaaatt atacttactt ctggcataac taaaattaag tatatatatt ttggctcaaa taaaattg

FIGURE 243

Met Lys Phe Leu Leu Ile Leu Leu Leu Gln Ala Thr Ala Ser Gly Ala Leu Pro Leu Asn Ser Ser Thr Ser Leu Glu Lys Asn Asn Val Leu Phe Gly Glu Arg Tyr Leu Glu Lys Phe Tyr Gly Leu Glu Ile Asn Lys Leu Pro Val Thr Lys Met Lys Tyr Ser Gly Asn Leu Met Lys Glu Lys Ile Gln Glu Met Gln His Phe Leu Gly Leu Lys Val Thr Gly Gln Leu Asp Thr Ser Thr Leu Glu Met Met His Ala Pro Arg Cys Gly Val Pro Asp Leu His His Phe Arg Glu Met Pro Gly Gly Pro Val Trp Arg Lys His Tyr Ile Thr Tyr Arg Ile Asn Asn Tyr Thr Pro Asp Met Asn Arg Glu Asp Val Asp Tyr Ala Ile Arg Lys Ala Phe Gln Val Trp Ser Asn Val Thr Pro Leu Lys Phe Ser Lys Ile Asn Thr Gly Met Ala Asp Ile Leu Val Val Phe Ala Arg Gly Ala His Gly Asp Phe His Ala Phe Asp Gly Lys Gly Gly Ile Leu Ala His Ala Phe Gly Pro Gly Ser Gly Ile Gly Gly Asp Ala His Phe Asp Glu Asp Glu Phe Trp Thr Thr His Ser Gly Gly Thr Asn Leu Phe Leu Thr Ala Val His Glu Ile Gly His Ser Leu Gly Leu Gly His Ser Ser Asp Pro Lys Ala Val Met Phe Pro Thr Tyr Lys Tyr Val Asp Ile Asn Thr Phe Arg Leu Ser Ala Asp Asp Ile Arg Gly Ile Gln Ser Leu Tyr Gly Asp Pro Lys Glu Asn Gln Arg Leu Pro Asn Pro Asp Asn Ser Glu Pro Ala Leu Cys Asp Pro Asn Leu Ser Phe Asp Ala Val Thr Thr Val Gly Asn Lys Ile Phe Phe Phe Lys Asp Arg Phe Phe Trp Leu Lys Val Ser Glu Arg Pro Lys Thr Ser Val Asn Leu Ile Ser Ser Leu Trp Pro Thr Leu Pro Ser Gly Ile Glu Ala Ala Tyr Glu Ile Glu Ala Arg Asn Gln Val Phe Leu Phe Lys Asp Asp Lys Tyr Trp Leu Ile Ser Asn Leu Arg Pro Glu Pro Asn Tyr Pro Lys Ser Ile His Ser Phe Gly Phe Pro Asn Phe Val Lys Lys Ile Asp Ala Ala Val Phe Asn Pro Arg Phe Tyr Arg Thr Tyr Phe Phe Val Asp Asn Gln Tyr Trp Arg Tyr Asp Glu Arg Arg Gln Met Met Asp Pro Gly Tyr Pro Lys Leu Ile Thr Lys Asn Phe Gln Gly Ile Gly Pro Lys Ile Asp Ala Val Phe Tyr Ser Lys Asn Lys Tyr Tyr Tyr Phe Phe Gln Gly Ser Asn Gln Phe Glu Tyr Asp Phe Leu Leu Gln Arg Ile Thr Lys Thr Leu Lys Ser Asn Ser Trp Phe Gly Cys

FIGURE 244

ggcacgaggt gaccccagcc atgaggacca tcgccatcct tgctgccatt ctcctggtgg ccctgcaggc ccaggctgag tcactccagg aaagagctga tgaggctaca acccagaagc agtctgggga agacaaccag gaccttgcta tctcctttgc aggaaatgga ctctctgctc ttagaacctc aggttctcag gcaagagcca cctgctattg ccgaactggc cgttgtgcta cccgtgagtc cccctccggg gtgtgtgaaa tcagtggccg cctctacaga ctctgctgtc gctgagcttc ctagatagaa accaaagcag tgcaagattc agttcaaggt cctgaaaaaa gaaaaacatt ttactctgtg taccttgtgt ctttctaaat ttctctctcc aaaataaagt tcaagcatta aaaaaaaaaa aaaaaaa

FIGURE 245

Met Arg Thr Ile Ala Ile Leu Ala Ala Ile Leu Leu Val Ala Leu Gln Ala Gln Ala Glu Ser Leu Gln Glu Arg Ala Asp Glu Ala Thr Thr Gln Lys Gln Ser Gly Glu Asp Asn Gln Asp Leu Ala Ile Ser Phe Ala Gly Asn Gly Leu Ser Ala Leu Arg Thr Ser Gly Ser Gln Ala Arg Ala Thr Cys Tyr Cys Arg Thr Gly Arg Cys Ala Thr Arg Glu Ser Pro Ser Gly Val Cys Glu Ile Ser Gly Arg Leu Tyr Arg Leu Cys Cys Arg

FIGURE 246

cctccagcga ccctagccat gagaaccctc accatcctca ctgctgttct cctcgtggcc ctccaggcca aggctgagcc actccaagct gaggatgatc cactgcaggc aaaagcttat gaggctgatg cccaggagca gcgtggggca aatgaccagg actttgccgt ctcctttgca gaggatgcaa gctcaagtct tagagctttg ggctcaacaa gggctttcac ttgccattgc agaaggtcct gttattcaac agaatattcc tatgggacct gcactgtcat gggtattaac cacagattct gctgcctctg agggatgaga acagagagaa atatattcat aatttacttt atgacctaga aggaaactgt cgtgtgtccc atacattgcc atcaactttg tttcctcatc tcaaataaag tcctttcagc aaaaa

FIGURE 247

Met Arg Thr Leu Thr Ile Leu Thr Ala Val Leu Leu Val Ala Leu Gln Ala Lys Ala Glu Pro Leu Gln Ala Glu Asp Asp Pro Leu Gln Ala Lys Ala Tyr Glu Ala Asp Ala Gln Glu Gln Arg Gly Ala Asn Asp Gln Asp Phe Ala Val Ser Phe Ala Glu Asp Ala Ser Ser Ser Leu Arg Ala Leu Gly Ser Thr Arg Ala Phe Thr Cys His Cys Arg Arg Ser Cys Tyr Ser Thr Glu Tyr Ser Tyr Gly Thr Cys Thr Val Met Gly Ile Asn His Arg Phe Cys Cys Leu

FIGURE 248

gccaacagag attgttgatt tgcctcttaa gcaagagatt cattgcagct cagcatggct cagaccagct catacttcat gctgatctcc tgcctgatgt ttctgtctca gagccaaggc caagaggccc agacagagtt gccccaggcc cggatcagct gcccagaagg caccaatgcc tatcgctcct actgctacta ctttaatgaa gaccgtgaga cctgggttga tgcagatctc tattgccaga acatgaattc gggcaacctg gtgtctgtgc tcacccaggc cgagggtgcc tttgtggcct cactgattaa ggagagtggc actgatgact tcaatgtctg gattggcctc catgacccca aaaagaaccg ccgctggcac tggagcagtg ggtccctggt ctcctacaag tcctggggca ttggagcccc aagcagtgtt aatcctggct actgtgtgag cctgacctca agcacaggat tccagaaatg gaaggatgtg ccttgtgaag acaagttctc ctttgtctgc aagttcaaaa actagaggca gctggaaaat acatgtctag aactgatcca gcaattacaa cggagtcaaa aattaaaccg gaccatctct ccaactcaac tcaacctgga cactctcttc tctgctgagt ttgccttgtt aatcttcaat agttttacct accccagtct ttggaaccct aaataataaa aataaacatg tttccactaa ga

FIGURE 249

Met Ala Gln Thr Ser Ser Tyr Phe Met Leu Ile Ser Cys Leu Met Phe Leu Ser Gln Ser Gln Gly Gln Glu Ala Gln Thr Glu Leu Pro Gln Ala Arg Ile Ser Cys Pro Glu Gly Thr Asn Ala Tyr Arg Ser Tyr Cys Tyr Tyr Phe Asn Glu Asp Arg Glu Thr Trp Val Asp Ala Asp Leu Tyr Cys Gln Asn Met Asn Ser Gly Asn Leu Val Ser Val Leu Thr Gln Ala Glu Gly Ala Phe Val Ala Ser Leu Ile Lys Glu Ser Gly Thr Asp Asp Phe Asn Val Trp Ile Gly Leu His Asp Pro Lys Lys Asn Arg Arg Trp His Trp Ser Ser Gly Ser Leu Val Ser Tyr Lys Ser Trp Gly Ile Gly Ala Pro Ser Ser Val Asn Pro Gly Tyr Cys Val Ser Leu Thr Ser Ser Thr Gly Phe Gln Lys Trp Lys Asp Val Pro Cys Glu Asp Lys Phe Ser Phe Val Cys Lys Phe Lys Asn

FIGURE 250

aagatataaa agctccagaa acgttgactg ggaccactgg agacactgaa gaaggcaggg gcccttagag tcttggttgc caaacagatt tgcagatcaa ggagaaccca ggagtttcaa agaagcgcta gtaaggtctc tgagatcctt gcactagcta catcctcagg gtaggaggaa gatggcttcc agaagcatgc ggctgctcct attgctgagc tgcctggcca aaacaggagt cctgggtgat atcatcatga gacccagctg tgctcctgga tggttttacc acaagtccaa ttgctatggt tacttcagga agctgaggaa ctggtctgat gccgagctcg agtgtcagtc ttacggaaac ggagcccacc tggcatctat cctgagttta aaggaagcca gcaccatagc agagtacata agtggctatc agagaagcca gccgatatgg attggcctgc acgacccaca gaagaggcag cagtggcagt ggattgatgg ggccatgtat ctgtacagat cctggtctgg caagtccatg ggtgggaaca agcactgtgc tgagatgagc tccaataaca acttttaac ttggagcagc aacgaatgca acaagcgcca acacttcctg tgcaagtacc gaccatagag caagaatcaa gattctgcta actcctgcac agccccgtcc tcttcctttc tgctagcctg gctaaatctg ctcattattt cagaggggaa acctagcaaa ctaagagtga taagggccct actacactgg ctttttagg cttagagaca gaaactttag cattggccca gtagtggctt ctagctctaa atgtttgccc cgccatccct ttccacagta tccttcttcc ctcctcccct gtctctggct gtctcgagca gtctagaaga gtgcatctcc agcctatgaa acagctgggt ctttggccat aagaagtaaa gatttgaaga cagaaggaag aaactcagga gtaagcttct agacccccttc agcttctaca cccttctgcc ctctctccat tgcctgcacc ccaccccagc cactcaactc ctgcttgttt ttcctttggc cataggaagg tttaccagta gaatccttgc taggttgatg tgggccatac attcctttaa taaaccattg tgtacataag aaaaaaaaaa

FIGURE 251

Met Ala Ser Arg Ser Met Arg Leu Leu Leu Leu Leu Ser Cys Leu Ala Lys Thr Gly Val Leu Gly Asp Ile Ile Met Arg Pro Ser Cys Ala Pro Gly Trp Phe Tyr His Lys Ser Asn Cys Tyr Gly Tyr Phe Arg Lys Leu Arg Asn Trp Ser Asp Ala Glu Leu Glu Cys Gln Ser Tyr Gly Asn Gly Ala His Leu Ala Ser Ile Leu Ser Leu Lys Glu Ala Ser Thr Ile Ala Glu Tyr Ile Ser Gly Tyr Gln Arg Ser Gln Pro Ile Trp Ile Gly Leu His Asp Pro Gln Lys Arg Gln Gln Trp Gln Trp Ile Asp Gly Ala Met Tyr Leu Tyr Arg Ser Trp Ser Gly Lys Ser Met Gly Gly Asn Lys His Cys Ala Glu Met Ser Ser Asn Asn Asn Phe Leu Thr Trp Ser Ser Asn Glu Cys Asn Lys Arg Gln His Phe Leu Cys Lys Tyr Arg Pro

FIGURE 252

ccatccctga gatcttttta taaaaaaccc agtctttgct gaccagacaa agcataccag atctcaccag agagtcgcag acactatgct gcctcccatg gccctgccca gtgtgtcctg gatgctgctt tcctgcctca ttctcctgtg tcaggttcaa ggtgaagaaa cccagaagga actgccctct ccacggatca gctgtcccaa aggctccaag gcctatggct ccccctgcta tgccttgttt ttgtcaccaa aatcctggat ggatgcagat ctggcttgcc agaagcggcc ctctggaaaa ctggtgtctg tgctcagtgg ggctgaggga tccttcgtgt cctccctggt gaggagcatt agtaacagct actcatacat ctggattggg ctccatgacc ccacacaggg ctctgagcct gatggagatg gatgggagtg gagtagcact gatgtgatga attactttgc atgggagaaa aatccctcca ccatcttaaa ccctggccac tgtgggagcc tgtcaagaag cacaggattt ctgaagtgga aagattataa ctgtgatgca aagttaccct atgtctgcaa gttcaaggac tagggcaggt gggaagtcag cagcctcagc ttggcgtgca gctcatcatg gacatgagac cagtgtgaag actcaccctg gaagagaata ttctccccaa actgccctac ctgactacct tgtcatgatc ctccttcttt ttccttttc ttcaccttca tttcaggctt ttctctgtct tccatgtctt gagatctcag agaataataa taaaaatgtt actttataaa aaaaaaaaaa aaaaaaaaa

FIGURE 253

Met Leu Pro Pro Met Ala Leu Pro Ser Val Ser Trp Met Leu Leu Ser Cys Leu Ile Leu Leu Cys Gln Val Gln Gly Glu Glu Thr Gln Lys Glu Leu Pro Ser Pro Arg Ile Ser Cys Pro Lys Gly Ser Lys Ala Tyr Gly Ser Pro Cys Tyr Ala Leu Phe Leu Ser Pro Lys Ser Trp Met Asp Ala Asp Leu Ala Cys Gln Lys Arg Pro Ser Gly Lys Leu Val Ser Val Leu Ser Gly Ala Glu Gly Ser Phe Val Ser Ser Leu Val Arg Ser Ile Ser Asn Ser Tyr Ser Tyr Ile Trp Ile Gly Leu His Asp Pro Thr Gln Gly Ser Glu Pro Asp Gly Asp Gly Trp Glu Trp Ser Ser Thr Asp Val Met Asn Tyr Phe Ala Trp Glu Lys Asn Pro Ser Thr Ile Leu Asn Pro Gly His Cys Gly Ser Leu Ser Arg Ser Thr Gly Phe Leu Lys Trp Lys Asp Tyr Asn Cys Asp Ala Lys Leu Pro Tyr Val Cys Lys Phe Lys Asp

FIGURE 254

ggacaaggca cttaccaaca gagattgctg atttgctcct taagcaagag attcactgcc gctaagcatg gctcagacca actcgttctt catgctgatc tcctccctga tgttcctgtc tctgagccaa ggccaggagt cccagacaga gctgcctaat ccccgaatca gctgcccaga aggcaccaat gcctatcgct cctactgcta ctactttaat gaagaccctg agacctgggt tgatgcagat ctctattgcc agaacatgaa ttcaggcaac ctggtgtctg tgctcaccca ggcggagggt gccttcgtgg cctcactgat taaggagagt agcactgatg acagcaatgt ctggattggc ctccatgacc caaaaaagaa ccgccgctgg cactggagta gtgggtccct ggtctcctac aagtcctggg acactggatc cccgagcagt gctaatgctg gctactgtgc aagcctgact tcatgctcag gattcaagaa atggaaggat gaatcttgtg agaagaagtt ctcctttgtt tgcaagttca aaaactagag gaagctgaaa aatggatgtc tagaactggt cctgcaatta ctatgaagtc aaaaattaaa ctagactatg tctccaactc agttcagacc atctcctccc taatgagttt gcatcgctga tcttcagtac cttcacctgt ctcagtctct agagccctga aaaataaaaa caaacttatt tttaa

FIGURE 255

Met Ala Gln Thr Asn Ser Phe Phe Met Leu Ile Ser Ser Leu Met Phe Leu Ser Leu Ser Gln Gly Gln Glu Ser Gln Thr Glu Leu Pro Asn Pro Arg Ile Ser Cys Pro Glu Gly Thr Asn Ala Tyr Arg Ser Tyr Cys Tyr Tyr Phe Asn Glu Asp Pro Glu Thr Trp Val Asp Ala Asp Leu Tyr Cys Gln Asn Met Asn Ser Gly Asn Leu Val Ser Val Leu Thr Gln Ala Glu Gly Ala Phe Val Ala Ser Leu Ile Lys Glu Ser Ser Thr Asp Asp Ser Asn Val Trp Ile Gly Leu His Asp Pro Lys Lys Asn Arg Arg Trp His Trp Ser Ser Gly Ser Leu Val Ser Tyr Lys Ser Trp Asp Thr Gly Ser Pro Ser Ser Ala Asn Ala Gly Tyr Cys Ala Ser Leu Thr Ser Cys Ser Gly Phe Lys Lys Trp Lys Asp Glu Ser Cys Glu Lys Lys Phe Ser Phe Val Cys Lys Phe Lys Asn

FIGURE 256

aaaccatacc atatcccacc agagagtgac tcctgattgc ctcctcaagt cgcagacact atgctgcctc ccatggccct gcccagtgta tcttggatgc tgctttcctg cctcatgctg ctgtctcagg ttcaaggtga agaaccccag agggaactgc cctctgcacg gatccgctgt cccaaaggct ccaaggccta tggctcccac tgctatgcct tgtttttgtc accaaaatcc tggacagatg cagatctggc ctgccagaag cggccctctg gaaacctggt gtctgtgctc agtggggctg agggatcctt cgtgtcctcc ctggtgaaga gcattggtaa cagctactca tacgtctgga ttgggctcca tgaccccaca cagggcaccg agcccaatgg agaaggttgg gagtggagta gcagtgatgt gatgaattac tttgcatggg agagaaatcc ctccaccatc tcaagccccg gccactgtgc gagcctgtcg agaagcacag catttctgag gtggaaagat tataactgta atgtgaggtt accctatgtc tgcaagttca ctgactagtg caggagggaa gtcagcagcc tgtgtttggt gtgcaactca tcatgggcat gagaccagtg tgaggactca ccctggaaga gaatattcgc ttaattcccc caacctgacc acctcattct tatctttctt ctgtttcttc ctccccgctg tcatttcagt ctcttcattt tgtcatacgg cctaaggctt taaagagcaa taaaattttt agtctgc

FIGURE 257

Met Leu Pro Pro Met Ala Leu Pro Ser Val Ser Trp Met Leu Leu Ser Cys Leu Met Leu Leu Ser Gln Val Gln Gly Glu Glu Pro Gln Arg Glu Leu Pro Ser Ala Arg Ile Arg Cys Pro Lys Gly Ser Lys Ala Tyr Gly Ser His Cys Tyr Ala Leu Phe Leu Ser Pro Lys Ser Trp Thr Asp Ala Asp Leu Ala Cys Gln Lys Arg Pro Ser Gly Asn Leu Val Ser Val Leu Ser Gly Ala Glu Gly Ser Phe Val Ser Ser Leu Val Lys Ser Ile Gly Asn Ser Tyr Ser Tyr Val Trp Ile Gly Leu His Asp Pro Thr Gln Gly Thr Glu Pro Asn Gly Glu Gly Trp Glu Trp Ser Ser Ser Asp Val Met Asn Tyr Phe Ala Trp Glu Arg Asn Pro Ser Thr Ile Ser Ser Pro Gly His Cys Ala Ser Leu Ser Arg Ser Thr Ala Phe Leu Arg Trp Lys Asp Tyr Asn Cys Asn Val Arg Leu Pro Tyr Val Cys Lys Phe Thr Asp

FIGURE 258

cagctacagc acagatcagc accatgaagc ttctcacggg cctggttttc tgctccttgg tcctgagtgt cagcagccga agcttctttt cgttccttgg cgaggctttt gatggggctc gggacatgtg gagagcctac tctgacatga gagaagccaa ttacatcggc tcagacaaat acttccatgc tcgggggaac tatgatgctg ccaaaagggg acctgggggt gcctgggccg cagaagtgat cagcaatgcc agagagaata tccagagact cacaggccat ggtgcggagg actcgctggc cgatcaggct gccaataaat ggggcaggag tggcagagac cccaatcact tccgacctgc tggcctgcct gagaaatact gagcttcctc ttcactctgc tctcaggaga cctggctatg agccctcggg gcagggattc aaagttagtg aggtctatgt ccagagaagc tgagatatgg catataatag gcatctaata aatgcttaag aggtgg

FIGURE 259

Met Lys Leu Leu Thr Gly Leu Val Phe Cys Ser Leu Val Leu Ser Val Ser Ser Arg Ser Phe Phe Ser Phe Leu Gly Glu Ala Phe Asp Gly Ala Arg Asp Met Trp Arg Ala Tyr Ser Asp Met Arg Glu Ala Asn Tyr Ile Gly Ser Asp Lys Tyr Phe His Ala Arg Gly Asn Tyr Asp Ala Ala Lys Arg Gly Pro Gly Gly Ala Trp Ala Ala Glu Val Ile Ser Asn Ala Arg Glu Asn Ile Gln Arg Leu Thr Gly His Gly Ala Glu Asp Ser Leu Ala Asp Gln Ala Ala Asn Lys Trp Gly Arg Ser Gly Arg Asp Pro Asn His Phe Arg Pro Ala Gly Leu Pro Glu Lys Tyr

FIGURE 260

tgagggcgcc atgaggagcc tgtgctgcgc cccactcctg ctcctcttgc tgctgccgcc gctgctgctc acgccccgcg ctggggacgc cgccgtgatc accggggctt gtgacaagga ctcccaatgt ggtggaggca tgtgctgtgc tgtcagtatc tgggtcaaga gcataaggat ttgcacacct atgggcaaac tgggagacag ctgccatcca ctgactcgta aaaacaattt tggaaatgga aggcaggaaa gaagaaagag gaagagaagc aaaaggaaaa aggaggttcc atttttggg cggaggatgc atcacacttg cccatgtctg ccaggcttgg cctgtttacg gacttcattt aaccgattta tttgtttagc ccaaaagtaa tcgctctgga gtagaaacca aatgtga

FIGURE 261

Met Arg Ser Leu Cys Cys Ala Pro Leu Leu Leu Leu Leu Leu Leu Pro Pro Leu Leu Leu Thr Pro Arg Ala Gly Asp Ala Ala Val Ile Thr Gly Ala Cys Asp Lys Asp Ser Gln Cys Gly Gly Gly Met Cys Cys Ala Val Ser Ile Trp Val Lys Ser Ile Arg Ile Cys Thr Pro Met Gly Lys Leu Gly Asp Ser Cys His Pro Leu Thr Arg Lys Asn Asn Phe Gly Asn Gly Arg Gln Glu Arg Arg Lys Arg Lys Arg Ser Lys Arg Lys Lys Glu Val Pro Phe Phe Gly Arg Arg Met His His Thr Cys Pro Cys Leu Pro Gly Leu Ala Cys Leu Arg Thr Ser Phe Asn Arg Phe Ile Cys Leu Ala Gln Lys

FIGURE 262

tcggccgaga tgtctcgctc cgtggcctta gctgtgctcg cgctactctc tctttctggc ctggaggcta tccagcgtac tccaaagatt caggtttact cacgtcatcc agcagagaat ggaaagtcaa atttcctgaa ttgctatgtg tctgggtttc atccatccga cattgaagtt gacttactga agaatggaga gagaattgaa aaagtggagc attcagactt gtctttcagc aaggactggt ctttctatct cttgtactac actgaattca cccccactga aaaagatgag tatgcctgcc gtgtgaacca tgtgactttg tcacagccca agatagttaa gtgggatcga gacatgtaag cagcatcatg gaggtttgaa gatgccgcat ttggattgga tgaattccaa attctgcttg cttgcttttt aatattgata tgcttataca cttacacttt atgcacaaaa tgtagggtta taataatgtt aacatggaca tgatcttctt tataattcta ctttgagtgc tgtctccatg tttgatgtat ctgagcaggt tgctccacag gtagctctag gagggctggc aacttagagg tggggagcag agaattctct tatccaacat caacatcttg gtcagatttg aactcttcaa tctcttgcac tcaaagcttg ttaagatagt taagcgtgca taagttaact tccaatttac atactctgct tagaatttgg gggaaaattt agaaatataa ttgacaggat tattggaaat ttgttataat gaatgaaaca ttttgtcata taagattcat atttacttct tatacatttg ataaagtaag gcatggttgt ggttaatctg gtttattttt gttccacaag ttaaataaat cataaaactt gaaaaaaaaa aaaaaaaaa

FIGURE 263

Met Ser Arg Ser Val Ala Leu Ala Val Leu Ala Leu Leu Ser Leu Ser Gly Leu Glu Ala Ile Gln Arg Thr Pro Lys Ile Gln Val Tyr Ser Arg His Pro Ala Glu Asn Gly Lys Ser Asn Phe Leu Asn Cys Tyr Val Ser Gly Phe His Pro Ser Asp Ile Glu Val Asp Leu Leu Lys Asn Gly Glu Arg Ile Glu Lys Val Glu His Ser Asp Leu Ser Phe Ser Lys Asp Trp Ser Phe Tyr Leu Leu Tyr Tyr Thr Glu Phe Thr Pro Thr Glu Lys Asp Glu Tyr Ala Cys Arg Val Asn His Val Thr Leu Ser Gln Pro Lys Ile Val Lys Trp Asp Arg Asp Met

FIGURE 264

agtggagtgg gacaggtata taaaggaagt acagggcctg gggaagaggc cctgtctagg tagctggcac caggagccgt gggcaaggga agaggccaca ccctgccctg ctctgctgca gccagaatgg gtgtgaaggc gtctcaaaca ggctttgtgg tcctggtgct gctccagtgc tgctctgcat acaaactggt ctgctactac accagctggt cccagtaccg ggaaggcgat gggagctgct tcccagatgc ccttgaccgc ttcctctgta cccacatcat ctacagcttt gccaatataa gcaacgatca catcgacacc tgggagtgga atgatgtgac gctctacggc atgctcaaca cactcaagaa caggaacccc aacctgaaga ctctcttgtc tgtcggagga tggaactttg ggtctcaaag attttccaag atagcctcca acacccagag tcgccggact ttcatcaagt cagtaccgcc attcctgcgc acccatggct ttgatgggct ggaccttgcc tggctctacc ctggacggag agacaaacag cattttacca ccctaatcaa ggaaatgaag gccgaattta taaaggaagc ccagccaggg aaaaagcagc tcctgctcag cgcagcactg tctgcgggga aggtcaccat tgacagcagc tatgacattg ccaagatatc ccaacacctg gatttcatta gcatcatgac ctacgatttt catggagcct ggcgtgggac cacaggccat cacagtcccc tgttccgagg tcaggaggat gcaagtcctg acagattcag caacactgac tatgctgtgg ggtacatgtt gaggctgggg gctcctgcca gtaagctggt gatgggcatc cccaccttcg ggaggagctt cactctggct tcttctgaga ctggtgttgg agccccaatc tcaggaccgg gaattccagg ccggttcacc aaggaggcag ggacccttgc ctactatgag atctgtgact tcctccgcgg agccacagtc catagaaccc tcggccagca ggtcccctat gccaccaagg gcaaccagtg ggtaggatac gacgaccagg aaagcgtcaa aagcaaggtg cagtacctga aggataggca gctggcaggc gccatggtat gggccctgga cctggatgac ttccagggct ccttctgcgg ccaggatctg cgcttccctc tcaccaatgc catcaaggat gcactcgctg caacgtagcc ctctgttctg cacacagcac gggggccaag gatgccccgt ccccctctgg ctccagctgg ccgggagcct gatcacctgc cctgctgagt cccaggctga gcctcagtct ccctcccttg gggcctatgc agaggtccac aacacacaga tttgagctca gccctggtgg gcagagaggt agggatgggg ctgtggggat agtgaggcat cgcaatgtaa gactcgggat tagtacacac ttgttgatga ttaatggaaa tgtttacaga tccccaagcc tggcaaggga atttcttcaa ctccctgccc cctagccctc cttatcaaag gacaccattt tggcaagctc tatcaccaag gagccaaaca tcctacaaga cacagtgacc atactaatta taccccctgc aaagccagct tgaaaccttc acttaggaac gtaatcgtgt cccctatcct acttcccctt cctaattcca cagctgctca ataaagtaca agagtttaac agtgtgttgg cgctttgctt tggtctatct ttgagcgccc actagaccca ctggactcac ctcccccatc tcttctgggt tccttcctct gagccttggg acccctgagc ttgcagagat gaaggccgcc atgtt

FIGURE 265

Met Gly Val Lys Ala Ser Gln Thr Gly Phe Val Val Leu Val Leu Leu Gln Cys Cys Ser Ala Tyr Lys Leu Val Cys Tyr Tyr Thr Ser Trp Ser Gln Tyr Arg Glu Gly Asp Gly Ser Cys Phe Pro Asp Ala Leu Asp Arg Phe Leu Cys Thr His Ile Ile Tyr Ser Phe Ala Asn Ile Ser Asn Asp His Ile Asp Thr Trp Glu Trp Asn Asp Val Thr Leu Tyr Gly Met Leu Asn Thr Leu Lys Asn Arg Asn Pro Asn Leu Lys Thr Leu Leu Ser Val Gly Gly Trp Asn Phe Gly Ser Gln Arg Phe Ser Lys Ile Ala Ser Asn Thr Gln Ser Arg Arg Thr Phe Ile Lys Ser Val Pro Pro Phe Leu Arg Thr His Gly Phe Asp Gly Leu Asp Leu Ala Trp Leu Tyr Pro Gly Arg Arg Asp Lys Gln His Phe Thr Thr Leu Ile Lys Glu Met Lys Ala Glu Phe Ile Lys Glu Ala Gln Pro Gly Lys Lys Gln Leu Leu Leu Ser Ala Ala Leu Ser Ala Gly Lys Val Thr Ile Asp Ser Ser Tyr Asp Ile Ala Lys Ile Ser Gln His Leu Asp Phe Ile Ser Ile Met Thr Tyr Asp Phe His Gly Ala Trp Arg Gly Thr Thr Gly His His Ser Pro Leu Phe Arg Gly Gln Glu Asp Ala Ser Pro Asp Arg Phe Ser Asn Thr Asp Tyr Ala Val Gly Tyr Met Leu Arg Leu Gly Ala Pro Ala Ser Lys Leu Val Met Gly Ile Pro Thr Phe Gly Arg Ser Phe Thr Leu Ala Ser Ser Glu Thr Gly Val Gly Ala Pro Ile Ser Gly Pro Gly Ile Pro Gly Arg Phe Thr Lys Glu Ala Gly Thr Leu Ala Tyr Tyr Glu Ile Cys Asp Phe Leu Arg Gly Ala Thr Val His Arg Thr Leu Gly Gln Gln Val Pro Tyr Ala Thr Lys Gly Asn Gln Trp Val Gly Tyr Asp Asp Gln Glu Ser Val Lys Ser Lys Val Gln Tyr Leu Lys Asp Arg Gln Leu Ala Gly Ala Met Val Trp Ala Leu Asp Leu Asp Asp Phe Gln Gly Ser Phe Cys Gly Gln Asp Leu Arg Phe Pro Leu Thr Asn Ala Ile Lys Asp Ala Leu Ala Ala Thr

FIGURE 266

atggaccccg ttggcctcca gctcggcaac aagaacctgt ggagctgtct tgtgaggctg ctcaccaaag acccagaatg gctgaacgcc aagatgaagt tcttcctccc caacacggac ctggattcca ggaacgagac cttggaccct gaacagagag tcatcctgca actcaacaag ctgcatgtcc agggttcgga cacctggcag tctttcattc attgcgtgtg catgcagctg gaggtgcctc tggacctgga ggtgcttctg ctaagtactt ttggctatga tgatgggttc accagccagc tgggagctga ggggaaaagc caacctgaat ctcagctcca ccatggcctg aagcgcccac atcagagctg tgggtcctca ccccgccgga agcagtgcaa gaagcagcag ctagagttgg ccaagaagta cctgcagctc ctgcggacct ctgcccagca gcgctacagg agccaaatcc ctgggtcagg gcagccccac gccttccacc aggtctatgt ccctccaatc ctgcgccggg ccacagcatc cttagacact ccggaggggg ccattatggg ggacgtcaag gtggaagatg gtgctgacgt gagcatctcg gacctcttca acaccagggt taacaagggc ccgagggtga ccgtgctttt ggggaaggct ggcatgggca agaccacgct ggcccaccgg ctctgccaga agtgggcaga gggccatctg aactgtttcc aggccctgtt ccttttgaa ttccgccagc tcaacttgat cacgaggttc ctgacaccgt ccgagctcct ttttgatctg tacctgagcc ctgaatcgga ccacgacact gtcttccagt acctggagaa gaacgctgac caagtcctgc tgatctttga tgggctagat gaggccctcc agcctatggg tcctgatggc ccaggcccag tcctcaccct tttctcccat ctctgcaatg ggaccctcct gcctggctgc cgggtgatgg ctacctcccg tccagggaag ctgcctgcct gcctgcctgc agaggcagcc atggtccaca tgttgggctt tgatgggcca cgggtggaag aatatgtgaa tcacttcttc agcgcccagc catcgcggga gggggccctg gtggagttac agacaaatgg acgtctccga agcctgtgtg cggtgcccgc actgtgccaa gtcgcctgtc tctgcctcca ccatctgctt cctgaccacg ccccaggcca gtctgtggcc ctcctgccca acatgactca gctctatatg cagatggtgc tcgccctcag ccccccctggg cacttgccca cctcgtccct actggacctg ggggaggtgg ccctgagggg cctggagaca gggaaggtta tcttctatgc aaaagatatt gctccaccct tgatagcttt tggggccact cacagcctgc tgacttcctt ctgcgtctgc acaggccctg ggcaccagca gacaggctat gctttcaccc acctcagcct gcaggagttt cttgctgccc tgcacctgat ggccagcccc aaggtgaaca aagacacact tacccagtat gttaccctcc attcccgctg ggtacagcgg accaaagcta gactgggcct ctcagaccac ctccccacct tcctggcggg cctggcatcc tgcacctgcc gccccttcct tagccacctg gcgcagggca atgaggactg tgtgggtgcc aagcaggctg ctgtagtgca ggtgttgaag aagttggcca cccgcaagct cacagggcca aaggttgtag agctgtgtca ctgtgtggat gagacacagg agcctgagct ggccagtctc accgcacaaa gcctccccta tcaactgccc ttccacaatt tcccactgac ctgcaccgac ctggccaccc tgaccaacat cctagagcac agggaggccc ccatccacct ggattttgat ggctgtcccc tggagcccca ctgccctgag gctctggtag gctgtgggca gatagagaat ctcagcttta agagcaggaa gtgtggggat gcctttgcag aagccctctc caggagcttg ccgacaatgg ggaggctgca gatgctgggg ttagcaggaa gtaaaatcac tgcccgaggc atcagccacc tggtgaaagc tttgcctctc tgtccacagc tgaaagaagt cagttttcgg gacaaccagc tcagtgacca ggtggtgctg aacattgtgg aggttctccc tcacctacca cggctccgga agcttgacct gagcagcaac agcatctgcg tgtcaaccct actctgcttg gcaagggtgg cagtcacgtg tcctaccgtc aggatgcttc aggccaggga gcggaccatc atcttccttc tttccccgcc cacagagaca actgcagagc tacaaagagc tccagacctg caggaaagtg acggccagag gaaaggggct cagagcagaa gcttgacgct caggctgcag aagtgtcagc tccaggtcca cgatgcggag gccctcatag ccctgctcca ggaaggccct cacctggagg aagtggacct ctcagggaac cagctggaag atgaaggctg tcggctgatg gcagaggctg catcccagct gcacatcgcc aggaagctgg acctcagcga caacgggctt tctgtggccg gggtgcattg tgtgctgagg gccgtgagtg cgtgctggac cctggcagag ctgcacatca gcctgcagca caaaactgtg atcttcatgt ttgcccagga gccagaggag cagaaggggc cccaggagag ggctgcattt cttgacagcc tcatgctcca gatgccctct gagctgcctc tgagctcccg aaggatgagg ctgacacatt gtggcctcca agaaaagcac ctagagcagc tctgcaaggc tctgggagga agctgccacc tcggtcacct ccacctcgac ttctcaggca atgctctggg ggatgaaggt gcagcccggc tggctcagct gctcccaggg ctgggagctc tgcagtcctt gaacctcagt gagaacggtt tgtccctgga tgccgtgttg ggcttggttc ggtgcttctc cactctgcag tggctcttcc gcttggacat cagctttgaa agccaacaca tcctcctgag aggggacaag acaagcaggg atatgtgggc cactggatct ttgccagact tcccagctgc agccaagttc ttagggttcc gtcagcgctg catccccagg agcctctgcc tcagtgagtg tcctctggag cccccaagcc tcacccgcct ctgtgccact ctgaaggact gcccgggacc cctggaactg caattgtcct gtgagttcct gagtgaccag agcctggaga ctctactgga ctgcttacct caactcccta agctgagcct gctgcagctg agccagacgg gactgtcccc gaaaagcccc ttcctgctgg ccaacacctt aagcctgtgt ccacgggtta aaaaggtgga tctcaggtcc ctgcaccatg caactttgca cttcagatcc aacgaggagg aggaaggcgt gtgctgtggc aggttcacag gctgcagcct cagccaggag cacgtagagt cactctgctg gttgctgagc aagtgtaaag acctcagcca ggtggatctc tcagcaaacc tgctgggcga

FIGURE 267 (Continued)

cagcggactc agatgccttc tggaatgtct gccgcaggtg cccatctccg gtttgcttga tctgagtcac aacagcattt ctcaggaaag tgccctgtac ctgctggaga cactgccctc ctgcccacgt gtccgggagg cctcagtgaa cctgggctct gagcagagct tccggattca cttctccaga gaggaccagg ctgggaagac actcaggcta agtgagtgca gcttccggcc agagcacgtg tccaggctgg ccaccggctt gagcaagtcc ctgcagctga cggagctcac gctgacccag tgctgcctgg gccagaagca gctggccatc ctcctgagct tggtggggcg acccgcaggg ctgttcagcc tcagggtgca ggagccgtgg gcggacagag ccagggttct ctccctgtta gaagtctgcg cccaggcctc aggcagtgtc actgaaatca gcatctccga gacccagcag cagctctgtg tccagctgga atttcctcgc caggaagaga atccagaagc tgtggcactc aggttggctc actgtgacct tggagcccac cacagccttc ttgtcgggca gctgatggag acatgtgcca ggctgcagca gctcagcttg tctcaggtta acctctgtga ggacgatgat gccagttccc tgctgctgca gagcctcctg ctgtccctct ctgagctgaa gacatttcgg ctgacctcca gctgtgtgag caccgagggc ctcgcccacc tggcatctgg tctgggccac tgccaccact tggaggagct ggacttgtct aacaatcaat ttgatgagga gggcaccaag gcgctgatga gggcccttga ggggaaatgg atgctaaaga ggctggacct cagtcacctt ctgctgaaca gctccacctt ggccttgctt actcacagac taagccagat gacctgcctg cagagcctca gactgaacag gaacagtatc ggtgatgtcg gttgctgcca cctttctgag gctctcaggg ctgccaccag cctagaggag ctggacttga gccacaacca gattggagac gctggtgtcc agcacttagc taccatcctg cctgggctgc cagagctcag gaagatagac ctctcaggga atagcatcag ctcagccggg ggagtgcagt tggcagagtc tctcgttctt tgcaggcgcc tggaggagtt gatgcttggc tgcaatgccc tgggggatcc cacagccctg gggctggctc aggagctgcc ccagcacctg agggtcctac acctaccatt cagccatctg ggcccaggtg gggccctgag cctggcccag gccctggatg gatcccccca tttggaagag atcagcttgg cggaaaacaa cctggctgga ggggtcctgc gtttctgtat ggagctcccg ctgctcagac agatagacct ggtttcctgt aagattgaca accagactgc caagctcctc acctccagct tcacgagctg ccctgccctg gaagtaatct tgctgtcctg gaatctcctc ggggatgagg cagctgccga gctggcccag gtgctgccga agatgggccg gctgaagaga gtggacctgg agaagaatca gatcacagct ttgggggcct ggctcctggc tgaaggactg gcccaggggt ctagcatcca agtcatccgc ctctggaata accccattcc ctgcgacatg gcccagcacc tgaagagcca ggagcccagg ctggactttg ccttctttga caaccagccc caggcccctt ggggtacttg a

FIGURE 267

Met Asp Pro Val Gly Leu Gln Leu Gly Asn Lys Asn Leu Trp Ser Cys Leu Val Arg Leu Leu Thr Lys Asp Pro Glu Trp Leu Asn Ala Lys Met Lys Phe Phe Leu Pro Asn Thr Asp Leu Asp Ser Arg Asn Glu Thr Leu Asp Pro Glu Gln Arg Val Ile Leu Gln Leu Asn Lys Leu His Val Gln Gly Ser Asp Thr Trp Gln Ser Phe Ile His Cys Val Cys Met Gln Leu Glu Val Pro Leu Asp Leu Glu Val Leu Leu Leu Ser Thr Phe Gly Tyr Asp Asp Gly Phe Thr Ser Gln Leu Gly Ala Glu Gly Lys Ser Gln Pro Glu Ser Gln Leu His His Gly Leu Lys Arg Pro His Gln Ser Cys Gly Ser Ser Pro Arg Arg Lys Gln Cys Lys Lys Gln Gln Leu Glu Leu Ala Lys Lys Tyr Leu Gln Leu Leu Arg Thr Ser Ala Gln Gln Arg Tyr Arg Ser Gln Ile Pro Gly Ser Gly Gln Pro His Ala Phe His Gln Val Tyr Val Pro Pro Ile Leu Arg Arg Ala Thr Ala Ser Leu Asp Thr Pro Glu Gly Ala Ile Met Gly Asp Val Lys Val Glu Asp Gly Ala Asp Val Ser Ile Ser Asp Leu Phe Asn Thr Arg Val Asn Lys Gly Pro Arg Val Thr Val Leu Leu Gly Lys Ala Gly Met Gly Lys Thr Thr Leu Ala His Arg Leu Cys Gln Lys Trp Ala Glu Gly His Leu Asn Cys Phe Gln Ala Leu Phe Leu Phe Glu Phe Arg Gln Leu Asn Leu Ile Thr Arg Phe Leu Thr Pro Ser Glu Leu Leu Phe Asp Leu Tyr Leu Ser Pro Glu Ser Asp His Asp Thr Val Phe Gln Tyr Leu Glu Lys Asn Ala Asp Gln Val Leu Leu Ile Phe Asp Gly Leu Asp Glu Ala Leu Gln Pro Met Gly Pro Asp Gly Pro Gly Pro Val Leu Thr Leu Phe Ser His Leu Cys Asn Gly Thr Leu Leu Pro Gly Cys Arg Val Met Ala Thr Ser Arg Pro Gly Lys Leu Pro Ala Cys Leu Pro Ala Glu Ala Ala Met Val His Met Leu Gly Phe Asp Gly Pro Arg Val Glu Glu Tyr Val Asn His Phe Phe Ser Ala Gln Pro Ser Arg Glu Gly Ala Leu Val Glu Leu Gln Thr Asn Gly Arg Leu Arg Ser Leu Cys Ala Val Pro Ala Leu Cys Gln Val Ala Cys Leu Cys Leu His His Leu Leu Pro Asp His Ala Pro Gly Gln Ser Val Ala Leu Leu Pro Asn Met Thr Gln Leu Tyr Met Gln Met Val Leu Ala Leu Ser Pro Pro Gly His Leu Pro Thr Ser Ser Leu Leu Asp Leu Gly Glu Val Ala Leu Arg Gly Leu Glu Thr Gly Lys Val Ile Phe Tyr Ala Lys Asp Ile Ala Pro Pro Leu Ile Ala Phe Gly Ala Thr His Ser Leu Leu Thr Ser Phe Cys Val Cys Thr Gly Pro Gly His Gln Gln Thr Gly Tyr Ala Phe Thr His Leu Ser Leu Gln Glu Phe Leu Ala Ala Leu His Leu Met Ala Ser Pro Lys Val Asn Lys Asp Thr Leu Thr Gln Tyr Val Thr Leu His Ser Arg Trp Val Gln Arg Thr Lys Ala Arg Leu Gly Leu Ser Asp His Leu Pro Thr Phe Leu Ala Gly Leu Ala Ser Cys Thr Cys Arg Pro Phe Leu Ser His Leu Ala Gln Gly Asn Glu Asp Cys Val Gly Ala Lys Gln Ala Ala Val Val Gln Val Leu Lys Lys Leu Ala Thr Arg Lys Leu Thr Gly Pro Lys Val Val Glu Leu Cys His Cys Val Asp Glu Thr Gln Glu Pro Glu Leu Ala Ser Leu Thr Ala Gln Ser Leu Pro Tyr Gln Leu Pro Phe His Asn Phe Pro Leu Thr Cys Thr Asp Leu Ala Thr Leu Thr Asn Ile Leu Glu His Arg Glu Ala Pro Ile His Leu Asp Phe Asp Gly Cys Pro Leu Glu Pro His Cys Pro Glu Ala Leu Val Gly Cys Gly Gln Ile Glu Asn Leu Ser Phe Lys Ser Arg Lys Cys Gly Asp Ala Phe Ala Glu Ala Leu Ser Arg Ser Leu Pro Thr Met Gly Arg Leu Gln Met Leu Gly Leu Ala Gly Ser Lys Ile Thr Ala Arg Gly Ile Ser His Leu Val Lys Ala Leu Pro Leu Cys Pro Gln Leu Lys Glu Val Ser Phe Arg Asp Asn Gln Leu Ser Asp Gln Val Val Leu Asn Ile Val Glu Val Leu Pro His Leu Pro Arg Leu Arg Lys Leu Asp Leu Ser Ser Asn Ser Ile Cys Val Ser Thr Leu Leu Cys Leu Ala Arg Val Ala Val Thr Cys Pro Thr Val Arg Met Leu Gln Ala Arg Glu Arg Thr Ile Ile Phe Leu Leu Ser Pro Pro Thr Glu Thr Thr Ala Glu Leu Gln Arg Ala Pro Asp Leu Gln Glu Ser Asp Gly Gln Arg Lys Gly Ala Gln Ser Arg Ser Leu Thr Leu Arg Leu Gln Lys Cys Gln Leu Gln Val His Asp Ala Glu Ala Leu Ile Ala Leu Leu Gln Glu Gly Pro His Leu Glu Glu Val Asp Leu Ser Gly Asn Gln Leu Glu Asp Glu Gly Cys Arg Leu Met Ala Glu Ala Ala Ser Gln Leu His Ile Ala Arg Lys Leu Asp Leu Ser Asp Asn Gly Leu Ser Val Ala Gly Val His Cys Val Leu Arg Ala Val Ser Ala Cys Trp Thr Leu Ala Glu Leu His Ile Ser Leu Gln His Lys Thr Val Ile Phe Met Phe Ala Gln Glu Pro Glu Glu Gln Lys Gly Pro Gln Glu Arg Ala Ala Phe Leu Asp Ser Leu Met Leu Gln Met Pro Ser Glu Leu Pro Leu Ser Ser Arg Arg Met Arg Leu Thr His Cys Gly Leu Gln Glu Lys His Leu Glu Gln Leu Cys Lys Ala Leu Gly Gly Ser Cys His Leu Gly His Leu His Leu Asp Phe Ser Gly Asn Ala Leu Gly Asp Glu Gly Ala Ala Arg Leu Ala Gln Leu Leu Pro Gly Leu Gly Ala Leu Gln Ser Leu Asn Leu Ser Glu Asn Gly Leu Ser Leu Asp Ala Val Leu Gly Leu Val Arg Cys Phe Ser Thr Leu Gln Trp Leu Phe Arg Leu Asp Ile Ser Phe Glu Ser Gln His Ile Leu Leu Arg Gly Asp Lys Thr Ser Arg Asp Met

Trp Ala Thr Gly Ser Leu Pro Asp Phe Pro Ala Ala Ala Lys Phe Leu Gly Phe Arg Gln Arg Cys Ile Pro Arg Ser Leu Cys Leu Ser Glu Cys Pro Leu Glu Pro Pro Ser Leu Thr Arg Leu Cys Ala Thr Leu Lys Asp Cys Pro Gly Pro Leu Glu Leu Gln Leu Ser Cys Glu Phe Leu Ser Asp Gln Ser Leu Glu Thr Leu Leu Asp Cys Leu Pro Gln Leu Pro Gln Leu Ser Leu Leu Gln Leu Ser Gln Thr Gly Leu Ser Pro Lys Ser Pro Phe Leu Leu Ala Asn Thr Leu Ser Leu Cys Pro Arg Val Lys Lys Val Asp Leu Arg Ser Leu His His Ala Thr Leu His Phe Arg Ser Asn Glu Glu Glu Glu Gly Val Cys Cys Gly Arg Phe Thr Gly Cys Ser Leu Ser Gln Glu His Val Glu Ser Leu Cys Trp Leu Leu Ser Lys Cys Lys Asp Leu Ser Gln Val Asp Leu Ser Ala Asn Leu Leu Gly Asp Ser Gly Leu Arg Cys Leu Leu Glu Cys Leu Pro Gln Val Pro Ile Ser Gly Leu Leu Asp Leu Ser His Asn Ser Ile Ser Gln Glu Ser Ala Leu Tyr Leu Leu Glu Thr Leu Pro Ser Cys Pro Arg Val Arg Glu Ala Ser Val Asn Leu Gly Ser Glu Gln Ser Phe Arg Ile His Phe Ser Arg Glu Asp Gln Ala Gly Lys Thr Leu Arg Leu Ser Glu Cys Ser Phe Arg Pro Glu His Val Ser Arg Leu Ala Thr Gly Leu Ser Lys Ser Leu Gln Leu Thr Glu Leu Thr Leu Thr Gln Cys Cys Leu Gly Gln Lys Gln Leu Ala Ile Leu Leu Ser Leu Val Gly Arg Pro Ala Gly Leu Phe Ser Leu Arg Val Gln Glu Pro Trp Ala Asp Arg Ala Arg Val Leu Ser Leu Leu Glu Val Cys Ala Gln Ala Ser Gly Ser Val Thr Glu Ile Ser Ile Ser Glu Thr Gln Gln Gln Leu Cys Val Gln Leu Glu Phe Pro Arg Gln Glu Glu Asn Pro Glu Ala Val Ala Leu Arg Leu Ala His Cys Asp Leu Gly Ala His His Ser Leu Leu Val Gly Gln Leu Met Glu Thr Cys Ala Arg Leu Gln Gln Leu Ser Leu Ser Gln Val Asn Leu Cys Glu Asp Asp Asp Ala Ser Ser Leu Leu Leu Gln Ser Leu Leu Leu Ser Leu Ser Glu Leu Lys Thr Phe Arg Leu Thr Ser Ser Cys Val Ser Thr Glu Gly Leu Ala His Leu Ala Ser Gly Leu Gly His Cys His His Leu Glu Glu Leu Asp Leu Ser Asn Asn Gln Phe Asp Glu Glu Gly Thr Lys Ala Leu Met Arg Ala Leu Glu Gly Lys Trp Met Leu Lys Arg Leu Asp Leu Ser His Leu Leu Leu Asn Ser Ser Thr Leu Ala Leu Leu Thr His Arg Leu Ser Gln Met Thr Cys Leu Gln Ser Leu Arg Leu Asn Arg Asn Ser Ile Gly Asp Val Gly Cys Cys His Leu Ser Glu Ala Leu Arg Ala Ala Thr Ser Leu Glu Glu Leu Asp Leu Ser His Asn Gln Ile Gly Asp Ala Gly Val Gln His Leu Ala Thr Ile Leu Pro Gly Leu Pro Glu Leu Arg Lys Ile Asp Leu Ser Gly Asn Ser Ile Ser Ser Ala Gly Gly Val Gln Leu Ala Glu Ser Leu Val Leu Cys Arg Arg Leu Glu Glu Leu Met Leu Gly Cys Asn Ala Leu Gly Asp Pro Thr Ala Leu Gly Leu Ala Gln Glu Leu Pro Gln His Leu Arg Val Leu His Leu Pro Phe Ser His Leu Gly Pro Gly Gly Ala Leu Ser Leu Ala Gln Ala Leu Asp Gly Ser Pro His Leu Glu Glu Ile Ser Leu Ala Glu Asn Asn Leu Ala Gly Gly Val Leu Arg Phe Cys Met Glu Leu Pro Leu Leu Arg Gln Ile Asp Leu Val Ser Cys Lys Ile Asp Asn Gln Thr Ala Lys Leu Leu Thr Ser Ser Phe Thr Ser Cys Pro Ala Leu Glu Val Ile Leu Leu Ser Trp Asn Leu Leu Gly Asp Glu Ala Ala Ala Glu Leu Ala Gln Val Leu Pro Lys Met Gly Arg Leu Lys Arg Val Asp Leu Glu Lys Asn Gln Ile Thr Ala Leu Gly Ala Trp Leu Leu Ala Glu Gly Leu Ala Gln Gly Ser Ser Ile Gln Val Ile Arg Leu Trp Asn Asn Pro Ile Pro Cys Asp Met Ala Gln His Leu Lys Ser Gln Glu Pro Arg Leu Asp Phe Ala Phe Phe Asp Asn Gln Pro Gln Ala Pro Trp Gly Thr

FIGURE 268

gccgagctga gcggatcctc acatgactgt gatccgattc tttccagcgg cttctgcaac caagcgggtc ttacccccgg tcctccgcgt ctccagtcct cgcacctgga accccaacgt ccccgagagt ccccgaatcc ccgctcccag gctacctaag aggatgagcg gtgctccgac ggccggggca gccctgatgc tctgcgccgc caccgccgtg ctactgagcg ctcagggcgg acccgtgcag tccaagtcgc cgcgctttgc gtcctgggac gagatgaatg tcctggcgca cggactcctg cagctcggcc aggggctgcg cgaacacgcg gagcgcaccc gcagtcagct gagcgcgctg gagcggcgcc tgagcgcgtg cgggtccgcc tgtcagggaa ccgaggggtc caccgacctc ccgttagccc ctgagagccg ggtggaccct gaggtccttc acagcctgca gacacaactc aaggctcaga acagcaggat ccagcaactc ttccacaagg tggcccagca gcagcggcac ctggagaagc agcacctgcg aattcagcat ctgcaaagcc agtttggcct cctggaccac aagcacctag accatgaggt ggccaagcct gcccgaagaa agaggctgcc cgagatggcc cagccagttg acccggctca caatgtcagc cgcctgcacc ggctgcccag ggattgccag gagctgttcc aggttgggga gaggcagagt ggactatttg aaatccagcc tcaggggtct ccgccatttt tggtgaactg caagatgacc tcagatggag gctggacagt aattcagagg cgccacgatg gctcagtgga cttcaaccgg ccctgggaag cctacaaggc ggggtttggg gatccccacg gcgagttctg gctgggtctg gagaaggtgc atagcatcac gggggaccgc aacagccgcc tggccgtgca gctgcgggac tgggatggca acgccgagtt gctgcagttc tccgtgcacc tgggtggcga ggacacggcc tatagcctgc agctcactgc acccgtggcc ggccagctgg gcgccaccac cgtcccaccc agcggcctct ccgtaccctt ctccacttgg gaccaggatc acgacctccg cagggacaag aactgcgcca agagcctctc tggaggctgg tggtttggca cctgcagcca ttccaacctc aacggccagt acttccgctc catcccacag cagcggcaga agcttaagaa gggaatcttc tggaagacct ggcggggccg ctactacccg ctgcaggcca ccaccatgtt gatccagccc atggcagcag aggcagcctc ctagcgtcct ggctgggcct ggtcccaggc ccacgaaaga cggtgactct tggctctgcc cgaggatgtg gccgttccct gcctgggcag gggctccaag gaggggccat ctggaaactt gtggacagag aagaagacca cgactggaga agcccccttt ctgagtgcag gggggctgca tgcgttgcct cctgagatcg aggctgcagg atatgctcag actctagagg cgtggaccaa ggggcatgga gcttcactcc ttgctggcca gggagttggg gactcagagg gaccacttgg ggccagccag actggcctca atggcggact cagtcacatt gactgacggg gaccagggct tgtgtgggtc gagagcgccc tcatggtgct ggtgctgttg tgtgtaggtc ccctggggac acaagcaggc gccaatggta tctgggcgga gctcacagag ttcttggaat aaaagcaacc tcagaacac

FIGURE 269

Met Thr Val Ile Arg Phe Phe Pro Ala Ala Ser Ala Thr Lys Arg Val Leu Pro Pro Val Leu Arg Val Ser Ser Pro Arg Thr Trp Asn Pro Asn Val Pro Glu Ser Pro Arg Ile Pro Ala Pro Arg Leu Pro Lys Arg Met Ser Gly Ala Pro Thr Ala Gly Ala Ala Leu Met Leu Cys Ala Ala Thr Ala Val Leu Leu Ser Ala Gln Gly Gly Pro Val Gln Ser Lys Ser Pro Arg Phe Ala Ser Trp Asp Glu Met Asn Val Leu Ala His Gly Leu Leu Gln Leu Gly Gln Gly Leu Arg Glu His Ala Glu Arg Thr Arg Ser Gln Leu Ser Ala Leu Glu Arg Arg Leu Ser Ala Cys Gly Ser Ala Cys Gln Gly Thr Glu Gly Ser Thr Asp Leu Pro Leu Ala Pro Glu Ser Arg Val Asp Pro Glu Val Leu His Ser Leu Gln Thr Gln Leu Lys Ala Gln Asn Ser Arg Ile Gln Gln Leu Phe His Lys Val Ala Gln Gln Gln Arg His Leu Glu Lys Gln His Leu Arg Ile Gln His Leu Gln Ser Gln Phe Gly Leu Leu Asp His Lys His Leu Asp His Glu Val Ala Lys Pro Ala Arg Arg Lys Arg Leu Pro Glu Met Ala Gln Pro Val Asp Pro Ala His Asn Val Ser Arg Leu His Arg Leu Pro Arg Asp Cys Gln Glu Leu Phe Gln Val Gly Glu Arg Gln Ser Gly Leu Phe Glu Ile Gln Pro Gln Gly Ser Pro Pro Phe Leu Val Asn Cys Lys Met Thr Ser Asp Gly Gly Trp Thr Val Ile Gln Arg Arg His Asp Gly Ser Val Asp Phe Asn Arg Pro Trp Glu Ala Tyr Lys Ala Gly Phe Gly Asp Pro His Gly Glu Phe Trp Leu Gly Leu Glu Lys Val His Ser Ile Thr Gly Asp Arg Asn Ser Arg Leu Ala Val Gln Leu Arg Asp Trp Asp Gly Asn Ala Glu Leu Leu Gln Phe Ser Val His Leu Gly Gly Glu Asp Thr Ala Tyr Ser Leu Gln Leu Thr Ala Pro Val Ala Gly Gln Leu Gly Ala Thr Thr Val Pro Pro Ser Gly Leu Ser Val Pro Phe Ser Thr Trp Asp Gln Asp His Asp Leu Arg Arg Asp Lys Asn Cys Ala Lys Ser Leu Ser Gly Gly Trp Trp Phe Gly Thr Cys Ser His Ser Asn Leu Asn Gly Gln Tyr Phe Arg Ser Ile Pro Gln Gln Arg Gln Lys Leu Lys Lys Gly Ile Phe Trp Lys Thr Trp Arg Gly Arg Tyr Tyr Pro Leu Gln Ala Thr Thr Met Leu Ile Gln Pro Met Ala Ala Glu Ala Ala Ser

FIGURE 270

atgcccctag gtctcctgtg gctgggccta gccctgttgg gggctctgca tgcccaggcc caggactcca cctcagacct gatcccagcc ccacctctga gcaaggtccc tctgcagcag aacttccagg acaaccaatt ccaggggaag tggtatgtgg taggcctggc agggaatgca attctcagag aagacaaaga cccgcaaaag atgtatgcca ccatctatga gctgaaagaa gacaagagct acaatgtcac ctccgtcctg tttaggaaaa agaagtgtga ctactggatc aggacttttg ttccaggttg ccagcccggc gagttcacgc tgggcaacat taagagttac cctggattaa cgagttacct cgtccgagtg gtgagcacca actacaacca gcatgctatg gtgttcttca agaaagtttc tcaaaacagg gagtacttca agatcaccct ctacgggaga accaaggagc tgacttcgga actaaaggag aacttcatcc gcttctccaa atatctgggc ctccctgaaa accacatcgt cttccctgtc ccaatcgacc agtgtatcga cggctga

FIGURE 271

Met Pro Leu Gly Leu Leu Trp Leu Gly Leu Ala Leu Leu Gly Ala Leu His Ala Gln Ala Gln Asp Ser Thr Ser Asp Leu Ile Pro Ala Pro Pro Leu Ser Lys Val Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe Gln Gly Lys Trp Tyr Val Val Gly Leu Ala Gly Asn Ala Ile Leu Arg Glu Asp Lys Asp Pro Gln Lys Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr Asn Val Thr Ser Val Leu Phe Arg Lys Lys Lys Cys Asp Tyr Trp Ile Arg Thr Phe Val Pro Gly Cys Gln Pro Gly Glu Phe Thr Leu Gly Asn Ile Lys Ser Tyr Pro Gly Leu Thr Ser Tyr Leu Val Arg Val Val Ser Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Lys Lys Val Ser Gln Asn Arg Glu Tyr Phe Lys Ile Thr Leu Tyr Gly Arg Thr Lys Glu Leu Thr Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Tyr Leu Gly Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile Asp Gly

FIGURE 272

gctggtcgga ggctcgcagt gctgtcggcg agaagcagtc gggtttggag cgcttgggtc gcgttggtgc gcggtggaac gcgcccaggg accccagttc ccgcgagcag ctccgcgccg cgcctgagag actaagctga aactgctgct cagctcccaa gatggtgcca cccaaattgc atgtgctttt ctgcctctgc ggctgcctgg ctgtggttta tccttttgac tggcaataca taaatcctgt tgcccatatg aaatcatcag catgggtcaa caaaatacaa gtactgatgg ctgctgcaag ctttggccaa actaaaatcc cccggggaaa tgggccttat tccgttggtt gtacagactt aatgtttgat cacactaata agggcacctt cttgcgttta tattatccat cccaagataa tgatcgcctt gacacccttt ggatcccaaa taaagaatat ttttggggtc ttagcaaatt tcttggaaca cactggctta tgggcaacat tttgaggtta ctctttggtt caatgacaac tcctgcaaac tggaattccc ctctgaggcc tggtgaaaaa tatccacttg ttgtttttc tcatggtctt ggggcattca ggacacttta ttctgctatt ggcattgacc tggcatctca tgggtttata gttgctgctg tagaacacag agatagatct gcatctgcaa cttactattt caaggaccaa tctgctgcag aaatagggga caagtcttgg ctctacctta gaaccctgaa acaagaggag gagacacata tacgaaatga gcaggtacgg caaagagcaa aagaatgttc ccaagctctc agtctgattc ttgacattga tcatggaaag ccagtgaaga atgcattaga tttaaagttt gatatggaac aactgaagga ctctattgat agggaaaaaa tagcagtaat tggacattct tttggtggag caacggttat tcagactctt agtgaagatc agagattcag atgtggtatt gccctggatg catggatgtt tccactgggt gatgaagtat attccagaat tcctcagccc ctcttttta tcaactctga atatttccaa tatcctgcta atatcataaa aatgaaaaaa tgctactcac ctgataaaga aagaaagatg attacaatca ggggttcagt ccaccagaat tttgctgact tcacttttgc aactggcaaa ataattggac acatgctcaa attaaaggga gacatagatt caaatgtagc tattgatctt agcaacaaag cttcattagc attcttacaa aagcatttag gacttcataa agattttgat cagtgggact gcttgattga aggagatgat gagaatctta ttccagggac caacattaac acaaccaatc aacacatcat gttacagaac tcttcaggaa tagagaaata caattaggat taaaataggt ttttt

FIGURE 273

Met Val Pro Pro Lys Leu His Val Leu Phe Cys Leu Cys Gly Cys Leu Ala Val Val Tyr Pro Phe Asp Trp Gln Tyr Ile Asn Pro Val Ala His Met Lys Ser Ser Ala Trp Val Asn Lys Ile Gln Val Leu Met Ala Ala Ala Ser Phe Gly Gln Thr Lys Ile Pro Arg Gly Asn Gly Pro Tyr Ser Val Gly Cys Thr Asp Leu Met Phe Asp His Thr Asn Lys Gly Thr Phe Leu Arg Leu Tyr Tyr Pro Ser Gln Asp Asn Asp Arg Leu Asp Thr Leu Trp Ile Pro Asn Lys Glu Tyr Phe Trp Gly Leu Ser Lys Phe Leu Gly Thr His Trp Leu Met Gly Asn Ile Leu Arg Leu Leu Phe Gly Ser Met Thr Thr Pro Ala Asn Trp Asn Ser Pro Leu Arg Pro Gly Glu Lys Tyr Pro Leu Val Val Phe Ser His Gly Leu Gly Ala Phe Arg Thr Leu Tyr Ser Ala Ile Gly Ile Asp Leu Ala Ser His Gly Phe Ile Val Ala Ala Val Glu His Arg Asp Arg Ser Ala Ser Ala Thr Tyr Tyr Phe Lys Asp Gln Ser Ala Ala Glu Ile Gly Asp Lys Ser Trp Leu Tyr Leu Arg Thr Leu Lys Gln Glu Glu Glu Thr His Ile Arg Asn Glu Gln Val Arg Gln Arg Ala Lys Glu Cys Ser Gln Ala Leu Ser Leu Ile Leu Asp Ile Asp His Gly Lys Pro Val Lys Asn Ala Leu Asp Leu Lys Phe Asp Met Glu Gln Leu Lys Asp Ser Ile Asp Arg Glu Lys Ile Ala Val Ile Gly His Ser Phe Gly Gly Ala Thr Val Ile Gln Thr Leu Ser Glu Asp Gln Arg Phe Arg Cys Gly Ile Ala Leu Asp Ala Trp Met Phe Pro Leu Gly Asp Glu Val Tyr Ser Arg Ile Pro Gln Pro Leu Phe Phe Ile Asn Ser Glu Tyr Phe Gln Tyr Pro Ala Asn Ile Ile Lys Met Lys Lys Cys Tyr Ser Pro Asp Lys Glu Arg Lys Met Ile Thr Ile Arg Gly Ser Val His Gln Asn Phe Ala Asp Phe Thr Phe Ala Thr Gly Lys Ile Ile Gly His Met Leu Lys Leu Lys Gly Asp Ile Asp Ser Asn Val Ala Ile Asp Leu Ser Asn Lys Ala Ser Leu Ala Phe Leu Gln Lys His Leu Gly Leu His Lys Asp Phe Asp Gln Trp Asp Cys Leu Ile Glu Gly Asp Asp Glu Asn Leu Ile Pro Gly Thr Asn Ile Asn Thr Thr Asn Gln His Ile Met Leu Gln Asn Ser Ser Gly Ile Glu Lys Tyr Asn

FIGURE 274

gcaggcccgt tggaagtggt tgtgacaacc ccagcaatgt ggagaagcct ggggcttgcc ctggctctct gtctcctccc atcgggagga acagagagcc aggaccaaag ctccttatgt aagcaacccc cagcctggag cataagagat caagatccaa tgctaaactc caatggttca gtgactgtgg ttgctcttct tcaagccagc ngatacctgt gcatcatcga ggcatctaaa ttagaagacc tgcgagtaaa actgaagaaa gaaggatatt ctaatatttc ttatattgtt gttaatcatc aaggaatctc ttctcgatta aaatacacac atcttaagaa taaggtttca gagcatattc ctgtttatca acaagaagaa aaccaaacag atgtctggac tcttttaaat ggaagcaaag atgacttcct catatatgat agatgtggcc gtcttgtata tcatcttggt ttgccttttt ccttcctaac tttcccatat gtagaagaag ccattaagat tgcttactgt gaaaagaaat gtggaaactg ctctctcacg actctcaaag atgaagactt ttgtaaacgt gtatctttgg ctactgtgga taaaacagtt gaaactccat cgcctcatta ccatcatgag catcatcaca atcatggaca tcagcacctt ggcagcagtg agctttcaga gaatcagcaa ccaggagcac caaatgctcc tactcatcct gctcctccag gccttcatca ccaccataag cacaagggtc agcataggca gggtcaccca gagaaccgag atatgccagc aagtgaagat ttacaagatt tacaaaagaa gctctgtcga aagagatgta taaatcaatt actctgtaaa ttgcccacag attcagagtt ggctcctagg agctgatgct gccattgtcg acatctgata tttgaaaaaa cagggtctgc aatcacctga cagtgtaaag aaaacctccc atctttatgt agctgacagg gacttcgggc agaggagaac ataactgaat cttgtcagtg acgtttgcct ccagctgcct gacaaataag tcagcagctt atacccacag aagccagtgc cagttgacgc tgaaagaatc aggcaaaaaa gtgagaatga ccttcaaact aaatatttaa aataggacat actccccaat ttagtctaga cacaatttca tttccagcat ttttataaac taccaaatta gtgaaccaaa aatagaaatt agatttgtgc aaacatggag aaatctactg aattggcttc cagattttaa attttatgtc atagaaatat tgactcaaac catatttttt atgatggagc aactgaaagg tgattgcagc ttttggttaa tatgtctttt tttttctttt tccagtgttc tatttgcttt aatgagaata gaaacgtaaa ctatgaccta ggggttttct gttggataat tagcagttta gaatggagga agaacaacaa agacatgctt tccatttttt cctttactta tctctcaaaa caatattact ttgtcttttc aatcttctac ttttaactaa taaaataagt ggattttgta ttttaagatc cagaaatact taacacgtga atattttgct aaaaaagcat atataactat tttaaatatc catttatctt ttgtatatct aagactcatc ctgattttta ctatcacaca tgaataaagg cctttgtatc tttctttctc taatgttgta tcatactctt ctaaaacttg agtggctgtc ttaaaagata taaggggaaa gataatattg tctgtctcta tattgcttag taagtatttc catagtcaat gatggtttaa taggtaaacc aaaccctata aacctgacct cctttatggt taatactatt aagcaagaat gcagtacaga attggataca gtacggattt gtccaaataa attcaataaa aaccttaaaa aaaaaaaaaa aaaaaaaa

FIGURE 275

Met Trp Arg Ser Leu Gly Leu Ala Leu Ala Leu Cys Leu Leu Pro Ser Gly Gly Thr Glu Ser Gln Asp Gln Ser Ser Leu Cys Lys Gln Pro Pro Ala Trp Ser Ile Arg Asp Gln Asp Pro Met Leu Asn Ser Asn Gly Ser Val Thr Val Val Ala Leu Leu Gln Ala Ser Xaa Tyr Leu Cys Ile Ile Glu Ala Ser Lys Leu Glu Asp Leu Arg Val Lys Leu Lys Lys Glu Gly Tyr Ser Asn Ile Ser Tyr Ile Val Val Asn His Gln Gly Ile Ser Ser Arg Leu Lys Tyr Thr His Leu Lys Asn Lys Val Ser Glu His Ile Pro Val Tyr Gln Gln Glu Glu Asn Gln Thr Asp Val Trp Thr Leu Leu Asn Gly Ser Lys Asp Asp Phe Leu Ile Tyr Asp Arg Cys Gly Arg Leu Val Tyr His Leu Gly Leu Pro Phe Ser Phe Leu Thr Phe Pro Tyr Val Glu Glu Ala Ile Lys Ile Ala Tyr Cys Glu Lys Lys Cys Gly Asn Cys Ser Leu Thr Thr Leu Lys Asp Glu Asp Phe Cys Lys Arg Val Ser Leu Ala Thr Val Asp Lys Thr Val Glu Thr Pro Ser Pro His Tyr His His Glu His His His Asn His Gly His Gln His Leu Gly Ser Ser Glu Leu Ser Glu Asn Gln Gln Pro Gly Ala Pro Asn Ala Pro Thr His Pro Ala Pro Pro Gly Leu His His His His Lys His Lys Gly Gln His Arg Gln Gly His Pro Glu Asn Arg Asp Met Pro Ala Ser Glu Asp Leu Gln Asp Leu Gln Lys Lys Leu Cys Arg Lys Arg Cys Ile Asn Gln Leu Leu Cys Lys Leu Pro Thr Asp Ser Glu Leu Ala Pro Arg Ser

FIGURE 276

atggcggacg aggaggctgg aggtactgag aggatggaaa tcagcgcgga gttaccccag acccctcagc gtctggcatc ttggtgggat cagcaagttg atttttatac tgctttcttg catcatttgg cacaattggt gccagaaatt tactttgctg aaatggaccc agacttggaa aagcaggagg aaagtgtaca aatgtcaata ttcactccac tggaatggta cttatttgga gaagatccag atatttgctt agagaaattg aagcacagtg gagcatttca gctttgtggg agggttttca aaagtggaga gacaacctat tcttgcaggg attgtgcaat tgatccaaca tgtgtactct gtatggactg cttccaggac agtgttcata aaaatcatcg ttacaagatg catacttcta ctggaggagg gttctgtgac tgtggagaca cagaggcatg gaaaactggc ccttttgtg taaatcatga acctggaaga gcaggtacta taaaagagaa ttcacgctgt ccgttgaatg aagaggtaat tgtccaagcc aggaaaatat ttccttcagt gataaaatat gtcgtagaaa tgactatatg ggaagaggaa aaagaactgc ctcctgaact ccagataagg gagaaaaatg aaagatacta ttgtgtcctt ttcaatgatg aacaccattc atatgaccac gtcatataca gcctacaaag agctcttgac tgtgagctcg cagaggccca gttgcatacc actgccattg acaaagaggg tcgtcgggct gttaaagcgg gagcttatgc tgcttgccag gaagcaaagg aagatataaa gagtcattca gaaaatgtct ctcaacatcc acttcatgta gaagtattac actcagagat tatggctcat cagaaatttg ctttgcgtct tggttcctgg atgaacaaaa ttatgagcta ttcaagtgac tttaggcaga tcttttgcca agcatgcctt agagaagaac ctgactcgga gaatccctgt ctcataagca ggttaatgct ttgggatgca aagctttata aaggtgcccg taagatcctt catgaattga tcttcagcag ttttttatg gagatggaat acaaaaaact ctttgctatg gaatttgtga agtattataa acaactgcag aaagaatata tcagtgatga tcatgacaga agtatctcta taactgcact ttcagttcag atgtttactg ttcctactct ggctcgacat cttattgaag agcagaatgt tatctctgtc attactgaaa ctctgctaga agttttacct gagtacttgg acaggaacaa taaattcaac ttccagggtt atagccagga caaattggga agagtatatg cagtaatatg tgacctaaag tatatcctga tcagcaaacc cacaatatgg acagaaagat taagaatgca gttccttgaa ggttttcgat ctttttgaa gattcttacc tgtatgcagg gaatggaaga aatccgaaga caggttgggc aacacattga agtggatcct gattgggagg ctgccattgc tatacagatg caattgaaga atattttact catgttccaa gagtggtgtg cttgtgatga agaactctta cttgtggctt ataaagaatg tcacaaagct gtgatgaggt gcagtaccag tttcatatct agtagcaaga cagtagtaca atcgtgtgga catagtttgg aaacaaagtc ctacagagta tctgaggatc ttgtaagcat acatctgcca ctctctagga cccttgctgg tcttcatgta cgtttaagca ggctgggtgc tgtttcaaga ctgcatgaat ttgtgtcttt tgaggacttt caagtagagg tactagtgga atatccttta cgttgtctgg tgttggttgc ccaggttgtt gctgagatgt ggcgaagaaa tggactgtct cttattagcc aggtgtttta ttaccaagat gttaagtgca gagaagaaat gtatgataaa gatatcatca tgcttcagat tggtgcatct ttaatggatc ccaataagtt cttgttactg gtacttcaga ggtatgaact tgccgaggct tttaacaaga ccatatctac aaaagaccag gatttgatta aacaatataa tacactaata gaagaaatgc ttcaggtcct catctatatt gtgggtgagc gttatgtacc tggagtggga aatgtgacca aagaagaggt cacaatgaga gaaatcattc acttgctttg cattgaaccc atgccacaca gtgccattgc caaaaattta cctgagaatg aaaataatga aactggctta gagaatgtca taaacaaagt ggccacattt aagaaaccag gtgtatcagg ccatggagtt tatgaactaa aagatgaatc actgaaagac ttcaatatgt acttttatca ttactccaaa acccagcata gcaaggctga acatatgcag aagaaaagga gaaaacaaga aaacaaagat gaagcattgc cgccaccacc acctcctgaa ttctgccctg ctttcagcaa agtgattaac cttctcaact gtgatatcat gatgtacatt ctcaggaccg tatttgagcg ggcaatagac acagattcta acttgtggac cgaagggatg ctccaaatgg cttttcatat tctggcattg ggtttactag aagagaagca acagcttcaa aaagctcctg aagaagaagt aacatttgac ttttatcata aggcttcaag attgggaagt tcagccatga atatacaaat gcttttggaa aaactcaaag gaattcccca gttagaaggc cagaaggaca tgataacgtg gatacttcag atgtttgaca cagtgaagcg attaagagaa aaatcttgtt taattgtagc aaccacatca ggatcggaat ctattaagaa tgatgagatt actcatgata aagaaaaagc agaacgaaaa agaaaagctg aagctgctag gctacatcgc cagaagatca tggctcagat gtctgcctta cagaaaaact tcattgaaac tcataaactc atgtatgaca atacatcaga aatgcctggg aaagaagatt ccattatgga ggaagagagc accccagcag tcagtgacta ctctagaatt gctttgggtc ctaaacgggg tccatctgtt actgaaaagg aggtgctgac gtgcatcctt tgccaagaag aacaggaggt gaaaatagaa aataatgcca tggtattatc ggcctgtgtc cagaaatcta ctgccttaac ccagcacagg ggaaaaccca tagaactctc aggagaagcc ctagacccac ttttcatgga tccagacttg gcatatggaa cttatacagg aagctgtggt catgtaatgc acgcagtgtg ctggcagaag tattttgaag ctgtacagct gagctctcag cagcgcattc atgttgacct ttttgacttg gaaagtggag aatatctttg ccctctttgc aaatctctgt gcaatactgt gatccccatt attcctttgc aacctcaaaa gataaacagt gagaatgcag atgctcttgc tcaacttttg accctggcac ggtggataca gactgttctg gccagaatat caggttataa tataagacat gctaaaggag aaaacccaat tcctattttc tttaatcaag gaatgggaga ttctactttg gagttccatt ccatcctgag ttttggcgtt gagtcttcga ttaaatattc aaatagcatc aaggaaatgg ttattctctt tgccacaaca atttatagaa ttggattgaa agtgccacct gatgaaaggg atcctcgagt ccccatgctg acctggagca cctgcgcttt cactatccag gcaattgaaa atctattggg agatgaagga aaacctctgt ttggagcact tcaaaatagg cagcataatg gtctgaaagc attaatgcag tttgcagttg cacagaggat tacctgtcct caggtcctga tacagaaaca tctggttcgt

cttctatcag ttgttcttcc taacataaaa tcagaagata caccatgcct tctgtctata gatctgtttc atgttttggt gggtgctgtg ttagcattcc catccttgta ttgggatgac cctgttgatc tgcagccttc ttcagttagt tcttcctata accaccttta tctcttccat ttgatcacca tggcacacat gcttcagata ctacttacag tagacacagg cctacccctt gctcaggttc aagaagacag tgaagaggct cattccgcat cttctttctt tgcagaaatt tctcaatata caagtggctc cattgggtgt gatattcctg gctggtattt gtgggtctca ctgaagaatg gcatcacccc ttatcttcgc tgtgctgcat tgtttttcca ctatttactt ggggtaactc cgcctgagga actgcatacc aattctgcag

FIGURE 277

Met Ala Asp Glu Glu Ala Gly Gly Thr Glu Arg Met Glu Ile Ser Ala Glu Leu Pro Gln Thr Pro Gln Arg Leu Ala Ser Trp Trp Asp Gln Gln Val Asp Phe Tyr Thr Ala Phe Leu His His Leu Ala Gln Leu Val Pro Glu Ile Tyr Phe Ala Glu Met Asp Pro Asp Leu Glu Lys Gln Glu Glu Ser Val Gln Met Ser Ile Phe Thr Pro Leu Glu Trp Tyr Leu Phe Gly Glu Asp Pro Asp Ile Cys Leu Glu Lys Leu Lys His Ser Gly Ala Phe Gln Leu Cys Gly Arg Val Phe Lys Ser Gly Glu Thr Thr Tyr Ser Cys Arg Asp Cys Ala Ile Asp Pro Thr Cys Val Leu Cys Met Asp Cys Phe Gln Asp Ser Val His Lys Asn His Arg Tyr Lys Met His Thr Ser Thr Gly Gly Gly Phe Cys Asp Cys Gly Asp Thr Glu Ala Trp Lys Thr Gly Pro Phe Cys Val Asn His Glu Pro Gly Arg Ala Gly Thr Ile Lys Glu Asn Ser Arg Cys Pro Leu Asn Glu Glu Val Ile Val Gln Ala Arg Lys Ile Phe Pro Ser Val Ile Lys Tyr Val Val Glu Met Thr Ile Trp Glu Glu Glu Lys Glu Leu Pro Pro Glu Leu Gln Ile Arg Glu Lys Asn Glu Arg Tyr Tyr Cys Val Leu Phe Asn Asp Glu His His Ser Tyr Asp His Val Ile Tyr Ser Leu Gln Arg Ala Leu Asp Cys Glu Leu Ala Glu Ala Gln Leu His Thr Thr Ala Ile Asp Lys Glu Gly Arg Arg Ala Val Lys Ala Gly Ala Tyr Ala Ala Cys Gln Glu Ala Lys Glu Asp Ile Lys Ser His Ser Glu Asn Val Ser Gln His Pro Leu His Val Glu Val Leu His Ser Glu Ile Met Ala His Gln Lys Phe Ala Leu Arg Leu Gly Ser Trp Met Asn Lys Ile Met Ser Tyr Ser Ser Asp Phe Arg Gln Ile Phe Cys Gln Ala Cys Leu Arg Glu Glu Pro Asp Ser Glu Asn Pro Cys Leu Ile Ser Arg Leu Met Leu Trp Asp Ala Lys Leu Tyr Lys Gly Ala Arg Lys Ile Leu His Glu Leu Ile Phe Ser Ser Phe Phe Met Glu Met Glu Tyr Lys Lys Leu Phe Ala Met Glu Phe Val Lys Tyr Tyr Lys Gln Leu Gln Lys Glu Tyr Ile Ser Asp Asp His Asp Arg Ser Ile Ser Ile Thr Ala Leu Ser Val Gln Met Phe Thr Val Pro Thr Leu Ala Arg His Leu Ile Glu Glu Gln Asn Val Ile Ser Val Ile Thr Glu Thr Leu Leu Glu Val Leu Pro Glu Tyr Leu Asp Arg Asn Asn Lys Phe Asn Phe Gln Gly Tyr Ser Gln Asp Lys Leu Gly Arg Val Tyr Ala Val Ile Cys Asp Leu Lys Tyr Ile Leu Ile Ser Lys Pro Thr Ile Trp Thr Glu Arg Leu Arg Met Gln Phe Leu Glu Gly Phe Arg Ser Phe Leu Lys Ile Leu Thr Cys Met Gln Gly Met Glu Glu Ile Arg Arg Gln Val Gly Gln His Ile Glu Val Asp Pro Asp Trp Glu Ala Ala Ile Ala Ile Gln Met Gln Leu Lys Asn Ile Leu Leu Met Phe Gln Glu Trp Cys Ala Cys Asp Glu Glu Leu Leu Leu Val Ala Tyr Lys Glu Cys His Lys Ala Val Met Arg Cys Ser Thr Ser Phe Ile Ser Ser Ser Lys Thr Val Val Gln Ser Cys Gly His Ser Leu Glu Thr Lys Ser Tyr Arg Val Ser Glu Asp Leu Val Ser Ile His Leu Pro Leu Ser Arg Thr Leu Ala Gly Leu His Val Arg Leu Ser Arg Leu Gly Ala Val Ser Arg Leu His Glu Phe Val Ser Phe Glu Asp Phe Gln Val Glu Val Leu Val Glu Tyr Pro Leu Arg Cys Leu Val Leu Val Ala Gln Val Val Ala Glu Met Trp Arg Arg Asn Gly Leu Ser Leu Ile Ser Gln Val Phe Tyr Tyr Gln Asp Val Lys Cys Arg Glu Glu Met Tyr Asp Lys Asp Ile Ile Met Leu Gln Ile Gly Ala Ser Leu Met Asp Pro Asn Lys Phe Leu Leu Leu Val Leu Gln Arg Tyr Glu Leu Ala Glu Ala Phe Asn Lys Thr Ile Ser Thr Lys Asp Gln Asp Leu Ile Lys Gln Tyr Asn Thr Leu Ile Glu Glu Met Leu Gln Val Leu Ile Tyr Ile Val Gly Glu Arg Tyr Val Pro Gly Val Gly Asn Val Thr Lys Glu Glu Val Thr Met Arg Glu Ile Ile His Leu Leu Cys Ile Glu Pro Met Pro His Ser Ala Ile Ala Lys Asn Leu Pro Glu Asn Glu Asn Asn Glu Thr Gly Leu Glu Asn Val Ile Asn Lys Val Ala Thr Phe Lys Lys Pro Gly Val Ser Gly His Gly Val Tyr Glu Leu Lys Asp Glu Ser Leu Lys Asp Phe Asn Met Tyr Phe Tyr His Tyr Ser Lys Thr Gln His Ser Lys Ala Glu His Met Gln Lys Lys Arg Arg Lys Gln Glu Asn Lys Asp Glu Ala Leu Pro Pro Pro Pro Pro Pro Glu Phe Cys Pro Ala Phe Ser Lys Val Ile Asn Leu Leu Asn Cys Asp Ile Met Met Tyr Ile Leu Arg Thr Val Phe Glu Arg Ala Ile Asp Thr Asp Ser Asn Leu Trp Thr Glu Gly Met Leu Gln Met Ala Phe His Ile Leu Ala Leu Gly Leu Leu Glu Glu Lys Gln Gln Leu Gln Lys Ala Pro Glu Glu Glu Val Thr Phe Asp Phe Tyr His Lys Ala Ser Arg Leu Gly Ser Ser Ala Met Asn Ile Gln Met Leu Leu Glu Lys Leu Lys Gly Ile Pro Gln Leu Glu Gly Gln Lys Asp Met Ile Thr Trp Ile Leu Gln Met Phe Asp Thr Val Lys Arg Leu Arg Glu Lys Ser Cys Leu Ile Val Ala Thr Thr Ser Gly Ser Glu Ser Ile Lys Asn Asp Glu Ile Thr His Asp Lys Glu Lys Ala Glu Arg Lys Arg Lys Ala Glu Ala Ala Arg Leu His Arg Gln Lys Ile Met Ala Gln Met Ser Ala Leu Gln Lys Asn Phe Ile Glu Thr His Lys Leu Met Tyr Asp Asn Thr Ser Glu Met Pro Gly Lys Glu Asp Ser Ile Met Glu Glu Glu Ser Thr Pro Ala Val Ser Asp Tyr Ser Arg Ile Ala Leu Gly Pro Lys Arg Gly Pro Ser Val Thr Glu Lys Glu Val Leu

Thr Cys Ile Leu Cys Gln Glu Glu Gln Glu Val Lys Ile Glu Asn Asn Ala Met Val Leu Ser Ala Cys Val Gln Lys Ser Thr Ala Leu Thr Gln His Arg Gly Lys Pro Ile Glu Leu Ser Gly Glu Ala Leu Asp Pro Leu Phe Met Asp Pro Asp Leu Ala Tyr Gly Thr Tyr Thr Gly Ser Cys Gly His Val Met His Ala Val Cys Trp Gln Lys Tyr Phe Glu Ala Val Gln Leu Ser Ser Gln Gln Arg Ile His Val Asp Leu Phe Asp Leu Glu Ser Gly Glu Tyr Leu Cys Pro Leu Cys Lys Ser Leu Cys Asn Thr Val Ile Pro Ile Ile Pro Leu Gln Pro Gln Lys Ile Asn

FIGURE 278

aaggagagta cagtgcactc tgtagctatc tatctttacc tacaaatttg ttcctgctct tccaggaata ttgggatact gtaaggccct tgctccagag gtggtgtgca gatcctgcct tactaaactg tttgaagcaa aaaaacaccg tggtcaggta ccctagaaaa agaaatagtt tgatagagct tcctgatgac tatagctgcc tcctgaatca agcttctcat ttcaggtgcc cacggtctgc agatgatgag cgaaagcatc ctgtcctctg ccttttctgt ggggctatac tatgttctca gaacatttgc tgccaggaaa ttgtgaacgg ggaagaggtt ggagcttgca tttttcacgc acttcactgt ggagccggag tctgcatttt cctaaaaatc agagaatgcc gagtggtcct ggttgaaggt aaagccagag gctgtgccta tccagctcct tacttggatg aatatggaga aacagaccct ggcctgaaga ggggcaaccc ccttcattta tctcgtgagc ggtatcggaa gctccatttg gtctggcaac aacactgcat tatagaagag attgctagga gccaagagac taatcagatg ttatttggat tcaactggca gttactgtga

FIGURE 279

Ser Glu Asn Ala Asp Ala Leu Ala Gln Leu Leu Thr Leu Ala Arg Trp Ile Gln Thr Val Leu Ala Arg Ile Ser Gly Tyr Asn Ile Arg His Ala Lys Gly Glu Asn Pro Ile Pro Ile Phe Phe Asn Gln Gly Met Gly Asp Ser Thr Leu Glu Phe His Ser Ile Leu Ser Phe Gly Val Glu Ser Ser Ile Lys Tyr Ser Asn Ser Ile Lys Glu Met Val Ile Leu Phe Ala Thr Thr Ile Tyr Arg Ile Gly Leu Lys Val Pro Pro Asp Glu Arg Asp Pro Arg Val Pro Met Leu Thr Trp Ser Thr Cys Ala Phe Thr Ile Gln Ala Ile Glu Asn Leu Leu Gly Asp Glu Gly Lys Pro Leu Phe Gly Ala Leu Gln Asn Arg Gln His Asn Gly Leu Lys Ala Leu Met Gln Phe Ala Val Ala Gln Arg Ile Thr Cys Pro Gln Val Leu Ile Gln Lys His Leu Val Arg Leu Leu Ser Val Val Leu Pro Asn Ile Lys Ser Glu Asp Thr Pro Cys Leu Leu Ser Ile Asp Leu Phe His Val Leu Val Gly Ala Val Leu Ala Phe Pro Ser Leu Tyr Trp Asp Asp Pro Val Asp Leu Gln Pro Ser Ser Val Ser Ser Ser Tyr Asn His Leu Tyr Leu Phe His Leu Ile Thr Met Ala His Met Leu Gln Ile Leu Leu Thr Val Asp Thr Gly Leu Pro Leu Ala Gln Val Gln Glu Asp Ser Glu Glu Ala His Ser Ala Ser Ser Phe Phe Ala Glu Ile Ser Gln Tyr Thr Ser Gly Ser Ile Gly Cys Asp Ile Pro Gly Trp Tyr Leu Trp Val Ser Leu Lys Asn Gly Ile Thr Pro Tyr Leu Arg Cys Ala Ala Leu Phe Phe His Tyr Leu Leu Gly Val Thr Pro Pro Glu Glu Leu His Thr Asn Ser Ala Glu Gly Glu Tyr Ser Ala Leu Cys Ser Tyr Leu Ser Leu Pro Thr Asn Leu Phe Leu Leu Phe Gln Glu Tyr Trp Asp Thr Val Arg Pro Leu Leu Gln Arg Trp Cys Ala Asp Pro Ala Leu Leu Asn Cys Leu Lys Gln Lys Asn Thr Val Val Arg Tyr Pro Arg Lys Arg Asn Ser Leu Ile Glu Leu Pro Asp Asp Tyr Ser Cys Leu Leu Asn Gln Ala Ser His Phe Arg Cys Pro Arg Ser Ala Asp Asp Glu Arg Lys His Pro Val Leu Cys Leu Phe Cys Gly Ala Ile Leu Cys Ser Gln Asn Ile Cys Cys Gln Glu Ile Val Asn Gly Glu Glu Val Gly Ala Cys Ile Phe His Ala Leu His Cys Gly Ala Gly Val Cys Ile Phe Leu Lys Ile Arg Glu Cys Arg Val Val Leu Val Glu Gly Lys Ala Arg Gly Cys Ala Tyr Pro Ala Pro Tyr Leu Asp Glu Tyr Gly Glu Thr Asp Pro Gly Leu Lys Arg Gly Asn Pro Leu His Leu Ser Arg Glu Arg Tyr Arg Lys Leu His Leu Val Trp Gln Gln His Cys Ile Ile Glu Glu Ile Ala Arg Ser Gln Glu Thr Asn Gln Met Leu Phe Gly Phe Asn Trp Gln Leu Leu

FIGURE 280

cccacgcgtc cgctggggag agaggaacaa aggaccgtga aagctgctct gtaaaagctg acacagccct cccaagtgag caggactgtt cttcccactg caatctgaca gtttactgca tgcctggaga gaacacagca gtaaaaacca ggtttgctac tggaaaaaga ggaaagagaa gactttcatt gacggaccca gccatggcag cgtagcagcc ctgcgtttca gacggcagca gctcgggact ctggacgtgt gtttgccctc aagtttgcta agctgctggt ttattactga agaaagaatg tggcagattg ttttctttac tctgagctgt gatcttgtct tggccgcagc ctataacaac tttcggaaga gcatggacag cataggaaag aagcaatatc aggtccagca tgggtcctgc agctacactt tcctcctgcc agagatggac aactgccgct cttcctccag cccctacgtg tccaatgctg tgcagaggga cgcgccgctc gaatacgatg actcggtgca gaggctgcaa gtgctggaga acatcatgga aaacaacact cagtggctaa tgaagcttga gaattatatc caggacaaca tgaagaaaga aatggtagag atacagcaga atgcagtaca gaaccagacg gctgtgatga tagaaatagg gacaaacctg ttgaaccaaa cagcggagca aacgcggaag ttaactgatg tggaagccca agtattaaat cagaccacga gacttgaact tcagctcttg gaacactccc tctcgacaaa caaattggaa aaacagattt tggaccagac cagtgaaata aacaaattgc aagataagaa cagtttccta gaaaagaagg tgctagctat ggaagacaag cacatcatcc aactacagtc aataaaagaa gagaaagatc agctacaggt gttagtatcc aagcaaaatt ccatcattga agaactagaa aaaaaaatag tgactgccac ggtgaataat tcagttcttc agaagcagca acatgatctc atggagacag ttaataactt actgactatg atgtccacat caaactcagc taaggacccc actgttgcta aagaagaaca aatcagcttc agagactgtg ctgaagtatt caaatcagga cacaccacga atggcatcta cacgttaaca ttccctaatt ctacagaaga gatcaaggcc tactgtgaca tggaagctgg aggaggcggg tggacaatta ttcagcgacg tgaggatggc agcgttgatt ttcagaggac ttggaaagaa tataaagtgg gatttggtaa cccttcagga gaatattggc tgggaaatga gtttgtttcg caactgacta atcagcaacg ctatgtgctt aaaatacacc ttaaagactg ggaagggaat gaggcttact cattgtatga acatttctat ctctcaagtg aagaactcaa ttataggatt caccttaaag gacttacagg gacagccggc aaaataagca gcatcagcca accaggaaat gattttagca caaaggatgg agacaacgac aaatgtattt gcaaatgttc acaaatgcta acaggaggct ggtggtttga tgcatgtggt ccttccaact tgaacggaat gtactatcca cagaggcaga acacaaataa gttcaacggc attaaatggt actactggaa aggctcaggc tattcgctca aggccacaac catgatgatc cgaccagcag atttctaaac atcccagtcc acctgaggaa ctgtctcgaa ctattttcaa agacttaagc ccagtgcact gaaagtcacg gctgcgcact gtgtcctctt ccaccacaga gggcgtgtgc tcggtgctga cgggacccac atgctccaga ttagagcctg taaactttat cacctaaact tgcatcactt aacggaccaa agcaagaccc taaacatcca taattgtgat tagacagaac acctatgcaa agatgaaccc gaggctgaga atcagactga cagtttacag acgctgctgt cacaaccaag aatgttatgt gcaagtttat cagtaaataa ctggaaaaca gaacacttat gttatacaat acagatcatc ttggaactgc attcttctga gcactgttta tacactgtgt aaatacccat atgtcctgaa ttcaccatca ctatcacaat taaaaggaag aaaaaaactc tctaagccat aaaaagacat attcagggat attctgagaa ggggttacta gaagtttaat atttggaaaa acagttagtg cattttact ccatctctta ggtgctttaa atttttattt caaaaacagc gtatttacat ttatgttgac agcttagtta taagttaatg ctcaaatacg tatttcaaat ttatatggta gaaacttcca gaatctctga aattatcaac agaaacgtgc cattttagtt tatatgcaga ccgtactatt tttttctgcc tgattgttaa atatgaaggt atttttagta attaaatata acttattagg gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa

FIGURE 281

Met Trp Gln Ile Val Phe Phe Thr Leu Ser Cys Asp Leu Val Leu Ala Ala Ala Tyr Asn Asn Phe Arg Lys Ser Met Asp Ser Ile Gly Lys Lys Gln Tyr Gln Val Gln His Gly Ser Cys Ser Tyr Thr Phe Leu Leu Pro Glu Met Asp Asn Cys Arg Ser Ser Ser Ser Pro Tyr Val Ser Asn Ala Val Gln Arg Asp Ala Pro Leu Glu Tyr Asp Asp Ser Val Gln Arg Leu Gln Val Leu Glu Asn Ile Met Glu Asn Asn Thr Gln Trp Leu Met Lys Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile Gln Gln Asn Ala Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly Thr Asn Leu Leu Asn Gln Thr Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu Leu Glu His Ser Leu Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp Gln Thr Ser Glu Ile Asn Lys Leu Gln Asp Lys Asn Ser Phe Leu Glu Lys Lys Val Leu Ala Met Glu Asp Lys His Ile Ile Gln Leu Gln Ser Ile Lys Glu Glu Lys Asp Gln Leu Gln Val Leu Val Ser Lys Gln Asn Ser Ile Ile Glu Glu Leu Glu Lys Lys Ile Val Thr Ala Thr Val Asn Asn Ser Val Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn Asn Leu Leu Thr Met Met Ser Thr Ser Asn Ser Ala Lys Asp Pro Thr Val Ala Lys Glu Glu Gln Ile Ser Phe Arg Asp Cys Ala Glu Val Phe Lys Ser Gly His Thr Thr Asn Gly Ile Tyr Thr Leu Thr Phe Pro Asn Ser Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Glu Ala Gly Gly Gly Gly Trp Thr Ile Ile Gln Arg Arg Glu Asp Gly Ser Val Asp Phe Gln Arg Thr Trp Lys Glu Tyr Lys Val Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Asn Gln Gln Arg Tyr Val Leu Lys Ile His Leu Lys Asp Trp Glu Gly Asn Glu Ala Tyr Ser Leu Tyr Glu His Phe Tyr Leu Ser Ser Glu Glu Leu Asn Tyr Arg Ile His Leu Lys Gly Leu Thr Gly Thr Ala Gly Lys Ile Ser Ser Ile Ser Gln Pro Gly Asn Asp Phe Ser Thr Lys Asp Gly Asp Asn Asp Lys Cys Ile Cys Lys Cys Ser Gln Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Tyr Tyr Pro Gln Arg Gln Asn Thr Asn Lys Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser Gly Tyr Ser Leu Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe

FIGURE 282

ccttacctgg gctggacttt gccaatagac agggacactc tccctcaccc ctctttagac agctgggagg cagggctctg ccaggaaatg ccaggccact cctgcctgga ttccccgccc acctccactt gtctgctggc ctgccgactg aatctggctg acccttgttt ctcggagaag gaactggacc agccagcagc ctctaagagc tcctagacgg cctttggctt tggctggcac aggggtgaag gagagccagc ggcattgagt aaccaggcga atgtgccccc aggagagttc attccaaccc tcccagttcc tactgctggt gggggtccca gtggcaagtg tcctccttct ggcccaatgc cttcgatggc actgccctag aaggctgctg ggggcctgct ggacactgaa tggtcaagag gaaccagtgt cccagcctac cccccaacta gaaaatgagg tctcaaggca gcacctgcca gccacactgc cagagatggt tgccttctac caggagctac acacacccac tcaaggccag accatggtcc gccagttgat gcacaaactg ttggtgtttt cggctcgaga ggtggatcac cgcggcggtt gcctgatgct ccaggataca ggcatctcct tgctcatccc accaggtgct gtggctgtgg gccgccagga gcgggtgtct ttgatcctgg tgtgggacct gtcggacgcc ccatcgctgt cccaagccca ggggctggta agccctgtgg tggcatgtgg cccccatggg gcctccttcc tgaagccttg cactctcacg ttcaaacact gtgccgagca gcccagccat gctcgcacct acagcagcaa cactaccctg ctggatgcca aggtatggag gcccctgggg cggccggggg cccacgcctc ccgggatgag tgtcgcatcc acctctccca cttcagcctc tacacctgtg tgctggaggc acctgtgggg cgcgaagccc gcaaatggct gcagctggcc gtattctgct caccgctggt gccaggacag tcccatctgc aactgcgtat ctacttcctc aacaacacgc cctgcgccct gcagtgggca ctgaccaacg agcagcccca tggtgggcgc ctgcgtgggc cctgccagct cttcgacttc aatggggcta ggggcgacca gtgcctgaag ctcacgtaca tctcagaggg ttgggagaat gtggatgaca gcagttgcca gctggttccc catctccaca tctggcatgg aaagtgcccc ttccgctcct tctgcttccg gagaaaagca gccgatgaga atgaggactg ttcagcacta accaatgaga tcattgtcac catgcacacc ttccaggatg gcttggagac caagtatatg gaaatcctca gattccaggc atcagaggag gaatcctggg cagcgccacc acctgtttcc cagccgcccc catgcaatag gctgccccca gagctctttg agcagctgcg gatgttattg gagccaaaca gcatcaccgg caatgactgg cgcagactgg cctcccacct ggggctttgc ggcatgaaga tccggttcct gtcctgccag cgcagccccg cagcggccat cctggagttg tttgaggagc agaacggcag cctgcaggag ctgcactacc tcatgaccgt catggagcgg ctagactgcg cctccgccat ccagaactac ctgagtggga cacacggcgg cagcccaggc cccgagcgcg ggggcgcccg ggataaccag ggcctggagc tggacgagaa gctctgagcg cccagcgggc agggccggag gaggtgtagg ggcgagaggg gttgttctcc tacgcctaag aggaacacag cagctgttcc tggctgtgcc caccaccctt cccagaaccc tcggacggtg ccagggccgc ccgcgtcctc gccagcctcc cagcagcagg cgcgcccttc cggccgcgag ctgtcccgcg tgcgggtccc ctcctggccg gcagagggcg caggagccca ggagatggcc tcagcgtggc cagcctgcca aactgaccag gggacggcca cggtccccgc gtgcacttta gggccggtca ggccctaaag tattcactga gcacttagga agaccgggca ttgggctggt gtcatgaaga atactggaat ataggaggta gggtctggag ccctgacaag cacacagttc ttttgcagga gtcaagatgt gctcatagga gccaagggca aactcgaaaa cagccctgcc ctgtggttag gggaggtggg tgtggcttta ggagttgaga ggggaagagc tgagtgcggg ctggagcagc gagaatgctt cacggaggat gttggggaga gaggatttga tttgccgagt ggtttggaga tctttagggg cgggtagggg aagagggtgg ctggacttaa ggtaggagcc gaaagtgggc atgggagccc atccccgtgg gtgtgaggcc ggggtaggac caggcttccc ggctaggcac gcctggctgg ctgcctctgc ctctactaac ttcctttgtc tctttatcct cctgcttagg ccgtgtcttc ctctctctct gccatttttct ctatcagaaa acattaaagc tgagtagaaa cttcaagatg atcattctgg cccagccctt ttatctcttt atctccaatg gtgtgcgttt taagtttctc tgacttggtt tttctgtccc tgtctcccac agttgttccc gctctgcacc tgtgtttcag ttactctctc tctctgtctt agatcttttt gtttctgcct agtctctgtg ccctgtcttt gtgtgtttct ttctctgcct gaaaccctcc ctcttttccc ttcaggcata tgtctctaaa ccaatgttat gtatcaaaga ctgttgaaag agacagggct actctaggaa tggatgggtg gggatatttt ccccatggat caagatccag tttagggttg ggaaataaag gatagggata aaagaggcac cccattcagt cagcagatac ttattcagca cctactatgt gtttgatact gtatacaaaa gacatgaatg ggctgggtcc tgaacagaga ataaagggtt tgactccatt ctggaaattc ttttgtttgc aaacaggtgt tgttaatttg ttcaaaggca ggcaaacaat ctctctggca acacaatttt cttctgtatt taattaaaaa atattaaagc ttttttttcta tgatgaatga taaaatatg

FIGURE 283

Met Cys Pro Gln Glu Ser Ser Phe Gln Pro Ser Gln Phe Leu Leu Leu Val Gly Val Pro Val Ala Ser Val Leu Leu Leu Ala Gln Cys Leu Arg Trp His Cys Pro Arg Arg Leu Leu Gly Ala Cys Trp Thr Leu Asn Gly Gln Glu Glu Pro Val Ser Gln Pro Thr Pro Gln Leu Glu Asn Glu Val Ser Arg Gln His Leu Pro Ala Thr Leu Pro Glu Met Val Ala Phe Tyr Gln Glu Leu His Thr Pro Thr Gln Gly Gln Thr Met Val Arg Gln Leu Met His Lys Leu Leu Val Phe Ser Ala Arg Glu Val Asp His Arg Gly Gly Cys Leu Met Leu Gln Asp Thr Gly Ile Ser Leu Leu Ile Pro Pro Gly Ala Val Ala Val Gly Arg Gln Glu Arg Val Ser Leu Ile Leu Val Trp Asp Leu Ser Asp Ala Pro Ser Leu Ser Gln Ala Gln Gly Leu Val Ser Pro Val Val Ala Cys Gly Pro His Gly Ala Ser Phe Leu Lys Pro Cys Thr Leu Thr Phe Lys His Cys Ala Glu Gln Pro Ser His Ala Arg Thr Tyr Ser Ser Asn Thr Thr Leu Leu Asp Ala Lys Val Trp Arg Pro Leu Gly Arg Pro Gly Ala His Ala Ser Arg Asp Glu Cys Arg Ile His Leu Ser His Phe Ser Leu Tyr Thr Cys Val Leu Glu Ala Pro Val Gly Arg Glu Ala Arg Lys Trp Leu Gln Leu Ala Val Phe Cys Ser Pro Leu Val Pro Gly Gln Ser His Leu Gln Leu Arg Ile Tyr Phe Leu Asn Asn Thr Pro Cys Ala Leu Gln Trp Ala Leu Thr Asn Glu Gln Pro His Gly Gly Arg Leu Arg Gly Pro Cys Gln Leu Phe Asp Phe Asn Gly Ala Arg Gly Asp Gln Cys Leu Lys Leu Thr Tyr Ile Ser Glu Gly Trp Glu Asn Val Asp Asp Ser Ser Cys Gln Leu Val Pro His Leu His Ile Trp His Gly Lys Cys Pro Phe Arg Ser Phe Cys Phe Arg Arg Lys Ala Ala Asp Glu Asn Glu Asp Cys Ser Ala Leu Thr Asn Glu Ile Ile Val Thr Met His Thr Phe Gln Asp Gly Leu Glu Thr Lys Tyr Met Glu Ile Leu Arg Phe Gln Ala Ser Glu Glu Glu Ser Trp Ala Ala Pro Pro Pro Val Ser Gln Pro Pro Pro Cys Asn Arg Leu Pro Pro Glu Leu Phe Glu Gln Leu Arg Met Leu Leu Glu Pro Asn Ser Ile Thr Gly Asn Asp Trp Arg Arg Leu Ala Ser His Leu Gly Leu Cys Gly Met Lys Ile Arg Phe Leu Ser Cys Gln Arg Ser Pro Ala Ala Ala Ile Leu Glu Leu Phe Glu Glu Gln Asn Gly Ser Leu Gln Glu Leu His Tyr Leu Met Thr Val Met Glu Arg Leu Asp Cys Ala Ser Ala Ile Gln Asn Tyr Leu Ser Gly Thr His Gly Gly Ser Pro Gly Pro Glu Arg Gly Gly Ala Arg Asp Asn Gln Gly Leu Glu Leu Asp Glu Lys Leu

FIGURE 284

ctaagaggac aagatgaggc ccggcctctc atttctccta gcccttctgt tcttccttgg ccaagctgca ggggatttgg gggatgtggg acctccaatt cccagccccg gcttcagctc tttcccaggt gttgactcca gctccagctt cagctccagc tccaggtcgg gctccagctc cagccgcagc ttaggcagcg gaggttctgt gtcccagttg ttttccaatt tcaccggctc cgtggatgac cgtgggacct gccagtgctc tgtttccctg ccagacacca cctttcccgt ggacagagtg gaacgcttgg aattcacagc tcatgttctt tctcagaagt ttgagaaaga actttctaaa gtgagggaat atgtccaatt aattagtgtg tatgaaaaga aactgttaaa cctaactgtc cgaattgaca tcatggagaa ggataccatt tcttacactg aactggactt cgagctgatc aaggtagaag tgaaggagat ggaaaaactg gtcatacagc tgaaggagag ttttggtgga agctcagaaa ttgttgacca gctggaggtg gagataagaa atatgactct cttggtagag aagcttgaga cactagacaa aaacaatgtc cttgccattc gccgagaaat cgtggctctg aagaccaagc tgaaagagtg tgaggcctct aaagatcaaa acacccctgt cgtccaccct cctcccactc cagggagctg tggtcatggt ggtgtggtga acatcagcaa accgtctgtg gttcagctca actggagagg gttttcttat ctatatggtg cttggggtag ggattactct ccccagcatc caaacaaagg actgtattgg gtggcgccat tgaatacaga tgggagactg ttggagtatt atagactgta caacacactg gatgatttgc tattgtatat aaatgctcga gagttgcgga tcacctatgg ccaaggtagt ggtacagcag tttacaacaa caacatgtac gtcaacatgt acaacaccgg gaatattgcc agagttaacc tgaccaccaa cacgattgct gtgactcaaa ctctccctaa tgctgcctat aataaccgct tttcatatgc taatgttgct tggcaagata ttgactttgc tgtggatgag aatggattgt gggttattta ttcaactgaa gccagcactg gtaacatggt gattagtaaa ctcaatgaca ccacacttca ggtgctaaac acttggtata ccaagcagta taaaccatct gcttctaacg ccttcatggt atgtggggtt ctgtatgcca cccgtactat gaacaccaga acagaagaga ttttttacta ttatgacaca aacacaggga aagagggcaa actagacatt gtaatgcata agatgcagga aaaagtgcag agcattaact ataacccttt tgaccagaaa ctttatgtct ataacgatgg ttaccttctg aattatgatc tttctgtctt gcagaagccc cagtaagctg tttaggagtt agggtgaaag agaaaatgtt tgttgaaaaa atagtcttct ccacttactt agatatctgc aggggtgtct aaaagtgtgt tcattttgca gcaatgttta ggtgcatagt tctaccacac tagagatcta ggacatttgt cttgatttgg tgagttctct tgggaatcat ctgcctcttc aggcgcattt tgcaataaag tctgtctagg gtgggattgt cagaggtcta ggggcactgt gggcctagtg aagcctactg tgaggaggct tcactagaag ccttaaatta ggaattaagg aacttaaaac tcagtatggc gtctagggat tctttgtaca ggaaatattg cccaatgact agtcctcatc catgtagcac cactaattct tccatgcctg gaagaaacct ggggacttag ttaggtagat taatatctgg agctcctcga gggaccaaat ctccaacttt ttttcccct cactagcacc tggaatgatg ctttgtatgt ggcagataag taaatttggc atgcttatat attctacatc tgtaaagtgc tgagttttat ggagagaggc ctttttatgc attaaattgt acatggcaaa taaatcccag aaggatctgt agatgaggca cctgcttttt cttttctctc attgtccacc ttactaaaag tcagtagaat cttctacctc ataacttcct tccaaaggca gctcagaaga ttagaaccag acttactaac caattccacc ccccaccaac ccccttctac tgcctacttt aaaaaaatta atagttttct atggaactga tctaagatta gaaaaattaa ttttctttaa tttcattatg gacttttatt tacatgactc taagactata agaaaatctg atggcagtga caaagtgcta gcatttattg ttatctaata aagaccttgg agcatatgtg caacttatga gtgtatcagt tgttgcatgt aatttttgcc tttgtttaag cctggaactt gtaagaaaat gaaaatttaa tttttttttc taggacgagc tatagaaaag ctattgagag tatctagtta atcagtgcag tagttggaaa ccttgctggt gtatgtgatg tgcttctgtg cttttgaatg actttatcat ctagtctttg tctatttttc ctttgatgtt caagtcctag tctataggat tggcagttta aatgctttac tccccctttt aaaataaatg attaaaatgt gctttgaaaa aaaaaaaaaa aaaaaaaaaa aaaa

FIGURE 285

Met Arg Pro Gly Leu Ser Phe Leu Leu Ala Leu Leu Phe Phe Leu Gly Gln Ala Ala Gly Asp Leu Gly Asp Val Gly Pro Pro Ile Pro Ser Pro Gly Phe Ser Ser Phe Pro Gly Val Asp Ser Ser Ser Ser Phe Ser Ser Ser Ser Arg Ser Gly Ser Ser Ser Ser Arg Ser Leu Gly Ser Gly Gly Ser Val Ser Gln Leu Phe Ser Asn Phe Thr Gly Ser Val Asp Asp Arg Gly Thr Cys Gln Cys Ser Val Ser Leu Pro Asp Thr Thr Phe Pro Val Asp Arg Val Glu Arg Leu Glu Phe Thr Ala His Val Leu Ser Gln Lys Phe Glu Lys Glu Leu Ser Lys Val Arg Glu Tyr Val Gln Leu Ile Ser Val Tyr Glu Lys Lys Leu Leu Asn Leu Thr Val Arg Ile Asp Ile Met Glu Lys Asp Thr Ile Ser Tyr Thr Glu Leu Asp Phe Glu Leu Ile Lys Val Glu Val Lys Glu Met Glu Lys Leu Val Ile Gln Leu Lys Glu Ser Phe Gly Gly Ser Ser Glu Ile Val Asp Gln Leu Glu Val Glu Ile Arg Asn Met Thr Leu Leu Val Glu Lys Leu Glu Thr Leu Asp Lys Asn Asn Val Leu Ala Ile Arg Arg Glu Ile Val Ala Leu Lys Thr Lys Leu Lys Glu Cys Glu Ala Ser Lys Asp Gln Asn Thr Pro Val Val His Pro Pro Pro Thr Pro Gly Ser Cys Gly His Gly Gly Val Val Asn Ile Ser Lys Pro Ser Val Val Gln Leu Asn Trp Arg Gly Phe Ser Tyr Leu Tyr Gly Ala Trp Gly Arg Asp Tyr Ser Pro Gln His Pro Asn Lys Gly Leu Tyr Trp Val Ala Pro Leu Asn Thr Asp Gly Arg Leu Leu Glu Tyr Tyr Arg Leu Tyr Asn Thr Leu Asp Asp Leu Leu Leu Tyr Ile Asn Ala Arg Glu Leu Arg Ile Thr Tyr Gly Gln Gly Ser Gly Thr Ala Val Tyr Asn Asn Asn Met Tyr Val Asn Met Tyr Asn Thr Gly Asn Ile Ala Arg Val Asn Leu Thr Thr Asn Thr Ile Ala Val Thr Gln Thr Leu Pro Asn Ala Ala Tyr Asn Asn Arg Phe Ser Tyr Ala Asn Val Ala Trp Gln Asp Ile Asp Phe Ala Val Asp Glu Asn Gly Leu Trp Val Ile Tyr Ser Thr Glu Ala Ser Thr Gly Asn Met Val Ile Ser Lys Leu Asn Asp Thr Thr Leu Gln Val Leu Asn Thr Trp Tyr Thr Lys Gln Tyr Lys Pro Ser Ala Ser Asn Ala Phe Met Val Cys Gly Val Leu Tyr Ala Thr Arg Thr Met Asn Thr Arg Thr Glu Glu Ile Phe Tyr Tyr Tyr Asp Thr Asn Thr Gly Lys Glu Gly Lys Leu Asp Ile Val Met His Lys Met Gln Glu Lys Val Gln Ser Ile Asn Tyr Asn Pro Phe Asp Gln Lys Leu Tyr Val Tyr Asn Asp Gly Tyr Leu Leu Asn Tyr Asp Leu Ser Val Leu Gln Lys Pro Gln

FIGURE 286

gccaggggaa gagggtgatc cgacccgggg aaggtcgctg ggcagggcga gttgggaaag cggcagcccc cgccgccccc gcagcccctt ctcctccttt ctcccacgtc ctatctgcct ctcgctggag gccaggccgt gcagcatcga agacaggagg aactggagcc tcattggccg gcccggggcg ccggcctcgg gcttaaatag gagctccggg ctctggctgg gacccgaccg ctgccggccg cgctcccgct gctcctgccg ggtgatggaa aaccccagcc cggccgccgc cctgggcaag gccctctgcg ctctcctcct ggccactctc ggcgccgccg gccagcctct tgggggagag tccatctgtt ccgccagagc cccggccaaa tacagcatca ccttcacggg caagtggagc cagacggcct tccccaagca gtacccccctg ttccgccccc ctgcgcagtg gtcttcgctg ctgggggccg cgcatagctc cgactacagc atgtggagga agaaccagta cgtcagtaac gggctgcgcg actttgcgga gcgcggcgag gcctgggcgc tgatgaagga gatcgaggcg gcgggggagg cgctgcagag cgtgcacgag gtgttttcgg cgcccgccgt ccccagcggc accgggcaga cgtcggcgga gctggaggtg cagcgcaggc actcgctggt ctcgtttgtg gtgcgcatcg tgcccagccc cgactggttc gtgggcgtgg acagcctgga cctgtgcgac ggggaccgtt ggcgggaaca ggcggcgctg gacctgtacc cctacgacgc cgggacggac agcggcttca ccttctcctc ccccaacttc gccaccatcc cgcaggacac ggtgaccgag ataacgtcct cctctcccag ccacccggcc aactccttct actacccgcg gctgaaggcc ctgcctccca tcgccagggt gacactgctg cggctgcgac agagccccag ggccttcatc cctcccgccc cagtcctgcc cagcagggac aatgagattg tagacagcgc ctcagttcca gaaacgccgc tggactgcga ggtctccctg tggtcgtcct ggggactgtg cggaggccac tgtgggaggc tcgggaccaa gagcaggact cgctacgtcc gggtccagcc cgccaacaac gggagcccct gccccgagct cgaagaagag gctgagtgcg tccctgataa ctgcgtctaa gaccagagcc ccgcagcccc tggggccccc cggagccatg gggtgtcggg ggctcctgtg caggctcatg ctgcaggcgg ccgagggcac agggggtttc gcgctgctcc tgaccgcggt gaggccgcgc cgaccatctc tgcactgaag ggccctctgg tggccggcac gggcattggg aaacagcctc ctcctttccc aaccttgctt cttaggggcc cccgtgtccc gtctgctctc agcctcctcc tcctgcagga taaagtcatc cccaaggctc cagctactct aaattatgtc tccttataag ttattgctgc tccaggagat tgtccttcat cgtccagggg cctggctccc acgtggttgc agatacctca gacctggtgc tctaggctgt gctgagccca ctctcccgag ggcgcatcca agcgggggcc acttgagaag tgaataaatg gggcggtttc ggaagcgtca gtgtttccat gttatggatc tctctgcgtt tgaataaaga ctatctctgt tgctcacaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa

FIGURE 287

Met Glu Asn Pro Ser Pro Ala Ala Ala Leu Gly Lys Ala Leu Cys Ala Leu Leu Leu Ala Thr Leu Gly Ala Ala Gly Gln Pro Leu Gly Gly Glu Ser Ile Cys Ser Ala Arg Ala Pro Ala Lys Tyr Ser Ile Thr Phe Thr Gly Lys Trp Ser Gln Thr Ala Phe Pro Lys Gln Tyr Pro Leu Phe Arg Pro Pro Ala Gln Trp Ser Ser Leu Leu Gly Ala Ala His Ser Ser Asp Tyr Ser Met Trp Arg Lys Asn Gln Tyr Val Ser Asn Gly Leu Arg Asp Phe Ala Glu Arg Gly Glu Ala Trp Ala Leu Met Lys Glu Ile Glu Ala Ala Gly Glu Ala Leu Gln Ser Val His Glu Val Phe Ser Ala Pro Ala Val Pro Ser Gly Thr Gly Gln Thr Ser Ala Glu Leu Glu Val Gln Arg Arg His Ser Leu Val Ser Phe Val Val Arg Ile Val Pro Ser Pro Asp Trp Phe Val Gly Val Asp Ser Leu Asp Leu Cys Asp Gly Asp Arg Trp Arg Glu Gln Ala Ala Leu Asp Leu Tyr Pro Tyr Asp Ala Gly Thr Asp Ser Gly Phe Thr Phe Ser Ser Pro Asn Phe Ala Thr Ile Pro Gln Asp Thr Val Thr Glu Ile Thr Ser Ser Ser Pro Ser His Pro Ala Asn Ser Phe Tyr Tyr Pro Arg Leu Lys Ala Leu Pro Pro Ile Ala Arg Val Thr Leu Leu Arg Leu Arg Gln Ser Pro Arg Ala Phe Ile Pro Pro Ala Pro Val Leu Pro Ser Arg Asp Asn Glu Ile Val Asp Ser Ala Ser Val Pro Glu Thr Pro Leu Asp Cys Glu Val Ser Leu Trp Ser Ser Trp Gly Leu Cys Gly Gly His Cys Gly Arg Leu Gly Thr Lys Ser Arg Thr Arg Tyr Val Arg Val Gln Pro Ala Asn Asn Gly Ser Pro Cys Pro Glu Leu Glu Glu Glu Ala Glu Cys Val Pro Asp Asn Cys Val

FIGURE 288

atgatatatg tatctacggg ggcctggggc tgggcgggct cctgcttctg gcagtggtcc ttctgtccgc ctgcctgtgt tggctgcatc gaagaggagg cccagggctc ctcagagcag gaactccact atgcatctct gcagaggctg ccagtgccca gcagtgaggg acctgacctc aggggcagag acaagagagg caccaaggag gatccaagag ctgactatgc ctgcattgct gagaacaaac ccacctga

FIGURE 289

Met Ile Tyr Val Ser Thr Gly Ala Trp Gly Trp Ala Gly Ser Cys Phe Trp Gln Trp Ser Phe Cys Pro Pro Ala Cys Val Gly Cys Ile Glu Glu Glu Ala Gln Gly Ser Ser Glu Gln Glu Leu His Tyr Ala Ser Leu Gln Arg Leu Pro Val Pro Ser Ser Glu Gly Pro Asp Leu Arg Gly Arg Asp Lys Arg Gly Thr Lys Glu Asp Pro Arg Ala Asp Tyr Ala Cys Ile Ala Glu Asn Lys Pro Thr

FIGURE 290

tttatagcag cagcagaaat ataccaccct agaggacaca cctcctttta gctaggtacc tataaatgtc caggattttc tattcaattg agaagaaccc agcaaaatgg ggatctccac agtcatcctt gaaatgtgtc ttttatgggg acaagttcta tctacaggtg ggtggatccc aaggactaca gactacgctt cactgattcc ctcggaggtg cccttggatc aaactgtagc agaaggttct ccatttccct cggagtcgac cctggagtca actgcagcag aaggttctcc gatttccttg gagtcaaccc tggagtcaac tgtagcagaa ggttctctga ttccctcaga gtcaaccctg gagtcaactg tagcagaagg atctgattct ggtttggccc tgaggctggt gaatggagat ggcaggtgtc agggccgagt ggagatccta taccgaggct cctggggcac cgtgtgtgat gacagctggg acaccaatga tgccaacgtg gtctgtaggc agctgggttg tggctgggcc atgtcagctc caggaaatgc ctggtttggc cagggctcag gacccattgc cctggatgat gtgcgctgct caggacacga atcctacctg tggagctgcc cccacaatgg ctggctctcc cataactgtg gccatggtga agatgctggt gttatctgct cagctgccca gcctcagtca acactcaggc cagaaagttg gcctgtcagg atatcaccac ctgtacccac agaaggatct gaatccagtt tggccctgag gctggtgaat ggaggcgaca ggtgtcgagg ccgagtggag gtcctatacc gaggctcctg gggcaccgtg tgtgatgact actgggacac caatgatgcc aatgtggtct gcaggcagct gggctgtggc tgggccatgt cagccccagg aaatgcccag tttggccagg gctcaggacc cattgtcctg gatgatgtgc gctgctcagg acacgagtcc tacctgtgga gctgcccccа caatggctgg ctcacccaca actgtggcca tagtgaagac gctggtgtca tctgctcagc tccccagtcc cggccgacac ccagcccaga tacttggccg acctcacatg catcaacagc aggacctgaa tccagtttgg ccctgaggct ggtgaatgga ggtgacaggt gtcagggccg agtggaggtc ctataccgag gctcctgggg caccgtgtgt gatgatagct gggacaccag tgacgccaat gtggtctgcc ggcagctggg ctgtggctgg gccacgtcag ccccaggaaa tgcccggttt ggccagggtt caggacccat tgtcctggat gacgtgcgct gctcaggcta tgagtcctac ctgtggagct gcccccacaa tggctggctc tcccataact gtcagcacag tgaagacgct ggtgtcatct gctcagctgc ccactcctgg tcgacgccca gtccagacac attgccgacc atcaccttgc ctgcatcgac agtaggatct gaatccagtt tggccctgag gctggtgaat ggaggtgaca ggtgtcaggg ccgagtggag gtcctatacc aaggctcctg gggcaccgtg tgcgatgaca gctgggacac caatgatgcc aatgtcgtct gcaggcaacc gggctgtggc tgggccatgt cagccccagg aaatgcccgg tttggtcagg gctcaggacc cattgtcctg gatgatgtgc gctgctcagg acacgagtct tacccgtgga gctgcccccа caatggctgg ctctcccaca actgtggcca tagtgaagac gctggtgtca tctgctcagc ttcccagtcc cggccaacac ctagtccaga cacttggcca acctcacatg catcaacagc aggatctgaa tccagtttgg ccctgaggct ggtgaatgga ggtgacaggt gtcagggccg agtggaggtc ctataccgag gctcctgggg caccgtgtgt gatgactact gggacaccaa tgatgccaat gtggtttgca ggcagctggg ctgtggctgg gccatgtcag ccccaggaaa tgcccggttt ggccagggtt caggacccat tgtcctggat gatgtgcgct gctcaggaca tgagtcctat ctgtggagct gcccccacaa tggctggctc tcccacaact gtggccatca tgaagacgct ggtgtcatct gctcagcttc ccagtcccag ccgacaccca gcccagacac ttggccaacc tcacatgcat caacagcagg atctgaatcc agtttggccc tgaggctggt gaatggaggt gacaggtgtc agggccgagt ggaggtccta taccgaggct cctggggcac cgtgtgtgat gactactggg acaccaatga tgccaatgtg gtttgcaggc agctgggctg tggctgggcc acgtcagccc caggaaatgc ccggtttggc cagggttcag gacccattgt cctggatgat gtgcgctgct caggacatga gtcctatctg tggagctgcc cccacaatgg ctggctctcc cacaactgtg gccatcatga agacgctggt gtcatctgct cagcttccca gtcccagccg acacccagcc cagacacttg gccaacctct cgtgcatcaa cagcaggatc tgaatccact ttggccctga gactggtgaa tggaggtgac aggtgtcgag gccgagtgga ggtcctatac caaggctcct ggggcaccgt gtgtgatgac tactgggaca ccaatgatgc caacgtggtc tgcaggcagc tgggctgtgg ctgggccatg tcagccccag gaaatgccca gtttggccag ggctcaggac ccattgtcct ggatgatgtg cgctgctcag gacacgagtc ttacctgtgg agctgccccc acaatggctg gctctcccac aactgtggcc atcatgaaga tgctggtgtc atctgctcag ctgctcagtc ccagtcaacg cccaggccag atacttggct gaccaccaac ttaccggcat tgacagtagg atctgaatcc agtttggctc tgaggctggt gaatggaggt gacaggtgtc gaggccgagt ggaggtcctg tatcgaggct cctggggaac cgtgtgtgat gacagctggg acaccaatga tgccaatgtg gtctgcaggc agctgggctg tggctgggcc atgtcggccc caggaaatgc ccggtttggc cagggctcag gacccattgt cctggatgat gtgcgctgct cagggaatga gtcctacctg tggagctgcc cccacaaagg ctggctcacc cacaactgtg gccatcacga agacgctggt gtcatctgct cagccaccca aataaattct actacgacag attggtggca tccaacaact acaaccactg caagaccctc ttcaaattgt ggtggcttct tattctatgc cagtgggaca ttctccagcc catcctaccc tgcatactac cccaacaatg ctaagtgtgt ttgggaaata gaagtgaatt ctggttatcg cataaacctg ggcttcagta atctgaaatt ggaggcacac cataactgca gttttgatta tgttgaaatc tttgatggat cattgaatag cagtctcctg ctggggaaaa tctgtaatga taccaggcaa atatttacat cttcttacaa ccgaatgacc attcactttc

FIGURE 291 (Continued)

gaagtgacat cagtttccaa aacactggct ttttggcttg gtataactcc ttcccaagcg atgccacctt gaggttggtc aatttaaatt catcctatgg tctatgtgcc gggcgtgtag aaatttacca tggtggcacc tgggggacag tttgtgatga ctcctggacc attcaggaag ctgaggtggt ctgcagacag ctagggtgtg gacgtgcagt ttcagccctt ggaaatgcat attttggctc tggctctggc cccatcaccc tggacgatgt agagtgctca gggacggaat ccactctctg gcagtgccgg aaccgaggct ggttctccca caactgtaat catcgtgaag atgctggtgt catctgctca ggaaaccatc tatcgacacc tgctcctttt ctcaacatca cccgtccaaa cacagattat tcctgcggag gcttcctatc ccaaccatca ggggactttt ccagcccatt ctatcccggg aactatccaa acaatgccaa gtgtgtgtgg gacattgagg tgcaaaacaa ctaccgtgtg actgtgatct tcagagatgt ccagcttgaa ggtggctgca actatgatta tattgaagtt ttcgatggcc cctaccgcag ttcccctctc attgctcgag tttgtgatgg ggccagaggc tccttcactt cttcctccaa cttcatgtcc attcgcttca tcagtgacca cagcatcaca aggagagggt tccgggctga gtactactcc agtccctcca atgacagcac caacctgctc tgtctgccaa atcacatgca agccagtgtg agcaggagct atctccaatc cttgggcttt tctgccagtg accttgtcat ttccacctgg aatggatact acgagtgtcg gccccagata acgccgaacc tggtgatatt cacaattccc tactcaggct gcggcacctt caagcaggca gacaatgaca ccatcgacta ttccaacttc ctcacagcag ctgtctcagg tggcatcatc aagaggagga cagacctccg tattcacgtc agctgcagaa tgcttcagaa cacctgggtc gacaccatgt acattgctaa tgacaccatc cacgttgcta ataacaccat ccaggtcgag gaagtccagt atggcaattt tgacgtgaac atttcctttt atacttcctc atctttcttg tatcctgtga ccagccgccc ttactacgtg gacctgaacc aggacttgta cgttcaggct gaaatcctcc attctgatgc tgtactgacc ttgtttgtgg acacctgcgt ggcatcacca tactccaatg acttcacgtc tttgacttat gatctaatcc ggagtggatg cgtgagggat gacacctacg gaccctactc ctcgccgtct cttcgcattg cccgcttccg gttcagggcc ttccacttcc tgaaccgctt cccctccgtg tacctgcgtt gtaaaatggt ggtgtgcaga gcgtatgacc cctcttcccg ctgctaccga ggctgtgtgt tgaggtcgaa gagggatgtg ggctcctacc aggaaaaggt ggacgtcgtc ctgggtccca tccagctgca gacccccccа cgccgagaag aggagcctcg gtaggtggtc gctctcagac cccactgtcc accggggcgc agacccctga ctcggggact tgggatgttc ctcttggtgt catattccaa ctcagattga gccctacatt gtgctgcacc tggtcatacg gagttgaatc agacctggtt cccgcctccc ccaaggctca tggtccttgg aggacccgtt gcagggcgag gtcaagagag ttctgacctg gatggcccat agacctgacg tcccagaatc catgcttctc atctgcaaaa tgaaaatgtc aatacttact tcttagcact gttgagaggg ttacttacat aaaggaattt tggtgaaact gc

FIGURE 291

Met Gly Ile Ser Thr Val Ile Leu Glu Met Cys Leu Leu Trp Gly Gln Val Leu Ser Thr Gly Gly Trp Ile Pro Arg Thr Thr Asp Tyr Ala Ser Leu Ile Pro Ser Glu Val Pro Leu Asp Gln Thr Val Ala Glu Gly Ser Pro Phe Pro Ser Glu Ser Thr Leu Glu Ser Thr Ala Ala Glu Gly Ser Pro Ile Ser Leu Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser Leu Ile Pro Ser Glu Ser Thr Leu Glu Ser Thr Val Ala Glu Gly Ser Asp Ser Gly Leu Ala Leu Arg Leu Val Asn Gly Asp Gly Arg Cys Gln Gly Arg Val Glu Ile Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Trp Phe Gly Gln Gly Ser Gly Pro Ile Ala Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly His Gly Glu Asp Ala Gly Val Ile Cys Ser Ala Ala Gln Pro Gln Ser Thr Leu Arg Pro Glu Ser Trp Pro Val Arg Ile Ser Pro Pro Val Pro Thr Glu Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Arg Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Tyr Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Gln Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Thr His Asn Cys Gly His Ser Glu Asp Ala Gly Val Ile Cys Ser Ala Pro Gln Ser Arg Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser His Ala Ser Thr Ala Gly Pro Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Ser Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Thr Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly Tyr Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gln His Ser Glu Asp Ala Gly Val Ile Cys Ser Ala Ala His Ser Trp Ser Thr Pro Ser Pro Asp Thr Leu Pro Thr Ile Thr Leu Pro Ala Ser Thr Val Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Gln Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Pro Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Pro Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly His Ser Glu Asp Ala Gly Val Ile Cys Ser Ala Ser Gln Ser Arg Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser His Ala Ser Thr Ala Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Tyr Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala Ser Gln Ser Gln Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser His Ala Ser Thr Ala Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Gln Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Tyr Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Thr Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala Ser Gln Ser Gln Pro Thr Pro Ser Pro Asp Thr Trp Pro Thr Ser Arg Ala Ser Thr Ala Gly Ser Glu Ser Thr Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Arg Gly Arg Val Glu Val Leu Tyr Gln Gly Ser Trp Gly Thr Val Cys Asp Asp Tyr Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Gln Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly His Glu Ser Tyr Leu Trp Ser Cys Pro His Asn Gly Trp Leu Ser His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala Ala Gln Ser Gln Ser Thr Pro Arg Pro Asp Thr Trp Leu Thr Thr Asn Leu Pro Ala Leu Thr Val Gly Ser Glu Ser Ser Leu Ala Leu Arg Leu Val Asn Gly Gly Asp Arg Cys Arg Gly Arg Val Glu Val Leu Tyr Arg Gly Ser Trp Gly Thr Val Cys Asp Asp Ser Trp Asp Thr Asn Asp Ala Asn Val Val Cys Arg Gln Leu Gly Cys Gly Trp Ala Met Ser Ala Pro Gly Asn Ala Arg Phe Gly Gln Gly Ser Gly Pro Ile Val Leu Asp Asp Val Arg Cys Ser Gly Asn Glu Ser Tyr Leu Trp Ser Cys Pro His Lys Gly Trp Leu

Thr His Asn Cys Gly His His Glu Asp Ala Gly Val Ile Cys Ser Ala Thr Gln Ile Asn Ser Thr Thr Thr Asp Trp Trp His Pro Thr Thr Thr Thr Thr Ala Arg Pro Ser Ser Asn Cys Gly Gly Phe Leu Phe Tyr Ala Ser Gly Thr Phe Ser Ser Pro Ser Tyr Pro Ala Tyr Tyr Pro Asn Asn Ala Lys Cys Val Trp Glu Ile Glu Val Asn Ser Gly Tyr Arg Ile Asn Leu Gly Phe Ser Asn Leu Lys Leu Glu Ala His His Asn Cys Ser Phe Asp Tyr Val Glu Ile Phe Asp Gly Ser Leu Asn Ser Ser Leu Leu Leu Gly Lys Ile Cys Asn Asp Thr Arg Gln Ile Phe Thr Ser Ser Tyr Asn Arg Met Thr Ile His Phe Arg Ser Asp Ile Ser Phe Gln Asn Thr Gly Phe Leu Ala Trp Tyr Asn Ser Phe Pro Ser Asp Ala Thr Leu Arg Leu Val Asn Leu Asn Ser Ser Tyr Gly Leu Cys Ala Gly Arg Val Glu Ile Tyr His Gly Gly Thr Trp Gly Thr Val Cys Asp Asp Ser Trp Thr Ile Gln Glu Ala Glu Val Val Cys Arg Gln Leu Gly Cys Gly Arg Ala Val Ser Ala Leu Gly Asn Ala Tyr Phe Gly Ser Gly Ser Gly Pro Ile Thr Leu Asp Asp Val Glu Cys Ser Gly Thr Glu Ser Thr Leu Trp Gln Cys Arg Asn Arg Gly Trp Phe Ser His Asn Cys Asn His Arg Glu Asp Ala Gly Val Ile Cys Ser Gly Asn His Leu Ser Thr Pro Ala Pro Phe Leu Asn Ile Thr Arg Pro Asn Thr Asp Tyr Ser Cys Gly Gly Phe Leu Ser Gln Pro Ser Gly Asp Phe Ser Ser Pro Phe Tyr Pro Gly Asn Tyr Pro Asn Asn Ala Lys Cys Val Trp Asp Ile Glu Val Gln Asn Asn Tyr Arg Val Thr Val Ile Phe Arg Asp Val Gln Leu Glu Gly Gly Cys Asn Tyr Asp Tyr Ile Glu Val Phe Asp Gly Pro Tyr Arg Ser Ser Pro Leu Ile Ala Arg Val Cys Asp Gly Ala Arg Gly Ser Phe Thr Ser Ser Ser Asn Phe Met Ser Ile Arg Phe Ile Ser Asp His Ser Ile Thr Arg Arg Gly Phe Arg Ala Glu Tyr Tyr Ser Ser Pro Ser Asn Asp Ser Thr Asn Leu Leu Cys Leu Pro Asn His Met Gln Ala Ser Val Ser Arg Ser Tyr Leu Gln Ser Leu Gly Phe Ser Ala Ser Asp Leu Val Ile Ser Thr Trp Asn Gly Tyr Tyr Glu Cys Arg Pro Gln Ile Thr Pro Asn Leu Val Ile Phe Thr Ile Pro Tyr Ser Gly Cys Gly Thr Phe Lys Gln Ala Asp Asn Asp Thr Ile Asp Tyr Ser Asn Phe Leu Thr Ala Ala Val Ser Gly Gly Ile Ile Lys Arg Arg Thr Asp Leu Arg Ile His Val Ser Cys Arg Met Leu Gln Asn Thr Trp Val Asp Thr Met Tyr Ile Ala Asn Asp Thr Ile His Val Ala Asn Asn Thr Ile Gln Val Glu Glu Val Gln Tyr Gly Asn Phe Asp Val Asn Ile Ser Phe Tyr Thr Ser Ser Ser Phe Leu Tyr Pro Val Thr Ser Arg Pro Tyr Tyr Val Asp Leu Asn Gln Asp Leu Tyr Val Gln Ala Glu Ile Leu His Ser Asp Ala Val Leu Thr Leu Phe Val Asp Thr Cys Val Ala Ser Pro Tyr Ser Asn Asp Phe Thr Ser Leu Thr Tyr Asp Leu Ile Arg Ser Gly Cys Val Arg Asp Asp Thr Tyr Gly Pro Tyr Ser Ser Pro Ser Leu Arg Ile Ala Arg Phe Arg Phe Arg Ala Phe His Phe Leu Asn Arg Phe Pro Ser Val Tyr Leu Arg Cys Lys Met Val Val Cys Arg Ala Tyr Asp Pro Ser Ser Arg Cys Tyr Arg Gly Cys Val Leu Arg Ser Lys Arg Asp Val Gly Ser Tyr Gln Glu Lys Val Asp Val Val Leu Gly Pro Ile Gln Leu Gln Thr Pro Pro Arg Arg Glu Glu Glu Pro Arg

SEQ ID NO: 292

cccacgcgtc cgcgcctctc ccttctgctg gaccttcctt cgtctctcca tctctccctc ctttccccgc gttctctttc caccttctc ttcttcccac cttagacctc ccttcctgcc ctcctttcct gcccaccgct gcttcctggc ccttctccga ccccgctcta gcagcagacc tcctggggtc tgtgggttga tctgtggccc ctgtgcctcc gtgtcctttt cgtctccctt cctcccgact ccgctcccgg accagcggcc tgaccctggg gaaaggatgg ttcccgaggt gagggtcctc tcctccttgc tgggactcgc gctgctctgg ttccccctgg actcccacgc tcgagcccgc ccagacatgt tctgcctttt ccatgggaag agatactccc ccggcgagag ctggcacccc tacttggagc cacaaggcct gatgtactgc ctgcgctgta cctgctcaga gggcgcccat gtgagttgtt accgcctcca ctgtccgcct gtccactgcc cccagcctgt gacggagcca cagcaatgct gtcccaagtg tgtggaacct cacactccct ctggactccg ggccccacca aagtcctgcc agcacaacgg gaccatgtac caacacggag agatcttcag tgcccatgag ctgttccccc cccgcctgcc caaccagtgt gtcctctgca gctgcacaga gggccagatc tactgcggcc tcacaacctg ccccgaacca ggctgcccag cacccctccc actgccagac tcctgctgcc aagcctgcaa agatgaggca agtgagcaat cggatgaaga ggacagtgtg cagtcgctcc atggggtgag acatcctcag gatccatgtt ccagtgatgc tgggagaaag agaggcccgg gcaccccagc ccccactggc ctcagcgccc ctctgagctt catccctcgc cacttcagac ccaagggagc aggcagcaca actgtcaaga tcgtcctgaa ggagaaacat aagaaagcct gtgtgcatgg cgggaagacg tactcccacg gggaggtgtg gcacccggcc ttccgtgcct tcggcccctt gccctgcatc ctatgcacct gtgaggatgg ccgccaggac tgccagcgtg tgacctgtcc caccgagtac ccctgccgtc accccgagaa agtggctggg aagtgctgca agatttgccc agaggacaaa gcagaccctg gccacagtga gatcagttct accaggtgtc ccaaggcacc gggccgggtc ctcgtccaca catcggtatc cccaagccca gacaacctgc gtcgctttgc cctggaacac gaggcctcgg acttggtgga gatctacctc tggaagctgg taaaagatga ggaaactgag gctcagagag gtgaagtacc tggcccaagg ccacacagcc agaatcttcc acttgactca gatcaagaaa gtcaggaagc aagacttcca gaaagaggca cagcacttcc gactgctcgc tggcccccac gaaggtcact ggaacgtctt cctagcccag accctggagc tgaaggtcac ggccagtcca gacaaagtga ccaagacata acaaagacct aacagttgca gatatgagct gtataattgt tgttattata tattaataaa taagaagttg cattaccctc aaaaaaaaaa aaaaaaaaaa aa

FIGURE 293

Met Val Pro Glu Val Arg Val Leu Ser Ser Leu Leu Gly Leu Ala Leu Leu Trp Phe Pro Leu Asp Ser His Ala Arg Ala Arg Pro Asp Met Phe Cys Leu Phe His Gly Lys Arg Tyr Ser Pro Gly Glu Ser Trp His Pro Tyr Leu Glu Pro Gln Gly Leu Met Tyr Cys Leu Arg Cys Thr Cys Ser Glu Gly Ala His Val Ser Cys Tyr Arg Leu His Cys Pro Pro Val His Cys Pro Gln Pro Val Thr Glu Pro Gln Gln Cys Cys Pro Lys Cys Val Glu Pro His Thr Pro Ser Gly Leu Arg Ala Pro Pro Lys Ser Cys Gln His Asn Gly Thr Met Tyr Gln His Gly Glu Ile Phe Ser Ala His Glu Leu Phe Pro Ser Arg Leu Pro Asn Gln Cys Val Leu Cys Ser Cys Thr Glu Gly Gln Ile Tyr Cys Gly Leu Thr Thr Cys Pro Glu Pro Gly Cys Pro Ala Pro Leu Pro Leu Pro Asp Ser Cys Cys Gln Ala Cys Lys Asp Glu Ala Ser Glu Gln Ser Asp Glu Glu Asp Ser Val Gln Ser Leu His Gly Val Arg His Pro Gln Asp Pro Cys Ser Ser Asp Ala Gly Arg Lys Arg Gly Pro Gly Thr Pro Ala Pro Thr Gly Leu Ser Ala Pro Leu Ser Phe Ile Pro Arg His Phe Arg Pro Lys Gly Ala Gly Ser Thr Thr Val Lys Ile Val Leu Lys Glu Lys His Lys Lys Ala Cys Val His Gly Gly Lys Thr Tyr Ser His Gly Glu Val Trp His Pro Ala Phe Arg Ala Phe Gly Pro Leu Pro Cys Ile Leu Cys Thr Cys Glu Asp Gly Arg Gln Asp Cys Gln Arg Val Thr Cys Pro Thr Glu Tyr Pro Cys Arg His Pro Glu Lys Val Ala Gly Lys Cys Cys Lys Ile Cys Pro Glu Asp Lys Ala Asp Pro Gly His Ser Glu Ile Ser Ser Thr Arg Cys Pro Lys Ala Pro Gly Arg Val Leu Val His Thr Ser Val Ser Pro Ser Pro Asp Asn Leu Arg Arg Phe Ala Leu Glu His Glu Ala Ser Asp Leu Val Glu Ile Tyr Leu Trp Lys Leu Val Lys Asp Glu Glu Thr Glu Ala Gln Arg Gly Glu Val Pro Gly Pro Arg Pro His Ser Gln Asn Leu Pro Leu Asp Ser Asp Gln Glu Ser Gln Glu Ala Arg Leu Pro Glu Arg Gly Thr Ala Leu Pro Thr Ala Arg Trp Pro Pro Arg Arg Ser Leu Glu Arg Leu Pro Ser Pro Asp Pro Gly Ala Glu Gly His Gly Gln Ser Arg Gln Ser Asp Gln Asp Ile Thr Lys Thr

FIGURE 294

ctggatagaa cagctcaagc cttgccactt cgggcttctc actgcagctg ggcttggact tcggagtttt gccattgcca gtgggacgtc tgagactttc tccttcaagt acttggcaga tcactctctt agcagggtct gcgcttcgca gccgggatga agctggtttc cgtcgccctg atgtacctgg gttcgctcgc cttcctaggc gctgacaccg ctcggttgga tgtcgcgtcg gagtttcgaa agaagtggaa taagtgggct ctgagtcgtg ggaagaggga actgcggatg tccagcagct accccaccgg gctcgctgac gtgaaggccg ggcctgccca gacccttatt cggccccagg acatgaaggg tgcctctcga agccccgaag acagcagtcc ggatgccgcc cgcatccgag tcaagcgcta ccgccagagc atgaacaact tccagggcct ccggagcttt ggctgccgct tcgggacgtg cacggtgcag aagctggcac accagatcta ccagttcaca gataaggaca aggacaacgt cgcccccagg agcaagatca gcccccaggg ctacggccgc cggcgccggc gctccctgcc cgaggccggc ccgggtcgga ctctggtgtc ttctaagcca caagcacacg gggctccagc ccccccgagt ggaagtgctc cccactttct ttaggattta ggcgcccatg gtacaaggaa tagtcgcgca agcatcccgc tggtgcctcc cgggacgaag gacttcccga gcggtgtggg gaccgggctc tgacagccct gcggagaccc tgagtccggg aggcaccgtc cggcggcgag ctctggcttt gcaagggccc ctccttctgg gggcttcgct tccttagcct tgctcaggtg caagtgcccc agggggcggg gtgcagaaga atccgagtgt ttgccaggct taaggagagg agaaactgag aaatgaatgc tgagaccccc ggagcagggg tctgagccac agccgtgctc gcccacaaac tgatttctca cggcgtgtca ccccaccagg gcgcaagcct cactattact tgaactttcc aaaacctaaa gaggaaaagt gcaatgcgtg ttgtacatac agaggtaact atcaatattt aagtttgttg ctgtcaagat ttttttgta acttcaaata tagagatatt tttgtacgtt atatattgta ttaagggcat tttaaaagca attatattgt cctcccccta ttttaagacg tgaatgtctc agcgaggtgt aaagttgttc gccgcgtgga atgtgagtgt gtttgtgtgc atgaaagaga aagactgatt acctcctgtg tggaagaagg aaacaccgag tctctgtata atctatttac ataaaatggg tgatatgcga acagcaaacc a

FIGURE 295

Met Lys Leu Val Ser Val Ala Leu Met Tyr Leu Gly Ser Leu Ala Phe Leu Gly Ala Asp Thr Ala Arg Leu Asp Val Ala Ser Glu Phe Arg Lys Lys Trp Asn Lys Trp Ala Leu Ser Arg Gly Lys Arg Glu Leu Arg Met Ser Ser Ser Tyr Pro Thr Gly Leu Ala Asp Val Lys Ala Gly Pro Ala Gln Thr Leu Ile Arg Pro Gln Asp Met Lys Gly Ala Ser Arg Ser Pro Glu Asp Ser Ser Pro Asp Ala Ala Arg Ile Arg Val Lys Arg Tyr Arg Gln Ser Met Asn Asn Phe Gln Gly Leu Arg Ser Phe Gly Cys Arg Phe Gly Thr Cys Thr Val Gln Lys Leu Ala His Gln Ile Tyr Gln Phe Thr Asp Lys Asp Lys Asp Asn Val Ala Pro Arg Ser Lys Ile Ser Pro Gln Gly Tyr Gly Arg Arg Arg Arg Arg Ser Leu Pro Glu Ala Gly Pro Gly Arg Thr Leu Val Ser Ser Lys Pro Gln Ala His Gly Ala Pro Ala Pro Pro Ser Gly Ser Ala Pro His Phe Leu

FIGURE 296

aaaactctga tctggggagg aaccaggact acatagatca aggcagtttt cttctttgag aaactatccc agatatcatc atagagtctt ctgctcttcc tcaactacca aagaaaaaca tcagcgaagc agcaggccat gcacccccca aaaactccat ctggggctct tcatagaaaa aggaaaatgg cagcctggcc cttctccagg ctgtggaaag tctctgatcc aattctcttc caaatgacct tgatcgctgc tctgttgcct gctgttcttg gcaattgtgg tcctccaccc actttatcat ttgctgcccc gatggatatt acgttgactg agacacgctt caaaactgga actactctga aatacacctg cctccctggc tacgtcagat cccattcaac tcagacgctt acctgtaatt ctgatggcga atgggtgtat aacaccttct gtatctacaa acgatgcaga cacccaggag agttacgtaa tgggcaagta gagattaaga cagatttatc ttttggatca caaatagaat tcagctgttc agaaggattt ttcttaattg gctcaaccac tagtcgttgt gaagtccaag atagaggagt tggctggagt catcctctcc cacaatgtga aattgtcaag tgtaagcctc ctccagacat caggaatgga aggcacagcg gtgaagaaaa tttctacgca tacggctttt ctgtcaccta cagctgtgac ccccgcttct cactcttggg ccatgcctcc atttcttgca ctgtggagaa tgaaacaata ggcgtttgga gaccaagccc tcctacctgt gaaaaaatca cctgtcgcaa gccagatgtt tcacatgggg aaatggtctc tggatttgga cccatctata attacaaaga cactattgtg tttaagtgcc aaaaaggttt tgttctcaga ggcagcagtg taattcattg tgatgctgat agcaaatgga atccttctcc tcctgcttgt gagcccaata gttgtattaa tttaccagac attccacatg cttcctggga aacatatcct aggccgacaa aagaggatgt gtatgttgtt gggactgtgt taaggtaccg ctgtcatcct ggctacaaac ccactacaga tgagcctacg actgtgattt gtcagaaaaa tttgagatgg accccatacc aaggatgtga ggcgttatgt tgccctgaac caaagctaaa taatggtgaa atcactcaac acaggaaaag tcgtcctgcc aatcactgtg tttatttcta tggagatgag atttcatttt catgtcatga gaccagtagg ttttcagcta tatgccaagg agatggcacg tggagtcccc gaacaccatc atgtggagac atttgcaatt ttcctcctaa aattgcccat gggcattata aacaatctag ttcatacagc tttttcaaag aagagattat atatgaatgt gataaaggct acattctggt cggacaggcg aaactctcct gcagttattc acactggtca gctccagccc ctcaatgtaa agctctgtgt cggaaaccag aattagtgaa tggaaggttg tctgtggata aggatcagta tgttgagcct gaaaatgtca ccatccaatg tgattctggc tatggtgtgg ttggtcccca aagtatcact tgctctggga acagaacctg gtacccagag gtgcccaagt gtgagtggga gacccccgaa ggctgtgaac aagtgctcac aggcaaaaga ctcatgcagt gtctcccaaa cccagaggat gtgaaaatgg ccctggaggt atataagctg tctctggaaa ttgaacaact ggaactacag agagacagcg caagacaatc cactttggat aaagaactat aatttttctc aaaagaagga ggaaaaggtg tcttgctggc ttgcctcttg caattcaata cagatcagtt tagcaaatct actgtcaatt tggcagtgat attcatcata ataaatatct agaaatgata atttgctaaa gtttagtgct ttgagattgt gaaattatta atcatcctct gtgtggctca tgtttttgct tttcaacaca caaagcacaa attttttttc gattaaaaat gtatgtat

FIGURE 297

Met His Pro Pro Lys Thr Pro Ser Gly Ala Leu His Arg Lys Arg Lys Met Ala Ala Trp Pro Phe Ser Arg Leu Trp Lys Val Ser Asp Pro Ile Leu Phe Gln Met Thr Leu Ile Ala Ala Leu Leu Pro Ala Val Leu Gly Asn Cys Gly Pro Pro Pro Thr Leu Ser Phe Ala Ala Pro Met Asp Ile Thr Leu Thr Glu Thr Arg Phe Lys Thr Gly Thr Thr Leu Lys Tyr Thr Cys Leu Pro Gly Tyr Val Arg Ser His Ser Thr Gln Thr Leu Thr Cys Asn Ser Asp Gly Glu Trp Val Tyr Asn Thr Phe Cys Ile Tyr Lys Arg Cys Arg His Pro Gly Glu Leu Arg Asn Gly Gln Val Glu Ile Lys Thr Asp Leu Ser Phe Gly Ser Gln Ile Glu Phe Ser Cys Ser Glu Gly Phe Phe Leu Ile Gly Ser Thr Thr Ser Arg Cys Glu Val Gln Asp Arg Gly Val Gly Trp Ser His Pro Leu Pro Gln Cys Glu Ile Val Lys Cys Lys Pro Pro Pro Asp Ile Arg Asn Gly Arg His Ser Gly Glu Glu Asn Phe Tyr Ala Tyr Gly Phe Ser Val Thr Tyr Ser Cys Asp Pro Arg Phe Ser Leu Leu Gly His Ala Ser Ile Ser Cys Thr Val Glu Asn Glu Thr Ile Gly Val Trp Arg Pro Ser Pro Pro Thr Cys Glu Lys Ile Thr Cys Arg Lys Pro Asp Val Ser His Gly Glu Met Val Ser Gly Phe Gly Pro Ile Tyr Asn Tyr Lys Asp Thr Ile Val Phe Lys Cys Gln Lys Gly Phe Val Leu Arg Gly Ser Ser Val Ile His Cys Asp Ala Asp Ser Lys Trp Asn Pro Ser Pro Pro Ala Cys Glu Pro Asn Ser Cys Ile Asn Leu Pro Asp Ile Pro His Ala Ser Trp Glu Thr Tyr Pro Arg Pro Thr Lys Glu Asp Val Tyr Val Val Gly Thr Val Leu Arg Tyr Arg Cys His Pro Gly Tyr Lys Pro Thr Thr Asp Glu Pro Thr Thr Val Ile Cys Gln Lys Asn Leu Arg Trp Thr Pro Tyr Gln Gly Cys Glu Ala Leu Cys Cys Pro Glu Pro Lys Leu Asn Asn Gly Glu Ile Thr Gln His Arg Lys Ser Arg Pro Ala Asn His Cys Val Tyr Phe Tyr Gly Asp Glu Ile Ser Phe Ser Cys His Glu Thr Ser Arg Phe Ser Ala Ile Cys Gln Gly Asp Gly Thr Trp Ser Pro Arg Thr Pro Ser Cys Gly Asp Ile Cys Asn Phe Pro Pro Lys Ile Ala His Gly His Tyr Lys Gln Ser Ser Ser Tyr Ser Phe Phe Lys Glu Glu Ile Ile Tyr Glu Cys Asp Lys Gly Tyr Ile Leu Val Gly Gln Ala Lys Leu Ser Cys Ser Tyr Ser His Trp Ser Ala Pro Ala Pro Gln Cys Lys Ala Leu Cys Arg Lys Pro Glu Leu Val Asn Gly Arg Leu Ser Val Asp Lys Asp Gln Tyr Val Glu Pro Glu Asn Val Thr Ile Gln Cys Asp Ser Gly Tyr Gly Val Val Gly Pro Gln Ser Ile Thr Cys Ser Gly Asn Arg Thr Trp Tyr Pro Glu Val Pro Lys Cys Glu Trp Glu Thr Pro Glu Gly Cys Glu Gln Val Leu Thr Gly Lys Arg Leu Met Gln Cys Leu Pro Asn Pro Glu Asp Val Lys Met Ala Leu Glu Val Tyr Lys Leu Ser Leu Glu Ile Glu Gln Leu Glu Leu Gln Arg Asp Ser Ala Arg Gln Ser Thr Leu Asp Lys Glu Leu

FIGURE 298

ctcctcccca tcctctccct ctgtccctct gtccctctga ccctgcactg tcccagcacc atgggaccca cctcaggtcc cagcctgctg ctcctgctac taacccacct ccccctggct ctggggagtc ccatgtactc tatcatcacc cccaacatct tgcggctgga gagcgaggag accatggtgc tggaggccca cgacgcgcaa ggggatgttc cagtcactgt tactgtccac gacttcccag gcaaaaaact agtgctgtcc agtgagaaga ctgtgctgac ccctgccacc aaccacatgg gcaacgtcac cttcacgatc ccagccaaca gggagttcaa gtcagaaaag gggcgcaaca agttcgtgac cgtgcaggcc accttcggga cccaagtggt ggagaaggtg gtgctggtca gcctgcagag cgggtacctc ttcatccaga cagacaagac catctacacc cctggctcca cagttctcta tcggatcttc accgtcaacc acaagctgct acccgtgggc cggacggtca tggtcaacat tgagaacccg gaaggcatcc cggtcaagca ggactccttg tcttctcaga accagcttgg cgtcttgccc ttgtcttggg acattccgga actcgtcaac atgggccagt ggaagatccg agcctactat gaaaactcac cacagcaggt cttctccact gagtttgagg tgaaggagta cgtgctgccc agtttcgagg tcatagtgga gcctacagag aaattctact acatctataa cgagaagggc ctggaggtca ccatcaccgc caggttcctc tacgggaaga aagtggaggg aactgccttt gtcatcttcg ggatccagga tggcgaacag aggatttccc tgcctgaatc cctcaagcgc attccgattg aggatggctc gggggaggtt gtgctgagcc ggaaggtact gctggacggg gtgcagaacc tccgagcaga agacctggtg gggaagtctt tgtacgtgtc tgccaccgtc atcttgcact caggcagtga catggtgcag gcagagcgca gcgggatccc catcgtgacc tctccctacc agatccactt caccaagaca cccaagtact tcaaaccagg aatgcccttt gacctcatgg tgttcgtgac gaaccctgat ggctctccag cctaccgagt ccccgtggca gtccagggcg aggacactgt gcagtctcta acccagggag atggcgtggc caaactcagc atcaacacac accccagcca gaagcccttg agcatcacgg tgcgcacgaa gaagcaggag ctctcggagg cagagcaggc taccaggacc atgcaggctc tgccctacag caccgtgggc aactccaaca attacctgca tctctcagtg ctacgtacag agctcagacc cggggagacc ctcaacgtca acttcctcct gcgaatggac cgcgcccacg aggccaagat ccgctactac acctacctga tcatgaacaa gggcaggctg ttgaaggcgg gacgccaggt gcgagagccc ggccaggacc tggtggtgct gcccctgtcc atcaccaccg acttcatccc ttccttccgc ctggtggcgt actacacgct gatcggtgcc agcggccaga gggaggtggt ggccgactcc gtgtgggtgg acgtcaagga ctcctgcgtg ggctcgctgg tggtaaaaag cggccagtca gaagaccggc agcctgtacc tgggcagcag atgaccctga agatagaggg tgaccacggg gcccgggtgg tactggtggc cgtggacaag ggcgtgttcg tgctgaataa gaagaacaaa ctgacgcaga gtaagatctg ggacgtggtg gagaaggcag acatcggctg cacccgggc agtgggaagg attacgccgg tgtcttctcc gacgcagggc tgaccttcac gagcagcagt ggccagcaga ccgcccagag ggcagaactt cagtgcccgc agccagccgc ccgccgacgc cgttccgtgc agctcacgga gaagcgaatg gacaaagtcg gcaagtaccc caaggagctg cgcaagtgct gcgaggacgg catgcgggag aaccccatga ggttctcgtg ccagcgccgg acccgtttca tctccctggg cgaggcgtgc aagaaggtct tcctggactg ctgcaactac atcacagagc tgcggcggca gcacgcgcgg gccagccacc tgggcctggc caggagtaac ctggatgagg acatcattgc agaagagaac atcgtttccc gaagtgagtt cccagagagc tggctgtgga acgttgagga cttgaaagag ccaccgaaaa atggaatctc tacgaagctc atgaatatat ttttgaaaga ctccatcacc acgtgggaga ttctggctgt cagcatgtcg gacaagaaag ggatctgtgt ggcagacccc ttcgaggtca cagtaatgca ggacttcttc atcgacctgc ggctacccta ctctgttgtt cgaaacgagc aggtggaaat ccgagccgtt ctctacaatt accggcagaa ccaagagctc aaggtgaggg tggaactact ccacaatcca gccttctgca gcctggccac caccaagagg cgtcaccagc agaccgtaac catccccccc aagtcctcgt tgtccgttcc atatgtcatc gtgccgctaa agaccggcct gcaggaagtg gaagtcaagg ctgccgtcta ccatcatttc atcagtgacg gtgtcaggaa gtccctgaag gtcgtgccgg aaggaatcag aatgaacaaa actgtggctg ttcgcaccct ggatccagaa cgcctgggcc gtgaaggagt gcagaaagag gacatcccac ctgcagacct cagtgaccaa gtcccggaca ccgagtctga gaccagaatt ctcctgcaag ggaccccagt ggcccagatg acagaggatg ccgtcgacgc ggaacggctg aagcacctca ttgtgacccc ctcgggctgc ggggaacaga acatgatcgg catgacgccc acggtcatcg ctgtgcatta cctggatgaa acggagcagt gggagaagtt cggcctagag aagcggcagg gggccttgga gctcatcaag aaggggtaca cccagcagct ggccttcaga caacccagct ctgcctttgc ggccttcgtg aaacgggcac ccagcacctg gctgaccgcc tacgtggtca aggtcttctc tctggctgtc aacctcatcg ccatcgactc ccaagtcctc tgcggggctg ttaaatggct gatcctggag aagcagaagc ccgacggggt cttccaggag gatgcgcccg tgatacacca agaaatgatt ggtggattac ggaacaacaa cgagaaagac atggccctca cggcctttgt tctcatctcg ctgcaggagg ctaaagatat ttgcgaggag caggtcaaca gcctgccagg cagcatcact aaagcaggag acttccttga agccaactac atgaacctac agagatccta cactgtggcc attgctggct atgctctggc ccagatgggc aggctgaagg ggcctcttct taacaaattt ctgaccacag ccaaagataa gaaccgctgg gaggaccctg gtaagcagct ctacaacgtg gaggccacat

FIGURE 299 (Continued)

cctatgccct cttggcccta ctgcagctaa aagactttga ctttgtgcct cccgtcgtgc gttggctcaa tgaacagaga tactacggtg gtggctatgg ctctacccag gccaccttca tggtgttcca agccttggct caataccaaa aggacgcccc tgaccaccag gaactgaacc ttgatgtgtc cctccaactg cccagccgca gctccaagat cacccaccgt atccactggg aatctgccag cctcctgcga tcagaagaga ccaaggaaaa tgagggtttc acagtcacag ctgaaggaaa aggccaaggc accttgtcgg tggtgacaat gtaccatgct aaggccaaag atcaactcac ctgtaataaa ttcgacctca aggtcaccat aaaaccagca ccggaaacag aaaagaggcc tcaggatgcc aagaacacta tgatccttga gatctgtacc aggtaccggg gagaccagga tgccactatg tctatattgg acatatccat gatgactggc tttgctccag acacagatga cctgaagcag ctggccaatg gtgttgacag atacatctcc aagtatgagc tggacaaagc cttctccgat aggaacaccc tcatcatcta cctggacaag gtctcacact ctgaggatga ctgtctagct ttcaaagttc accaatactt taatgtagag cttatccagc ctggagcagt caaggtctac gcctattaca acctggagga aagctgtacc cggttctacc atccggaaaa ggaggatgga aagctgaaca agctctgccg tgatgaactg tgccgctgtg ctgaggagaa ttgcttcata caaaagtcgg atgacaaggt caccctggaa gaacggctgg acaaggcctg tgagccagga gtggactatg tgtacaagac ccgactggtc aaggttcagc tgtccaatga ctttgacgag tacatcatgg ccattgagca gaccatcaag tcaggctcgg atgaggtgca ggttggacag cagcgcacgt tcatcagccc catcaagtgc agagaagccc tgaagctgga ggagaagaaa cactacctca tgtggggtct ctcctccgat ttctggggag agaagcccaa cctcagctac atcatcggga aggacacttg ggtggagcac tggcctgagg aggacgaatg ccaagacgaa gagaaccaga aacaatgcca ggacctcggc gccttcaccg agagcatggt tgtctttggg tgccccaact gaccacaccc ccattcc

FIGURE 299

Met Gly Pro Thr Ser Gly Pro Ser Leu Leu Leu Leu Leu Thr His Leu Pro Leu Ala Leu Gly Ser Pro Met Tyr Ser Ile Ile Thr Pro Asn Ile Leu Arg Leu Glu Ser Glu Glu Thr Met Val Leu Glu Ala His Asp Ala Gln Gly Asp Val Pro Val Thr Val Thr Val His Asp Phe Pro Gly Lys Lys Leu Val Leu Ser Ser Glu Lys Thr Val Leu Thr Pro Ala Thr Asn His Met Gly Asn Val Thr Phe Thr Ile Pro Ala Asn Arg Glu Phe Lys Ser Glu Lys Gly Arg Asn Lys Phe Val Thr Val Gln Ala Thr Phe Gly Thr Gln Val Val Glu Lys Val Val Leu Val Ser Leu Gln Ser Gly Tyr Leu Phe Ile Gln Thr Asp Lys Thr Ile Tyr Thr Pro Gly Ser Thr Val Leu Tyr Arg Ile Phe Thr Val Asn His Lys Leu Leu Pro Val Gly Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly Ile Pro Val Lys Gln Asp Ser Leu Ser Ser Gln Asn Gln Leu Gly Val Leu Pro Leu Ser Trp Asp Ile Pro Glu Leu Val Asn Met Gly Gln Trp Lys Ile Arg Ala Tyr Tyr Glu Asn Ser Pro Gln Gln Val Phe Ser Thr Glu Phe Glu Val Lys Glu Tyr Val Leu Pro Ser Phe Glu Val Ile Val Glu Pro Thr Glu Lys Phe Tyr Tyr Ile Tyr Asn Glu Lys Gly Leu Glu Val Thr Ile Thr Ala Arg Phe Leu Tyr Gly Lys Lys Val Glu Gly Thr Ala Phe Val Ile Phe Gly Ile Gln Asp Gly Glu Gln Arg Ile Ser Leu Pro Glu Ser Leu Lys Arg Ile Pro Ile Glu Asp Gly Ser Gly Glu Val Val Leu Ser Arg Lys Val Leu Leu Asp Gly Val Gln Asn Leu Arg Ala Glu Asp Leu Val Gly Lys Ser Leu Tyr Val Ser Ala Thr Val Ile Leu His Ser Gly Ser Asp Met Val Gln Ala Glu Arg Ser Gly Ile Pro Ile Val Thr Ser Pro Tyr Gln Ile His Phe Thr Lys Thr Pro Lys Tyr Phe Lys Pro Gly Met Pro Phe Asp Leu Met Val Phe Val Thr Asn Pro Asp Gly Ser Pro Ala Tyr Arg Val Pro Val Ala Val Gln Gly Glu Asp Thr Val Gln Ser Leu Thr Gln Gly Asp Gly Val Ala Lys Leu Ser Ile Asn Thr His Pro Ser Gln Lys Pro Leu Ser Ile Thr Val Arg Thr Lys Lys Gln Glu Leu Ser Glu Ala Glu Gln Ala Thr Arg Thr Met Gln Ala Leu Pro Tyr Ser Thr Val Gly Asn Ser Asn Asn Tyr Leu His Leu Ser Val Leu Arg Thr Glu Leu Arg Pro Gly Glu Thr Leu Asn Val Asn Phe Leu Leu Arg Met Asp Arg Ala His Glu Ala Lys Ile Arg Tyr Tyr Thr Tyr Leu Ile Met Asn Lys Gly Arg Leu Leu Lys Ala Gly Arg Gln Val Arg Glu Pro Gly Gln Asp Leu Val Val Leu Pro Leu Ser Ile Thr Thr Asp Phe Ile Pro Ser Phe Arg Leu Val Ala Tyr Tyr Thr Leu Ile Gly Ala Ser Gly Gln Arg Glu Val Val Ala Asp Ser Val Trp Val Asp Val Lys Asp Ser Cys Val Gly Ser Leu Val Val Lys Ser Gly Gln Ser Glu Asp Arg Gln Pro Val Pro Gly Gln Gln Met Thr Leu Lys Ile Glu Gly Asp His Gly Ala Arg Val Val Leu Val Ala Val Asp Lys Gly Val Phe Val Leu Asn Lys Lys Asn Lys Leu Thr Gln Ser Lys Ile Trp Asp Val Val Glu Lys Ala Asp Ile Gly Cys Thr Pro Gly Ser Gly Lys Asp Tyr Ala Gly Val Phe Ser Asp Ala Gly Leu Thr Phe Thr Ser Ser Ser Gly Gln Gln Thr Ala Gln Arg Ala Glu Leu Gln Cys Pro Gln Pro Ala Ala Arg Arg Arg Arg Ser Val Gln Leu Thr Glu Lys Arg Met Asp Lys Val Gly Lys Tyr Pro Lys Glu Leu Arg Lys Cys Cys Glu Asp Gly Met Arg Glu Asn Pro Met Arg Phe Ser Cys Gln Arg Arg Thr Arg Phe Ile Ser Leu Gly Glu Ala Cys Lys Lys Val Phe Leu Asp Cys Cys Asn Tyr Ile Thr Glu Leu Arg Arg Gln His Ala Arg Ala Ser His Leu Gly Leu Ala Arg Ser Asn Leu Asp Glu Asp Ile Ile Ala Glu Glu Asn Ile Val Ser Arg Ser Glu Phe Pro Glu Ser Trp Leu Trp Asn Val Glu Asp Leu Lys Glu Pro Pro Lys Asn Gly Ile Ser Thr Lys Leu Met Asn Ile Phe Leu Lys Asp Ser Ile Thr Thr Trp Glu Ile Leu Ala Val Ser Met Ser Asp Lys Lys Gly Ile Cys Val Ala Asp Pro Phe Glu Val Thr Val Met Gln Asp Phe Phe Ile Asp Leu Arg Leu Pro Tyr Ser Val Val Arg Asn Glu Gln Val Glu Ile Arg Ala Val Leu Tyr Asn Tyr Arg Gln Asn Gln Glu Leu Lys Val Arg Val Glu Leu Leu His Asn Pro Ala Phe Cys Ser Leu Ala Thr Thr Lys Arg Arg His Gln Gln Thr Val Thr Ile Pro Pro Lys Ser Ser Leu Ser Val Pro Tyr Val Ile Val Pro Leu Lys Thr Gly Leu Gln Glu Val Glu Val Lys Ala Ala Val Tyr His His Phe Ile Ser Asp Gly Val Arg Lys Ser Leu Lys Val Val Pro Glu Gly Ile Arg Met Asn Lys Thr Val Ala Val Arg Thr Leu Asp Pro Glu Arg Leu Gly Arg Glu Gly Val Gln Lys Glu Asp Ile Pro Pro Ala Asp Leu Ser Asp Gln Val Pro Asp Thr Glu Ser Glu Thr Arg Ile Leu Leu Gln Gly Thr Pro Val Ala Gln Met Thr Glu Asp Ala Val Asp Ala Glu Arg Leu Lys His Leu Ile Val Thr Pro Ser Gly Cys Gly Glu Gln Asn Met Ile Gly Met Thr Pro Thr Val Ile Ala Val His Tyr Leu Asp Glu Thr Glu Gln Trp Glu Lys Phe Gly Leu Glu Lys Arg Gln Gly Ala Leu Glu Leu Ile Lys Lys Gly Tyr Thr Gln Gln Leu Ala Phe Arg Gln Pro Ser Ser Ala Phe Ala Ala Phe Val Lys Arg Ala Pro Ser Thr Trp Leu Thr Ala Tyr Val Val Lys Val Phe Ser Leu Ala Val Asn Leu Ile Ala Ile Asp Ser Gln

Val Leu Cys Gly Ala Val Lys Trp Leu Ile Leu Glu Lys Gln Lys Pro Asp Gly Val Phe Gln Glu Asp Ala Pro Val Ile His Gln Glu Met Ile Gly Gly Leu Arg Asn Asn Asn Glu Lys Asp Met Ala Leu Thr Ala Phe Val Leu Ile Ser Leu Gln Glu Ala Lys Asp Ile Cys Glu Glu Gln Val Asn Ser Leu Pro Gly Ser Ile Thr Lys Ala Gly Asp Phe Leu Glu Ala Asn Tyr Met Asn Leu Gln Arg Ser Tyr Thr Val Ala Ile Ala Gly Tyr Ala Leu Ala Gln Met Gly Arg Leu Lys Gly Pro Leu Leu Asn Lys Phe Leu Thr Thr Ala Lys Asp Lys Asn Arg Trp Glu Asp Pro Gly Lys Gln Leu Tyr Asn Val Glu Ala Thr Ser Tyr Ala Leu Leu Ala Leu Leu Gln Leu Lys Asp Phe Asp Phe Val Pro Pro Val Val Arg Trp Leu Asn Glu Gln Arg Tyr Tyr Gly Gly Gly Tyr Gly Ser Thr Gln Ala Thr Phe Met Val Phe Gln Ala Leu Ala Gln Tyr Gln Lys Asp Ala Pro Asp His Gln Glu Leu Asn Leu Asp Val Ser Leu Gln Leu Pro Ser Arg Ser Ser Lys Ile Thr His Arg Ile His Trp Glu Ser Ala Ser Leu Leu Arg Ser Glu Glu Thr Lys Glu Asn Glu Gly Phe Thr Val Thr Ala Glu Gly Lys Gly Gln Gly Thr Leu Ser Val Val Thr Met Tyr His Ala Lys Ala Lys Asp Gln Leu Thr Cys Asn Lys Phe Asp Leu Lys Val Thr Ile Lys Pro Ala Pro Glu Thr Glu Lys Arg Pro Gln Asp Ala Lys Asn Thr Met Ile Leu Glu Ile Cys Thr Arg Tyr Arg Gly Asp Gln Asp Ala Thr Met Ser Ile Leu Asp Ile Ser Met Met Thr Gly Phe Ala Pro Asp Thr Asp Asp Leu Lys Gln Leu Ala Asn Gly Val Asp Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg Asn Thr Leu Ile Ile Tyr Leu Asp Lys Val Ser His Ser Glu Asp Asp Cys Leu Ala Phe Lys Val His Gln Tyr Phe Asn Val Glu Leu Ile Gln Pro Gly Ala Val Lys Val Tyr Ala Tyr Tyr Asn Leu Glu Glu Ser Cys Thr Arg Phe Tyr His Pro Glu Lys Glu Asp Gly Lys Leu Asn Lys Leu Cys Arg Asp Glu Leu Cys Arg Cys Ala Glu Glu Asn Cys Phe Ile Gln Lys Ser Asp Asp Lys Val Thr Leu Glu Glu Arg Leu Asp Lys Ala Cys Glu Pro Gly Val Asp Tyr Val Tyr Lys Thr Arg Leu Val Lys Val Gln Leu Ser Asn Asp Phe Asp Glu Tyr Ile Met Ala Ile Glu Gln Thr Ile Lys Ser Gly Ser Asp Glu Val Gln Val Gly Gln Gln Arg Thr Phe Ile Ser Pro Ile Lys Cys Arg Glu Ala Leu Lys Leu Glu Glu Lys Lys His Tyr Leu Met Trp Gly Leu Ser Ser Asp Phe Trp Gly Glu Lys Pro Asn Leu Ser Tyr Ile Ile Gly Lys Asp Thr Trp Val Glu His Trp Pro Glu Glu Asp Glu Cys Gln Asp Glu Glu Asn Gln Lys Gln Cys Gln Asp Leu Gly Ala Phe Thr Glu Ser Met Val Val Phe Gly Cys Pro Asn

FIGURE 300

gataggatca ccacggtggt aacctctcac attgtcttct ccacaggagg cgtctgacac agtatgatga tgaagatccc atggggcagc atcccagtac tgatcttgct cctgctcctg ggcctaatcg atatctccca ggcccagctc agctgcaccg ggcccccagc catccctggc atcccgggta tccctgggac acctggcccc gatggccaac ctgggacccc agggataaaa ggagagaaag ggcttccagg gctggctgga gaccatggtg agttcggaga gaagggagac ccagggattc ctgggaatcc aggaaaagtc ggccccaagg gccccatggg ccctaaaggt ggcccagggg cccctggagc cccaggcccc aaaggtgaat cgggagacta caaggccacc cagaaaatcg ccttctctgc cacaagaacc atcaacgtcc ccctgcgccg ggaccagacc atccgcttcg accacgtgat caccaacatg aacaacaatt atgagccccg cagtggcaag ttcacctgca aggtgcccgg tctctactac ttcacctacc acgccagctc tcgagggaac ctgtgcgtga acctcatgcg tggccgggag cgtgcacaga aggtggtcac cttctgtgac tatgcctaca acaccttcca ggtcaccacc ggtggcatgg tcctcaagct ggagcagggg gagaacgtct tcctgcaggc caccgacaag aactcactac tgggcatgga gggtgccaac agcatctttt ccgggttcct gctctttcca gatatggagg cctgacctgt gggctgcttc acatccaccc cggctccccc tgccagcaac gctcactcta cccccaacac caccccttgc ccagccaatg gacacagtag ggcttggtga atgctgctga gtgaatgagt aaataaactc ttcaaggcca aggaacagtg gtctaattca actctgtgtc ccagcactgg cacaccagaa gtgccatgct cagaaatgtt ggttacatga atgaatgaac catgaatgaa tg

FIGURE 301

Met Met Met Lys Ile Pro Trp Gly Ser Ile Pro Val Leu Ile Leu Leu Leu Leu Leu Gly Leu Ile Asp Ile Ser Gln Ala Gln Leu Ser Cys Thr Gly Pro Pro Ala Ile Pro Gly Ile Pro Gly Ile Pro Gly Thr Pro Gly Pro Asp Gly Gln Pro Gly Thr Pro Gly Ile Lys Gly Glu Lys Gly Leu Pro Gly Leu Ala Gly Asp His Gly Glu Phe Gly Glu Lys Gly Asp Pro Gly Ile Pro Gly Asn Pro Gly Lys Val Gly Pro Lys Gly Pro Met Gly Pro Lys Gly Gly Pro Gly Ala Pro Gly Ala Pro Gly Pro Lys Gly Glu Ser Gly Asp Tyr Lys Ala Thr Gln Lys Ile Ala Phe Ser Ala Thr Arg Thr Ile Asn Val Pro Leu Arg Arg Asp Gln Thr Ile Arg Phe Asp His Val Ile Thr Asn Met Asn Asn Asn Tyr Glu Pro Arg Ser Gly Lys Phe Thr Cys Lys Val Pro Gly Leu Tyr Tyr Phe Thr Tyr His Ala Ser Ser Arg Gly Asn Leu Cys Val Asn Leu Met Arg Gly Arg Glu Arg Ala Gln Lys Val Val Thr Phe Cys Asp Tyr Ala Tyr Asn Thr Phe Gln Val Thr Thr Gly Gly Met Val Leu Lys Leu Glu Gln Gly Glu Asn Val Phe Leu Gln Ala Thr Asp Lys Asn Ser Leu Leu Gly Met Glu Gly Ala Asn Ser Ile Phe Ser Gly Phe Leu Leu Phe Pro Asp Met Glu Ala

FIGURE 302

gggccggagt tcctgcagag ggagcgtcaa ggccctgtgc tgctgtccct gggggccaga ggggttgccc agcatgccca ctggcaggag agagggaact gacccacttg ctcctaccag cttctgaagg ctccaaagtc cggagtgcag aaagccagga ccaagagaca ggcagctcac cagggtggac aaatcgccag agatgtggtg cattgtcctg ttttcacttt tggcatgggt ttatgctgag cctaccatgt atggggagat cctgtcccct aactatcctc aggcatatcc cagtgaggta gagaaatctt gggacataga agttcctgaa gggtatggga ttcacctcta cttcacccat ctggacattg agctgtcaga gaactgtgcg tatgactcag tgcagataat ctcaggagac actgaagaag ggaggctctg tggacagagg agcagtaaca atccccactc tccaattgtg gaagagttcc aagtcccata caacaaactc caggtgatct ttaagtcaga cttttccaat gaagagcgtt ttacggggtt tgctgcatac tatgttgcca cagacataaa tgaatgcaca gattttgtag atgtcccttg tagccacttc tgcaacaatt tcattggtgg ttacttctgc tcctgccccc cggaatattt cctccatgat gacatgaaga attgcggagt taattgcagt ggggatgtat tcactgcact gattggggag attgcaagtc ccaattatcc caaaccatat ccagagaact caaggtgtga ataccagatc cggttggaga aagggttcca agtggtggtg accttgcgga gagaagattt tgatgtggaa gcagctgact cagcgggaaa ctgccttgac agtttagttt ttgttgcagg agatcggcaa tttggtcctt actgtggtca tggattccct gggcctctaa atattgaaac caagagtaat gctcttgata tcatcttcca aactgatcta acagggcaaa aaaagggctg gaaacttcgc tatcatggag atccaatgcc ctgccctaag gaagacactc ccaattctgt ttgggagcct gcgaaggcaa aatatgtctt tagagatgtg gtgcagataa cctgtctgga tgggtttgaa gttgtggagg gacgtgttgg tgcaacatct ttctattcga cttgtcaaag caatggaaag tggagtaatt ccaaactgaa atgtcaacct gtggactgtg gcattcctga atccattgag aatggtaaag ttgaagaccc agagagcact ttgtttggtt ctgtcatccg ctacacttgt gaggagccat attactacat ggaaaatgga ggaggtgggg agtatcactg tgctggtaac gggagctggg tgaatgaggt gctgggcccg gagctgccga aatgtgttcc agtctgtgga gtccccagag aacccttga agaaaaacag aggataattg gaggatccga tgcagatatt aaaaacttcc cctggcaagt cttctttgac aacccatggg ctggtggagc gctcattaat gagtactggg tgctgacggc tgctcatgtt gtggagggaa acagggagcc aacaatgtat gttgggtcca cctcagtgca gacctcacgg ctggcaaaat ccaagatgct cactcctgag catgtgttta ttcatccggg atggaagctg ctggaagtcc cagaaggacg aaccaatttt gataatgaca ttgcactggt gcggctgaaa gacccagtga aaatgggacc caccgtctct cccatctgcc taccaggcac ctcttccgac tacaacctca tggatgggga cctgggactg atctcaggct ggggccgaac agagaagaga gatcgtgctg ttcgcctcaa ggcggcaagg ttacctgtag ctcctttaag aaaatgcaaa gaagtgaaag tggagaaacc cacagcagat gcagaggcct atgttttcac tcctaacatg atctgtgctg gaggagagaa gggcatggat agctgtaaag gggacagtgg tggggccttt gctgtacagg atcccaatga caagaccaaa ttctacgcag ctggcctggt gtcctggggg ccccagtgtg ggacctatgg gctctacaca cgggtaaaga actatgttga ctggataatg aagactatgc aggaaaatag caccccccgt gaggactaat ccagatacat cccaccagcc tctccaaggg tggtgaccaa tgcattacct tctgttcctt atgatattct cattatttca tcatgactga aagaagacac gagcgaatga tttaaataga acttgattgt tgagacgcct tgctagaggt agagtttgat catagaattg tgctggtcat acatttgtgg tctgactcct tggggtcctt tccccggagt acctattgta gataacacta tgggtggggc actcctttct tgcactattc cacagggata ccttaattct ttgtttcctc tttacctgtt caaaattcca tttacttgat cattctcagt atccactgtc tatgtacaat aaaggatgtt tataagc

FIGURE 303

Met Trp Cys Ile Val Leu Phe Ser Leu Leu Ala Trp Val Tyr Ala Glu Pro Thr Met Tyr Gly Glu Ile Leu Ser Pro Asn Tyr Pro Gln Ala Tyr Pro Ser Glu Val Glu Lys Ser Trp Asp Ile Glu Val Pro Glu Gly Tyr Gly Ile His Leu Tyr Phe Thr His Leu Asp Ile Glu Leu Ser Glu Asn Cys Ala Tyr Asp Ser Val Gln Ile Ile Ser Gly Asp Thr Glu Glu Gly Arg Leu Cys Gly Gln Arg Ser Ser Asn Asn Pro His Ser Pro Ile Val Glu Glu Phe Gln Val Pro Tyr Asn Lys Leu Gln Val Ile Phe Lys Ser Asp Phe Ser Asn Glu Glu Arg Phe Thr Gly Phe Ala Ala Tyr Tyr Val Ala Thr Asp Ile Asn Glu Cys Thr Asp Phe Val Asp Val Pro Cys Ser His Phe Cys Asn Asn Phe Ile Gly Gly Tyr Phe Cys Ser Cys Pro Pro Glu Tyr Phe Leu His Asp Asp Met Lys Asn Cys Gly Val Asn Cys Ser Gly Asp Val Phe Thr Ala Leu Ile Gly Glu Ile Ala Ser Pro Asn Tyr Pro Lys Pro Tyr Pro Glu Asn Ser Arg Cys Glu Tyr Gln Ile Arg Leu Glu Lys Gly Phe Gln Val Val Val Thr Leu Arg Arg Glu Asp Phe Asp Val Glu Ala Ala Asp Ser Ala Gly Asn Cys Leu Asp Ser Leu Val Phe Val Ala Gly Asp Arg Gln Phe Gly Pro Tyr Cys Gly His Gly Phe Pro Gly Pro Leu Asn Ile Glu Thr Lys Ser Asn Ala Leu Asp Ile Ile Phe Gln Thr Asp Leu Thr Gly Gln Lys Lys Gly Trp Lys Leu Arg Tyr His Gly Asp Pro Met Pro Cys Pro Lys Glu Asp Thr Pro Asn Ser Val Trp Glu Pro Ala Lys Ala Lys Tyr Val Phe Arg Asp Val Val Gln Ile Thr Cys Leu Asp Gly Phe Glu Val Val Glu Gly Arg Val Gly Ala Thr Ser Phe Tyr Ser Thr Cys Gln Ser Asn Gly Lys Trp Ser Asn Ser Lys Leu Lys Cys Gln Pro Val Asp Cys Gly Ile Pro Glu Ser Ile Glu Asn Gly Lys Val Glu Asp Pro Glu Ser Thr Leu Phe Gly Ser Val Ile Arg Tyr Thr Cys Glu Glu Pro Tyr Tyr Tyr Met Glu Asn Gly Gly Gly Gly Glu Tyr His Cys Ala Gly Asn Gly Ser Trp Val Asn Glu Val Leu Gly Pro Glu Leu Pro Lys Cys Val Pro Val Cys Gly Val Pro Arg Glu Pro Phe Glu Glu Lys Gln Arg Ile Ile Gly Gly Ser Asp Ala Asp Ile Lys Asn Phe Pro Trp Gln Val Phe Phe Asp Asn Pro Trp Ala Gly Gly Ala Leu Ile Asn Glu Tyr Trp Val Leu Thr Ala Ala His Val Val Glu Gly Asn Arg Glu Pro Thr Met Tyr Val Gly Ser Thr Ser Val Gln Thr Ser Arg Leu Ala Lys Ser Lys Met Leu Thr Pro Glu His Val Phe Ile His Pro Gly Trp Lys Leu Leu Glu Val Pro Glu Gly Arg Thr Asn Phe Asp Asn Asp Ile Ala Leu Val Arg Leu Lys Asp Pro Val Lys Met Gly Pro Thr Val Ser Pro Ile Cys Leu Pro Gly Thr Ser Ser Asp Tyr Asn Leu Met Asp Gly Asp Leu Gly Leu Ile Ser Gly Trp Gly Arg Thr Glu Lys Arg Asp Arg Ala Val Arg Leu Lys Ala Ala Arg Leu Pro Val Ala Pro Leu Arg Lys Cys Lys Glu Val Lys Val Glu Lys Pro Thr Ala Asp Ala Glu Ala Tyr Val Phe Thr Pro Asn Met Ile Cys Ala Gly Gly Glu Lys Gly Met Asp Ser Cys Lys Gly Asp Ser Gly Gly Ala Phe Ala Val Gln Asp Pro Asn Asp Lys Thr Lys Phe Tyr Ala Ala Gly Leu Val Ser Trp Gly Pro Gln Cys Gly Thr Tyr Gly Leu Tyr Thr Arg Val Lys Asn Tyr Val Asp Trp Ile Met Lys Thr Met Gln Glu Asn Ser Thr Pro Arg Glu Asp

FIGURE 304

tcctgcccca ggcccagctt ctctcctgcc ttccaacgcc atggggagca atctcagccc ccaactctgc ctgatgccct ttatcttggg cctcttgtct ggaggtgtga ccaccactcc atggtctttg gcccagcccc agggatcctg ctctctggag ggggtagaga tcaaaggcgg ctccttccga cttctccaag agggccaggc actggagtac gtgtgtcctt ctggcttcta cccgtaccct gtgcagacac gtacctgcag atctacgggg tcctggagca ccctgaagac tcaagaccaa aagactgtca ggaaggcaga gtgcagagca atccactgtc caagaccaca cgacttcgag aacggggaat actggccccg gtctccctac tacaatgtga gtgatgagat ctctttccac tgctatgacg gttacactct ccggggctct gccaatcgca cctgccaagt gaatggccgg tggagtgggc agacagcgat ctgtgacaac ggagcggggt actgctccaa cccgggcatc cccattggca caaggaaggt gggcagccag taccgccttg aagacagcgt cacctaccac tgcagccggg ggcttaccct gcgtggctcc cagcggcgaa cgtgtcagga aggtggctct tggagcggga cggagccttc ctgccaagac tccttcatgt acgacacccc tcaagaggtg gccgaagctt tcctgtcttc cctgacagag accatagaag gagtcgatgc tgaggatggg cacggcccag gggaacaaca gaagcggaag atcgtcctgg acccttcagg ctccatgaac atctacctgg tgctagatgg atcagacagc attggggcca gcaacttcac aggagccaaa aagtgtctag tcaacttaat tgagaaggtg gcaagttatg gtgtgaagcc aagatatggt ctagtgacat atgccacata ccccaaaatt tgggtcaaag tgtctgaagc agacagcagt aatgcagact gggtcacgaa gcagctcaat gaaatcaatt atgaagacca caagttgaag tcagggacta acaccaagaa ggccctccag gcagtgtaca gcatgatgag ctggccagat gacgtccctc ctgaaggctg gaaccgcacc cgccatgtca tcatcctcat gactgatgga ttgcacaaca tgggcgggga cccaattact gtcattgatg agatccggga cttgctatac attggcaagg atcgcaaaaa cccaagggag gattatctgg atgtctatgt gtttggggtc gggcctttgg tgaaccaagt gaacatcaat gctttggctt ccaagaaaga caatgagcaa catgtgttca aagtcaagga tatggaaaac ctggaagatg ttttctacca aatgatcgat gaaagccagt ctctgagtct ctgtggcatg gtttgggaac acaggaaggg taccgattac cacaagcaac catggcaggc caagatctca gtcattcgcc cttcaaaggg acacgagagc tgtatggggg ctgtggtgtc tgagtacttt gtgctgacag cagcacattg tttcactgtg gatgacaagg aacactcaat caaggtcagc gtaggagggg agaagcggga cctggagata gaagtagtcc tatttcaccc caactacaac attaatggga aaaaagaagc aggaattcct gaattttatg actatgacgt tgccctgatc aagctcaaga ataagctgaa atatggccag actatcaggc ccatttgtct cccctgcacc gagggaacaa ctcgagcttt gaggcttcct ccaactacca cttgccagca acaaaaggaa gagctgctcc ctgcacagga tatcaaagct ctgtttgtgt ctgaggagga gaaaaagctg actcggaagg aggtctacat caagaatggg gataagaaag gcagctgtga gagagatgct caatatgccc caggctatga caaagtcaag gacatctcag aggtggtcac ccctcggttc ctttgtactg gaggagtgag tccctatgct gaccccaata cttgcagagg tgattctggc ggccccttga tagttcacaa gagaagtcgt ttcattcaag ttggtgtaat cagctgggga gtagtggatg tctgcaaaaa ccagaagcgg caaaagcagg tacctgctca cgcccgagac tttcacatca acctctttca agtgctgccc tggctgaagg agaaactcca agatgaggat ttgggttttc tataaggggt ttcctgctgg acaggggcgt gggattgaat taaaacagct gcgacaac

FIGURE 305

Met Gly Ser Asn Leu Ser Pro Gln Leu Cys Leu Met Pro Phe Ile Leu Gly Leu Leu Ser Gly Gly Val Thr Thr Thr Pro Trp Ser Leu Ala Gln Pro Gln Gly Ser Cys Ser Leu Glu Gly Val Glu Ile Lys Gly Gly Ser Phe Arg Leu Leu Gln Glu Gly Gln Ala Leu Glu Tyr Val Cys Pro Ser Gly Phe Tyr Pro Tyr Pro Val Gln Thr Arg Thr Cys Arg Ser Thr Gly Ser Trp Ser Thr Leu Lys Thr Gln Asp Gln Lys Thr Val Arg Lys Ala Glu Cys Arg Ala Ile His Cys Pro Arg Pro His Asp Phe Glu Asn Gly Glu Tyr Trp Pro Arg Ser Pro Tyr Tyr Asn Val Ser Asp Glu Ile Ser Phe His Cys Tyr Asp Gly Tyr Thr Leu Arg Gly Ser Ala Asn Arg Thr Cys Gln Val Asn Gly Arg Trp Ser Gly Gln Thr Ala Ile Cys Asp Asn Gly Ala Gly Tyr Cys Ser Asn Pro Gly Ile Pro Ile Gly Thr Arg Lys Val Gly Ser Gln Tyr Arg Leu Glu Asp Ser Val Thr Tyr His Cys Ser Arg Gly Leu Thr Leu Arg Gly Ser Gln Arg Arg Thr Cys Gln Glu Gly Gly Ser Trp Ser Gly Thr Glu Pro Ser Cys Gln Asp Ser Phe Met Tyr Asp Thr Pro Gln Glu Val Ala Glu Ala Phe Leu Ser Ser Leu Thr Glu Thr Ile Glu Gly Val Asp Ala Glu Asp Gly His Gly Pro Gly Glu Gln Gln Lys Arg Lys Ile Val Leu Asp Pro Ser Gly Ser Met Asn Ile Tyr Leu Val Leu Asp Gly Ser Asp Ser Ile Gly Ala Ser Asn Phe Thr Gly Ala Lys Lys Cys Leu Val Asn Leu Ile Glu Lys Val Ala Ser Tyr Gly Val Lys Pro Arg Tyr Gly Leu Val Thr Tyr Ala Thr Tyr Pro Lys Ile Trp Val Lys Val Ser Glu Ala Asp Ser Ser Asn Ala Asp Trp Val Thr Lys Gln Leu Asn Glu Ile Asn Tyr Glu Asp His Lys Leu Lys Ser Gly Thr Asn Thr Lys Lys Ala Leu Gln Ala Val Tyr Ser Met Met Ser Trp Pro Asp Asp Val Pro Pro Glu Gly Trp Asn Arg Thr Arg His Val Ile Ile Leu Met Thr Asp Gly Leu His Asn Met Gly Gly Asp Pro Ile Thr Val Ile Asp Glu Ile Arg Asp Leu Leu Tyr Ile Gly Lys Asp Arg Lys Asn Pro Arg Glu Asp Tyr Leu Asp Val Tyr Val Phe Gly Val Gly Pro Leu Val Asn Gln Val Asn Ile Asn Ala Leu Ala Ser Lys Lys Asp Asn Glu Gln His Val Phe Lys Val Lys Asp Met Glu Asn Leu Glu Asp Val Phe Tyr Gln Met Ile Asp Glu Ser Gln Ser Leu Ser Leu Cys Gly Met Val Trp Glu His Arg Lys Gly Thr Asp Tyr His Lys Gln Pro Trp Gln Ala Lys Ile Ser Val Ile Arg Pro Ser Lys Gly His Glu Ser Cys Met Gly Ala Val Val Ser Glu Tyr Phe Val Leu Thr Ala Ala His Cys Phe Thr Val Asp Asp Lys Glu His Ser Ile Lys Val Ser Val Gly Gly Glu Lys Arg Asp Leu Glu Ile Glu Val Val Leu Phe His Pro Asn Tyr Asn Ile Asn Gly Lys Lys Glu Ala Gly Ile Pro Glu Phe Tyr Asp Tyr Asp Val Ala Leu Ile Lys Leu Lys Asn Lys Leu Lys Tyr Gly Gln Thr Ile Arg Pro Ile Cys Leu Pro Cys Thr Glu Gly Thr Thr Arg Ala Leu Arg Leu Pro Pro Thr Thr Thr Cys Gln Gln Gln Lys Glu Glu Leu Leu Pro Ala Gln Asp Ile Lys Ala Leu Phe Val Ser Glu Glu Glu Lys Lys Leu Thr Arg Lys Glu Val Tyr Ile Lys Asn Gly Asp Lys Lys Gly Ser Cys Glu Arg Asp Ala Gln Tyr Ala Pro Gly Tyr Asp Lys Val Lys Asp Ile Ser Glu Val Val Thr Pro Arg Phe Leu Cys Thr Gly Gly Val Ser Pro Tyr Ala Asp Pro Asn Thr Cys Arg Gly Asp Ser Gly Gly Pro Leu Ile Val His Lys Arg Ser Arg Phe Ile Gln Val Gly Val Ile Ser Trp Gly Val Val Asp Val Cys Lys Asn Gln Lys Arg Gln Lys Gln Val Pro Ala His Ala Arg Asp Phe His Ile Asn Leu Phe Gln Val Leu Pro Trp Leu Lys Glu Lys Leu Gln Asp Glu Asp Leu Gly Phe Leu

FIGURE 306

cacacacctt aaccctgact ttttttgctc cagtttttca gaagaagtga agtcaagatg aagaaccatt tgcttttctg gggagtcctg gcggttttta ttaaggctgt tcatgtgaaa gcccaagaag atgaaaggat tgttcttgtt gacaacaaat gtaagtgtgc ccggattact tccaggatca tccgttcttc cgaagatcct aatgaggaca ttgtggagag aaacatccga attattgttc ctctgaacaa cagggagaat atctctgatc ccacctcacc attgagaacc agatttgtgt accatttgtc tgacctctgt aaaaaatgtg atcctacaga agtggagctg gataatcaga tagttactgc tacccagagc aatatctgtg atgaagacag tgctacagag acctgctaca cttatgacag aaacaagtgc tacacagctg tggtcccact cgtatatggt ggtgagacca aaatggtgga aacagcctta accccagatg cctgctatcc tgactaattt aagtcattgc tgactgcata gctctttttc ttgagaggct ctccattttg attcagaaag ttagcatatt tattaccaat gaatttgaaa ccagggcttt ttttttttt ttgggtgatg taaaaccaac tccctgccac caaaataatt aaaatagtca cattgttatc tttattaggt aatcacttct taattatatg ttcatactct aagtatcaaa atcttccaat tatcatgctc acctgaaaga ggtatgctct cttaggaata cagtttctag cattaaacaa ataaacaagg ggagaaaata aaactcaagg agtgaaaatc aggaggtgta ataaaatgtt cctcgcattc aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa

FIGURE 307

Met Lys Asn His Leu Leu Phe Trp Gly Val Leu Ala Val Phe Ile Lys Ala Val His Val Lys Ala Gln Glu Asp Glu Arg Ile Val Leu Val Asp Asn Lys Cys Lys Cys Ala Arg Ile Thr Ser Arg Ile Ile Arg Ser Ser Glu Asp Pro Asn Glu Asp Ile Val Glu Arg Asn Ile Arg Ile Ile Val Pro Leu Asn Asn Arg Glu Asn Ile Ser Asp Pro Thr Ser Pro Leu Arg Thr Arg Phe Val Tyr His Leu Ser Asp Leu Cys Lys Lys Cys Asp Pro Thr Glu Val Glu Leu Asp Asn Gln Ile Val Thr Ala Thr Gln Ser Asn Ile Cys Asp Glu Asp Ser Ala Thr Glu Thr Cys Tyr Thr Tyr Asp Arg Asn Lys Cys Tyr Thr Ala Val Val Pro Leu Val Tyr Gly Gly Glu Thr Lys Met Val Glu Thr Ala Leu Thr Pro Asp Ala Cys Tyr Pro Asp

FIGURE 308

tttaaagctg ggaggttctg ccaccaagca cggccttccc actgggaaca caaacttgct ggcgggaaga gcccggaaag aaacctgtgg atctcccttc gagatcatcc aaagagaaga aaggtgacct cacattcgtg ccccttagca gcactctgca gaaatgcctc ctcagctgca aaacggcctg aacctctcgg ccaaagttgt ccagggaagc ctggacagcc tgccccaggc agtgagggag tttctcgaga ataacgctga gctgtgtcag cctgatcaca tccacatctg tgacggctct gaggaggaga atgggcggct tctgggccag atggaggaag agggcatcct caggcggctg aagaagtatg acaactgctg gttggctctc actgacccca gggatgtggc caggatcgaa agcaagacgg ttatcgtcac ccaagagcaa agagacacag tgcccatccc caaaacaggc ctcagccagc tcggtcgctg gatgtcagag gaggattttg agaaagcgtt caatgccagg ttcccagggt gcatgaaagg tcgcaccatg tacgtcatcc cattcagcat ggggccgctg ggctcgcctc tgtcaaagat cggcatcgag ctgacggatt caccctacgt ggtggccagc atgcggatca tgacgcggat gggcacgccc gtcctggaag cactgggcga tggggagttt gtcaaatgcc tccattctgt ggggtgccct ctgcctttac aaaagccttt ggtcaacaac tggccctgca acccggagct gacgctcatc gcccacctgc ctgaccgcag agagatcatc tcctttggca gtgggtacgg cgggaactcg ctgctcggga agaagtgctt tgctctcagg atggccagcc ggctggccaa ggaggaaggg tggctggcag agcacatgct ggttctgggt ataaccaacc ctgagggtga gaagaagtac ctggcggccg catttcccag cgcctgcggg aagaccaacc tggccatgat gaaccccagc ctccccgggt ggaaggttga gtgcgtcggg gatgacattg cctggatgaa gtttgacgca caaggtcatt taagggccat caacccagaa aatggctttt tcggtgtcgc tcctgggact tcagtgaaga ccaaccccaa tgccatcaag accatccaga agaacacaat ctttaccaat gtggccgaga ccagcgacgg gggcgtttac tgggaaggca ttgatgagcc gctagcttca ggtgtcacca tcacgtcctg gaagaataag gagtggagct cagaggatgg ggaaccttgt gcccacccca actcgaggtt ctgcaccccc gccagccagt gccccatcat tgatgctgcc tgggagtctc cggaaggtgt tcccattgaa ggcattatct ttggaggccg tagacctgct ggtgtccctc tagtctatga agctctcagc tggcaacatg gagtctttgt gggggcggcc atgagatcag aggccacagc ggctgcagaa cataaaggca aaatcatcat gcatgacccc tttgccatgc ggcccttctt tggctacaac ttcggcaaat acctggccca ctggcttagc atggcccagc acccagcagc caaactgccc aagatcttcc atgtcaactg gttccggaag gacaaggaag gcaaattcct ctggccaggc tttggagaga actccagggt gctggagtgg atgttcaacc ggatcgatgg aaaagccagc accaagctca cgcccatagg ctacatcccc aaggaggatg ccctgaacct gaaaggcctg gggcacatca acatgatgga gcttttcagc atctccaagg aattctggga gaaggaggtg gaagacatcg agaagtatct ggaggatcaa gtcaatgccg acctcccctg tgaaatcgag agagagatcc ttgccttgaa gcaaagaata agccagatgt aatcagggcc tgagtgcttt acctttaaaa tcattccctt tcccatccat aaggtgcagt aggagcaaga gagggcaagt gttcccaaat tgacgccacc ataataatca tcaccacacc gtgagcagat ctgaaaggca cactttgatt tttttaagga taagaaccac agaacactgg gtagtagcta atgaaattga gaagggaaat cttagcatgc ctccaaaaat tcacatccaa tgcatagttt gttcaaattt aaggttactc aggcattgat cttttcagtg ttttttcact ttagctatgt ggattagcta gaatgcacac caaaaaaata cttgagctgt atatatatat gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgcatgt atgtgcacat gtgtctgtgt ggtatatttg tgtatgtgta tttgtatgta ctgttattga aaatatattt aataccttg gaaaaatctt gggcaagatg acctactagt tttccttgaa aaaaagttgc tttgttatta atattgtgct taaattattt ttatacacca ttgttcctta cctttacata attgcaatat ttccccctta ctacttcttg gaaaaaaatt acaaaatgaa gttttataga aaagatgg

FIGURE 309

Met Pro Pro Gln Leu Gln Asn Gly Leu Asn Leu Ser Ala Lys Val Val Gln Gly Ser Leu Asp Ser Leu Pro Gln Ala Val Arg Glu Phe Leu Glu Asn Asn Ala Glu Leu Cys Gln Pro Asp His Ile His Ile Cys Asp Gly Ser Glu Glu Glu Asn Gly Arg Leu Leu Gly Gln Met Glu Glu Glu Gly Ile Leu Arg Arg Leu Lys Lys Tyr Asp Asn Cys Trp Leu Ala Leu Thr Asp Pro Arg Asp Val Ala Arg Ile Glu Ser Lys Thr Val Ile Val Thr Gln Glu Gln Arg Asp Thr Val Pro Ile Pro Lys Thr Gly Leu Ser Gln Leu Gly Arg Trp Met Ser Glu Glu Asp Phe Glu Lys Ala Phe Asn Ala Arg Phe Pro Gly Cys Met Lys Gly Arg Thr Met Tyr Val Ile Pro Phe Ser Met Gly Pro Leu Gly Ser Pro Leu Ser Lys Ile Gly Ile Glu Leu Thr Asp Ser Pro Tyr Val Val Ala Ser Met Arg Ile Met Thr Arg Met Gly Thr Pro Val Leu Glu Ala Leu Gly Asp Gly Glu Phe Val Lys Cys Leu His Ser Val Gly Cys Pro Leu Pro Leu Gln Lys Pro Leu Val Asn Asn Trp Pro Cys Asn Pro Glu Leu Thr Leu Ile Ala His Leu Pro Asp Arg Arg Glu Ile Ile Ser Phe Gly Ser Gly Tyr Gly Gly Asn Ser Leu Leu Gly Lys Lys Cys Phe Ala Leu Arg Met Ala Ser Arg Leu Ala Lys Glu Glu Gly Trp Leu Ala Glu His Met Leu Val Leu Gly Ile Thr Asn Pro Glu Gly Glu Lys Lys Tyr Leu Ala Ala Ala Phe Pro Ser Ala Cys Gly Lys Thr Asn Leu Ala Met Met Asn Pro Ser Leu Pro Gly Trp Lys Val Glu Cys Val Gly Asp Asp Ile Ala Trp Met Lys Phe Asp Ala Gln Gly His Leu Arg Ala Ile Asn Pro Glu Asn Gly Phe Phe Gly Val Ala Pro Gly Thr Ser Val Lys Thr Asn Pro Asn Ala Ile Lys Thr Ile Gln Lys Asn Thr Ile Phe Thr Asn Val Ala Glu Thr Ser Asp Gly Gly Val Tyr Trp Glu Gly Ile Asp Glu Pro Leu Ala Ser Gly Val Thr Ile Thr Ser Trp Lys Asn Lys Glu Trp Ser Ser Glu Asp Gly Glu Pro Cys Ala His Pro Asn Ser Arg Phe Cys Thr Pro Ala Ser Gln Cys Pro Ile Ile Asp Ala Ala Trp Glu Ser Pro Glu Gly Val Pro Ile Glu Gly Ile Ile Phe Gly Gly Arg Arg Pro Ala Gly Val Pro Leu Val Tyr Glu Ala Leu Ser Trp Gln His Gly Val Phe Val Gly Ala Ala Met Arg Ser Glu Ala Thr Ala Ala Ala Glu His Lys Gly Lys Ile Ile Met His Asp Pro Phe Ala Met Arg Pro Phe Phe Gly Tyr Asn Phe Gly Lys Tyr Leu Ala His Trp Leu Ser Met Ala Gln His Pro Ala Ala Lys Leu Pro Lys Ile Phe His Val Asn Trp Phe Arg Lys Asp Lys Glu Gly Lys Phe Leu Trp Pro Gly Phe Gly Glu Asn Ser Arg Val Leu Glu Trp Met Phe Asn Arg Ile Asp Gly Lys Ala Ser Thr Lys Leu Thr Pro Ile Gly Tyr Ile Pro Lys Glu Asp Ala Leu Asn Leu Lys Gly Leu Gly His Ile Asn Met Met Glu Leu Phe Ser Ile Ser Lys Glu Phe Trp Glu Lys Glu Val Glu Asp Ile Glu Lys Tyr Leu Glu Asp Gln Val Asn Ala Asp Leu Pro Cys Glu Ile Glu Arg Glu Ile Leu Ala Leu Lys Gln Arg Ile Ser Gln Met

FIGURE 310

ggcaccaggt ctcccaggct tcctcagcgt cgacgccggg gagcgccctg gggttgggag cgcccggggc ccgcgaagga ggaggtggct caggtgtcag ggcgcaccgt gggaaccggc cccgggggag gcgtggaaac gcggggcctg ggactcgacc agcctctccc gtgcggatcg caaaatctcg gagctgaaac agcccgttgt tcgcagcctc cctctgaccc gccaccctgc acattgtttt ccattcgccc gggtcgcggg tgggaggaga ggcacgccgg ggttctggag cttggccgcg cgccaggctt gtggccttcg tccccctggg gccactgggg cggccacgcc tctccggcgg gaggagagaa cgcgtgggtc cgggtggctg ctccggccct tccgcctcca gctcggccat ggggtcgcgc agctcccacg ccgcggtcat tcccgacggg gacagtattc ggcgagagac cggcttctcc caagccagcc tgctccgcct gcaccaccgg ttccgggcac tggacaggaa taagaagggc tacctgagcc gcatggatct ccagcagata ggggcgctcg ccgtgaaccc cctgggagac cgaattatag aaagcttctt ccccgatggg agccagcgag tggatttccc aggctttgtc agggtcttgg ctcattttcg ccctgtagaa gatgaggaca cagaaaccca agaccccaag aaacctgaac ctctcaacag cagaaggaac aaacttcact atgcatttca gctctatgac ctggatcgcg atgggaagat ctccaggcat gagatgctgc aggttctccg tctgatggtt ggggtacagg tgacagaaga gcagctggag aacatcgctg accgcacggt gcaggaggct gatgaagatg gggatggggc tgtgtccttc gtggagttca ccaagtcctt agagaagatg gacgttgagc aaaaaatgag catccggatc ctgaagtgac tccgtttgtg ccttgggctt gctcctgcaa ccagtatctc cttggaattc atccaaagcc cccatggacg catggacgca gggcgacaat aaactgtatt ttcgtttcta actctattta gggccaagag aagaaagctg gaaggatgtg tactaaagtc tagctcagca gtccccaacc tttttggcat cagggacagt ttttccacgg atgggtgaca ggggatggtt ttgggatgat tcaagtgcat tacatttatt gtgcacttta tttctattat gattacattg taatatataa tgaaataatt atacaactca ccataatgta gaatcagcag gagccctgag cttgttttcc tgcaattaga cggtcccata tgggagtgat gggagacagt gacagatcat caggcattag attctcataa ggagtgcaca atctagatcc tttggtgtgc agttcacagt aggatttggg ctcctatgat aatctaatgc cactgctgat ctgacaggag gcagagctca ggcggtaatg caagcaatgg ggagtggctg taaatataga tgaagcttca gctcgcctgc cgctcacctt gtgctgtgca gcccggttcc taacagacca cagaccccac accaggtcta tctcatttgg tctcagagct gtgaatcagc cagcaatatt ttagttgcaa atcactgaaa acccaactca aagtgactta agtcagaaag aaattttatg aattcaggta attaaaaagt ccagaagtat ctgcctttag gcacagctgg atccaagggc acaaatgatg tcatcaggct ccagttattc tccatctccc agctcagctt tttctgtctg taagcctgat tttcaggaag gctctttcct agtgatggag atgaccacca tcagctccag gcttctatcc tgctaaccca gtaacccagt gggaagagat ttacttattc caataattcc aagtggagag tgtcattgac ccgtttgggg tctcatctct acttctaggg gaatgaaaca ctttgagtgg ccaggcctgt gtcatgtgct aattcctaga gccagggaaa taaggtctga ggattcagga tggggtgaaa ggtggttgct taaaggaaaa tgaaatacaa ttagcagaat aaggggaaac gagtggtctg ctctgctcgg gcaaaacaag agatgcccat tactgtgagg gacccttgaa gtctggactc ttaaatgggt ttttgctgat ttcctgggtg catgctagga tgatggggct tgatgcagta gggaagagac gatgtaaaaa taataaacaa tatatacctt caaaaaaaaa aaaaaaaaaa aaaaaa

FIGURE 311

Met Gly Ser Arg Ser Ser His Ala Ala Val Ile Pro Asp Gly Asp Ser Ile Arg Arg Glu Thr Gly Phe Ser Gln Ala Ser Leu Leu Arg Leu His His Arg Phe Arg Ala Leu Asp Arg Asn Lys Lys Gly Tyr Leu Ser Arg Met Asp Leu Gln Gln Ile Gly Ala Leu Ala Val Asn Pro Leu Gly Asp Arg Ile Ile Glu Ser Phe Phe Pro Asp Gly Ser Gln Arg Val Asp Phe Pro Gly Phe Val Arg Val Leu Ala His Phe Arg Pro Val Glu Asp Glu Asp Thr Glu Thr Gln Asp Pro Lys Lys Pro Glu Pro Leu Asn Ser Arg Arg Asn Lys Leu His Tyr Ala Phe Gln Leu Tyr Asp Leu Asp Arg Asp Gly Lys Ile Ser Arg His Glu Met Leu Gln Val Leu Arg Leu Met Val Gly Val Gln Val Thr Glu Glu Gln Leu Glu Asn Ile Ala Asp Arg Thr Val Gln Glu Ala Asp Glu Asp Gly Asp Gly Ala Val Ser Phe Val Glu Phe Thr Lys Ser Leu Glu Lys Met Asp Val Glu Gln Lys Met Ser Ile Arg Ile Leu Lys

FIGURE 312

atctttgggt ggtggagtgc aaaggaggcg acctgcaaca gaggagtccc ggtcaccagc aaccatgacg gaccagcagg ctgaggccag gtcctacctc agcgaagaga tgatcgctga gttcaaggct gcctttgaca tgtttgatgc tgatggtggt ggggacatca gcgtcaagga gttgggcacg gtgatgagga tgctgggcca gacacccacc aaggaggagc tggacgccat catcgaggag gtggatgagg acggcagcgg caccatcgac ttcgaggagt tcttggtcat gatggtgcgc cagatgaaag aggacgcgaa agggaagagc gaggaggagc tggccgagtg cttccgcatc ttcgacagga atgcagacgg ctacatcgac ccggaggagc tggctgagat tttcagggcc tccggggagc acgtgactga cgaggagatc gaatctctga tgaaagacgg cgacaagaac aacgacggcc gcattgactt cgacgagttc ctgaagatga tggagggcgt gcagtaagga gtggacagtc gcctctacca agatcgcgtg tccctagggt gtgggagact ccgccctgcc gggtccccac cagggaggcg cggccccttg tgggtctttg tctggaagga ataaaagcaa atgttcc

FIGURE 313

Met Thr Asp Gln Gln Ala Glu Ala Arg Ser Tyr Leu Ser Glu Glu Met Ile Ala Glu Phe Lys Ala Ala Phe Asp Met Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Val Lys Glu Leu Gly Thr Val Met Arg Met Leu Gly Gln Thr Pro Thr Lys Glu Glu Leu Asp Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly Thr Ile Asp Phe Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys Glu Asp Ala Lys Gly Lys Ser Glu Glu Glu Leu Ala Glu Cys Phe Arg Ile Phe Asp Arg Asn Ala Asp Gly Tyr Ile Asp Pro Glu Glu Leu Ala Glu Ile Phe Arg Ala Ser Gly Glu His Val Thr Asp Glu Glu Ile Glu Ser Leu Met Lys Asp Gly Asp Lys Asn Asn Asp Gly Arg Ile Asp Phe Asp Glu Phe Leu Lys Met Met Glu Gly Val Gln

FIGURE 314

gtgatctggg aggtgctgag cacccacctg cgacccatgg cgggggagga ccgagtaacg acagcatggc ggtgcccccg agagggaggg gcatagaccc cgcccggaca aaccctgaca cgttccctcc ttcaggggcg cgatgtatgg aacccagtcc tgagaggcct gcatgcagtc agcaggagcc gaccctggga atggacgcga tggcctcgga acacagggat gtccttgtgc tgctgcccag ccgggagcaa ctgcggctgg ccgtgggggt gaaggctact ggccgcgagc ttttccagca agtgtgcaac gtggcgagca tcagagacgc gcagttcttt ggcctctgtg tggtcagaaa caatgagtat atatttatgg atttggagca aaagctcagc aagtacttct caaaagattg gaagaaagaa agaaatgaag gaaatgagaa acccagagcc cccttcgtgg ccttcctccg agtgcagcac tacgtggaaa acggaagggt cataagcgac cacagggcac ggcacctgta ctactgccac ttgaaggagc gcgtgctgag gtcacagtgc gctcaccggg aggaagccta cttcctgctg gctgcctgcg cgctgcaggc tgacctgggc gagcaccggg agtcggccca tgccgggagg tacttcgagc cacactccta cttcccacag tggatcatca ccaagagggg gattgactac atcctccggc acatgcctac cctgcaccgt gagcgccagg gcctgagccc caaggaggcc atgctgtgct tcatccagga ggcctgccgg ctggaggacg tgcccgtgca cttcttcagg ctgcacaagg ataagaagga aggtcgtccc accgtgatcc tgggactggc cctcagggga gtgcacatct accagggaaa gaagctggag atccagctgg atgggctgcc cgcagcacag aagctggttt actacacggg gtgcacctgg cggtccaggc acctgctgca cctgctgcgc gccagccacc agctccacct ccgcgtgcgg cccactctgc aacagctgcg gcagcgggag gaggcagaag agaagcagca ctaccgggag tcctatatca gcgatgagct ggagctggac ctggccagca ggagcttccc gggcagtggg gtcagcagcc agcactgccc ccactgcctc tcacgccact ccgccgacag ccacggcagt tcctacacgt caggcatcaa ggccaactcc tggctcaggg aatccagaga gatgtctgtg gacgtgccct tggaggtcca cgggctccat gagaaggagc cgtcctccag ccccaggacc agccgcagcc accccagcac acgtggtgac agccaagcca ctcgtcagga gccctgcacc gaggtcagga ccagaggcca gagcgccgag gccgtgcacc agatccagga aatgacagcc ggggtcagtg aggagcagca cagccatggc ctggatgaca tgcagctgca ccagctggcc ctgcacccag cgcccacctc actcagccat accttccacc gcgccctgga ctgcaggctg gcaggccccc gcgagaccag ggccactctc cccagcaaga ggtccagcaa ctgtctcgcc ctggacctgt tcggagaggc cccaccacag gagtttgtgg tgtaggcacc acccacccag cagtaccgtc cgcaccgcca ggctcagccc ctgcccaccc cacttccaca tggccctcgt cccttcctgc ccgccagatg ctgcctgcac ttccgcagcc agcacgctcc acaggttcac ctgtaagagg tgtggagctg gctctgacat caacctggga ggtaacaaac aggtcccgca cctcatgcct gtctgccata cacccgggag ctctttccct cagggtctca gggagccagt tcaaggtctg gctgtcaagt gtccagagag ccatggtgtt ggcccctgag gcagcctgtc acccatccta atctgggaga gaaggtgaca cagctgggcc cagaccctgg agagacagct ctgcagtttc ccacactgtc agctccccaa gagacagtcc tgatgggcac aggctgccag agctcccaag ccggagttca cagttatcat cactgtgcag gacccaggtt cctcccagac ctgaatccct ctctgcaact cctgtttgca agcgctgggc ctgccagaca gaggcccctc ttgtggtgca agcccagctc tgtcacctga gatccagcca gagaccctcc tccaccatcc acagtcaatg gctgtgcttt cccttccaag ccagggcttc caaagacccc actgccccgg agctgaagcc gactctgctc ccatctcagc catgaggcct caggacccac tctgctcaca ggtggcttcc ttaagccatt gccctggctg gggttgggct ggtgcagccc agctggcgga ggggcgaagc tttggtgaca gacggagagt gggggactag ctgtgcatgg cacctgctct gatccggtgg gctccacggg tagtgcgacc tcggttctgt gggctctgga aggccaccag ggtagggtct ccccagggct cctccccctg cacaacactc ctgcacacgt gcaaacctgc tgtcctctgc atttacagga atggcccgtg catccctgct agtctcaggc ccatcccaga gcactgagag gccacaatcg ttcagccctg tgccctgaac accactgccc ccttcactgt ctgtgtgtgg tgaagaccac gccacaccac cctccagctc actggagaca agcatgagct tgagccccat ggcctggtgc agggctgcgt gcattgaggc cgcctctttg acgggtccat ccagggggac cctctccttt ctgtgaaagg gaatcgtgtg tgtgccccag gcacgtgtaa taaagaaccc gagcagat

FIGURE 315

Met Ala Val Pro Pro Arg Gly Arg Gly Ile Asp Pro Ala Arg Thr Asn Pro Asp Thr Phe Pro Pro Ser Gly Ala Arg Cys Met Glu Pro Ser Pro Glu Arg Pro Ala Cys Ser Gln Gln Glu Pro Thr Leu Gly Met Asp Ala Met Ala Ser Glu His Arg Asp Val Leu Val Leu Leu Pro Ser Arg Glu Gln Leu Arg Leu Ala Val Gly Val Lys Ala Thr Gly Arg Glu Leu Phe Gln Gln Val Cys Asn Val Ala Ser Ile Arg Asp Ala Gln Phe Phe Gly Leu Cys Val Val Arg Asn Asn Glu Tyr Ile Phe Met Asp Leu Glu Gln Lys Leu Ser Lys Tyr Phe Ser Lys Asp Trp Lys Lys Glu Arg Asn Glu Gly Asn Glu Lys Pro Arg Ala Pro Phe Val Ala Phe Leu Arg Val Gln His Tyr Val Glu Asn Gly Arg Val Ile Ser Asp His Arg Ala Arg His Leu Tyr Tyr Cys His Leu Lys Glu Arg Val Leu Arg Ser Gln Cys Ala His Arg Glu Glu Ala Tyr Phe Leu Leu Ala Ala Cys Ala Leu Gln Ala Asp Leu Gly Glu His Arg Glu Ser Ala His Ala Gly Arg Tyr Phe Glu Pro His Ser Tyr Phe Pro Gln Trp Ile Ile Thr Lys Arg Gly Ile Asp Tyr Ile Leu Arg His Met Pro Thr Leu His Arg Glu Arg Gln Gly Leu Ser Pro Lys Glu Ala Met Leu Cys Phe Ile Gln Glu Ala Cys Arg Leu Glu Asp Val Pro Val His Phe Phe Arg Leu His Lys Asp Lys Lys Glu Gly Arg Pro Thr Val Ile Leu Gly Leu Ala Leu Arg Gly Val His Ile Tyr Gln Gly Lys Lys Leu Glu Ile Gln Leu Asp Gly Leu Pro Ala Ala Gln Lys Leu Val Tyr Tyr Thr Gly Cys Thr Trp Arg Ser Arg His Leu Leu His Leu Leu Arg Ala Ser His Gln Leu His Leu Arg Val Arg Pro Thr Leu Gln Gln Leu Arg Gln Arg Glu Glu Ala Glu Glu Lys Gln His Tyr Arg Glu Ser Tyr Ile Ser Asp Glu Leu Glu Leu Asp Leu Ala Ser Arg Ser Phe Pro Gly Ser Gly Val Ser Ser Gln His Cys Pro His Cys Leu Ser Arg His Ser Ala Asp Ser His Gly Ser Ser Tyr Thr Ser Gly Ile Lys Ala Asn Ser Trp Leu Arg Glu Ser Arg Glu Met Ser Val Asp Val Pro Leu Glu Val His Gly Leu His Glu Lys Glu Pro Ser Ser Ser Pro Arg Thr Ser Arg Ser His Pro Ser Thr Arg Gly Asp Ser Gln Ala Thr Arg Gln Glu Pro Cys Thr Glu Val Arg Thr Arg Gly Gln Ser Ala Glu Ala Val His Gln Ile Gln Glu Met Thr Ala Gly Val Ser Glu Glu Gln His Ser His Gly Leu Asp Asp Met Gln Leu His Gln Leu Ala Leu His Pro Ala Pro Thr Ser Leu Ser His Thr Phe His Arg Ala Leu Asp Cys Arg Leu Ala Gly Pro Cys Glu Thr Arg Ala Thr Leu Pro Ser Lys Arg Ser Ser Asn Cys Leu Ala Leu Asp Leu Phe Gly Glu Ala Pro Pro Gln Glu Phe Val Val

FIGURE 316

atgcactcaa gcagagaaga aatccacaag tactcaccag cctcctggtc tgcagagaag acagaatcaa tatgagcaca gcaggaaaag taatcaaatg caaagcagct gtgctatggg agttaaagaa acccttttcc attgaggagg tagaggttgc acctcctaag gctcatgaag ttcgcattaa gatggtggct gcaggaatct gtcgttcaga tgagcatgtg gttagtggca acctggtgac ccccccttcct gtgattttag gccatgaggc agccggcatc gtggaaagtg ttggagaagg ggtgactaca gtcaaaccag gtgataaagt catcccgctc tttactcctc agtgtggaaa atgcagaatt tgtaaaaacc cagaaagcaa ctactgcttg aaaaatgatc taggcaatcc tcgggggacc ctgcaggatg gcaccaggag gttcacctgc agcgggaagc ccatccacca cttcgtcggc gtcagcacct tctcccagta cacagtggtg gatgagaatg cagtggccaa aattgatgca gcctcgcccc tggagaaagt ctgcctcatt ggctgtggat tttcgactgg ttatgggtct gcagtcaaag ttgccaaggt caccccaggg tctacctgtg ctgtgtttgg cctgggaggg gtcggcctat ctgttgttat gggctgtaaa gcagctggag cagccagaat cattgctgtg gacatcaaca aggacaaatt tgcaaaggct aaagagttgg gggccactga atgcatcaac cctcaagact acaagaaacc cattcaggaa gtgctaaagg aaatgactga tggaggtgtg gatttttcgt ttgaagtcat cggtcggctt gacaccatga tggcttccct gttatgttgt catgaggcat gtggcacaag tgtcattgta ggggtacctc ctgattccca gaacctctca ataaacccta tgctgctact gactggacgc acgtggaaag gagctatttt tggaggcttt aagagtaaag aatctgtccc gaaacttgtg gctgacttta tggctaagaa gttttcactg gatgcattaa taacaaatat tttacctttt gaaaaaataa atgaaggatt tgacctgctt cgctctggaa agagtatccg taccgtcctg acgttttgaa acaatacaga tgccttccct tgtagcagtt ttcagcctcc tctaccctac atgatctgga gcaacagcta ggaaatatca ttaattctgc tcttcagaga tgttaaaaat aaattacacg tgggagcttt ccaaagaaat ggaaattgat gggaaattat ttgtcaagca aatgtttaaa atccaaatga gaactaaata aagtgttgaa catcaactgg ggaattgaag ccaataaacc ttccttctta accattcaaa aaaaaaaaaa

FIGURE 317

Met Ser Thr Ala Gly Lys Val Ile Lys Cys Lys Ala Ala Val Leu Trp Glu Leu Lys Lys Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro Lys Ala His Glu Val Arg Ile Lys Met Val Ala Ala Gly Ile Cys Arg Ser Asp Glu His Val Val Ser Gly Asn Leu Val Thr Pro Leu Pro Val Ile Leu Gly His Glu Ala Ala Gly Ile Val Glu Ser Val Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp Lys Val Ile Pro Leu Phe Thr Pro Gln Cys Gly Lys Cys Arg Ile Cys Lys Asn Pro Glu Ser Asn Tyr Cys Leu Lys Asn Asp Leu Gly Asn Pro Arg Gly Thr Leu Gln Asp Gly Thr Arg Arg Phe Thr Cys Ser Gly Lys Pro Ile His His Phe Val Gly Val Ser Thr Phe Ser Gln Tyr Thr Val Val Asp Glu Asn Ala Val Ala Lys Ile Asp Ala Ala Ser Pro Leu Glu Lys Val Cys Leu Ile Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ser Ala Val Lys Val Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Val Val Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Ala Val Asp Ile Asn Lys Asp Lys Phe Ala Lys Ala Lys Glu Leu Gly Ala Thr Glu Cys Ile Asn Pro Gln Asp Tyr Lys Lys Pro Ile Gln Glu Val Leu Lys Glu Met Thr Asp Gly Gly Val Asp Phe Ser Phe Glu Val Ile Gly Arg Leu Asp Thr Met Met Ala Ser Leu Leu Cys Cys His Glu Ala Cys Gly Thr Ser Val Ile Val Gly Val Pro Pro Asp Ser Gln Asn Leu Ser Ile Asn Pro Met Leu Leu Leu Thr Gly Arg Thr Trp Lys Gly Ala Ile Phe Gly Gly Phe Lys Ser Lys Glu Ser Val Pro Lys Leu Val Ala Asp Phe Met Ala Lys Lys Phe Ser Leu Asp Ala Leu Ile Thr Asn Ile Leu Pro Phe Glu Lys Ile Asn Glu Gly Phe Asp Leu Leu Arg Ser Gly Lys Ser Ile Arg Thr Val Leu Thr Phe

FIGURE 318

cggtttctgc tgggtttctg aactgctggg tttctgcttg ctcctctgga gatgcagcgt ctgttgactc cagtgaagcg cattctgcaa ctgacaagag cggtgcagga aacctccctc acacctgctc gcctgctccc agtagcccac caaaggtttt ctacagcctc tgctgtcccc ctggccaaaa cagatacttg gccaaaggac gtgggcatcc tggccctgga ggtctacttc ccagcccaat atgtggacca aactgacctg gagaagtata acaatgtgga agcaggaaag tatacagtgg gcttgggcca gacccgtatg ggcttctgct cagtccaaga ggacatcaac tccctgtgcc tgacggtggt gcaacggctg atggagcgca tacagctccc atgggactct gtgggcaggc tggaagtagg cactgagacc atcattgaca agtccaaagc tgtcaaaaca gtgctcatgg aactcttcca ggattcaggc aatactgata ttgagggcat agataccacc aatgcctgct acggtggtac tgcctccctc ttcaatgctg ccaactggat ggagtccagt tcctgggatg gtcgttatgc catggtggtc tgtggagaca ttgccgtcta tcccagtggt aatgctcgtc ccacaggtgg ggccggagct gtggctatgc tgattggccc aaaggcccct ctggccctgg agcgagggct gaggggaacc catatggaga atgtgtatga cttctacaaa ccaaatttgg cctcggagta cccaatagtg gatgggaagc tttccatcca gtgctacttg cgggccttgg atcgatgtta cacatcatac cgtaaaaaaa tccagaatca gtggaagcaa gctggcagcg atcgaccctt caccccttgac gatttacagt atatgatctt tcatacaccc ttttgcaaga tggtccagaa gtctctggct cgcctgatgt tcaatgactt cctgtcagcc agcagtgaca cacaaaccag cttatataag gggctggagg ctttcggggg gctaaagctg gaagacacct acaccaacaa ggacctggat aaagcacttc taaaggcctc tcaggacatg ttcgacaaga aaaccaaggc ttccctttac ctctccactc acaatgggaa catgtacacc tcatccctgt acgggtgcct ggcctcgctt ctgtcccacc actctgccca agaactggct ggctccagga ttggtgcctt ctcttatggc tctggtttag cagcaagttt cttttcattt cgagtatccc aggatgctgc tccaggctct cccctggaca agttggtgtc cagcacatca gacctgccaa aacgcctagc ctcccgaaag tgtgtgtctc ctgaggagtt cacagaaata atgaaccaaa gagagcaatt ctaccataag gtgaatttct ccccacctgg tgacacaaac agccttttcc caggtacttg gtacctggag cgagtggacg agcagcatcg ccgaaagtat gcccggcgtc ccgtctaaag gtgttctgca gatccatgga aagcttcctg ggaaacgtat gctagcagag cttctccccg tgaatcatat ttttaagatc ccactcttag ctggtaaatg aatttgaatc gacatagtag ccccataagc atcagccctg tagagtgagg agccatctct agcgggccct tcattcctct ccatgctgca atcactgtcc tgggcttatg gtgcctatgg actaggggtc ctttgtgaaa gagcaagatg gagcaatgga gagaagacct cttcctgaat cactggactc cagaaatgtg catgcagatc agctgttgcc ttcaagatcc agataaactt tcctgtcatg tgttagaact ttattattat taatattgtt aaacttctgt gctgttcctg tgaatctcca aattttgtac cttgttctaa gctaatatat agcaattaaa aagagagaaa gagaaaaaaa aaaaaaaa

FIGURE 319

Met Gln Arg Leu Leu Thr Pro Val Lys Arg Ile Leu Gln Leu Thr Arg Ala Val Gln Glu Thr Ser Leu Thr Pro Ala Arg Leu Leu Pro Val Ala His Gln Arg Phe Ser Thr Ala Ser Ala Val Pro Leu Ala Lys Thr Asp Thr Trp Pro Lys Asp Val Gly Ile Leu Ala Leu Glu Val Tyr Phe Pro Ala Gln Tyr Val Asp Gln Thr Asp Leu Glu Lys Tyr Asn Asn Val Glu Ala Gly Lys Tyr Thr Val Gly Leu Gly Gln Thr Arg Met Gly Phe Cys Ser Val Gln Glu Asp Ile Asn Ser Leu Cys Leu Thr Val Val Gln Arg Leu Met Glu Arg Ile Gln Leu Pro Trp Asp Ser Val Gly Arg Leu Glu Val Gly Thr Glu Thr Ile Ile Asp Lys Ser Lys Ala Val Lys Thr Val Leu Met Glu Leu Phe Gln Asp Ser Gly Asn Thr Asp Ile Glu Gly Ile Asp Thr Thr Asn Ala Cys Tyr Gly Gly Thr Ala Ser Leu Phe Asn Ala Ala Asn Trp Met Glu Ser Ser Ser Trp Asp Gly Arg Tyr Ala Met Val Val Cys Gly Asp Ile Ala Val Tyr Pro Ser Gly Asn Ala Arg Pro Thr Gly Gly Ala Gly Ala Val Ala Met Leu Ile Gly Pro Lys Ala Pro Leu Ala Leu Glu Arg Gly Leu Arg Gly Thr His Met Glu Asn Val Tyr Asp Phe Tyr Lys Pro Asn Leu Ala Ser Glu Tyr Pro Ile Val Asp Gly Lys Leu Ser Ile Gln Cys Tyr Leu Arg Ala Leu Asp Arg Cys Tyr Thr Ser Tyr Arg Lys Lys Ile Gln Asn Gln Trp Lys Gln Ala Gly Ser Asp Arg Pro Phe Thr Leu Asp Asp Leu Gln Tyr Met Ile Phe His Thr Pro Phe Cys Lys Met Val Gln Lys Ser Leu Ala Arg Leu Met Phe Asn Asp Phe Leu Ser Ala Ser Ser Asp Thr Gln Thr Ser Leu Tyr Lys Gly Leu Glu Ala Phe Gly Gly Leu Lys Leu Glu Asp Thr Tyr Thr Asn Lys Asp Leu Asp Lys Ala Leu Leu Lys Ala Ser Gln Asp Met Phe Asp Lys Lys Thr Lys Ala Ser Leu Tyr Leu Ser Thr His Asn Gly Asn Met Tyr Thr Ser Ser Leu Tyr Gly Cys Leu Ala Ser Leu Leu Ser His His Ser Ala Gln Glu Leu Ala Gly Ser Arg Ile Gly Ala Phe Ser Tyr Gly Ser Gly Leu Ala Ala Ser Phe Phe Ser Phe Arg Val Ser Gln Asp Ala Ala Pro Gly Ser Pro Leu Asp Lys Leu Val Ser Ser Thr Ser Asp Leu Pro Lys Arg Leu Ala Ser Arg Lys Cys Val Ser Pro Glu Glu Phe Thr Glu Ile Met Asn Gln Arg Glu Gln Phe Tyr His Lys Val Asn Phe Ser Pro Pro Gly Asp Thr Asn Ser Leu Phe Pro Gly Thr Trp Tyr Leu Glu Arg Val Asp Glu Gln His Arg Arg Lys Tyr Ala Arg Arg Pro Val

FIGURE 320

ggcgcccaag ccgccgccgc cagatcggtg ccgattcctg ccctgccccg accgccagcg cgaccatgtc ccatcactgg gggtacggca aacacaacgg acctgagcac tggcataagg acttccccat tgccaaggga gagcgccagt cccctgttga catcgacact catacagcca agtatgaccc ttccctgaag cccctgtctg tttcctatga tcaagcaact tccctgagga tcctcaacaa tggtcatgct ttcaacgtgg agtttgatga ctctcaggac aaagcagtgc tcaagggagg acccctggat ggcacttaca gattgattca gtttcacttt cactggggtt cacttgatgg acaaggttca gagcatactg tggataaaaa gaaatatgct gcagaacttc acttggttca ctggaacacc aaatatgggg attttgggaa agctgtgcag caacctgatg gactggccgt tctaggtatt tttttgaagg ttggcagcgc taaaccgggc cttcagaaag ttgttgatgt gctggattcc attaaaacaa agggcaagag tgctgacttc actaacttcg atcctcgtgg cctccttcct gaatccctgg attactggac ctacccaggc tcactgacca cccctcctct tctggaatgt gtgacctgga ttgtgctcaa ggaacccatc agcgtcagca gcgagcaggt gttgaaattc cgtaaactta acttcaatgg ggagggtgaa cccgaagaac tgatggtgga caactggcgc ccagctcagc cactgaagaa caggcaaatc aaagcttcct tcaaataaga tggtcccata gtctgtatcc aaataatgaa tcttcgggtg tttcccttta gctaagcaca gatctacctt ggtgatttgg accctggttg ctttgtgtct agttttctag acccttcatc tcttacttga tagacttact aataaaatgt gaagactaga ccaattgtca tgcttgacac aactgctgtg gctggttggt gctttgttta tggtagtagt ttttctgtaa cacagaatat aggataagaa ataagaataa agtaccttga ctttgttcac agcatgtagg gtgatgagca ctcacaattg ttgactaaaa tgctgctttt aaaacatagg aaagtagaat ggttgagtgc aaatccatag cacaagataa attgagctag ttaaggcaaa tcaggtaaaa tagtcatgat tctatgtaat gtaaaccaga aaaaataaat gttcatgatt tcaagatgtt atattaaaga aaaactttaa aaattattat atatttatag caaagttatc ttaaatatga attctgttgt aatttaatga cttttgaatt acagagatat aaatgaagta ttatctgtaa aaattgttat aattagagtt gtgatacaga gtatatttcc attcagacaa tatatcataa cttaataaat attgtatttt agatatattc tctaataaaa ttcagaattc t

FIGURE 321

Met Ser His His Trp Gly Tyr Gly Lys His Asn Gly Pro Glu His Trp His Lys Asp Phe Pro Ile Ala Lys Gly Glu Arg Gln Ser Pro Val Asp Ile Asp Thr His Thr Ala Lys Tyr Asp Pro Ser Leu Lys Pro Leu Ser Val Ser Tyr Asp Gln Ala Thr Ser Leu Arg Ile Leu Asn Asn Gly His Ala Phe Asn Val Glu Phe Asp Asp Ser Gln Asp Lys Ala Val Leu Lys Gly Gly Pro Leu Asp Gly Thr Tyr Arg Leu Ile Gln Phe His Phe His Trp Gly Ser Leu Asp Gly Gln Gly Ser Glu His Thr Val Asp Lys Lys Lys Tyr Ala Ala Glu Leu His Leu Val His Trp Asn Thr Lys Tyr Gly Asp Phe Gly Lys Ala Val Gln Gln Pro Asp Gly Leu Ala Val Leu Gly Ile Phe Leu Lys Val Gly Ser Ala Lys Pro Gly Leu Gln Lys Val Val Asp Val Leu Asp Ser Ile Lys Thr Lys Gly Lys Ser Ala Asp Phe Thr Asn Phe Asp Pro Arg Gly Leu Leu Pro Glu Ser Leu Asp Tyr Trp Thr Tyr Pro Gly Ser Leu Thr Thr Pro Pro Leu Leu Glu Cys Val Thr Trp Ile Val Leu Lys Glu Pro Ile Ser Val Ser Ser Glu Gln Val Leu Lys Phe Arg Lys Leu Asn Phe Asn Gly Glu Gly Glu Pro Glu Glu Leu Met Val Asp Asn Trp Arg Pro Ala Gln Pro Leu Lys Asn Arg Gln Ile Lys Ala Ser Phe Lys

FIGURE 322

ggcacgaggc ctgagctcag gagtttgaga ccagcctgtc tctactaaca atataaaaat tagctgggag tcacggtggg cgcctgtaat cccagctact cgggaggctg aggcaggaga attgcttgaa cccaggagac agaggttgta gtgagctgag atcgcaccac tgcactctag ccttggcaac agtgcaagac tgtctcaaaa acagcaacag agagcaggac gtgagacttc tacctgctca ctcagaatca tttctgcacc aaccatggcc acgtttgtgg agctcagtac caaagccaag atgcccattg tgggcctggg cacttggaag tctcctcttg gcaaagtgaa agaagcagtg aaggtggcca ttgatgcagg atatcggcac attgactgtg cctatgtcta tcagaatgaa catgaagtgg gggaagccat ccaagagaag atccaagaga aggctgtgaa gcgggaggac ctgttcatcg tcagcaagtt gtggcccact ttctttgaga gacccccttgt gaggaaagcc tttgagaaga ccctcaagga cctgaagctg agctatctgg acgtctatct tattcactgg ccacagggat tcaagtctgg ggatgacctt ttccccaaag atgataaagg taatgccatc ggtggaaaag caacgttctt ggatgcctgg gaggccatgg aggagctggt ggatgagggg ctggtgaaag cccttggggt ctccaatttc agccacttcc agatcgagaa gctcttgaac aaacctggac tgaaatataa accagtgact aaccaggttg agtgtcaccc atacctcaca caggagaaac tgatccagta ctgccactcc aagggcatca ccgttacggc ctacagcccc ctgggctctc cggatagacc ttgggccaag ccagaagacc cttccctgct ggaggatccc aagattaagg agattgctgc aaagcacaaa aaaaccgcag cccaggttct gatccgtttc catatccaga ggaatgtgat tgtcatcccc aagtctgtga caccagcacg cattgttgag aacattcagg tctttgactt taaattgagt gatgaggaga tggcaaccat actcagcttc aacagaaact ggagggcctg taacgtgttg caatcctctc atttggaaga ctatcccttc gatgcagaat attgaggttg aatctcctgg tgagattata caggagattc tctttcttcg ctgaagtgtg actacctcca ctcatgtccc attttagcca agcttattta agatcacagt gaacttagtc ctgttataga cgagaatcga ggtgctgttt tagacattta tttctgtatg ttcaactagg atcagaatat cacagaaaag catggcttga ataaggaaat gacaattttt tccacttatc tgatcagaac aaatgtttat taagcatcag aaactctgcc aacactgagg atgtaaagat caataaaaaa aataataatc ataaaaaaaa aaaaaaaaaa

FIGURE 323

Met Ala Thr Phe Val Glu Leu Ser Thr Lys Ala Lys Met Pro Ile Val Gly Leu Gly Thr Trp Lys Ser Pro Leu Gly Lys Val Lys Glu Ala Val Lys Val Ala Ile Asp Ala Gly Tyr Arg His Ile Asp Cys Ala Tyr Val Tyr Gln Asn Glu His Glu Val Gly Glu Ala Ile Gln Glu Lys Ile Gln Glu Lys Ala Val Lys Arg Glu Asp Leu Phe Ile Val Ser Lys Leu Trp Pro Thr Phe Phe Glu Arg Pro Leu Val Arg Lys Ala Phe Glu Lys Thr Leu Lys Asp Leu Lys Leu Ser Tyr Leu Asp Val Tyr Leu Ile His Trp Pro Gln Gly Phe Lys Ser Gly Asp Asp Leu Phe Pro Lys Asp Asp Lys Gly Asn Ala Ile Gly Gly Lys Ala Thr Phe Leu Asp Ala Trp Glu Ala Met Glu Glu Leu Val Asp Glu Gly Leu Val Lys Ala Leu Gly Val Ser Asn Phe Ser His Phe Gln Ile Glu Lys Leu Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Thr Asn Gln Val Glu Cys His Pro Tyr Leu Thr Gln Glu Lys Leu Ile Gln Tyr Cys His Ser Lys Gly Ile Thr Val Thr Ala Tyr Ser Pro Leu Gly Ser Pro Asp Arg Pro Trp Ala Lys Pro Glu Asp Pro Ser Leu Leu Glu Asp Pro Lys Ile Lys Glu Ile Ala Ala Lys His Lys Lys Thr Ala Ala Gln Val Leu Ile Arg Phe His Ile Gln Arg Asn Val Ile Val Ile Pro Lys Ser Val Thr Pro Ala Arg Ile Val Glu Asn Ile Gln Val Phe Asp Phe Lys Leu Ser Asp Glu Glu Met Ala Thr Ile Leu Ser Phe Asn Arg Asn Trp Arg Ala Cys Asn Val Leu Gln Ser Ser His Leu Glu Asp Tyr Pro Phe Asp Ala Glu Tyr

FIGURE 324

atgcacttga gcagggaaga aatccacaag gactcaccag tctcctggtc tgcagagaag acagaatcaa catgagcaca gcaggaaaag taatcaaatg caaagcagct gtgctatggg agttaaagaa acccttttcc attgaggagg tggaggttgc acctcctaag gcccatgaag ttcgtattaa gatggtggct gtaggaatct gtggcacaga tgaccacgtg gttagtggta ccatggtgac cccacttcct gtgattttag gccatgaggc agccggcatc gtggagagtg ttggagaagg ggtgactaca gtcaaaccag gtgataaagt catcccactc gctattcctc agtgtggaaa atgcagaatt tgtaaaaacc cggagagcaa ctactgcttg aaaaacgatg taagcaatcc tcaggggacc ctgcaggatg gcaccagcag gttcacctgc aggaggaagc ccatccacca cttccttggc atcagcacct tctcacagta cacagtggtg gatgaaaatg cagtagccaa aattgatgca gcctcgcctc tagagaaagt ctgtctcatt ggctgtggat tttcaactgg ttatgggtct gcagtcaatg ttgccaaggt caccccaggc tctacctgtg ctgtgtttgg cctgggaggg gtcggcctat ctgctattat gggctgtaaa gcagctgggg cagccagaat cattgcggtg gacatcaaca aggacaaatt tgcaaaggcc aaagagttgg gtgccactga atgcatcaac cctcaagact acaagaaacc catccaggag gtgctaaagg aaatgactga tggaggtgtg gatttttcat ttgaagtcat cggtcggctt gacaccatga tggcttccct gttatgttgt catgaggcat gtggcacaag tgtcatcgta ggggtacctc ctgattccca aaacctctca atgaacccta tgctgctact gactggacgt acctggaagg gagctattct tggtggcttt aaaagtaaag aatgtgtccc aaaacttgtg gctgatttta tggctaagaa gttttcattg gatgcattaa taacccatgt tttacctttt gaaaaaataa atgaaggatt tgacctgctt cactctggga aaagtatccg taccattctg atgttttgag acaatacaga tgttttccct tgtggcagtc ttcagcctcc tctaccctac atgatctgga gcaacagctg ggaaatatca ttaattctgc tcatcacaga ttttatcaat aaattacatt tgggggcttt ccaaagaaat ggaaattgat gtaaaattat ttttcaagca aatgtttaaa atccaaatga gaactaaata aagtgttgaa catcagctgg ggaattgaag ccaataaacc ttccttctta accatt

FIGURE 325

Met Ser Thr Ala Gly Lys Val Ile Lys Cys Lys Ala Ala Val Leu Trp Glu Leu Lys Lys Pro Phe Ser Ile Glu Glu Val Glu Val Ala Pro Pro Lys Ala His Glu Val Arg Ile Lys Met Val Ala Val Gly Ile Cys Gly Thr Asp Asp His Val Val Ser Gly Thr Met Val Thr Pro Leu Pro Val Ile Leu Gly His Glu Ala Ala Gly Ile Val Glu Ser Val Gly Glu Gly Val Thr Thr Val Lys Pro Gly Asp Lys Val Ile Pro Leu Ala Ile Pro Gln Cys Gly Lys Cys Arg Ile Cys Lys Asn Pro Glu Ser Asn Tyr Cys Leu Lys Asn Asp Val Ser Asn Pro Gln Gly Thr Leu Gln Asp Gly Thr Ser Arg Phe Thr Cys Arg Arg Lys Pro Ile His His Phe Leu Gly Ile Ser Thr Phe Ser Gln Tyr Thr Val Val Asp Glu Asn Ala Val Ala Lys Ile Asp Ala Ala Ser Pro Leu Glu Lys Val Cys Leu Ile Gly Cys Gly Phe Ser Thr Gly Tyr Gly Ser Ala Val Asn Val Ala Lys Val Thr Pro Gly Ser Thr Cys Ala Val Phe Gly Leu Gly Gly Val Gly Leu Ser Ala Ile Met Gly Cys Lys Ala Ala Gly Ala Ala Arg Ile Ile Ala Val Asp Ile Asn Lys Asp Lys Phe Ala Lys Ala Lys Glu Leu Gly Ala Thr Glu Cys Ile Asn Pro Gln Asp Tyr Lys Lys Pro Ile Gln Glu Val Leu Lys Glu Met Thr Asp Gly Gly Val Asp Phe Ser Phe Glu Val Ile Gly Arg Leu Asp Thr Met Met Ala Ser Leu Leu Cys Cys His Glu Ala Cys Gly Thr Ser Val Ile Val Gly Val Pro Pro Asp Ser Gln Asn Leu Ser Met Asn Pro Met Leu Leu Leu Thr Gly Arg Thr Trp Lys Gly Ala Ile Leu Gly Gly Phe Lys Ser Lys Glu Cys Val Pro Lys Leu Val Ala Asp Phe Met Ala Lys Lys Phe Ser Leu Asp Ala Leu Ile Thr His Val Leu Pro Phe Glu Lys Ile Asn Glu Gly Phe Asp Leu Leu His Ser Gly Lys Ser Ile Arg Thr Ile Leu Met Phe

FIGURE 326

gcgaggcggg gcagtgagga ctccgcgacg cgtccgcacc ctgcggccag agcggctttg agctcggctg cgtccgcgct aggcgctttt tcccagaagc aatccaggcg cgcccgctgg ttcttgagcg ccaggaaaag cccggagcta acgaccggcc gctcggccac tgcacggggc cccaagccgc agaaggacga cgggagggta atgaagctga gcccaggtct cctaggaagg agagagtgcg ccggagcagc gtgggaaaga agggaagagt gtcgttaagt ttacggccaa cggtggatta tccgggccgc tgcgcgtctg ggggctgcgg aatgcgcgag gagaacaagg gcatgcccag tgggggcggc agcgatgagg gtctggccag cgccgcggcg cggggactag tggagaaggt gcgacagctc ctggaagccg gcgcggatcc caacggagtc aaccgtttcg ggaggcgcgc gatccaggtc atgatgatgg gcagcgcccg cgtggcggag ctgctgctgc tccacggcgc ggagcccaac tgcgcagacc ctgccactct cacccgaccg gtgcatgatg ctgcccggga gggcttcctg gacacgctgg tggtgctgca ccgggccggg gcgcggctgg acgtgcgcga tgcctggggt cgtctgcccg tggacttggc cgaggagcgg ggccaccgcg acgttgcagg gtacctgcgc acagccacgg gggactgacg ccaggttccc cagccgccca caacgacttt attttcttac ccaatttccc acccccaccc acctaattcg atgaaggctg ccaacgggga gcggcggaaa gcctgtaagc ctgcaagcct gtctgagact cacaggaagg aggagccgac cgggaataac cttccataca ttttttttctt tgtcttatct ggccctcgac actcaccatg aagcgaaaca cagagaagcg gatttccagg gatatttagg agtgtgtgac attccagggg tcgtttgctt ttcagggttt tctgagggaa agtgcatatg aaatccttga ctggacctgg tggctacgaa tcttccgatg gatgaatctc ccactccagc gctgagtggg agaaggcagt gattagcact tgggtgacgg cagtcgatgc gttcactcca atgtctgctg aggagttatg gtgaacccac aacttaggcc ctagcggcag aaaggaaaac ctgaagactg aggacaaagt ggaggagggc cgaggtgggc ttcagtaagt ccccggcggc gctttagttt gagcgcatgg caagtcacat gcgtaaacga cactctctgg aagccctgga gaccctcgcc caactccacc agatagcaga ggggtaagag aggatgtgca agcgacgaca gatgctaaaa tccctggatc acgacgctgc agagcacctt tgcacaggat gctggccttt gctcttacta cactgaggag agattcccgc gggttccgca ggcagactac acaggatgag gtggtggagt ggagtgagag caattgtaac ggttaactgt aacgttttct ttcacacaca cacacacaca cacacacaca catgctagga tgcggaaatc cccttatgac ttgctacttt ttgattttgt gatattttgt acttttagt tgttcagcaa ctgtcttatt taatggggag attttaagta acataactag tggctctcag ttaaaatgtg aggaagaact acagctctta aatgtagcaa tggcactgtt gcaaactcag tgcaaacgcc tagattgctt tcttcttaac ctatttattt ctttgttaaa tttttctgat tgtttccttt atagagtgtc tcagggtgca gaggtcagac taagaaatat tccaaatgtc ttttagaaga tagatgcact tatgcagtaa attatcttgg gatagttccc aaaagattgc tgaaaaagta gattgagtat aaaaacttga aaatatatga tggctcgtgg gatgtcctac tatcactgaa caaactaaag gtgcactgct ttgggattta atttccaggg ttgcttgatc attatatcat tggaacaact gatacttcac tactttaata aagaattaac agagattgaa ctccaagagg tgggtaattt ggtttaaaaa tacatgttca tgggtttacc actaactcct gagaaatgtt aaaggttcac aggggttccc ttctctcaat gtttgtaata attgctcata agcaatacca gcaattcata aaaactgctt acttatgcca tagaaaatta aacacaaagt gtatacatgt attatgcttc taaatgctca ttctaccaga tacacattta aaagagaaaa aaggaacaga aacaagtcat ttgagagtgg agacttataa gaaggagtac atttgagttg aatacacaaa tctttacttc tctaccaatt cctattccca aaatgaacat attactgggg aaagttagtt gagaatcaga gcatatgtta ttggggaaag gatatgttta ttgacacata atctgtacca ggtatgcatt aaaatatatt tgttaattta atatttaaac ctgagagata ggtattgnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnt tcattccatg gatgcacaaa gaagtgcatc tagttccaca gctgattatg gttgtcttgc ttttcttccc attgcaccag cttgtcctcc aaaatcatga atgatacaca tgaagataac ttttttaaa aaaaagcaga aatacacaat gatctccctt gtaagctcct aaggtggctt ttctttctct aacttctagt aaatataaac ggtttgtttg aaaactattt taaaatgtca acaatatgga gaataacccc ccccaacaca cctataaaaa cccaaatttt tggaacaaag ataatggaac ctccattttc aaactgaagc acagggacag aaaatatatt tctagttatc acttaagcac tcaatcatta gaggctacaa gaataatatt tttaaagtta cagtatttta caattattag aaaacattct atataaaaga agtcagttga tactttaaaa tctcccattt ggtttataaa atcccttaat ttgacctcta tatcttaaat tccaagatgt ttaaatttgc tagttgcatt atactgggtc atgaaaaatt atcccttgaa atagatatga aacatgttac ttcatttctg gtttaaataa cttgtggaat ctttcctaat gacaacttga tattaaggga aactaaagaa aatgttattg tggatcccac agtactatat tacactgttt tttttgtttg ttttgttagt tttttttatt taaagcaaac ctcaaacatt attgggtatc aattaccacc tggttgtatt gaaatagtaa cttatcaatg ccatgtaaaa attaattcca ttttcgaagc cacctggcag acaggtttag ctgtttcatc agcagcctaa tatatactgt taaatttgtt aaggatttca ctttgaagga tacatgcaaa acatatagtt actattttca tgagtcctgc ttctagctcc attgtggaat acagaaaatt aaatatacct gttaagttcg tatctaaacc taagacatta ccaaggtttg tacaaattct actacctgac atttattcca agaagatctg gaaagttaaa taaatttata aatttaataa cattcaaaa

FIGURE 327

Met Arg Glu Glu Asn Lys Gly Met Pro Ser Gly Gly Gly Ser Asp Glu Gly Leu Ala Ser Ala Ala Ala Arg Gly Leu Val Glu Lys Val Arg Gln Leu Leu Glu Ala Gly Ala Asp Pro Asn Gly Val Asn Arg Phe Gly Arg Arg Ala Ile Gln Val Met Met Met Gly Ser Ala Arg Val Ala Glu Leu Leu Leu Leu His Gly Ala Glu Pro Asn Cys Ala Asp Pro Ala Thr Leu Thr Arg Pro Val His Asp Ala Ala Arg Glu Gly Phe Leu Asp Thr Leu Val Val Leu His Arg Ala Gly Ala Arg Leu Asp Val Arg Asp Ala Trp Gly Arg Leu Pro Val Asp Leu Ala Glu Glu Arg Gly His Arg Asp Val Ala Gly Tyr Leu Arg Thr Ala Thr Gly Asp

FIGURE 328

atggccatct ttgtggagct caataccaaa gccaagatgc ccattgtggg cctgggcact tggaagtctc ctctcggcaa agtgaaagaa gtggtgaagg tggccattga tgcaggatat cgccacattg actgtgccta tgtctatcag aatgaacatg aggtggggga agccatccaa gagaagatcc aagagaaggc tgtaaagcgg gaggacctct tcatcatcaa caagttgtgg cccactttct ttgagagacc ccttgtgagg aaagcctttg agaagaccct caaggatctg aagctgagtt atctggatgt ctatcttatt cactaagcac agggatacaa gtctggggat gatttttcc gcaaagatga taaaggtaat atgatcggtg gaaaagcaat gttcttggat gcctgggagg ccatggagga gctggtggat gaggggctgg tgaaagccct tggggtctcc aatttcaacc acttccagat agagaggctc ttgaacaaac ctggactgaa atataaacca gtgactaacc aggttgagtg tcacccatac ctcacacagg agaaactgat ccagtactgc cactccaagg gcatcaccat tatggcctac agccccctag gctctccgga tagactttgg gccaagccag aggacccttc cctgctggag gatcccaaga ttaaggagat tgctgcaagg caacaaaaaa ccacagccca ggttctgatc catttccata tccagaggaa tgtgactgtg atccccaagt ctgtgacacc agcacgcatt gttgagaaca ttcaggcctt tgactttaca ttgaatgatg aggagatggc aaccacactc agcttcaaca gaaactggag ggcccgtaac atgttgcaat cctctcattt ggaggactat cccttcgatg cagaatattg a

FIGURE 329

Met Ile Gly Gly Lys Ala Met Phe Leu Asp Ala Trp Glu Ala Met Glu Glu Leu Val Asp Glu Gly Leu Val Lys Ala Leu Gly Val Ser Asn Phe Asn His Phe Gln Ile Glu Arg Leu Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Thr Asn Gln Val Glu Cys His Pro Tyr Leu Thr Gln Glu Lys Leu Ile Gln Tyr Cys His Ser Lys Gly Ile Thr Ile Met Ala Tyr Ser Pro Leu Gly Ser Pro Asp Arg Leu Trp Ala Lys Pro Glu Asp Pro Ser Leu Leu Glu Asp Pro Lys Ile Lys Glu Ile Ala Ala Arg Gln Gln Lys Thr Thr Ala Gln Val Leu Ile His Phe His Ile Gln Arg Asn Val Thr Val Ile Pro Lys Ser Val Thr Pro Ala Arg Ile Val Glu Asn Ile Gln Ala Phe Asp Phe Thr Leu Asn Asp Glu Glu Met Ala Thr Thr Leu Ser Phe Asn Arg Asn Trp Arg Ala Arg Asn Met Leu Gln Ser Ser His Leu Glu Asp Tyr Pro Phe Asp Ala Glu Tyr

FIGURE 330

ttctccaagg ccttaaatct cagatacttg aatgcatctg caaatagtct ggagtcttta ccatccgcct gcactggaga ggagagtttg agtatgctgc agctgcttta tctgaccaac aatctcctga cggatcagtg catacctgtc ctggtagggc acctgcacct gcgaatcttg caccttgcaa acaatcagtt acagaccttt cctgcaagca aactaaataa attggagcaa ttggaggaac tgaacctaag tggcaacaag cttaaaacca ttcccacaac catagcaaac tgtaaaaggc tgcacaccct tgttgcacac tccaacaaca tcagcatttt cccagaaata ctgcagttgc ctcagatcca gtttgtagac ctaagttgca acgacttgac agaaatcctg attccagagg ctttgcctgc tacattacaa gaccttgacc tgactggaaa tacaaatctg gttctggaac acaagacact ggacatattt agccatatca caaccctgaa aattgatcag aaacctttgc caaccacaga ttctacagtt acgtcaacct tctggagcca tggactggct gagatggcag ggcagagaaa taagctgtgt gtctcagcac ttgctatgga tagctttgca gagggggtgg gagctgtgta tggcatgttt gatggagacc gaaatgagga gctcccgcgc ctgctgcagt gtacgatggc agatgtgctt ttagaagagg tacagcagtc aactaatgac acagttttca tggctaacac cttcttggta tctcacagga aattaggaat ggctggccag aagttgggct cctccgctct cctgtgctac atccgccctg acactgccga tccagcaagt agctttagct tgactgtagc caatgttggc acgtgccaag cagtcctgtg ccgaggtggg aagccagtgc ccctctctaa agtcttcagc ctggagcagg acccagagga ggctcaaagg gtgaaggacc aaaaagccat catcacagag gacaacaaag tgaatggggt aacctgctgt acccggatgc tgggctgtac atacctctac ccttggatcc tccccaagcc ccacatatct tccactccgc tgaccattca agatgagttg ctgattctgg gaaacaaagc attgtgggaa cacttgtcct acacagaagc tgtcaatgct gtacgtcacg tacaagaccc attagcagct gctaagaagc tgtgcacatt agcgcagagc tatggctgtc aggacaatgt aggggcgatg gtagtttatt tgaatattgg tgaagaaggc tgcacttgtg aaatgaatgg gctcaccctc ccaggtcctg tgggatttgc ttcaaccacc actatcaagg atgcccctaa gccagccact ccatcctcta gcagtgggat tgcctctgag ttcagcagtg agatgtccac ctcagaggtg agcagtgaag tggggtccac tgcttctgat gagcataatg ctgggggcct ggacactgcc ttgcttccga ggccagagcg gcgctgcagc ctccacccaa cacccacctc tgggctgttt cagcgccagc cttcttctgc taccttctcc agtaaccagt ctgacaacgg cctggacagt gatgatgacc agcccgttga gggggtcata accaatggca gcaaggtaga ggtggaagta gacatccact gctgcagggg gagggatctg gagaactcac cccctctcat agagagttct cctaccctgt gttctgagga acatgctaga gggtcgtgtt ttgggatccg aagacagaac agtgtgaata gtggcatgct cctgccaatg agcaaggaca ggatggagtt acagaagtct ccctccacct cctgcctcta tgggaagaaa ctctccaatg gctctattgt gcccctagag gacagcctga acctcattga agtggccaca gaagtgccca agaggaaaac tggctatttt gctgcccccа ctcagatgga accagaggac cagtttgttg tgcctcatga cctggaagaa gaagtgaagg aacaaatgaa acagcaccag gacagccggc tcgagcctga gccccatgaa gaggatcgga ccgagccccc ggaggagttc gacacagcac tatgactgcc ccactgggca cagtgtggga ggaggctgtg cagggttggg gtagggactt gctagaggca ttctgcctct acatttcttt ttgtttgttc gttttttttt tgtttgtttg ttttgagacg gagtcttgct cagtcgctca ggctggagtg caatggtggg gtctcgggtc actgcagcct ctgtccctgg gttcaagcca ttctcctgtc tcagcctccc gagtagctgg gattacaggc acctgccatt atgcccggct aagttttatt ttttttttt agagacgggg tttcaccatg ttggccaggc tggtgttgaa ctcttgacct caggtgatcc accctcctct gcctcccaaa gtgctgtgat tacaggcctc agccaccatg cccagccctg cgtctacatt tctaaaccat agctgtgtgg ggttgaactc ggagccaaaa agtgtgagag ccatcagggg ctggctctgg ataaactggt agccactatc agtgttaagt ttcacattta acctgcattg gaattcccag gggtactggg aagaaagcag ctgttctgta tcagtcctac cacctgccat taacccttte tctcctagga tcattttgag aatttgcctg cctgggcagg aaagggacta tttctgtgga ggaaaaaagt gaagattgat tctctttact agttgctgct gatggatctc tgtgacagag aaatcacctt atctcagact aatggggtgt gatgtgacta gtcacatggc ttttcattct tctctacgag aatacagcct atcaaaatga tgtctgttgg aaatgtagaa ccaatcaaac agataattta tgtatgtaat gtaatgagag cacttttcat tgactgtgaa ctttttattt ttgaatctgc actcgagcca atcttcttag aggcagcccg gcaccttcat ccataggcag agagagaact gggtgttgga gacttattcg agggtatagg aagggccctg tgaagttgat ttaacttttg gatgtcagac tgtgaaagct cctgagaaac ttggggtaat aggatcttct tttggggatg aaaatgggga aggcgtgagg acctagacta cttctcccta gatcagaaaa agagaattac cccttgacaa atatgatacc tgctaggtat ttcccaggga aatttaggga ttggcctctt tccctagcat gtggaggaat tggcagacag cttcctaagg gcggggagcg ggggcccaag gccgacactg cttgcatcca cgtgacctta agttatggca gatgactctg aaacggactg aggccaatga gaacagatgg atggagcact caggttagac ttgttccttc tcctatgctg gaggagaggg atggttctct agaatgttgg aggtgagttg agagctcgcc tcttgaatgt tgaacagtgt actcttctga aaactgcata ttcactttat gtggtttcag aatactgggc tcaatactaa cataagaaag acacttcatt gagaaattct taagcttaca gaaaacctat actctttgca cattccacat aaccctagca aaatgcagtt tcttcatact tctgtcactt tttccattgg aagatttgct taggaaaatt aattcctatt tattcccaca

FIGURE 331 (Continued)

aaatgttggc attgcttgat tttacccaat ggggaatgtg ctttgaattt ttggaacact tttacaatta aaaataaagt agggccattt ttaatttgtt tcatcagaaa ctatgttaaa gagagggtta aatataaata tattttcgtg tgtatttttg ggaagatttt tgttcaaagc aatagtcaaa atcagatgac ctgtccataa taattatgtg tcttcatctt ctcagaggcc ccatgctcat atgcacgtgt cattgggata cactcttggg ggatttggta cactctaatg gatgtctaat gttcaacccc tcgagaatct gaacttgagt ccccagattg tcaaactact ggtcagctat tgagaatttt agaactcagg tctttgattt gaagtaggga acatagtggc tcacacagag tttaggtgct gttagaaaga tgggaacaag agtgttttgc caccttattt ttatatggga aatttttttt aatgaagaaa aaatgaaaat gaaataacag gatgatagtg atgagtgatg taaaacatct tacttagatg gcagaacctt cgggttgtag aatagtgatg tctaaaaatt aaagttattt tgggaataca ccactttaat agtatagtct tataaaaatt attcattatg gtgaaccctt cttgtctgct attcgtttcc caacctactt attggaacca cctcaaaacc cagttctgaa atgaccttac caaaagtaaa tgtatttatt ttttagtcag cagaactctg taattccaaa tgttgttctg tgtggtagaa tttttttca ggaaccatta ggttgtattg aaaatctttg ttataggcga taccaaaact gattattctt ttttgcagtc tgctttaatt catgtccttc tgcagttgct ctgtattaaa acagggtaaa aaggccatag cccattatga aaaatataat acaaaactct ttgacctatg aggtaactta cagacattgt gttttctaaa caggctgtca gtgaaagccc gtatctgtct ccaggtgaat gtaatttact tccgagtact ttacccagag gatgtattcc ccaggtgggc agagtacagt tgatctctag cacagacaga gattctggcc tctgcatatt ctcaggtctc tgtgtgtacc tcccattgag tagagaagct taagataatt tctgagagaa gaacactgct gattgtggga gcagtttagg agtccatgga agaaagaaaa atacatgtgt cttggcagcc atggtgtatt tttgtccaaa tggattggaa ggatatttga atatttgaat gttggtatga cataaagctg cagtgcacta tagagtcaag tcattgaatt accactcctg atacagggct ttattgtact actgtgaagt gtatgtgtgc aatacattgg tgagttcatt tactggtgta cggaagagcc agcaggagca gcgtggtcat tgctgggtgc tattacagtt gcttgtagtg agtgctgttt tccaggagat ggagccagtt gggtgtggca gatctactga atatcaaatg atgctcttct tcccatgtag accttcagca aaagccggta cttggaagcc acaggctcac cttctctatc tatccaataa ttattaatga agagacctcc ataagggagc agctggctgt tatcgataaa tgtaccaatt attaaataat tagtctccaa gccattcagt gatgtcttca gcatcactat aggactgtct agtgtcactt tttacttcct tctgggtgga ggctttccga ctcccaatca tgaaggcaag ttaatctttc cagttagtga cttttgcccc atagttgggg taaacacttc ctagattgag aaaaagcagc tacagtcaat cctgctctgt ttgcctcatt tggtgatcag tcagtcacac ataagttcct tgtattctaa atttcatgca cttctcccag atgctatagg gttttctctc actgttgcca atggatgtca tccagacagt gggctcatat cttacggttt tgtgcaatca ttgtcgtatt gtagtcttaa gactcattat agtgtatttt tgatattttt gaaatgtgtt aaatttttta attcagtaat gtgagccaga gcatgttgca gcaaatctat tgtttgtaaa aataacaata acaataataa ataaaataaa gtggaatctt tttcatggct ttgtttt

FIGURE 331

Phe Ser Lys Ala Leu Asn Leu Arg Tyr Leu Asn Ala Ser Ala Asn Ser Leu Glu Ser Leu Pro Ser Ala Cys Thr Gly Glu Glu Ser Leu Ser Met Leu Gln Leu Leu Tyr Leu Thr Asn Asn Leu Leu Thr Asp Gln Cys Ile Pro Val Leu Val Gly His Leu His Leu Arg Ile Leu His Leu Ala Asn Asn Gln Leu Gln Thr Phe Pro Ala Ser Lys Leu Asn Lys Leu Glu Gln Leu Glu Glu Leu Asn Leu Ser Gly Asn Lys Leu Lys Thr Ile Pro Thr Thr Ile Ala Asn Cys Lys Arg Leu His Thr Leu Val Ala His Ser Asn Asn Ile Ser Ile Phe Pro Glu Ile Leu Gln Leu Pro Gln Ile Gln Phe Val Asp Leu Ser Cys Asn Asp Leu Thr Glu Ile Leu Ile Pro Glu Ala Leu Pro Ala Thr Leu Gln Asp Leu Asp Leu Thr Gly Asn Thr Asn Leu Val Leu Glu His Lys Thr Leu Asp Ile Phe Ser His Ile Thr Thr Leu Lys Ile Asp Gln Lys Pro Leu Pro Thr Thr Asp Ser Thr Val Thr Ser Thr Phe Trp Ser His Gly Leu Ala Glu Met Ala Gly Gln Arg Asn Lys Leu Cys Val Ser Ala Leu Ala Met Asp Ser Phe Ala Glu Gly Val Gly Ala Val Tyr Gly Met Phe Asp Gly Asp Arg Asn Glu Glu Leu Pro Arg Leu Leu Gln Cys Thr Met Ala Asp Val Leu Leu Glu Glu Val Gln Gln Ser Thr Asn Asp Thr Val Phe Met Ala Asn Thr Phe Leu Val Ser His Arg Lys Leu Gly Met Ala Gly Gln Lys Leu Gly Ser Ser Ala Leu Leu Cys Tyr Ile Arg Pro Asp Thr Ala Asp Pro Ala Ser Ser Phe Ser Leu Thr Val Ala Asn Val Gly Thr Cys Gln Ala Val Leu Cys Arg Gly Gly Lys Pro Val Pro Leu Ser Lys Val Phe Ser Leu Glu Gln Asp Pro Glu Glu Ala Gln Arg Val Lys Asp Gln Lys Ala Ile Ile Thr Glu Asp Asn Lys Val Asn Gly Val Thr Cys Cys Thr Arg Met Leu Gly Cys Thr Tyr Leu Tyr Pro Trp Ile Leu Pro Lys Pro His Ile Ser Ser Thr Pro Leu Thr Ile Gln Asp Glu Leu Leu Ile Leu Gly Asn Lys Ala Leu Trp Glu His Leu Ser Tyr Thr Glu Ala Val Asn Ala Val Arg His Val Gln Asp Pro Leu Ala Ala Ala Lys Lys Leu Cys Thr Leu Ala Gln Ser Tyr Gly Cys Gln Asp Asn Val Gly Ala Met Val Val Tyr Leu Asn Ile Gly Glu Glu Gly Cys Thr Cys Glu Met Asn Gly Leu Thr Leu Pro Gly Pro Val Gly Phe Ala Ser Thr Thr Thr Ile Lys Asp Ala Pro Lys Pro Ala Thr Pro Ser Ser Ser Ser Gly Ile Ala Ser Glu Phe Ser Ser Glu Met Ser Thr Ser Glu Val Ser Ser Glu Val Gly Ser Thr Ala Ser Asp Glu His Asn Ala Gly Gly Leu Asp Thr Ala Leu Leu Pro Arg Pro Glu Arg Arg Cys Ser Leu His Pro Thr Pro Thr Ser Gly Leu Phe Gln Arg Gln Pro Ser Ser Ala Thr Phe Ser Ser Asn Gln Ser Asp Asn Gly Leu Asp Ser Asp Asp Asp Gln Pro Val Glu Gly Val Ile Thr Asn Gly Ser Lys Val Glu Val Glu Val Asp Ile His Cys Cys Arg Gly Arg Asp Leu Glu Asn Ser Pro Pro Leu Ile Glu Ser Ser Pro Thr Leu Cys Ser Glu Glu His Ala Arg Gly Ser Cys Phe Gly Ile Arg Arg Gln Asn Ser Val Asn Ser Gly Met Leu Leu Pro Met Ser Lys Asp Arg Met Glu Leu Gln Lys Ser Pro Ser Thr Ser Cys Leu Tyr Gly Lys Lys Leu Ser Asn Gly Ser Ile Val Pro Leu Glu Asp Ser Leu Asn Leu Ile Glu Val Ala Thr Glu Val Pro Lys Arg Lys Thr Gly Tyr Phe Ala Ala Pro Thr Gln Met Glu Pro Glu Asp Gln Phe Val Val Pro His Asp Leu Glu Glu Glu Val Lys Glu Gln Met Lys Gln His Gln Asp Ser Arg Leu Glu Pro Glu Pro His Glu Glu Asp Arg Thr Glu Pro Pro Glu Glu Phe Asp Thr Ala Leu

FIGURE 332

ctctgggtga atagcagcgt gtccgccggc agcgaaccga gaccagcgag ccgaccatgc ggctgcacag acttcgtgcg cggctgagcg cggtggcctg tgggcttctg ctgcttcttg tccggggcca gggccaggac tcagccagtc ccatccggac cacacacacg gggcaggtgc tggggagtct tgtccatgtg aagggcgcca atgccggggt ccaaaccttc ctgggaattc catttgccaa gccacctcta ggtccgctgc gatttgcacc ccctgagccc cctgaatctt ggagtggtgt gagggatgga accacccatc cggccatgtg tctacaggac ctcaccgcag tggagtcaga gtttcttagc cagttcaaca tgaccttccc ttccgactcc atgtctgagg actgcctgta cctcagcatc tacacgccgg cccatagcca tgaaggctct aacctgccgg tgatggtgtg gatccacggt ggtgcgcttg tttttggcat ggcttccttg tatgatggtt ccatgctggc tgccttggag aacgtggtgg tggtcatcat ccagtaccgc ctgggtgtcc tgggcttctt cagcactgga gacaagcacg caaccggcaa ctggggctac ctggaccaag tggctgcact acgctgggtc cagcagaata tcgcccactt tggaggcaac cctgaccgtg tcaccatttt tggcgagtct gcgggtggca cgagtgtgtc ttcgcttgtt gtgtccccca tatcccaagg actcttccac ggagccatca tggagagtgg cgtggccctc ctgcccggcc tcattgccag ctcagctgat gtcatctcca cggtggtggc caacctgtct gcctgtgacc aagttgactc tgaggccctg gtgggctgcc tgcggggcaa gagtaaagag gagattcttg caattaacaa gcctttcaag atgatccccg gagtggtgga tggggtcttc ctgcccaggc acccccagga gctgctggcc tctgccgact ttcagcctgt ccctagcatt gttggtgtca acaacaatga attcggctgg ctcatcccca aggtcatgag gatctatgat acccagaagg aaatggacag agaggcctcc caggctgctc tgcagaaaat gttaacgctg ctgatgttgc ctcctacatt tggtgacctg ctgagggagg agtacattgg ggacaatggg gatccccaga ccctccaagc gcagttccag gagatgatgg cggactccat gtttgtgatc cctgcactcc aagtagcaca ttttcagtgt tcccgggccc ctgtgtactt ctacgagttc cagcatcagc ccagctggct caagaacatc aggccaccgc acatgaaggc agaccatggt gatgagcttc cttttgtttt cagaagtttc tttgggggca actacattaa attcactgag gaagaggagc agctaagcag gaagatgatg aagtactggg ccaactttgc gagaaatggg aaccccaatg gcgagggtct gccacactgg ccgctgttcg accaggagga gcaatacctg cagctgaacc tacagcctgc ggtgggccgg gctctgaagg cccacaggct ccagttctgg aagaaggcgc tgccccaaaa gatccaggag ctcgaggagc ctgaagagag acacacagag ctgtagctcc ctgtgccggg gaggaggggg tgggttcgct gacaggcgag ggtcagcctg ctgtgcccac acacacccac taaggagaaa gaagttgatt ccttcattca cttcgccatt cattcatact tccgtccaga agttgattcc ttcattcact tcgccattca ttcatacttc cgtccatcca ttcagaaacc ggyatttatt aagaatttac tcaggcatga tggcccatac ttgtaatccc agctattggg aaggatgaga tgggaggatg gcttgaggcc agaggtttga gaccgaccag ccagggcaac acagtgagac cccttctcaa aaaaaaaaaa aaaaaaagag agagtgtgtg attagaagct aaataggaaa gttttgagct tcaagtcagt gaggagtaaa aaagattttt aaaaagcaa

FIGURE 333

Met Arg Leu His Arg Leu Arg Ala Arg Leu Ser Ala Val Ala Cys Gly Leu Leu Leu Leu Leu Val Arg Gly Gln Gly Gln Asp Ser Ala Ser Pro Ile Arg Thr Thr His Thr Gly Gln Val Leu Gly Ser Leu Val His Val Lys Gly Ala Asn Ala Gly Val Gln Thr Phe Leu Gly Ile Pro Phe Ala Lys Pro Pro Leu Gly Pro Leu Arg Phe Ala Pro Pro Glu Pro Pro Glu Ser Trp Ser Gly Val Arg Asp Gly Thr Thr His Pro Ala Met Cys Leu Gln Asp Leu Thr Ala Val Glu Ser Glu Phe Leu Ser Gln Phe Asn Met Thr Phe Pro Ser Asp Ser Met Ser Glu Asp Cys Leu Tyr Leu Ser Ile Tyr Thr Pro Ala His Ser His Glu Gly Ser Asn Leu Pro Val Met Val Trp Ile His Gly Gly Ala Leu Val Phe Gly Met Ala Ser Leu Tyr Asp Gly Ser Met Leu Ala Ala Leu Glu Asn Val Val Val Val Ile Ile Gln Tyr Arg Leu Gly Val Leu Gly Phe Phe Ser Thr Gly Asp Lys His Ala Thr Gly Asn Trp Gly Tyr Leu Asp Gln Val Ala Ala Leu Arg Trp Val Gln Gln Asn Ile Ala His Phe Gly Gly Asn Pro Asp Arg Val Thr Ile Phe Gly Glu Ser Ala Gly Gly Thr Ser Val Ser Ser Leu Val Val Ser Pro Ile Ser Gln Gly Leu Phe His Gly Ala Ile Met Glu Ser Gly Val Ala Leu Leu Pro Gly Leu Ile Ala Ser Ser Ala Asp Val Ile Ser Thr Val Val Ala Asn Leu Ser Ala Cys Asp Gln Val Asp Ser Glu Ala Leu Val Gly Cys Leu Arg Gly Lys Ser Lys Glu Glu Ile Leu Ala Ile Asn Lys Pro Phe Lys Met Ile Pro Gly Val Val Asp Gly Val Phe Leu Pro Arg His Pro Gln Glu Leu Leu Ala Ser Ala Asp Phe Gln Pro Val Pro Ser Ile Val Gly Val Asn Asn Asn Glu Phe Gly Trp Leu Ile Pro Lys Val Met Arg Ile Tyr Asp Thr Gln Lys Glu Met Asp Arg Glu Ala Ser Gln Ala Ala Leu Gln Lys Met Leu Thr Leu Leu Met Leu Pro Pro Thr Phe Gly Asp Leu Leu Arg Glu Glu Tyr Ile Gly Asp Asn Gly Asp Pro Gln Thr Leu Gln Ala Gln Phe Gln Glu Met Met Ala Asp Ser Met Phe Val Ile Pro Ala Leu Gln Val Ala His Phe Gln Cys Ser Arg Ala Pro Val Tyr Phe Tyr Glu Phe Gln His Gln Pro Ser Trp Leu Lys Asn Ile Arg Pro Pro His Met Lys Ala Asp His Gly Asp Glu Leu Pro Phe Val Phe Arg Ser Phe Phe Gly Gly Asn Tyr Ile Lys Phe Thr Glu Glu Glu Glu Gln Leu Ser Arg Lys Met Met Lys Tyr Trp Ala Asn Phe Ala Arg Asn Gly Asn Pro Asn Gly Glu Gly Leu Pro His Trp Pro Leu Phe Asp Gln Glu Glu Gln Tyr Leu Gln Leu Asn Leu Gln Pro Ala Val Gly Arg Ala Leu Lys Ala His Arg Leu Gln Phe Trp Lys Lys Ala Leu Pro Gln Lys Ile Gln Glu Leu Glu Glu Pro Glu Glu Arg His Thr Glu Leu

FIGURE 334

cttctgaaga agctgcacag ctgccagatg tccatccagc tactacagac aaccaggatt ggagttgctg ttaatggggt ccgcaagcac tgctcagaca aggaggtggt gtccttggcc aaagtcctta tcaaaaactg gaagcggctg ctagactccc ctggaccccc aaaaggagaa aaaggagagg aaagagaaaa ggcaaagaag aaggaaaaag ggcttgagtg ttcagactgg aagccagaag caggcctttc tccaccaagg aaaaaacgag aagaccccaa aaccaggaga gactctgtgg actccaagtc ttctgcctcc tcctctccaa aaagaccatc ggtggaaaga tcaaacagca gcaaatcaaa agcggagagc cccaaaacac ctagcagccc cttgaccccc acgtttgcct cttccatgtg tctcctggcc ccctgctatc tcacagggga ctctgtccgg gacaagtgtg tggagatgct gtcagcagcc ctgaaggcgg acgatgatta caaggactat ggagtcaact gtgacaagat ggcatcagaa atcgaagatc atatctacca agagctcaag agcacggaca tgaagtaccg gaaccgcgtg cgcagccgca taagcaacct caaggacccc aggaaccccg gcctgcggcg gaacgtgctc agtggggcca tctccgcagg gcttatagcc aagatgacgg cagaggaaat ggccagtgat gaactgaggg agttgaggaa tgccatgacc caggaggcca tccgtgagca ccagatggcc aagactggcg gcaccaccac tgacctcttc cagtgcagca aatgcaagaa gaagaactgc acctataacc aggtgcagac acgcagtgct gatgagccca tgactacctt tgtcttatgc aatgaatgtg gcaatcgctg gaagttctgc tgatggaaca gccagccatg aacaaggtga ggaagaagaa agaggaagcg ctgaattatc tgaactggag aagcaataaa aattaaagtg aaggaaaata c

FIGURE 335

Leu Leu Lys Lys Leu His Ser Cys Gln Met Ser Ile Gln Leu Leu Gln Thr Thr Arg Ile Gly Val Ala Val Asn Gly Val Arg Lys His Cys Ser Asp Lys Glu Val Val Ser Leu Ala Lys Val Leu Ile Lys Asn Trp Lys Arg Leu Leu Asp Ser Pro Gly Pro Pro Lys Gly Glu Lys Gly Glu Glu Arg Glu Lys Ala Lys Lys Lys Glu Lys Gly Leu Glu Cys Ser Asp Trp Lys Pro Glu Ala Gly Leu Ser Pro Pro Arg Lys Lys Arg Glu Asp Pro Lys Thr Arg Arg Asp Ser Val Asp Ser Lys Ser Ser Ala Ser Ser Ser Pro Lys Arg Pro Ser Val Glu Arg Ser Asn Ser Ser Lys Ser Lys Ala Glu Ser Pro Lys Thr Pro Ser Ser Pro Leu Thr Pro Thr Phe Ala Ser Ser Met Cys Leu Leu Ala Pro Cys Tyr Leu Thr Gly Asp Ser Val Arg Asp Lys Cys Val Glu Met Leu Ser Ala Ala Leu Lys Ala Asp Asp Asp Tyr Lys Asp Tyr Gly Val Asn Cys Asp Lys Met Ala Ser Glu Ile Glu Asp His Ile Tyr Gln Glu Leu Lys Ser Thr Asp Met Lys Tyr Arg Asn Arg Val Arg Ser Arg Ile Ser Asn Leu Lys Asp Pro Arg Asn Pro Gly Leu Arg Arg Asn Val Leu Ser Gly Ala Ile Ser Ala Gly Leu Ile Ala Lys Met Thr Ala Glu Glu Met Ala Ser Asp Glu Leu Arg Glu Leu Arg Asn Ala Met Thr Gln Glu Ala Ile Arg Glu His Gln Met Ala Lys Thr Gly Gly Thr Thr Thr Asp Leu Phe Gln Cys Ser Lys Cys Lys Lys Lys Asn Cys Thr Tyr Asn Gln Val Gln Thr Arg Ser Ala Asp Glu Pro Met Thr Thr Phe Val Leu Cys Asn Glu Cys Gly Asn Arg Trp Lys Phe Cys

FIGURE 336

accgccgacg cagacccctc tctgcacgcc agcccgcccg cacccaccat ggccacagtt cagcagctgg aaggaagatg gcgcctggtg gacagcaaag gctttgatga atacatgaag gagctaggag tgggaatagc tttgcgaaaa atgggcgcaa tggccaagcc agattgtatc atcacttgtg atggtaaaaa cctcaccata aaaactgaga gcactttgaa aacaacacag ttttcttgta ccctgggaga gaagtttgaa gaaaccacag ctgatggcag aaaaactcag actgtctgca actttacaga tggtgcattg gttcagcatc aggagtggga tgggaaggaa agcacaataa caagaaaatt gaaagatggg aaattagtgg tggagtgtgt catgaacaat gtcacctgta ctcggatcta tgaaaaagta gaataaaaat tccatcatca ctttggacag gagttaatta agagaatgac caagctcagt tcaatgagca aatctccata ctgtttcttt ctttttttt tcattactgt gttcaattat ctttatcata aacattttac atgcagctat ttcaaagtgt gttggattaa ttaggatcat ccctttggtt aataaataaa tgtgtttgtg ct

FIGURE 337

Met Ala Thr Val Gln Gln Leu Glu Gly Arg Trp Arg Leu Val Asp Ser Lys Gly Phe Asp Glu Tyr Met Lys Glu Leu Gly Val Gly Ile Ala Leu Arg Lys Met Gly Ala Met Ala Lys Pro Asp Cys Ile Ile Thr Cys Asp Gly Lys Asn Leu Thr Ile Lys Thr Glu Ser Thr Leu Lys Thr Thr Gln Phe Ser Cys Thr Leu Gly Glu Lys Phe Glu Glu Thr Thr Ala Asp Gly Arg Lys Thr Gln Thr Val Cys Asn Phe Thr Asp Gly Ala Leu Val Gln His Gln Glu Trp Asp Gly Lys Glu Ser Thr Ile Thr Arg Lys Leu Lys Asp Gly Lys Leu Val Val Glu Cys Val Met Asn Asn Val Thr Cys Thr Arg Ile Tyr Glu Lys Val Glu

FIGURE 338

atgaagcaga ccacagagtt tgaaatgaag acaagcaagg tgcagatccc tcaagaaagg cctctcggcg agccggtgcc ccatcgggta ccgcacggct gccgcggcgg ccttaccctg ccgcgagcgc ctgtgacagc ggcgccgctg tgctcgcgac cccggctccg ggcctctgcc gacctcaggg gcaggaaaga gtcgcccggc gggatgggcg gggaggctgg gtgcgcggcg gccgtgggtg ccgagggccg cgtgaagagc ctgggtctgg tgttcgagga cgagcgcaag ggctgctatt ccagcggcga gacagtggcc gggcacgtgc tgctggaggc gtccgagccg gtggccctgc gcgcgctgcg cctggaggcc caggggcgcg ccaccgccgc ctggggcccg agcacctgcc cccgcgcctc ggccagcacc gcggccctgg ctgtcttctc ggaggtggag tacctgaacg tgcgcctcag cctgcgggag ccccccggccg gtgaaggcat cattttatta cagcctggaa aacatgaatt tccatttcgc tttcaacttc catctgaacc tttggtcacc tcgtttactg ggaaatatgg aagcattcag tactgtgtgc gggcagtgtt ggaacgaccc aaggtacctg atcagagtgt aaagcgggaa ctccaggttg ttagtcatgt cgatgtcaac acaccagcat tattaacccc tgtattgaaa actcaagaga aaatggttgg ctgttggttt ttcacttctg gtccagtctc gctgagtgcc aaaattgaaa gaaagggata ctgtaatgga gaagctattc caatctatgc agaaatagaa aattgttcct ctcgtctgat tgttccaaag gctgctattt tccaaacgca gacatatttg gctagtggaa aaacaaagac cattcgacac atggtcgcca atgtgcgagg aaaccacatc gcttctggga gcacagacac atggaatggg aaaacgctaa aaatcccacc tgttactcca tccatcctgg attgctgcat tatcagagtg gactattcct tagctgtata cattcacatt cctggtgcta aaaaattgat gctcgaactg ccattagtga tcggtacaat tccatataat ggttttggca gcagaaactc cagcattgcc agccagttca gtatggatat gagctggttg acactgaccc tgccagagca gcctgaagca ccaccaaatt atgcagatgt ggtatcagag gaagaattct ctagacacat tcctccttac cctcaacccc ctaactgtga gggagaagtg tgctgtcctg tgtttgcctg tatacaagaa ttccggtttc aacccccacc tctttattca gaggttgacc cacatcctag cgacgtagaa gagagccagc ctgtttcctt cattctctga acgtatttca gaaatcactg tgttcatcat caaattagaa tgttggttct tttccttctg ccttttttggg aaagagacag gaaagattca cttgaaaaca taaatgaacg tcaagactga aggcaataga aattaaagaa tgtgagaaag ttctggtggg ccggcaggat tgccgcacaa gtttatatga tggtcgtata tatatccctg ttaaaaactg ggatgaagat gtgcaaagtc acagaatgta atggaagtcc tgatggttac agagtaagtg aaagggtgcc tgcgctgacg tgagagaaag gaatctgtaa acagtggaaa cactgtggga gtttcccatg gtgaagagtg gaacgaaggc gatatgaact gaaggggtga agacttgatt ttggagaggg caacaaaaca agggtgtgtg tgcataggag aatggcccac tccaaatacg aagtgagatc ctgagtcttt gggtgcttca tgatttccta ccatattcag gcctaaagac attgaaaaag catcttttct tgagatcatg gtcatatgag gtcctaatga agtactacag ttttcattct ttcaagggta gactaaaata tagtttataa atcggcagta cggtattatg aaaccaagaa agggtttctt gaaaagcttg tcggttcaaa gaggaaagat gaatttcaat gtgaaaacac gttttgttga gggctgtact ttttaccccc tttaagtgct ttaacaggat atacgtttga ttttcctcat atcttattta cctaggagca tgtaagagaa agaagggaga gaaaaggttg catctgcagg atgccttgat aactacacag tcccaaataa aaggcctttt tctaacctac ctctaatggg gttatcagat atgtttttaa atctctcgcc ctgagtactc ttcttgggag ttgctgctgt ttacagccac agtctcatct atcactaaat atgaaactgg gccaagggga aaattcagta agttagcgtt aaatggaagt aaatatatgt atacctaaga gaatgtcaaa ataaacacca aaccaaaaga aggtaggagt gccatttta gaaaagacac aactttaatt cctgtcaaga gacctaggtc tactgatggc agtcactgca ttgtacatta ttccagttct tcagtaattc tgtttaaact gtgattttct ttattgtgtt ggtgcaatat tttattatca tttaacctca ggatattcag accaacagga ttgtgttgct gctgaaagtc tgagcagtgt tttaccgtcc ccagcccccc tcccacatgg tcacatgttc acttgctttt ccttccatct gttggttttg tgagctgaga gcatctctgg acacatggaa gggagccagg gattcctgtg atacagattt tgaaccagca gagtactttg gttttcttca tgtcctaagg gtttgatcca gaaaccctgg tgcttccccc gcagaatact gtacttcatt taacagaatg attgattttt ctttcaatca gcatgttcac caaaaataga aaagttcttc taaggttaaa ttttgtattt aaaagttagt tggccatttg atcagggaat tttctacaca cattaggcaa atgtatgctt ttcatcctct gggcttacct ctctcctctg caatcctgga agcatcgtgc atagttcttt cattgtaagc cgctatttaa attcccacaa tgcaaaactg ttagaccagt aattgtgcta ctgaaattgt cacaaaacgt tattccttga tttggttttt aaattttgct ttcgtgtgtg tgtctttaaa caggtaatgt gtatttaagt gttgtctaaa cagttgattt ttactttaga aaagatcatc ttcaactgtt tattgacttc tgagttatat agttcatgcc ctgccaaggc attgttcgac tccatgatac taaaacataa tgaaagaaac aaactccagt atggagaaga gaaagtttaa ttatttggtt ccatctagaa aagcaacaac ttaaaggaat ccttcactag gattgtctta tcacctttat tagataaatc atgaagtgtc cctgtgaaat tgaagtgaaa ctatctctgt aggacttaag agaatagcta aaaggtgtga cttgccttat tgaaatgata ctggcatatc tgactgtaag cagtaggttg aagatatcat tttatgaatg tggagaattc tacattgaaa cagaaaatac ctgggaatga agattaaaaa tgtagctgct gttatttgct tggttattcc cctcttgctc ttctttagtt tgaaaaaaca aaaacgtggc cttggaattt tcattttgat gcagaaattt tgaaattgaa aatgtgcatg ttttggtgca caaaatcctt ctgtgggcaa aactttgttt ttgttttgca cagtaagaaa caataggcaa gcgttatgtt tttggtaagt taactatgaa agctttctta tttttattat taaaaatgta acaatttaac ccacaggaaa aaaaattact ttgtatgctt gtttgaaccc tatgggttcg ttttattaat aaaattatta cact

FIGURE 339

Met Lys Gln Thr Thr Glu Phe Glu Met Lys Thr Ser Lys Val Gln Ile Pro Gln Glu Arg Pro Leu Gly Glu Pro Val Pro His Arg Val Pro His Gly Cys Arg Gly Gly Leu Thr Leu Pro Arg Ala Pro Val Thr Ala Ala Pro Leu Cys Ser Arg Pro Arg Leu Arg Ala Ser Ala Asp Leu Arg Gly Arg Lys Glu Ser Pro Gly Gly Met Gly Gly Glu Ala Gly Cys Ala Ala Ala Val Gly Ala Glu Gly Arg Val Lys Ser Leu Gly Leu Val Phe Glu Asp Glu Arg Lys Gly Cys Tyr Ser Ser Gly Glu Thr Val Ala Gly His Val Leu Leu Glu Ala Ser Glu Pro Val Ala Leu Arg Ala Leu Arg Leu Glu Ala Gln Gly Arg Ala Thr Ala Ala Trp Gly Pro Ser Thr Cys Pro Arg Ala Ser Ala Ser Thr Ala Ala Leu Ala Val Phe Ser Glu Val Glu Tyr Leu Asn Val Arg Leu Ser Leu Arg Glu Pro Pro Ala Gly Glu Gly Ile Ile Leu Leu Gln Pro Gly Lys His Glu Phe Pro Phe Arg Phe Gln Leu Pro Ser Glu Pro Leu Val Thr Ser Phe Thr Gly Lys Tyr Gly Ser Ile Gln Tyr Cys Val Arg Ala Val Leu Glu Arg Pro Lys Val Pro Asp Gln Ser Val Lys Arg Glu Leu Gln Val Val Ser His Val Asp Val Asn Thr Pro Ala Leu Leu Thr Pro Val Leu Lys Thr Gln Glu Lys Met Val Gly Cys Trp Phe Phe Thr Ser Gly Pro Val Ser Leu Ser Ala Lys Ile Glu Arg Lys Gly Tyr Cys Asn Gly Glu Ala Ile Pro Ile Tyr Ala Glu Ile Glu Asn Cys Ser Ser Arg Leu Ile Val Pro Lys Ala Ala Ile Phe Gln Thr Gln Thr Tyr Leu Ala Ser Gly Lys Thr Lys Thr Ile Arg His Met Val Ala Asn Val Arg Gly Asn His Ile Ala Ser Gly Ser Thr Asp Thr Trp Asn Gly Lys Thr Leu Lys Ile Pro Pro Val Thr Pro Ser Ile Leu Asp Cys Cys Ile Ile Arg Val Asp Tyr Ser Leu Ala Val Tyr Ile His Ile Pro Gly Ala Lys Lys Leu Met Leu Glu Leu Pro Leu Val Ile Gly Thr Ile Pro Tyr Asn Gly Phe Gly Ser Arg Asn Ser Ser Ile Ala Ser Gln Phe Ser Met Asp Met Ser Trp Leu Thr Leu Thr Leu Pro Glu Gln Pro Glu Ala Pro Pro Asn Tyr Ala Asp Val Val Ser Glu Glu Glu Phe Ser Arg His Ile Pro Pro Tyr Pro Gln Pro Pro Asn Cys Glu Gly Glu Val Cys Cys Pro Val Phe Ala Cys Ile Gln Glu Phe Arg Phe Gln Pro Pro Pro Leu Tyr Ser Glu Val Asp Pro His Pro Ser Asp Val Glu Glu Ser Gln Pro Val Ser Phe Ile Leu

FIGURE 340

gggggggagg actgggtgcg cctgcaggga tcggaagccg gttggggtgt gagaggtttt ctcgctctag ggagattctt caagcaatca ctatgtcaac agacacaggt gtttcccttc cttcatatga ggaagatcag ggatcaaaac tcattcgaaa agctaaagag gcaccattcg tacccgttgg aatagcgggt tttgcagcaa ttgttgcata tggattatat aaactgaaga gcaggggaaa tactaaaatg tccattcatc tgatccacat gcgtgtggca gcccaaggct ttgttgtagg agcaatgact gttggtatgg gctattccat gtatcgggaa ttctgggcaa aacctgagcc ttagaagaag agatgctgtc ttggtcttgt tggaggagct tgctttagtt agatgtctta ttattaaagt tacctattat tgttggaaat aaactaattt gtatgggttt agatggtaac atggcatttt gaatattggc ttcctttctt gcaggcttga tttgcttggt gaccgaatta ctagtgacta gtttactaac taggtcattc aaggaagtca agttaactta aacatgtcac ctaaatgcac ttgatggtgt tgaaatgtcc accttcttaa atttttaaga tgaacttagt tctaaagaag ataacaggcc aatcctgaag gtactccctg tttgctgcag aatgtcagat attttggatg ttgcataaga gtcctatttg ccccagttaa ttcaactttc gtctgcctgt tttgtggact ggctggctct gttagaactc tgtccaaaaa gtgcatggaa tataacttgt aaagcttccc acaattgaca atatatatgc atgtgtttaa accaaatcca gaaagcttaa acaatagagc tgcataatag tatttattaa agaatcacca actgtaaaca tgagaataac ttaaggttct agtttagttt tttgtaattg caaattatat ttttgctgct gatatattag aataatttta aaatgtcatc ttgaaataga aatatgtatt ttaagcactc acgcaaaggt aaatgaacac gttttaaatg tgtgtgttgc taatttttc cataagaatt gtaaacattg aactgaacaa attacctata atggatttgg ttaatgactt atgagcaagc tggtttggcc agacagtata cccaaacttt tatataatat acagaaggct atcacacttg tgaaattctc ttgtctaatc tgaatttgca ttccatggtg ttaacatggt atatgtattg ttattaaagt aagtgaccca tgaaaaaaaa aaaaaaaaaa aa

FIGURE 341

Met Ser Thr Asp Thr Gly Val Ser Leu Pro Ser Tyr Glu Glu Asp Gln Gly Ser Lys Leu Ile Arg Lys Ala Lys Glu Ala Pro Phe Val Pro Val Gly Ile Ala Gly Phe Ala Ala Ile Val Ala Tyr Gly Leu Tyr Lys Leu Lys Ser Arg Gly Asn Thr Lys Met Ser Ile His Leu Ile His Met Arg Val Ala Ala Gln Gly Phe Val Val Gly Ala Met Thr Val Gly Met Gly Tyr Ser Met Tyr Arg Glu Phe Trp Ala Lys Pro Glu Pro

FIGURE 342

ccttgtcctg cccagatctt gtcccttcta gtactggcct tccccattcc tgggggcccc cgcccctccg acccccgccg accggcgctg gactacaact cccggcgtgc cgcgcgcgtc cggccggctg caccggggct ttgcgcgtgg cggccgccga gctccgcgcg gggcaaacct cccggcgcgg ccatgcgggg agttgctgaa gtaaaggaac cctgcagcct tcccatgcta tctgttgaca tggaaaacaa ggaaaatggc tctgtcggtg taaaaaattc catggaaaat gggagaccac ctgatcctgc agactgggcc gtgatggatg tcgtcaatta tttccgaacc gtgggatttg aggagcaagc tagtgctttt caggaacagg aaattgatgg aaaatccctg ctattgatga caagaaatga tgtgttgaca ggacttcagt taaaattggg gcctgctctg aaaatctacg aatatcatgt aaaacctctg cagacaaagc atttaaagaa caactcttca tagtacagtc aaattggggt cttcgacctc aaaaaataca taatgacata atttagtttc atgtaatgaa actttgtaaa cagaatacat acatgtgtat atgtaaagaa tttcaatcaa atgaaacgtt atcctattgg atagactagg caattcatca gctcacctga aatcagccag gaggagcaag gacaagatgc gcacagggtg gttttcctca tggattttgt caaatagatg atctttgaca cgattagaca ctcctcccca caaaggcttt gaaatcataa ggattttcct catctcttta tagctttccc aaaatctttt aaaaaagaat ttaattaaat gacagtcttt tggttacaga cttaggatga gtaaaaacaa gaaaatttgg ggaggggggag aaagaagaaa gggattgctg tctcccttga attcctctgt tccttagagc ttgtgttact tggacggaat tgccaacacc ctttttata gagggttctc cacttgacct tattaaggtt ttattgggat atgctgcagt gtttgaaatg aacatgcatc atggcccctt caggagcaga atcatagctc tgaaaagaga agctccgttg tgtactgagg atatccatcc atattcagct agctttcaaa tggggtaacg atattttctg catagatttt cttttaaatt ggttctttgt ttctgaagaa agaatttttt ttaacttcat ggttttattt ataataattt gtttctgaag aaatttgccg agagttacag gtcaaaaagc cttgttacta gtacagaata tttttatata tattccttca tgatggtgta attttttta attgtcctat gctttgttcg gttcctgggt taagtacttg tttttaagag cttggaaaaa gtgggcttgc tacatctctg ttcaaagaga catttgttca atctctgtgt gtcaacgcct tgttgaattg gtgctttgtg gttgcaataa agcattgctt cagttt

FIGURE 343

Met Arg Gly Val Ala Glu Val Lys Glu Pro Cys Ser Leu Pro Met Leu Ser Val Asp Met Glu Asn Lys Glu Asn Gly Ser Val Gly Val Lys Asn Ser Met Glu Asn Gly Arg Pro Pro Asp Pro Ala Asp Trp Ala Val Met Asp Val Val Asn Tyr Phe Arg Thr Val Gly Phe Glu Glu Gln Ala Ser Ala Phe Gln Glu Gln Glu Ile Asp Gly Lys Ser Leu Leu Leu Met Thr Arg Asn Asp Val Leu Thr Gly Leu Gln Leu Lys Leu Gly Pro Ala Leu Lys Ile Tyr Glu Tyr His Val Lys Pro Leu Gln Thr Lys His Leu Lys Asn Asn Ser Ser

FIGURE 344

ccgaccttac cccaggcggc cttgacgttg gtcttgtcgg caggagacag caccatggtg ggttctctct gagtctggga attcccgagc ccgagccgca gccgccgcct ggggggcttg ggtcggcctc gaggacaccg gagaggggcg ccacgccgcc gtggccgcag aaatgaccat ggttgacaca gagatcgcat tctggcccac caactttggg atcagctccg tggatctctc cgtaatggaa gaccactccc actcctttga tatcaagccc ttcactactg ttgacttctc cagcatttct actccacatt acgaagacat tccattcaca agaacagatc cagtggttgc agattacaag tatgacctga aacttcaaga gtaccaaagt gcaatcaaag tggagcctgc atctccacct tattattctg agaagactca gctctacaat aagcctcatg aagagccttc caactccctc atggcaattg aatgtcgtgt ctgtggagat aaagcttctg gatttcacta tggagttcat gcttgtgaag gatgcaaggg tttcttccgg agaacaatca gattgaagct tatctatgac agatgtgatc ttaactgtcg gatccacaaa aaaagtagaa ataaatgtca gtactgtcgg tttcagaaat gccttgcagt ggggatgtct cataatgcca tcaggtttgg gcggatcgca caggccgaga aggagaagct gttggcggag atctccagtg atatcgacca gctgaatcca gagtccgctg acctccgtca ggccctggca aaacatttgt atgactcata cataaagtcc ttcccgctga ccaaagcaaa ggcgagggcg atcttgacag gaaagacaac agacaaatca ccattcgtta tctatgacat gaattcctta atgatgggag aagataaaat caagttcaaa cacatcaccc ccctgcagga gcagagcaaa gaggtggcca tccgcatctt tcagggctgc cagtttcgct ccgtggaggc tgtgcaggag atcacagagt atgccaaaag cattcctggt tttgtaaatc ttgacttgaa cgaccaagta actctcctca aatatggagt ccacgagatc atttacacaa tgctggcctc cttgatgaat aaagatgggg ttctcatatc cgagggccaa ggcttcatga caagggagtt tctaaagagc ctgcgaaagc cttttggtga ctttatggag cccaagtttg agtttgctgt gaagttcaat gcactggaat tagatgacag cgacttggca atatttattg ctgtcattat tctcagtgga gaccgcccag gtttgctgaa tgtgaagccc attgaagaca ttcaagacaa cctgctacaa gccctggagc tccagctgaa gctgaaccac cctgagtcct cacagctgtt tgccaagctg ctccagaaaa tgacagacct cagacagatt gtcacggaac acgtgcagct actgcaggtg atcaagaaga cggagacaga catgagtctt cacccgctcc tgcaggagat ctacaaggac ttgtactagc agagagtcct gagccactgc caacatttcc cttcttccag ttgcactatt ctgagggaaa atctgaccat aagaaattta ctgtgaaaaa gcgttttaaa aagaaaaggg tttagaatat gatctatttt atgcatattg tttataaaga cacatttaca atttactttt aatattaaaa attaccatat tatgaaattg c

FIGURE 345

Met Thr Met Val Asp Thr Glu Ile Ala Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser Val Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys Pro Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu Asp Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr Asp Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala Ser Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His Glu Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly Asp Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg Cys Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln Tyr Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala Ile Arg Phe Gly Arg Ile Ala Gln Ala Glu Lys Glu Lys Leu Leu Ala Glu Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu Arg Gln Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro Leu Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp Lys Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu Asp Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys Glu Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu Ala Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val Asn Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His Glu Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val Leu Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser Leu Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala Val Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe Ile Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val Lys Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu Gln Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu Leu Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln Leu Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro Leu Leu Gln Glu Ile Tyr Lys Asp Leu Tyr

FIGURE 346

ctggctggcg cacccagccc ctccttccat tccttcttcc ccctctctgc agcctctgcc agcccgcact gcgcatgctt tctgacgccc cctttggtcc agcgtgggag gaggggatgg aaatgaggtt gggctaagca gcttgcgcgc gctcccttgc ctgccctccc ccgacgccgg acgcgcgccg ggcggggcag ctccgctggt ccgagggcag tgcagcagcg gcgacagcgg ctgcggccgt ggccgtggcg ggaggagccg gaagccccgc ccccggggag gggccgtcct gcaggtcccc cctctatcct ccacggcccc atccaagcca gggatgaaat ttaacggcaa gaagggcgca gttgacgcgg cgtcaatgaa ctgagactaa gtcaaaagcc gggccctcca accctatccc catcagcctg gtcatcaccg gcgtcacccc cgccccgcgc cctgccccta ggttcctgtg ccagcaagat gctggagcga ggcgcggagt ccgcggccgg ggctaccgat cctagtccca ctggcaagga accagtgacc aaagaagctc cccaccaggg cccaccgcag aagcccagcc agtcagctcc agggcccacc gcgtccgcgg gctcgcctcc ccggcctcgc cggcggcccc cgccccagcg cccgcaccgc tgccccgact gtgacaaggc cttctcgtac ccgtccaagc tggccacgca ccgcttagca cacggaggcg cccgacccca cccatgccca gactgcccca aggccttctc ctacccctcc aagctggcag cccaccgcct cacgcacagc ggcgcccgcc cgcacccgtg cccacactgc ccgaagtcct ttggccaccg ctccaagctg gcggctcacc tctggaccca cgcacccacc cgcccctacc cgtgccccga ctgccccaag tccttctgct accccttccaa gctggcggcc caccgccaca cgcaccacgc caccgacgcc cgcccctatc cttgcccgca ttgccccaag gctttctcat ttccctccaa gctggccgcc catcgcctat gtcacgaccc cccaaccgcg cccggcagcc aggcgactgc ctggcaccga tgctccagct gcggccaggc ctttggccag agacgcttac tgctccttca tcaacgcagc caccaccagg tggagcacaa gggggagaga gactgagccc tcccttggct cactgtcccc ttctgccgcc agccctagcc agtaagaggt gggatttcta agaccgactg tatgagctcg cctcttccag atagctggca gagggcaggg caagggattg gccatttata ctgggctcga gctcagaagc ccgaggaact ctttgctccc ctgctttggg gagatctcaa accatggacg tggagctgtg gtttgacagc gctggctctg cttctcccca cacacttaca tggcaaaggt aaaaagtctg ctactatcgt gggttgatga ggattgtggg caaacaggct ctcttgttaa aagtttaaac tggtgtctcc actttggcca tatgacggta tctaagaaat tgaaaataca tacatgcttg tctcaactct tccacttgta ggaatttatt ctataaactc atgaatgtga aaaaaaagca tagtgttaag ggtgttcact gcagtgcgac tgttgtggcc aaagactgga agcaactcaa gtgcccaaga acaggggacc gactattgaa ttacagccat ggaatggaat aggtagccat aggaaaaaag gaagcgctat atgtactgat gtggaaaaat ctccgataca ctaggtgata agagcaagaa caaagggtat ataccactga ccatttaaag acattcaaaa gcccaagctt caggctgggt gtggtggttc acgcctataa tgccagca

FIGURE 347

Met Leu Glu Arg Gly Ala Glu Ser Ala Ala Gly Ala Thr Asp Pro Ser Pro Thr Gly Lys Glu Pro Val Thr Lys Glu Ala Pro His Gln Gly Pro Pro Gln Lys Pro Ser Gln Ser Ala Pro Gly Pro Thr Ala Ser Ala Gly Ser Pro Pro Arg Pro Arg Arg Arg Pro Pro Pro Gln Arg Pro His Arg Cys Pro Asp Cys Asp Lys Ala Phe Ser Tyr Pro Ser Lys Leu Ala Thr His Arg Leu Ala His Gly Gly Ala Arg Pro His Pro Cys Pro Asp Cys Pro Lys Ala Phe Ser Tyr Pro Ser Lys Leu Ala Ala His Arg Leu Thr His Ser Gly Ala Arg Pro His Pro Cys Pro His Cys Pro Lys Ser Phe Gly His Arg Ser Lys Leu Ala Ala His Leu Trp Thr His Ala Pro Thr Arg Pro Tyr Pro Cys Pro Asp Cys Pro Lys Ser Phe Cys Tyr Pro Ser Lys Leu Ala Ala His Arg His Thr His His Ala Thr Asp Ala Arg Pro Tyr Pro Cys Pro His Cys Pro Lys Ala Phe Ser Phe Pro Ser Lys Leu Ala Ala His Arg Leu Cys His Asp Pro Pro Thr Ala Pro Gly Ser Gln Ala Thr Ala Trp His Arg Cys Ser Ser Cys Gly Gln Ala Phe Gly Gln Arg Arg Leu Leu Leu Leu His Gln Arg Ser His His Gln Val Glu His Lys Gly Glu Arg Asp

FIGURE 348

attccgctct tgctttccgg caggtgatgg cgcccccccgc ggcctagagg tccagcgccc gccgcgagca gcggacagtc ctcctgttgt gtccgaccga gagtcctggt gactttgaac atgctggtgc cgctagccaa gctgtcctgc ctggcatatc agtgctttca tgccttaaaa attaagaaaa attatctacc tctatgtgct ataagatggt cttcaacttc tactgtgcct cgaattacta cccattatac tatttatccc cgggataagg acaagagatg ggaaggagtg aacatggaaa ggtttgcaga agaagcagat gttgtaatag ttggtgcagg ccctgcaggg ctctctgcag ctgttcgtct aaaacagttg gctgtggcac atgaaaagga catccgtgtg tgtctagtgg agaaagctgc ccagatagga gctcatactc tctcaggggc ttgccttgat ccaggtgctt ttaaagaact cttcccagac tggaaagaga agggggctcc acttaacact cctgtaacag aagacagatt tggaatttta acagagaaat acagaattcc tgtgccaatt cttccagggc ttccaatgaa taatcatggc aattacattg tacgcttggg acatttagtg agctggatgg gcgaacaagc agaagccctt ggtgttgaag tataccctgg ttatgcagct gctgaggtcc tttttcatga tgatggtagt gtaaaaggaa ttgccactaa cgatgtaggg atacaaaagg atggtgcacc aaaggcaaca tttgagagag gactggaact acatgctaaa gtcacaattt ttgcagaagg ttgccatgga catctagcca agcaactata taagaagttt gatttgagag caaattgtga acctcaaacc tacgggattg gactgaagga gttatgggtt attgatgaaa agaactggaa acctgggaga gtagatcaca ctgttggttg gcccttggac agacatacct atggaggatc tttcctctat catttgaatg aaggtgaacc cctagtagct cttggtcttg tggttggtct agactatcag aatccatacc tgagtccatt tagagagttc caaaggtgga aacaccatcc tagcattcgg ccaaccttgg aaggtggaaa aaggattgca tacggagcca gagctctcaa tgaaggtggc tttcagtcta taccaaaact caccttttcct ggtggtttac taattggttg tagtcctggt tttatgaatg ttcccaagat caaaggtact cacacagcaa tgaaaagtgg aattttagca gcagaatcta tttttaatca actaactagt gaaaatctcc aatcaaagac aataggactc catgtaactg aatatgagga caatttgaag aactcatggg tatggaaaga gctatattct gttagaaata taagaccgtc ctgccacgga gtactgggtg tatatggagg gatgatttac actggaatct tttactggat attgagagga atggagccgt ggactctgaa acataaaggt tctgactttg aacggctcaa gccagccaag gattgcacac ctattgagta tccaaaaccc gatggacaga tcagttttga cctcttgtca tctgtggctc tgagtggtac taatcatgaa catgaccagc cggcacactt aaccttaagg gatgacagta tacctgtaaa tagaaatctg tcgatatatg atgggcccga gcagcgattc tgtcctgcag gagtttatga atttgtacct gtggaacaag gtgatggatt tcggttacag ataaatgctc agaactgtgt acattgtaaa acatgtgata ttaaagatcc aagtcagaat attaactggg tggtacctga aggtggagga ggacctgctt acaatggaat gtaaactgca gctagccagt ttctttcaag tatggcaagc taacgttaaa atgtttagag attaacagat ttcagaatgt ctttctgcat attactgaac agaatagtca caaaatgatt atcaaataaa aattttatac tataaaaaaa aaaa

FIGURE 349

Met Leu Val Pro Leu Ala Lys Leu Ser Cys Leu Ala Tyr Gln Cys Phe His Ala Leu Lys Ile Lys Lys Asn Tyr Leu Pro Leu Cys Ala Ile Arg Trp Ser Ser Thr Ser Thr Val Pro Arg Ile Thr Thr His Tyr Thr Ile Tyr Pro Arg Asp Lys Asp Lys Arg Trp Glu Gly Val Asn Met Glu Arg Phe Ala Glu Glu Ala Asp Val Val Ile Val Gly Ala Gly Pro Ala Gly Leu Ser Ala Ala Val Arg Leu Lys Gln Leu Ala Val Ala His Glu Lys Asp Ile Arg Val Cys Leu Val Glu Lys Ala Ala Gln Ile Gly Ala His Thr Leu Ser Gly Ala Cys Leu Asp Pro Gly Ala Phe Lys Glu Leu Phe Pro Asp Trp Lys Glu Lys Gly Ala Pro Leu Asn Thr Pro Val Thr Glu Asp Arg Phe Gly Ile Leu Thr Glu Lys Tyr Arg Ile Pro Val Pro Ile Leu Pro Gly Leu Pro Met Asn Asn His Gly Asn Tyr Ile Val Arg Leu Gly His Leu Val Ser Trp Met Gly Glu Gln Ala Glu Ala Leu Gly Val Glu Val Tyr Pro Gly Tyr Ala Ala Ala Glu Val Leu Phe His Asp Asp Gly Ser Val Lys Gly Ile Ala Thr Asn Asp Val Gly Ile Gln Lys Asp Gly Ala Pro Lys Ala Thr Phe Glu Arg Gly Leu Glu Leu His Ala Lys Val Thr Ile Phe Ala Glu Gly Cys His Gly His Leu Ala Lys Gln Leu Tyr Lys Lys Phe Asp Leu Arg Ala Asn Cys Glu Pro Gln Thr Tyr Gly Ile Gly Leu Lys Glu Leu Trp Val Ile Asp Glu Lys Asn Trp Lys Pro Gly Arg Val Asp His Thr Val Gly Trp Pro Leu Asp Arg His Thr Tyr Gly Gly Ser Phe Leu Tyr His Leu Asn Glu Gly Glu Pro Leu Val Ala Leu Gly Leu Val Val Gly Leu Asp Tyr Gln Asn Pro Tyr Leu Ser Pro Phe Arg Glu Phe Gln Arg Trp Lys His His Pro Ser Ile Arg Pro Thr Leu Glu Gly Gly Lys Arg Ile Ala Tyr Gly Ala Arg Ala Leu Asn Glu Gly Gly Phe Gln Ser Ile Pro Lys Leu Thr Phe Pro Gly Gly Leu Leu Ile Gly Cys Ser Pro Gly Phe Met Asn Val Pro Lys Ile Lys Gly Thr His Thr Ala Met Lys Ser Gly Ile Leu Ala Ala Glu Ser Ile Phe Asn Gln Leu Thr Ser Glu Asn Leu Gln Ser Lys Thr Ile Gly Leu His Val Thr Glu Tyr Glu Asp Asn Leu Lys Asn Ser Trp Val Trp Lys Glu Leu Tyr Ser Val Arg Asn Ile Arg Pro Ser Cys His Gly Val Leu Gly Val Tyr Gly Gly Met Ile Tyr Thr Gly Ile Phe Tyr Trp Ile Leu Arg Gly Met Glu Pro Trp Thr Leu Lys His Lys Gly Ser Asp Phe Glu Arg Leu Lys Pro Ala Lys Asp Cys Thr Pro Ile Glu Tyr Pro Lys Pro Asp Gly Gln Ile Ser Phe Asp Leu Leu Ser Ser Val Ala Leu Ser Gly Thr Asn His Glu His Asp Gln Pro Ala His Leu Thr Leu Arg Asp Asp Ser Ile Pro Val Asn Arg Asn Leu Ser Ile Tyr Asp Gly Pro Glu Gln Arg Phe Cys Pro Ala Gly Val Tyr Glu Phe Val Pro Val Glu Gln Gly Asp Gly Phe Arg Leu Gln Ile Asn Ala Gln Asn Cys Val His Cys Lys Thr Cys Asp Ile Lys Asp Pro Ser Gln Asn Ile Asn Trp Val Val Pro Glu Gly Gly Gly Gly Pro Ala Tyr Asn Gly Met

FIGURE 350

ggttcccagg cacaggaacc aatcctggtc tcagccaaga ccatgctgga gagttcatcg tacctcattc gcactgcacg ctctctggcc atcaacccca aagacccacc cacctggtct gtactggctg gacattccca tacagtgtcc gactccatca agagtctcat cacttctatc agggacaagg cccctggaca gagggagtgt gattactcca tcgatggcat caaccggtgc atccgggaca tcgagcaggc ctcgctggcc gccgtcagcc agagcctggc cacgagggac gacatctctg tggaggccct gcaggagcag ctgacttcgg tggtccagga aatcggacac cttatcgatc ccatcgccac agcggctcgg ggagaagcag ctcagctggg acataaggtg acacaactgg caagctattt tgagcccttg atcttagccg cagttggtgt ggcctccaag attcttgatc atcagcagca gatgacggtg ctggaccaga ccaagactct cgcagagtct gccttgcaga tgttgtatgc agccaaagaa ggtggcggaa accccaaggc acaacacacc catgacgcca tcacagaggc cgcccagttg atgaaggaag ccgtggatga catcatggtg acgctgaacg aagctgccag tgaagtgggg ctggttgggg gcatggtgga cgccattgca gaagccatga gcaagctgga tgaaggcact cctccagaac caaagggaac atttgtcgac tatcagacga ctgtggttaa atactccaaa gccattgcgg tgacagctca ggaaatgatg actaagtcgg ttactaaccc ggaggagttg ggaggactgg cttcacaaat gaccagtgac tatgggcacc tggctttcca gggccagatg gcagcagcca cggcggaacc agaggagatc ggattccaga ttcgcactcg tgtgcaggac ctgggccacg gctgtatctt cctggtgcag aaggcagggg ccctccaggt ctgccccaca gacagctaca ccaagaggga gctgatcgaa tgcgcccgtg ccgtcacgga aaaggtctcc ttggtgctct cggctctcca ggccgggaac aaaggaaccc aggcatgcat tacagccgcc accgctgtgt ctgggatcat tgccgacctg gacaccacca ttatgtttgc aacagcgggg acgctgaatg cagagaacag tgagaccttc gcagaccaca gggagaacat tctcaagacg gccaaggcct tggtagaaga cacgaaacta cttgtgtcag gagctgcgtc cactcctgac aagctggccc aggcggccca gtcctcagca gccaccatca cccagctcgc agaagtggtc aagctggggg cagccagcct gggctccgac gaccccgaga cccaggtggt tttgatcaat gccatcaaag atgtggccaa ggccctttct gatctcatca gtgctaccaa gggagctgcc agcaagccag tggacgaccc ttccatgtac cagctcaagg gggctgccaa ggtgatggtg accaatgtca cctcgctcct caagactgta aaggcagtgg aggatgaggc cacccggggc accagggcgc ttgaggccac aattgaatgc ataaagcagg agcttacggt gttccagtca aaagacgtac ctgaaaagac atcatcacct gaagaatcca taaggatgac gaaaggcatc accatggcaa cagccaaagc cgtggcagct gggaactcat gtagacagga ggacgtgatt gctactgcca acctgagccg gaaagccgtg tcagatatgt tgacggcttg caagcaagca tccttccacc ccgatgtcag tgacgaggtg agaaccagag ccttgcgttt cgggacggag tgcacccttg gctacttgga cctcctggag cacgtcttgg tgattcttca gaaaccaacc ccagaattca agcagcagct ggccgctttc tccaagcgag tcgccggcgc tgtgacagag ctcatccagg cggcggaagc catgaaagga acagagtggg tggatccaga agacccaact gtcattgcag aaacagagtt actgggggct gcagcatcca tcgaagctgc tgctaagaag ttagagcaac tgaagccaag agcaaaacca aaacaagcgg atgagaccct ggactttgag gaacagatct tggaagctgc taaatccatt gctgctgcca caagcgccct ggtcaaatcg gcctcagcag cccagaggga gctggtggcc caaggaaagg tgggctccat ccctgccaat gctgcagacg acggacagtg gtcacagggg ctgatttctg ctgcccggat ggtggcggct gcgaccagca gtctctgtga ggcggccaat gcctccgttc agggacacgc cagcgaggag aagctcatct catctgccaa gcaggtcgcc gcttccacgg ctcagctgct ggtggcctgc aaggtgaagg ccgaccagga ttcagaggcc atgaggcggc tacaggcggc aggaaatgct gtgaaaagag cctcagacaa tcttgtccgt gcagcccaga aggcagcttt tggcaaagct gatgacgacg atgttgtagt gaaaaccaag tttgtggggg gcattgctca gatcatcgcc gcccaggaag aaatgctaaa gaaagagcga gaactggaag aagcaaggaa aaaactggcc caaatccgcc agcagcagta taagttttta cccaccgagc tgagggaaga tgagggctaa aggtgcgagc ccagatggcg agccccaggg gatggccctg gctgaactgg acagacagtg ttcctgagag gctgggcact tagctggaaa ccgcccacct ccctcccggg tgagcctgga gccctgcgtg cttgttctca catctctgtc ccgtcggcac tggctgcatg atcgtgatgt cacacggtac aatgtcctac ccacaactcc tctgccgcct cccctcatgc ctcaccgtgt ctcaggagag aggggtgcac gtttcatgga ctgttaccaa caaagaaaag tcagtattat gttgttctca gacactttgg cttttgttgg tccttctctt aggcctgctc ctggacctct ttatgatatt gtgataggga aaaaaatcat tgacgtcata gaatattctt cttcctctca ggagaagacg gaagctggag ttggacatgg ttcataaaag ccagaaacac aaacccgtgt ggactccggg agggtgactc aggtcctcct tccatgtctt gagcactggc tcacccaggg ggtgaaaaat tcccgcccct gtttgcacgc tttcttgcct ccgtgtgtaa gctccttgta caacccagac ccatcttgta ttttgtggcc cagaaaactg aacgattatt ttgttcctcc gtagtccaaa gggcagagtt gcggaaggcc gtcggggctt ggtgagcagg ggctgtaata cagtctgtgg gctccttacc ctgcagaggc tgtttcagct cacacagagt catccacaca aacccacggc tcccagttga cagtcagtgg aatgctcgtc tccttagcgt ccagggtggg gattctgctg gaataaagag cttcctcagt gactcatctt taggtcccac gctggtttct gtgccttcag aatggtcaca agcccggatt ggaaaggatc tgcttacaaa cctgtccccc gtcctccaac ccaaaacgcc ttttttctg tcttaatatc cagaaaatct aaatgcatcc taaaatcaat gtgaaccttt aacaagatag ttttacttat tatcacataa gacataagat gttttcattt tctggatgtc acacttccag aatttcatat ttttcccctc

ttttctttcc ccttttcaga gccctcccat aggaagggaa gggcttgaat ttacccttaa tctgcacctt tagccaaggc agtgcatgga agatgaatgg ctcgtgggac agaatctaat gccagggagc aggagtgttt gaaagaattc atagtgggga aggtaaaagt taatggaagt acatgatttt caaaactggt aacagttaaa ggcactcacc ctccgcctct ctctctctct ctctctctgg tgtgctatca tgtcttggac tccatccaca ctatagtttc aaagttccac tgacggggga aagttggtgc tttggtcctc cgaagatgtc acctttcgac cttgcccgat cttgtttcac cagactctag cccatgtcat ggttttaaaa tacataaact tctgacagct tcccatattt ataagttact tataagtgct gcacgtatta gaatttttt ttttcagacc agtaaagtta gagaaaagac gctgtaaagg aaaagcaagt gagagtatgt gtaggacact gacagtgtgt gggcaccagt tctgaagagg

FIGURE 351

Gly Ser Gln Ala Gln Glu Pro Ile Leu Val Ser Ala Lys Thr Met Leu Glu Ser Ser Ser Tyr Leu Ile Arg Thr Ala Arg Ser Leu Ala Ile Asn Pro Lys Asp Pro Pro Thr Trp Ser Val Leu Ala Gly His Ser His Thr Val Ser Asp Ser Ile Lys Ser Leu Ile Thr Ser Ile Arg Asp Lys Ala Pro Gly Gln Arg Glu Cys Asp Tyr Ser Ile Asp Gly Ile Asn Arg Cys Ile Arg Asp Ile Glu Gln Ala Ser Leu Ala Ala Val Ser Gln Ser Leu Ala Thr Arg Asp Asp Ile Ser Val Glu Ala Leu Gln Glu Gln Leu Thr Ser Val Val Gln Glu Ile Gly His Leu Ile Asp Pro Ile Ala Thr Ala Ala Arg Gly Glu Ala Ala Gln Leu Gly His Lys Val Thr Gln Leu Ala Ser Tyr Phe Glu Pro Leu Ile Leu Ala Ala Val Gly Val Ala Ser Lys Ile Leu Asp His Gln Gln Gln Met Thr Val Leu Asp Gln Thr Lys Thr Leu Ala Glu Ser Ala Leu Gln Met Leu Tyr Ala Ala Lys Glu Gly Gly Gly Asn Pro Lys Ala Gln His Thr His Asp Ala Ile Thr Glu Ala Ala Gln Leu Met Lys Glu Ala Val Asp Asp Ile Met Val Thr Leu Asn Glu Ala Ala Ser Glu Val Gly Leu Val Gly Gly Met Val Asp Ala Ile Ala Glu Ala Met Ser Lys Leu Asp Glu Gly Thr Pro Pro Glu Pro Lys Gly Thr Phe Val Asp Tyr Gln Thr Thr Val Val Lys Tyr Ser Lys Ala Ile Ala Val Thr Ala Gln Glu Met Met Thr Lys Ser Val Thr Asn Pro Glu Glu Leu Gly Gly Leu Ala Ser Gln Met Thr Ser Asp Tyr Gly His Leu Ala Phe Gln Gly Gln Met Ala Ala Ala Thr Ala Glu Pro Glu Glu Ile Gly Phe Gln Ile Arg Thr Arg Val Gln Asp Leu Gly His Gly Cys Ile Phe Leu Val Gln Lys Ala Gly Ala Leu Gln Val Cys Pro Thr Asp Ser Tyr Thr Lys Arg Glu Leu Ile Glu Cys Ala Arg Ala Val Thr Glu Lys Val Ser Leu Val Leu Ser Ala Leu Gln Ala Gly Asn Lys Gly Thr Gln Ala Cys Ile Thr Ala Ala Thr Ala Val Ser Gly Ile Ile Ala Asp Leu Asp Thr Thr Ile Met Phe Ala Thr Ala Gly Thr Leu Asn Ala Glu Asn Ser Glu Thr Phe Ala Asp His Arg Glu Asn Ile Leu Lys Thr Ala Lys Ala Leu Val Glu Asp Thr Lys Leu Leu Val Ser Gly Ala Ala Ser Thr Pro Asp Lys Leu Ala Gln Ala Ala Gln Ser Ser Ala Ala Thr Ile Thr Gln Leu Ala Glu Val Val Lys Leu Gly Ala Ala Ser Leu Gly Ser Asp Asp Pro Glu Thr Gln Val Val Leu Ile Asn Ala Ile Lys Asp Val Ala Lys Ala Leu Ser Asp Leu Ile Ser Ala Thr Lys Gly Ala Ala Ser Lys Pro Val Asp Asp Pro Ser Met Tyr Gln Leu Lys Gly Ala Ala Lys Val Met Val Thr Asn Val Thr Ser Leu Leu Lys Thr Val Lys Ala Val Glu Asp Glu Ala Thr Arg Gly Thr Arg Ala Leu Glu Ala Thr Ile Glu Cys Ile Lys Gln Glu Leu Thr Val Phe Gln Ser Lys Asp Val Pro Glu Lys Thr Ser Ser Pro Glu Glu Ser Ile Arg Met Thr Lys Gly Ile Thr Met Ala Thr Ala Lys Ala Val Ala Ala Gly Asn Ser Cys Arg Gln Glu Asp Val Ile Ala Thr Ala Asn Leu Ser Arg Lys Ala Val Ser Asp Met Leu Thr Ala Cys Lys Gln Ala Ser Phe His Pro Asp Val Ser Asp Glu Val Arg Thr Arg Ala Leu Arg Phe Gly Thr Glu Cys Thr Leu Gly Tyr Leu Asp Leu Leu Glu His Val Leu Val Ile Leu Gln Lys Pro Thr Pro Glu Phe Lys Gln Gln Leu Ala Ala Phe Ser Lys Arg Val Ala Gly Ala Val Thr Glu Leu Ile Gln Ala Ala Glu Ala Met Lys Gly Thr Glu Trp Val Asp Pro Glu Asp Pro Thr Val Ile Ala Glu Thr Glu Leu Leu Gly Ala Ala Ala Ser Ile Glu Ala Ala Ala Lys Lys Leu Glu Gln Leu Lys Pro Arg Ala Lys Pro Lys Gln Ala Asp Glu Thr Leu Asp Phe Glu Glu Gln Ile Leu Glu Ala Ala Lys Ser Ile Ala Ala Ala Thr Ser Ala Leu Val Lys Ser Ala Ser Ala Ala Gln Arg Glu Leu Val Ala Gln Gly Lys Val Gly Ser Ile Pro Ala Asn Ala Ala Asp Asp Gly Gln Trp Ser Gln Gly Leu Ile Ser Ala Ala Arg Met Val Ala Ala Ala Thr Ser Ser Leu Cys Glu Ala Ala Asn Ala Ser Val Gln Gly His Ala Ser Glu Glu Lys Leu Ile Ser Ser Ala Lys Gln Val Ala Ala Ser Thr Ala Gln Leu Leu Val Ala Cys Lys Val Lys Ala Asp Gln Asp Ser Glu Ala Met Arg Arg Leu Gln Ala Ala Gly Asn Ala Val Lys Arg Ala Ser Asp Asn Leu Val Arg Ala Ala Gln Lys Ala Ala Phe Gly Lys Ala Asp Asp Asp Asp Val Val Val Lys Thr Lys Phe Val Gly Gly Ile Ala Gln Ile Ile Ala Ala Gln Glu Glu Met Leu Lys Lys Glu Arg Glu Leu Glu Glu Ala Arg Lys Lys Leu Ala Gln Ile Arg Gln Gln Gln Tyr Lys Phe Leu Pro Thr Glu Leu Arg Glu Asp Glu Gly

FIGURE 352

aggggagctg ctggagccct agcctgttgg ggaaaagctg gcacactctt ggctcgccct ctttgagtgg agctgatcca acacctcatg cctgccttgg ccggacactg agaggagggg cacacgtgct tccagagaca ctcaggagtc agaccccaat gctcagagtc acaatgtgtt catggcctcc tgtaacagga ctctggggat cccctctgtg gcccagccca ccccaccctc tgctcttcta tgctgtgccc agggcagctg ccctcttctg cctgtgcccc atcccatcct gaaaacccag gaccaaggca ggggcaggca gccagttctt ccaccttgcc tcagagtcat ttaaaacctt tactgcattt gataccagaa aagcctccag agacaaacca aatgcaaagg cctttccttt ataactctaa agaacaggca tcgaaagttt atttttgtag gagctatata aatactcacc tttctggagt cgtccagtgc tgggagcttt ggggagtttg gttctcagtt atcacctggt atggtcccag tttctcatct gtcctttcct catccaccct gcacatgtgt atgtgaacgg cttcgtggcc ggtgtggtgg tttctcattt cataagatag ttgaagggcc atgccttgtc tggatgttat ttaataggca ctactgcggt gtcctcagat ggtactgagg gggccttctg gtccttcaaa ggaaaataac acaggcatga gttcatttgg gagtgtgaac tttcagaaca cctaataaga gagtggtgtc agagtaaaaa cggccccagg tctggagcat agaagtgtat ctctgtgaag agagagccgg tgtgttgaca tgtggttctt ctcacacccc tctactcctc gagggctttg aatccttggg ctgatttttg tgccagaaat tgctgttccc gatggccaaa aggggaacct gaactggatt tcagaactgc ccagtgattt gaaaatttag attttacttg ggcctttcag gagtctttag atagggatgc tgaggtcata tttagttcaa tgaacagccc ttgtttaagt tttgccagtg tccagccagc tgtggccctg gccatctgtg caggcaggtt cctcaattcc tggttggccc tgcagtcggt caacacagtc cctccaggtc ggctgcagag gcagctgctc agcctgcagt ctatgcacgg gccttaagaa atgagctgcc tgtagcctca cggcatatgc ttttatcagg gaaaaccctt cgagcttctt ctgattctca cctgcttgct ttctggctgt cttagtcagt gtgtttacag gcaactaaag cctgttccta atttatcaaa aaattataac caaaattcac catagcctaa gagagtaaac cccacctcca aagtgatgcc aaggccaaaa cctcatcaag gaaccagaca caggtcaaaa gtggtgagca agccatggtc tctgctcctg gggaactcac acgctgaccc ccgaggagcc ttggtttcct ccctggcaga tagtccccag aatcttctct cccagctttg aggttctggg ctctggaaag gcctctggga tgctggcctt aagatctcag cacagactat cagcatgttc cattctcaga ttcctggagg aaaggtaccc tctgttgacc aaggggctgg ctgcttctga gacttaccaa cccaagaaat ttggagacat tcccctcagg ctaaaaggca gcggtcccca gagttcagaa agcaaaagat cttgacaact gtgccagtag tggctctggt cctatctctc cacagtgctg gcctctgctg gggaaggcat ctttcccaaa ggtatcccca agtaccatgt tgaaaatgtc ctcagtctgt tgctccatct ttctgagcct ctgcttggta tgtcatgttt atggtcacta cggatgagtg tgtgcagagt ttgggttgat tcttttaaat gctacaaaca agagctattt cttttcaata aaaaaggttt ggattcggcc tcttcctctg agcccacctc ccagccctcc agggagcatc agtgtacctg agtcactttg tctgcatctc ttcatcccac aaaacacgag gctgggtctc attcagcggc ctctcaccaa ccttcaagat ccagaagaaa acaggaacgt tcagctctgc cctgtgtcgt atctaatcac atacattaat ttatctaacc acataagtta ttttttttta tttgccagaa ataaaccttt aaagg agcttcgcca gctgagcaag gcgaaagcca aggcgcagag ggccgggcag cggcgcgaag aggccgcgct gtgccaccag ctgggggagc tcctggccgg ccatggccgc tacgccgagg ctctggagca gcactggcag gagctgcagc ttcgggagcg cgctgacgac cctctgggct gtgccgtggc ccaccgcaag atcggagagc gcctggccga gatggaggac tacccggctg ccttgcagca ccagcaccag tacctggagc tggcacattc cctgcgcaac cacacggagc tgcagagggc ctgggccacc atcggccgca cccacctgga catctatgac cactgccagt cgagggatgc tttgctgcag gcacaggctg cctttgagaa gagcttggct attgtggatg aggagctgga ggggacactg gcccagggag agctgaatga gatgaggacc cgcctctatc tcaacctggg cctcaccttt gagagcctgc agcagacagc cctgtgcaac gattacttca ggaagagcat cttccttgcg gagcagaacc acctttacga ggacctattc cgcgcccgct acaacctggg caccatccac tggcgcgcgg gccagcactc ccaggctatg cgctgcttgg agggtgcccg ggagtgtgcg cacaccatga ggaagcggtt catggagagc gagtgctgcg tggttattgc acaggtcctc caagacctgg gagacttttt ggctgccaag cgagccctga agaaggccta caggctgggc tcccagaagc ctgtgcagag ggcagccatc tgtcagaacc tccagcatgt gctggcagtg gtccggctgc agcaacagct ggaagaggct gagggcagag accctcaggg tgccatggtc atctgtgagc agctagggga cctcttctcc aaggcaggag actttcccag ggcagctgag gcttaccaga agcagctgcg ttttgctgag ctgctggaca gaccgggtgc tgagcgggcc atcatccacg tgtccctggc caccacactg ggagacatga aggaccacca tggggccgtg cgccactatg aggaggaact gaggctgcgc agcggcaacg tgctggagga ggccaagacc tggctgaaca ttgcactgtc ccgcgaggag gccggcgatg cctacgagct gctggccccg tgcttccaga aagcgctcag ctgtgcccag caggcccagc gtccccagct gcagaggcag gtcttgcagc atctccatac cgtgcagctg aggctgcagc cccaggaggc ccctgagacc gaaaccagac tgcgggagct cagtgtagct gaagatgaag atgaggagga ggaggcggag gaggcggcag ccacagcgga gagcgaagcc ctggaggccg gcgaggtgga gctctcagag ggcgaggacg acaccgatgg cctgaccccg cagctggagg aggacgagga gcttcagggc cacctgggcc ggcggaaggg gagcaagtgg aaccggcgaa acgacatggg ggagaccctg ctgcaccgag cctgcatcga gggccagctg cgccgcgtcc aggaccttgt gaggcagggc cacccccctta accctcggga ctactgtggc tggacacctc tgcacgaggc ctgcaactac gggcatctag aaattgtccg

cttcctgctg gaccacgggg ccgcagtgga cgacccaggt ggccagggct gcgaaggcat cacccccctc cacgatgccc tcaactgtgg ccacttcgag gtggctgagc tgctgcttga acgggggggcg tccgtcaccc tccgcactcg aaagggcctc agcccgctgg agacgctgca gcagtgggtg aagctgtacc gcagggacct ggacctggag acgcggcaga aggccagggc catggagatg ctgctccagg cggctgcctc gggccaagat ccccacagct cccaggcctt ccacacccca agcagccttc tgtttgaccc cgagacctct cctcctttga gcccctgccc agaaccccccc tctaatagca ctagactccc agaggcctct caggcccatg tcagggtctc cccagggcag gcggcaccag ccatggccag gcctcggagg agcaggcatg ggccagccag cagcagcagc agctcagaag gcgaggacag cgcaggcccc gcacggccgt cccagaagag gcctcggtgc tcggccacag cacaacgggt ggcagcctgg acgcctggcc ccgccagcaa cagggaagca gccacagcca gcaccagccg ggcagcctac caggcagcca tccggggtgt gggcagtgct cagagccggc tggggcctgg cccaccgcgg ggccacagca aagcccttgc cccccaggca gcgctcatcc cggaggagga gtgcctggcc ggggactggc tggagctgga catgcccctg acccgcagcc gccggccccg cccccggggc actggagaca accgcaggcc cagtagtacc tctgggtcgg acagtgagga gagcaggccc cgtgcccgag ccaagcaggt ccgcctgacc tgcatgcaga gttgcagtgc gccagttaac gcagggccca gcagcctggc ttcagaacct ccagggagcc ccagcacccc cagggtctca gagcccagtg gggacagctc tgcggcaggc cagcccttgg gtccggcccc gccccctccc atccgggttc gagttcaagt tcaggatcat ctcttcctca tccctgtccc acacagcagt gacacccact ctgtggcctg gctggccgag caggcggccc agcgctacta ccagacctgc gggctgctgc ccaggctcac cctacggaaa gaggggggccc tgctggcccc acaggacctc atccctgatg tgctgcagag caatgacgag gtgttggctg aggtgacttc gtgggacctg cccccgttga ctgaccgcta ccgcagggcc tgccagagcc tggggcaagg ggagcaccaa caggtgctgc aggccgtgga gctccagggc ttgggcctct cgttcagcgc ctgctccctg gccctggacc aggcccagct tacacccctg ctgcgggccc tcaagctgca cacagcactc cgggagctgc gcctggcagg gaaccggctg ggggacaagt gtgtggctga gctggtggct gccctgggca ccatgcccag cctggccctc cttgacctct cctccaatca cctgggtccc gaaggcctgc gccagcttgc catggggctc ccaggccaag ccaccttgca gagtttggag gagctggact taagcatgaa ccccctgggg gacggctgtg gccagtccct ggcctccctc ctgcacgcct gcccccttact cagcaccctg cgcctgcagg cgtgtggctt cggccccagc ttctttctga gccaccagac agcactgggt agtgctttcc aagatgctga gcacctgaag accctgtccc tgtcctacaa cgccctggga gcccctgccc tggccaggac cctgcagagc ctgcccgccg gcaccctcct gcacttagag ctcagctccg tggcagccgg caagggtgat tcggacctca tggagcctgt attccgatac ctggccaagg aaggctgtgc tctagcccac ctgaccctgt ctgcaaacca cctgggggac aaggctgtta gagacctgtg cagatgtctc tctctgtgcc cctcactcat ctcactggat ctgtctgcca accctgagat cagctgtgcc agcttggaag agctcctgtc caccctccaa aagcggcccc aaggccttag cttccttggc ctgtcaggct gcgccgtcca gggtcccctg ggcctgggcc tgtgggacaa gatagccgcg cagctccggg aactgcagct gtgcagcaga cgcctctgcg ctgaggacag ggacgccctg cgccagctgc agcccagtcg gccgggcccc ggcgagtgca cgctggacca cggctccaag ctcttctttc ggcgcctctg accctggcgc tgcctttccc caccctcacc gaagccccta ataaatgaag ctgctggccg ggcgcggtgg ctcacgcctg taatcccaac actttgggag gcccaggcgg gcggatcacg aggtcaggag atcgagacca tcctggctaa catggtgaaa ccccgtctct actaaaaata ccaaaaatta gccgggcgtg gtggtggaag cctgtagtcc cagctactcc ggaggctgag gcaggagaat ggcgtgaacc cgggaggcgg agcttgcagt gagccgagat cgcaccactg cactccagcc tgggcgacag accgagactc cgtctcaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaa

FIGURE 353

Met Arg Thr Arg Leu Tyr Leu Asn Leu Gly Leu Thr Phe Glu Ser Leu Gln Gln Thr Ala Leu Cys Asn Asp Tyr Phe Arg Lys Ser Ile Phe Leu Ala Glu Gln Asn His Leu Tyr Glu Asp Leu Phe Arg Ala Arg Tyr Asn Leu Gly Thr Ile His Trp Arg Ala Gly Gln His Ser Gln Ala Met Arg Cys Leu Glu Gly Ala Arg Glu Cys Ala His Thr Met Arg Lys Arg Phe Met Glu Ser Glu Cys Cys Val Val Ile Ala Gln Val Leu Gln Asp Leu Gly Asp Phe Leu Ala Ala Lys Arg Ala Leu Lys Lys Ala Tyr Arg Leu Gly Ser Gln Lys Pro Val Gln Arg Ala Ala Ile Cys Gln Asn Leu Gln His Val Leu Ala Val Val Arg Leu Gln Gln Gln Leu Glu Glu Ala Glu Gly Arg Asp Pro Gln Gly Ala Met Val Ile Cys Glu Gln Leu Gly Asp Leu Phe Ser Lys Ala Gly Asp Phe Pro Arg Ala Ala Glu Ala Tyr Gln Lys Gln Leu Arg Phe Ala Glu Leu Leu Asp Arg Pro Gly Ala Glu Arg Ala Ile Ile His Val Ser Leu Ala Thr Thr Leu Gly Asp Met Lys Asp His His Gly Ala Val Arg His Tyr Glu Glu Glu Leu Arg Leu Arg Ser Gly Asn Val Leu Glu Glu Ala Lys Thr Trp Leu Asn Ile Ala Leu Ser Arg Glu Glu Ala Gly Asp Ala Tyr Glu Leu Leu Ala Pro Cys Phe Gln Lys Ala Leu Ser Cys Ala Gln Gln Ala Gln Arg Pro Gln Leu Gln Arg Gln Val Leu Gln His Leu His Thr Val Gln Leu Arg Leu Gln Pro Gln Glu Ala Pro Glu Thr Glu Thr Arg Leu Arg Glu Leu Ser Val Ala Glu Asp Glu Asp Glu Glu Glu Glu Ala Glu Glu Ala Ala Ala Thr Ala Glu Ser Glu Ala Leu Glu Ala Gly Glu Val Glu Leu Ser Glu Gly Glu Asp Asp Thr Asp Gly Leu Thr Pro Gln Leu Glu Glu Asp Glu Glu Leu Gln Gly His Leu Gly Arg Arg Lys Gly Ser Lys Trp Asn Arg Arg Asn Asp Met Gly Glu Thr Leu Leu His Arg Ala Cys Ile Glu Gly Gln Leu Arg Arg Val Gln Asp Leu Val Arg Gln Gly His Pro Leu Asn Pro Arg Asp Tyr Cys Gly Trp Thr Pro Leu His Glu Ala Cys Asn Tyr Gly His Leu Glu Ile Val Arg Phe Leu Leu Asp His Gly Ala Ala Val Asp Asp Pro Gly Gly Gln Gly Cys Glu Gly Ile Thr Pro Leu His Asp Ala Leu Asn Cys Gly His Phe Glu Val Ala Glu Leu Leu Leu Glu Arg Gly Ala Ser Val Thr Leu Arg Thr Arg Lys Gly Leu Ser Pro Leu Glu Thr Leu Gln Gln Trp Val Lys Leu Tyr Arg Arg Asp Leu Asp Leu Glu Thr Arg Gln Lys Ala Arg Ala Met Glu Met Leu Leu Gln Ala Ala Ala Ser Gly Gln Asp Pro His Ser Ser Gln Ala Phe His Thr Pro Ser Ser Leu Leu Phe Asp Pro Glu Thr Ser Pro Pro Leu Ser Pro Cys Pro Glu Pro Pro Ser Asn Ser Thr Arg Leu Pro Glu Ala Ser Gln Ala His Val Arg Val Ser Pro Gly Gln Ala Ala Pro Ala Met Ala Arg Pro Arg Arg Ser Arg His Gly Pro Ala Ser Ser Ser Ser Ser Ser Glu Gly Glu Asp Ser Ala Gly Pro Ala Arg Pro Ser Gln Lys Arg Pro Arg Cys Ser Ala Thr Ala Gln Arg Val Ala Ala Trp Thr Pro Gly Pro Ala Ser Asn Arg Glu Ala Ala Thr Ala Ser Thr Ser Arg Ala Ala Tyr Gln Ala Ala Ile Arg Gly Val Gly Ser Ala Gln Ser Arg Leu Gly Pro Gly Pro Pro Arg Gly His Ser Lys Ala Leu Ala Pro Gln Ala Ala Leu Ile Pro Glu Glu Glu Cys Leu Ala Gly Asp Trp Leu Glu Leu Asp Met Pro Leu Thr Arg Ser Arg Arg Pro Arg Pro Arg Gly Thr Gly Asp Asn Arg Arg Pro Ser Ser Thr Ser Gly Ser Asp Ser Glu Glu Ser Arg Pro Arg Ala Arg Ala Lys Gln Val Arg Leu Thr Cys Met Gln Ser Cys Ser Ala Pro Val Asn Ala Gly Pro Ser Ser Leu Ala Ser Glu Pro Pro Gly Ser Pro Ser Thr Pro Arg Val Ser Glu Pro Ser Gly Asp Ser Ser Ala Ala Gly Gln Pro Leu Gly Pro Ala Pro Pro Pro Pro Ile Arg Val Arg Val Gln Val Gln Asp His Leu Phe Leu Ile Pro Val Pro His Ser Ser Asp Thr His Ser Val Ala Trp Leu Ala Glu Gln Ala Ala Gln Arg Tyr Tyr Gln Thr Cys Gly Leu Leu Pro Arg Leu Thr Leu Arg Lys Glu Gly Ala Leu Leu Ala Pro Gln Asp Leu Ile Pro Asp Val Leu Gln Ser Asn Asp Glu Val Leu Ala Glu Val Thr Ser Trp Asp Leu Pro Pro Leu Thr Asp Arg Tyr Arg Arg Ala Cys Gln Ser Leu Gly Gln Gly Glu His Gln Gln Val Leu Gln Ala Val Glu Leu Gln Gly Leu Gly Leu Ser Phe Ser Ala Cys Ser Leu Ala Leu Asp Gln Ala Gln Leu Thr Pro Leu Leu Arg Ala Leu Lys Leu His Thr Ala Leu Arg Glu Leu Arg Leu Ala Gly Asn Arg Leu Gly Asp Lys Cys Val Ala Glu Leu Val Ala Ala Leu Gly Thr Met Pro Ser Leu Ala Leu Leu Asp Leu Ser Ser Asn His Leu Gly Pro Glu Gly Leu Arg Gln Leu Ala Met Gly Leu Pro Gly Gln Ala Thr Leu Gln Ser Leu Glu Glu Leu Asp Leu Ser Met Asn Pro Leu Gly Asp Gly Cys Gly Gln Ser Leu Ala Ser Leu Leu His Ala Cys Pro Leu Leu Ser Thr Leu Arg Leu Gln Ala Cys Gly Phe Gly Pro Ser Phe Phe Leu Ser His Gln Thr Ala Leu Gly Ser Ala Phe Gln Asp Ala Glu His Leu Lys Thr Leu Ser Leu Ser Tyr Asn Ala Leu Gly Ala Pro Ala Leu Ala Arg Thr Leu Gln Ser Leu Pro Ala Gly Thr Leu Leu His Leu Glu Leu Ser Ser Val Ala Ala Gly Lys Gly Asp Ser Asp Leu Met Glu Pro Val Phe Arg Tyr Leu Ala Lys Glu

Gly Cys Ala Leu Ala His Leu Thr Leu Ser Ala Asn His Leu Gly Asp Lys Ala Val Arg Asp Leu Cys Arg Cys Leu Ser Leu Cys Pro Ser Leu Ile Ser Leu Asp Leu Ser Ala Asn Pro Glu Ile Ser Cys Ala Ser Leu Glu Glu Leu Leu Ser Thr Leu Gln Lys Arg Pro Gln Gly Leu Ser Phe Leu Gly Leu Ser Gly Cys Ala Val Gln Gly Pro Leu Gly Leu Gly Leu Trp Asp Lys Ile Ala Ala Gln Leu Arg Glu Leu Gln Leu Cys Ser Arg Arg Leu Cys Ala Glu Asp Arg Asp Ala Leu Arg Gln Leu Gln Pro Ser Arg Pro Gly Pro Gly Glu Cys Thr Leu Asp His Gly Ser Lys Leu Phe Phe Arg Arg Leu

FIGURE 354

cgttggcgtt tacgtgtgga agagcggaag agttttgctt ttcgtgcgcg ccttcgaaaa ctgcctgccg ctgtctgagg agtccacccg aaacctcccc tcctccgccg gcagccccgc gctgagctcg ccgacccaag ccagcgtggg cgaggtggga agtgcgcccg acccgcgcct ggagctgcgc ccccgagtgc ccatggctac aagggtgctg agcatgagcg cccgcctggg acccgtgccc cagccgccgg cgccgcagga cgagccggtg ttcgcgcagc tcaagccggt gctgggcgcc gcgaatccgg cccgcgacgc ggcgctcttc cccggcgagg agctgaagca cgcgcaccac cgcccgcagg cgcagcccgc gcccgcgcag gccccgcagc cggcccagcc gcccgccacc ggcccgcggc tgcctccaga ggacctggtc cagacaagat gtgaaatgga gaagtatctg acacctcagc ttcctccagt tcctataatt ccagagcata aaaagtatag acgagacagt gcctcagtcg tagaccagtt cttcactgac actgaagggt taccttacag tatcaacatg aacgtcttcc tccctgacat cactcacctg agaactggcc tctacaaatc ccagagaccg tgcgtaacac acatcaagac agaacctgtt gccattttca gccaccagag tgaaacgact gcccctcctc cggccccgac ccaggccctc cctgagttca ccagtatatt cagctcacac cagaccgcag ctccagaggt gaacaatatt ttcatcaaac aagaacttcc tacaccagat cttcatcttt ctgtccctac ccagcagggc cacctgtacc agctactgaa tacaccggat ctagatatgc ccagttctac aaatcagaca gcagcaatgg acactcttaa tgtttctatg tcagctgcca tggcaggcct taacacacac acctctgctg ttccgcagac tgcagtgaaa caattccagg gcatgccccc ttgcacatac acaatgccaa gtcagtttct tccacaacag gccacttact ttccccccgtc accaccaagc tcagagcctg gaagtccaga tagacaagca gagatgctcc agaatttaac cccacctcca tcctatgctg ctacaattgc ttctaaactg gcaattcaca atccaaattt acccaccacc ctgccagtta actcacaaaa catccaacct gtcagataca atagaaggag taaccccgat ttggagaaac gacgcatcca ctactgcgat taccctggtt gcacaaaagt ttataccaag tcttctcatt taaaagctca cctgaggact cacactggtg aaaagccata caagtgtacc tgggaaggct gcgactggag gttcgcgcga tcggatgagc tgacccgcca ctaccggaag cacacaggcg ccaagcccct ccagtgcggg gtgtgcaacc gcagcttctc gcgctctgac cacctggccc tgcatatgaa gaggcaccag aactgagcac tgcccgtgtg acccgttcca ggtcccctgg gctccctcaa at

FIGURE 355

Met Ala Thr Arg Val Leu Ser Met Ser Ala Arg Leu Gly Pro Val Pro Gln Pro Pro Ala Pro Gln Asp Glu Pro Val Phe Ala Gln Leu Lys Pro Val Leu Gly Ala Ala Asn Pro Ala Arg Asp Ala Ala Leu Phe Pro Gly Glu Glu Leu Lys His Ala His His Arg Pro Gln Ala Gln Pro Ala Pro Ala Gln Ala Pro Gln Pro Ala Gln Pro Pro Ala Thr Gly Pro Arg Leu Pro Pro Glu Asp Leu Val Gln Thr Arg Cys Glu Met Glu Lys Tyr Leu Thr Pro Gln Leu Pro Pro Val Pro Ile Ile Pro Glu His Lys Lys Tyr Arg Arg Asp Ser Ala Ser Val Val Asp Gln Phe Phe Thr Asp Thr Glu Gly Leu Pro Tyr Ser Ile Asn Met Asn Val Phe Leu Pro Asp Ile Thr His Leu Arg Thr Gly Leu Tyr Lys Ser Gln Arg Pro Cys Val Thr His Ile Lys Thr Glu Pro Val Ala Ile Phe Ser His Gln Ser Glu Thr Thr Ala Pro Pro Pro Ala Pro Thr Gln Ala Leu Pro Glu Phe Thr Ser Ile Phe Ser Ser His Gln Thr Ala Ala Pro Glu Val Asn Asn Ile Phe Ile Lys Gln Glu Leu Pro Thr Pro Asp Leu His Leu Ser Val Pro Thr Gln Gln Gly His Leu Tyr Gln Leu Leu Asn Thr Pro Asp Leu Asp Met Pro Ser Ser Thr Asn Gln Thr Ala Ala Met Asp Thr Leu Asn Val Ser Met Ser Ala Ala Met Ala Gly Leu Asn Thr His Thr Ser Ala Val Pro Gln Thr Ala Val Lys Gln Phe Gln Gly Met Pro Pro Cys Thr Tyr Thr Met Pro Ser Gln Phe Leu Pro Gln Gln Ala Thr Tyr Phe Pro Pro Ser Pro Pro Ser Ser Glu Pro Gly Ser Pro Asp Arg Gln Ala Glu Met Leu Gln Asn Leu Thr Pro Pro Pro Ser Tyr Ala Ala Thr Ile Ala Ser Lys Leu Ala Ile His Asn Pro Asn Leu Pro Thr Thr Leu Pro Val Asn Ser Gln Asn Ile Gln Pro Val Arg Tyr Asn Arg Arg Ser Asn Pro Asp Leu Glu Lys Arg Arg Ile His Tyr Cys Asp Tyr Pro Gly Cys Thr Lys Val Tyr Thr Lys Ser Ser His Leu Lys Ala His Leu Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Thr Trp Glu Gly Cys Asp Trp Arg Phe Ala Arg Ser Asp Glu Leu Thr Arg His Tyr Arg Lys His Thr Gly Ala Lys Pro Phe Gln Cys Gly Val Cys Asn Arg Ser Phe Ser Arg Ser Asp His Leu Ala Leu His Met Lys Arg His Gln Asn

FIGURE 356

atctaccacc ttaaaaccct gatctagaaa aaatatatat tcatgatagg aagttataac taagaaaatt tatttgcctc ttaatgctcc tgaatgaaag aaattatccc tttgttcttt gggaggactt gtgtatctga gattgttgta ataatcagtc attttattaa aaccttgaca tgatcaccag ggaggaaaaa tagagcaata gtcaaaacct gtgtgttagt ccaagatgac ttctgaagaa atgacagctt ctgttctcat acctgtgact cagagaaaag tggtttctgc ccagtcggct gcagatgaaa gtagtgaaaa ggtctcagac atcaatattt caaaagcaca tactgtcaga cgaagtgggg agacttctca taccatctca caactgaaca aacttaaaga agaaccttct ggaagcaact tgccaaagat tctctcaata gcgagggaga aaatagtgag tgatgagaac agtaatgaaa aatgttggga gaaaatcatg ccagattctg cgaaaaacct taacattaac tgcaacaaca tattgagaaa ccatcagcat ggccttcctc agagacaatt ttatgaaatg tacaactctg ttgctgagga agacttgtgt ttagaaactg gaattccttc tccactggaa agaaaggtgt tccctggaat tcaactggaa ctagacagac cttccatggg cattagtcct ttaggaaatc agtcagtgat catagagaca ggcagagcac accctgacag cagaagggca gtatttcatt ttcattatga agttgacaga agaatgtcag acactttctg taccctatca gaaaacttaa ttttagacga ttgtggaaat tgtgtaccac tacctggggg tgaggagaag caaaagaaaa actatgtggc atatacctgt aaactgatgg aattggccaa aaattgtgat aataagaatg agcagctgca gtgtgatcat tgtgacacct tgaatgataa atacttttgc tttgaaggct cttgtgagaa ggttgacatg gtatattcag gtgatagctt ttgtaggaaa gactttactg acagtcaagc tgccaagacc tttttgagcc attttgagga cttccctgat aattgtgatg atgtagaaga agacgctttt aaaagcaaaa aggagcgatc cactttgtta gtcaggagat tctgtaaaaa tgacagagaa gttaagaaat ctgtgtatac tggaacaaga gcaattgtga gaactctgcc ttctggccac attgggctga ctgcatggag ttacatagat cagaagagaa atggtccctt actgccttgt gggagagtaa tggaaccccc gtcaacagtg gagataaggc aagatgggag ccaacgtctg tcagaagccc agtggtatcc tatctacaat gcagtgagaa gagaagaaac agaaaataca gttggatctc tactccattt cctcaccaag ctcccagcct ccgagacagc ccatggaagg ataagcgttg gtccatgctt aaagcaatgt gtccgagaca ctgtatgtga gtatcgcgcc accctccaaa ggacttcaat atcgcagtac atcaccggtt ctctcctaga agcaaccacg tctttgggag caagaagtgg ccttctcagt acttttggag gatccactgg acgaatgatg ctgaaagaac gccagccagg cccctctgtg gccaattcca atgccctccc ttcaagttca gctgggatca gcaaggagct gatcgatctg cagcctctca tccagttccc agaggaagtc gccagcatcc tgatggagca agagcagact atttaccgca gggtcttgcc agtcgactac ctttgcttct taacacggga cttgggcact cctgaatgcc agagctcctt gccctgcctc aaagcatcca tctcagcgtc gattcttacc actcagaatg gagagcacaa tgcccttgaa gatctggtga tgaggtttaa tgaggtgagc tcctgggtga catggctgat cctcacggca ggctccatgg aggagaagcg agaagtcttt tcatatttgg tgcatgtggc caaatgctgc tggaacatgg gcaactacaa cgctgtcatg gagttcttgg ctggcctcag gtcaagaaaa gttttaaaaa tgtggcagtt catggaccag tctgatattg agaccatgag gagcctgaag gatgctatgg cccagcatga gtcctcttgt gagtacagaa aggtggtgac acgtgccctg cacatccctg gctgtaaggt ggttccattc tgtggggtgt ttctgaagga gctctgtgaa gtgcttgacg gcgcctccgg tctcatgaag ctttgcccgc ggtacaattc ccaagaagaa actttagagt ttgtagcaga ttacagtgga caagataatt tcttacaacg agtgggacaa aatggcttaa agaattcgga gaaggagtcc actgtcaaca gcatctttca ggtcatccgg agctgcaatc gaagtctgga gacagacgag gaggacagcc ccagtgaagg gaacagctcc aggaaaagct ccttgaagga taaaagccga tggcagttta taattggaga tttgttggat tcagacaatg acatctttga gcaatccaaa gaatacgact ctcatggttc agaggactca cagaaggcct tcgaccatgg gacggagctc atcccttggt acgtgctgtc catccaagcc gatgtgcacc agttcctgct gcaggggccc acggtcatcc actacgacca ggacacacac ctctctgccc gctgcttcct ccagcttcag cccgacaata gcaccttgac ctgggtaaag cccacaactg cctccccagc cagcagtaaa gcaaaacttg gtgtacttaa taacacagct gagcctggaa aattcccact actgggtaat gctggattaa gtagcctgac ggaaggggtc ttggatcttt ttgcagtgaa ggctgtatac atgggccacc ctggcattga tatacacact gtgtgtgttc agaacaaact gggtagcatg ttcctgtcag agactggtgt gacattgctc tatgggcttc agaccacaga caacagatta ttgcacttcg tggcaccaaa gcacacagct aaaatgctct tcagcggatt attggaactc actagagctg tgagaaagat gaggaaattc cctgaccaaa gacagcagtg gctgcggaaa cagtacgtca gcctttatca ggaggatgga cggtatgaag gcccaacttt ggctcacgct gtggagttgt ttggtggcag acggtggagt gctcgaaacc ccagccccgg aacatcagca aagaatgctg agaagcccaa tatgcagaga aacaataccc tgggcataag cactaccaag aaaaagaaga aaatcctcat gaggggtgag agtggagagg taactgacga tgagatggca acccgaaagg ccaagatgca caaagagtgt cgaagccgga gtggttctga tcctcaagac attaatgaac aagaagaatc agaggtgaat gccatcgcta accctccaaa ccccctccct tccagaagag cccactcttt gaccacagct gggtccccca acttggctgc cgggacgtca tctcccatca ggccagtgtc ctcccctgtg ctgtcttctt caaacaagag cccatccagt gcttggagca gtagtagctg gcacgggcgg atcaaaggcg gcatgaaggg atttcagagc

FIGURE 357 (Continued)

ttcatggttt cagatagcaa catgagtttt gttgaatttg ttgagctgtt caaatcattc agtgtcagga gccgcaagga cctgaaggat ctgtttgatg tctatgcagt gccctgcaac cgatctggct ccgagtcagc cccactctac accaacctga caattgatga aaacaccagc gatcttcagc ctgacctaga tctgttgacc agaaatgtct cggatttggg gttgttcatt aagagtaaac agcagctatc ggacaaccag aggcagatat ctgatgccat tgctgctgca agcattgtga caaatggcac tgggattgag agcacatctc tgggcatttt tggggtgggc atacttcagc tcaacgattt cctcgtgaat tgccaaggag aacactgcac ttatgatgaa atcctcagca tcatccagaa gttcgagcct agcatcagta tgtgtcatca gggactaatg tcatttgaag ggtttgccag gtttctgatg gataaagaaa attttgcctc aaaaaatgat gagtcacagg agaacattaa agaactgcag ctacccctct catactatta catcgaatct tcgcacaata cctacctcac gggccatcag ctcaaaggag aatcctcggt agaactctac agccaggtcc ttttgcaagg ctgtcgaagt gtagaattgg actgctggga cggagacgat gggatgccca tcatttatca tggacatacg ccgacaacca agatcccctt caaggaagtg gttgaagcca ttgatcgcag tgccttcatc aactctgacc tgccaatcat catatcgatt gagaaccact gttcattgcc tcagcaacga aaaatggcag aaattttcaa gactgtgttt ggagaaaagc tggtgactaa attcttattt gagactgatt tctcagatga tccaatgctt ccttcacctg accaactcag aaagaaagtt cttcttaaaa acaagaagct aaaagcccat cagacgccag tggatatctt aaagcaaaag gctcatcagt tagcatctat gcaagtgcag gcttataatg gtgggaatgc caacccccga cctgccaata atgaggaaga ggaagatgag gaggacgaat atgattatga ctatgaatcc ctttctgatg acaacattct ggaagacaga cctgaaaata aatcatgtaa tgacaagctt cagtttgaat ataatgaaga aatcccaaag aggataaaga aagcagataa ctctgcttgc aacaaaggaa aggtttatga tatggaactg ggagaagaat tttatcttga tcagaataaa aaggaaagca gacagattgc accagagctt tctgaccttg taatctatcg tcaagcagta aaatttccag gactgtcaac tctaaatgca tctggctcta gcagaggaaa agaaaggaaa agcaggaagt ccatttttgg caacaatccg ggcagaatga gcccagggga gacagcatca tttaacaaaa catctggaaa aagttcctgt gaaggcattc gacagacctg ggaggaatct tcttcccccc tcaacccaac cacgtcccte agtgctatca ttagaactcc caaatgttat catatctcgt cgctgaatga aaatgccgcc aaacgtctgt gtcgcaggta ttctcagaaa ctgatccagc acaccgcctg tcagctgctg agaacttacc ctgctgccac ccgcatcgac tcttccaacc cgaacccccct catgttctgg ctccatggga tacagcttgt ggcactcaac taccagactg atgatctccc tttacattta aatgctgcaa tgtttgaggc aaatggtggt tgtggttatg tattgaaacc tccagttctg tgggacaaga actgccccat gtatcagaag ttttctccac tagaaagaga tctggacagc atggatcctg cagtctattc tttaactatt gtctctggtc agaatgtgtg ccccagtaat agcatgggaa gcccgtgcat tgaagtcgac gtcctgggca tgcctctgga cagctgccat ttccgcacaa agcccatcca tcgaaacacc ctgaacccca tgtggaacga gcagtttctg ttccgcgttc acttcgaaga tcttgtattt cttcgttttg cagttgtgga aaacaatagt tcagcggtaa ctgctcagag aatcattcca ctgaaagctt taaaacgagg atatcgacat cttcagctgc gaaaccttca caatgaagtc ttggagattt ctagtttatt cattaacagc agaaggatgg aagaaaattc ctctggcaat accatgtcag cctcttcgat gtttaataca gaagaaagaa aatgtttgca gactcacaga gtcacggtgc atggggtccc agggccagag ccctttaccg ttttcactat taatggaggc accaaggcaa agcagcttct gcagcaaatt ctgacaaatg aacaagacat caaacctgtt accacagact atttttgat ggaagaaaaa tattttatat ctaaagaaaa gaatgaatgt aggaaacaac cattccagag agccattggt ccagaagagg agatcatgca aattttaagc agctggtttc cagaagaggg atacatgggc aggattgtct taaaaaccca gcaggaaaac ctagaagaga aaaacattgt tcaagatgac aaagaggtga tcttgagctc agaggaggag agtttctttg tccaagtgca tgatgtttct ccagagcaac ctcgaacagt catcaaagca ccccgcgtca gcactgcaca ggatgtcatt cagcagacct tatgcaaagc caaatattcc tacagcatcc tgagcaaccc caatccaagc gactatgtgc ttttggaaga ggtggtgaaa gacactacca acaagaagac taccacacca aagtcctctc agcgggtcct tctggatcag gagtgtgtgt ttcaagccca aagcaagtgg aaaggtgcag gaaaattcat ccttaagcta aaggagcagg tgcaggcatc tcgagaagat aaaaagaaag gcatttcttt cgcaagtgaa ctcaagaagc tcaccaagtc aactaaacag ccccgaggac ttacatcacc ttctcagctc ttgacctcag aaagtatcca aaccaaggag gagaaacctg tgggtggctt gtctccagtg acacaatgga ttaccgacag tgactaaggg cagcatgttt aacccaggtg gagatcttta agcaagaagt taaagagtga acatggtgga aaaaatataa ttattttcat cagacttaaa ctggaaattg atgatttctg aactgaagcc ttcacacatg tgagatccat gctgaggaga agcaaaatgg cacagggcta gttgccacca accaatttac tgatgaatga agcccagggg actgccattt tataaatgtc agcagttgga aaaatcgtca cgaattgact tagagcaagg gtcagcaagc ttgtctgtaa agggccaaac agtaaatatt ttagggctgg gggccataaa atatgttgca accacccaat tctgccattg tagtgcaaaa gcagccatag acaacacata catgaacgaa cgtggctgta ttccaataaa actttattta tggacactga aaaaaaaaaa aaaaaaaaa

FIGURE 357

Met Thr Ser Glu Glu Met Thr Ala Ser Val Leu Ile Pro Val Thr Gln Arg Lys Val Val Ser Ala Gln Ser Ala Ala Asp Glu Ser Ser Glu Lys Val Ser Asp Ile Asn Ile Ser Lys Ala His Thr Val Arg Arg Ser Gly Glu Thr Ser His Thr Ile Ser Gln Leu Asn Lys Leu Lys Glu Glu Pro Ser Gly Ser Asn Leu Pro Lys Ile Leu Ser Ile Ala Arg Glu Lys Ile Val Ser Asp Glu Asn Ser Asn Glu Lys Cys Trp Glu Lys Ile Met Pro Asp Ser Ala Lys Asn Leu Asn Ile Asn Cys Asn Asn Ile Leu Arg Asn His Gln His Gly Leu Pro Gln Arg Gln Phe Tyr Glu Met Tyr Asn Ser Val Ala Glu Glu Asp Leu Cys Leu Glu Thr Gly Ile Pro Ser Pro Leu Glu Arg Lys Val Phe Pro Gly Ile Gln Leu Glu Leu Asp Arg Pro Ser Met Gly Ile Ser Pro Leu Gly Asn Gln Ser Val Ile Ile Glu Thr Gly Arg Ala His Pro Asp Ser Arg Arg Ala Val Phe His Phe His Tyr Glu Val Asp Arg Arg Met Ser Asp Thr Phe Cys Thr Leu Ser Glu Asn Leu Ile Leu Asp Asp Cys Gly Asn Cys Val Pro Leu Pro Gly Gly Glu Glu Lys Gln Lys Lys Asn Tyr Val Ala Tyr Thr Cys Lys Leu Met Glu Leu Ala Lys Asn Cys Asp Asn Lys Asn Glu Gln Leu Gln Cys Asp His Cys Asp Thr Leu Asn Asp Lys Tyr Phe Cys Phe Glu Gly Ser Cys Glu Lys Val Asp Met Val Tyr Ser Gly Asp Ser Phe Cys Arg Lys Asp Phe Thr Asp Ser Gln Ala Ala Lys Thr Phe Leu Ser His Phe Glu Asp Phe Pro Asp Asn Cys Asp Asp Val Glu Glu Asp Ala Phe Lys Ser Lys Lys Glu Arg Ser Thr Leu Leu Val Arg Arg Phe Cys Lys Asn Asp Arg Glu Val Lys Lys Ser Val Tyr Thr Gly Thr Arg Ala Ile Val Arg Thr Leu Pro Ser Gly His Ile Gly Leu Thr Ala Trp Ser Tyr Ile Asp Gln Lys Arg Asn Gly Pro Leu Leu Pro Cys Gly Arg Val Met Glu Pro Pro Ser Thr Val Glu Ile Arg Gln Asp Gly Ser Gln Arg Leu Ser Glu Ala Gln Trp Tyr Pro Ile Tyr Asn Ala Val Arg Arg Glu Glu Thr Glu Asn Thr Val Gly Ser Leu Leu His Phe Leu Thr Lys Leu Pro Ala Ser Glu Thr Ala His Gly Arg Ile Ser Val Gly Pro Cys Leu Lys Gln Cys Val Arg Asp Thr Val Cys Glu Tyr Arg Ala Thr Leu Gln Arg Thr Ser Ile Ser Gln Tyr Ile Thr Gly Ser Leu Leu Glu Ala Thr Thr Ser Leu Gly Ala Arg Ser Gly Leu Leu Ser Thr Phe Gly Gly Ser Thr Gly Arg Met Met Leu Lys Glu Arg Gln Pro Gly Pro Ser Val Ala Asn Ser Asn Ala Leu Pro Ser Ser Ser Ala Gly Ile Ser Lys Glu Leu Ile Asp Leu Gln Pro Leu Ile Gln Phe Pro Glu Glu Val Ala Ser Ile Leu Met Glu Gln Glu Gln Thr Ile Tyr Arg Arg Val Leu Pro Val Asp Tyr Leu Cys Phe Leu Thr Arg Asp Leu Gly Thr Pro Glu Cys Gln Ser Ser Leu Pro Cys Leu Lys Ala Ser Ile Ser Ala Ser Ile Leu Thr Thr Gln Asn Gly Glu His Asn Ala Leu Glu Asp Leu Val Met Arg Phe Asn Glu Val Ser Ser Trp Val Thr Trp Leu Ile Leu Thr Ala Gly Ser Met Glu Glu Lys Arg Glu Val Phe Ser Tyr Leu Val His Val Ala Lys Cys Cys Trp Asn Met Gly Asn Tyr Asn Ala Val Met Glu Phe Leu Ala Gly Leu Arg Ser Arg Lys Val Leu Lys Met Trp Gln Phe Met Asp Gln Ser Asp Ile Glu Thr Met Arg Ser Leu Lys Asp Ala Met Ala Gln His Glu Ser Ser Cys Glu Tyr Arg Lys Val Val Thr Arg Ala Leu His Ile Pro Gly Cys Lys Val Val Pro Phe Cys Gly Val Phe Leu Lys Glu Leu Cys Glu Val Leu Asp Gly Ala Ser Gly Leu Met Lys Leu Cys Pro Arg Tyr Asn Ser Gln Glu Glu Thr Leu Glu Phe Val Ala Asp Tyr Ser Gly Gln Asp Asn Phe Leu Gln Arg Val Gly Gln Asn Gly Leu Lys Asn Ser Glu Lys Glu Ser Thr Val Asn Ser Ile Phe Gln Val Ile Arg Ser Cys Asn Arg Ser Leu Glu Thr Asp Glu Glu Asp Ser Pro Ser Glu Gly Asn Ser Ser Arg Lys Ser Ser Leu Lys Asp Lys Ser Arg Trp Gln Phe Ile Ile Gly Asp Leu Leu Asp Ser Asp Asn Asp Ile Phe Glu Gln Ser Lys Glu Tyr Asp Ser His Gly Ser Glu Asp Ser Gln Lys Ala Phe Asp His Gly Thr Glu Leu Ile Pro Trp Tyr Val Leu Ser Ile Gln Ala Asp Val His Gln Phe Leu Leu Gln Gly Ala Thr Val Ile His Tyr Asp Gln Asp Thr His Leu Ser Ala Arg Cys Phe Leu Gln Leu Gln Pro Asp Asn Ser Thr Leu Thr Trp Val Lys Pro Thr Thr Ala Ser Pro Ala Ser Ser Lys Ala Lys Leu Gly Val Leu Asn Asn Thr Ala Glu Pro Gly Lys Phe Pro Leu Leu Gly Asn Ala Gly Leu Ser Ser Leu Thr Glu Gly Val Leu Asp Leu Phe Ala Val Lys Ala Val Tyr Met Gly His Pro Gly Ile Asp Ile His Thr Val Cys Val Gln Asn Lys Leu Gly Ser Met Phe Leu Ser Glu Thr Gly Val Thr Leu Leu Tyr Gly Leu Gln Thr Thr Asp Asn Arg Leu Leu His Phe Val Ala Pro Lys His Thr Ala Lys Met Leu Phe Ser Gly Leu Leu Glu Leu Thr Arg Ala Val Arg Lys Met Arg Lys Phe Pro Asp Gln Arg Gln Gln Trp Leu Arg Lys Gln Tyr Val Ser Leu Tyr Gln Glu Asp Gly Arg Tyr Glu Gly Pro Thr Leu Ala His Ala Val Glu Leu Phe Gly Gly Arg Arg Trp Ser Ala Arg Asn Pro Ser Pro Gly Thr Ser Ala Lys Asn Ala Glu Lys Pro Asn Met Gln Arg Asn Asn Thr Leu Gly Ile Ser Thr Thr Lys Lys Lys Lys Lys Ile Leu Met Arg Gly

Glu Ser Gly Glu Val Thr Asp Asp Glu Met Ala Thr Arg Lys Ala Lys Met His Lys Glu Cys Arg Ser Arg Ser Gly Ser Asp Pro Gln Asp Ile Asn Glu Gln Glu Glu Ser Glu Val Asn Ala Ile Ala Asn Pro Pro Asn Pro Leu Pro Ser Arg Arg Ala His Ser Leu Thr Thr Ala Gly Ser Pro Asn Leu Ala Ala Gly Thr Ser Ser Pro Ile Arg Pro Val Ser Ser Pro Val Leu Ser Ser Ser Asn Lys Ser Pro Ser Ser Ala Trp Ser Ser Ser Ser Trp His Gly Arg Ile Lys Gly Gly Met Lys Gly Phe Gln Ser Phe Met Val Ser Asp Ser Asn Met Ser Phe Val Glu Phe Val Glu Leu Phe Lys Ser Phe Ser Val Arg Ser Arg Lys Asp Leu Lys Asp Leu Phe Asp Val Tyr Ala Val Pro Cys Asn Arg Ser Gly Ser Glu Ser Ala Pro Leu Tyr Thr Asn Leu Thr Ile Asp Glu Asn Thr Ser Asp Leu Gln Pro Asp Leu Asp Leu Leu Thr Arg Asn Val Ser Asp Leu Gly Leu Phe Ile Lys Ser Lys Gln Gln Leu Ser Asp Asn Gln Arg Gln Ile Ser Asp Ala Ile Ala Ala Ala Ser Ile Val Thr Asn Gly Thr Gly Ile Glu Ser Thr Ser Leu Gly Ile Phe Gly Val Gly Ile Leu Gln Leu Asn Asp Phe Leu Val Asn Cys Gln Gly Glu His Cys Thr Tyr Asp Glu Ile Leu Ser Ile Ile Gln Lys Phe Glu Pro Ser Ile Ser Met Cys His Gln Gly Leu Met Ser Phe Glu Gly Phe Ala Arg Phe Leu Met Asp Lys Glu Asn Phe Ala Ser Lys Asn Asp Glu Ser Gln Glu Asn Ile Lys Glu Leu Gln Leu Pro Leu Ser Tyr Tyr Tyr Ile Glu Ser Ser His Asn Thr Tyr Leu Thr Gly His Gln Leu Lys Gly Glu Ser Ser Val Glu Leu Tyr Ser Gln Val Leu Leu Gln Gly Cys Arg Ser Val Glu Leu Asp Cys Trp Asp Gly Asp Asp Gly Met Pro Ile Ile Tyr His Gly His Thr Pro Thr Thr Lys Ile Pro Phe Lys Glu Val Val Glu Ala Ile Asp Arg Ser Ala Phe Ile Asn Ser Asp Leu Pro Ile Ile Ile Ser Ile Glu Asn His Cys Ser Leu Pro Gln Gln Arg Lys Met Ala Glu Ile Phe Lys Thr Val Phe Gly Glu Lys Leu Val Thr Lys Phe Leu Phe Glu Thr Asp Phe Ser Asp Asp Pro Met Leu Pro Ser Pro Asp Gln Leu Arg Lys Lys Val Leu Leu Lys Asn Lys Lys Leu Lys Ala His Gln Thr Pro Val Asp Ile Leu Lys Gln Lys Ala His Gln Leu Ala Ser Met Gln Val Gln Ala Tyr Asn Gly Gly Asn Ala Asn Pro Arg Pro Ala Asn Asn Glu Glu Glu Glu Asp Glu Glu Asp Glu Tyr Asp Tyr Asp Tyr Glu Ser Leu Ser Asp Asp Asn Ile Leu Glu Asp Arg Pro Glu Asn Lys Ser Cys Asn Asp Lys Leu Gln Phe Glu Tyr Asn Glu Glu Ile Pro Lys Arg Ile Lys Lys Ala Asp Asn Ser Ala Cys Asn Lys Gly Lys Val Tyr Asp Met Glu Leu Gly Glu Glu Phe Tyr Leu Asp Gln Asn Lys Lys Glu Ser Arg Gln Ile Ala Pro Glu Leu Ser Asp Leu Val Ile Tyr Arg Gln Ala Val Lys Phe Pro Gly Leu Ser Thr Leu Asn Ala Ser Gly Ser Ser Arg Gly Lys Glu Arg Lys Ser Arg Lys Ser Ile Phe Gly Asn Asn Pro Gly Arg Met Ser Pro Gly Glu Thr Ala Ser Phe Asn Lys Thr Ser Gly Lys Ser Ser Cys Glu Gly Ile Arg Gln Thr Trp Glu Glu Ser Ser Ser Pro Leu Asn Pro Thr Thr Ser Leu Ser Ala Ile Ile Arg Thr Pro Lys Cys Tyr His Ile Ser Ser Leu Asn Glu Asn Ala Ala Lys Arg Leu Cys Arg Arg Tyr Ser Gln Lys Leu Ile Gln His Thr Ala Cys Gln Leu Leu Arg Thr Tyr Pro Ala Ala Thr Arg Ile Asp Ser Ser Asn Pro Asn Pro Leu Met Phe Trp Leu His Gly Ile Gln Leu Val Ala Leu Asn Tyr Gln Thr Asp Asp Leu Pro Leu His Leu Asn Ala Ala Met Phe Glu Ala Asn Gly Gly Cys Gly Tyr Val Leu Lys Pro Pro Val Leu Trp Asp Lys Asn Cys Pro Met Tyr Gln Lys Phe Ser Pro Leu Glu Arg Asp Leu Asp Ser Met Asp Pro Ala Val Tyr Ser Leu Thr Ile Val Ser Gly Gln Asn Val Cys Pro Ser Asn Ser Met Gly Ser Pro Cys Ile Glu Val Asp Val Leu Gly Met Pro Leu Asp Ser Cys His Phe Arg Thr Lys Pro Ile His Arg Asn Thr Leu Asn Pro Met Trp Asn Glu Gln Phe Leu Phe Arg Val His Phe Glu Asp Leu Val Phe Leu Arg Phe Ala Val Val Glu Asn Asn Ser Ser Ala Val Thr Ala Gln Arg Ile Ile Pro Leu Lys Ala Leu Lys Arg Gly Tyr Arg His Leu Gln Leu Arg Asn Leu His Asn Glu Val Leu Glu Ile Ser Ser Leu Phe Ile Asn Ser Arg Arg Met Glu Glu Asn Ser Ser Gly Asn Thr Met Ser Ala Ser Ser Met Phe Asn Thr Glu Glu Arg Lys Cys Leu Gln Thr His Arg Val Thr Val His Gly Val Pro Gly Pro Glu Pro Phe Thr Val Phe Thr Ile Asn Gly Gly Thr Lys Ala Lys Gln Leu Leu Gln Gln Ile Leu Thr Asn Glu Gln Asp Ile Lys Pro Val Thr Thr Asp Tyr Phe Leu Met Glu Glu Lys Tyr Phe Ile Ser Lys Glu Lys Asn Glu Cys Arg Lys Gln Pro Phe Gln Arg Ala Ile Gly Pro Glu Glu Glu Ile Met Gln Ile Leu Ser Ser Trp Phe Pro Glu Glu Gly Tyr Met Gly Arg Ile Val Leu Lys Thr Gln Gln Glu Asn Leu Glu Glu Lys Asn Ile Val Gln Asp Asp Lys Glu Val Ile Leu Ser Ser Glu Glu Glu Ser Phe Phe Val Gln Val His Asp Val Ser Pro Glu Gln Pro Arg Thr Val Ile Lys Ala Pro Arg Val Ser Thr Ala Gln Asp Val Ile Gln Gln Thr Leu Cys Lys Ala Lys Tyr Ser Tyr Ser Ile Leu Ser Asn Pro Asn Pro Ser Asp Tyr Val Leu Leu Glu Glu Val

Val Lys Asp Thr Thr Asn Lys Lys Thr Thr Thr Pro Lys Ser Ser Gln Arg Val Leu Leu Asp Gln Glu Cys Val Phe Gln Ala Gln Ser Lys Trp Lys Gly Ala Gly Lys Phe Ile Leu Lys Leu Lys Glu Gln Val Gln Ala Ser Arg Glu Asp Lys Lys Lys Gly Ile Ser Phe Ala Ser Glu Leu Lys Lys Leu Thr Lys Ser Thr Lys Gln Pro Arg Gly Leu Thr Ser Pro Ser Gln Leu Leu Thr Ser Glu Ser Ile Gln Thr Lys Glu Glu Lys Pro Val Gly Gly Leu Ser Pro Val Thr Gln Trp Ile Thr Asp Ser Asp

FIGURE 358

ctttatttac atgccactat taagctgcta attgttcctg ttggggtgac agatactgaa tgtatacgta ttgtgcctga gctcaccagc aaacagaagc atcaagccca ggggtaaagg ctgaagcttt cacagtgcag agactgctag cctgggcaca cgcacctcct ttctggccgt cttctgtgta gggcacactt taacccagtc tctgttgctg ttgagtctct gctccgtttt gtacagtcac agggaattct gatctgaagg ggcaccttct gttcactccc acaaagtggt gtctggttct cactgagacg ttttaagatt tttccacaaa tatttatatg tactaaatgt ggaaccatta gaaagttctt ccaaaatctc attccagcat agttttggat ttttcttttg tcttatttta aaataaggaa gtcgagatga ctttgatcat tggtaacttg ggcctgggcc agacaaagta taaaacttac aaaagaatat tctcatttgg tcttaactag gtagatgtaa tatatgactt tttataaaaa gggtatctat atgaacttga cacagtattt tcagcttttg tattccatac taaagccatg aagaactaca cgtaacatca tcatttgtat taattgcaca actccaatgc taaaggttgg attgtgttag aggaatcggc tctgtatttg cctctagaga aacacagtgt tctctttgta tttatggatt ccttttacc gtgtcacatt tactttggtc ctctatgtat ttaaatgttt gaagtgcctt agactcttgc catattttca aaataaaatt ccattaagct ct

FIGURE 359

Tyr Ile Ala Ala Phe Glu Ala Ile Ser Pro Asp Val Leu Arg Tyr Val Ile Asn Leu Ala Asp Gly Asn Gly Asn Thr Ala Leu His Tyr Ser Val Ser His Ser Asn Phe Glu Ile Val Lys Leu Leu Leu Asp Ala Asp Val Cys Asn Val Asp His Gln Asn Lys Ala Gly Tyr Thr Pro Ile Met Leu Ala Ala Leu Ala Ala Val Glu Ala Glu Lys Asp Met Arg Ile Val Glu Glu Leu Phe Gly Cys Gly Asp Val Asn Ala Lys Ala Ser Gln Ala Gly Gln Thr Ala Leu Met Leu Ala Val Ser His Gly Arg Ile Asp Met Val Lys Gly Leu Leu Ala Cys Gly Ala Asp Val Asn Ile Gln Asp Asp Glu Gly Ser Thr Ala Leu Met Cys Ala Ser Glu His Gly His Val Glu Ile Val Lys Leu Leu Leu Ala Gln Pro Gly Cys Asn Gly His Leu Glu Asp Asn Asp Gly Ser Thr Ala Leu Ser Ile Ala Leu Glu Ala Gly His Lys Asp Ile Ala Val Leu Leu Tyr Ala His Val Asn Phe Ala Lys Ala Gln Ser Pro Gly Thr Pro Arg Leu Gly Arg Lys Thr Ser Pro Gly Pro Thr His Arg Gly Ser Phe Asp

FIGURE 360

gagccatgct cgcggcgatg ggctctctgg cggctgccct ctgggcagtg gtccatcctc ggactctcct actgggcact gtcgcctttc tgctcgctgc tgactttctc aaaagacggc gcccaaagaa ctacccgccg gggccctggc gcctgccctt ccttggcaac ttcttccttg tggacttcga gcagtcgcac ctggaggttc agctgtttgt gaagaaatat gggaaccttt ttagcttgga gcttggtgac atatctgcag ttcttattac tggcttgccc ttaatcaaag aagcccttat ccacatggac caaaactttg ggaaccggcc cgtgacccct atgcgagaac atatctttaa gaaaaatgga ttgattatgt caagtggcca ggcatggaag gagcaaagaa ggttcactct gacagcacta aggaactttg gtttaggaaa gaagagctta gaggaacgca ttcaggagga ggcccaacac ctcactgaag caataaaaga ggagaacgga cagccttttg accctcattt caagatcaac aatgcagttt ccaatatcat ttgctccatc accttcggag aacgctttga gtaccaggat agttggtttc agcagctgct gaagttacta gatgaagtca catacttgga ggcttcaaag acatgccagc tctacaatgt ctttccatgg ataatgaaat tcctgcctgg accccaccaa actctcttca gcaactggaa aaaactgaaa ttgtttgttt ctcatatgat tgacaaacac agaaaggatt ggaatcctgc agaaacaaga gactttattg atgcttacct taaagaaatg tcaaagcaca caggcaatcc tacttcaagt ttccatgaag aaaacctcat ctgcagcacc ctggacctct tctttgccgg aaccgagaca acttccacaa ctctgcgatg ggctctgctt tatatggccc tctacccaga aatccaagaa aaagtacaag tcgagattga cagagtgatt ggccaggggc agcagccgag cacagccgcc cgggagtcca tgccctacac caatgctgtc atccatgagg tgcagagaat gggcaacatc atcccccaga acgttcccag ggaagtgaca gttgatacca ctttggctgg gtaccacctg cccaagggta ccatgatcct gaccaatttg acggcgctgc acagggaccc cacagagtgg gccacccctg acacattcaa tccggaccat tttctggaga atggacagtt taagaaaagg gaagccttta tgcctttctc aataggaaag cgggcatgcc tcggagaaca gttggccagg actgagctgt ttattttctt cacttccctt atgcaaaaat ttaccttcag gcccccaaac aatgagaagc tgagcctgaa gtttagaatg ggtatcacca tttccccagt cagtcaccgc ctctgcgctg ttcctcaggt gtaatattgt taagaaagaa aggggcaagg aaagcaagaa gacatggcac gtgttctgaa accactggtg tctgctcaga tgtgttggga caaaatgaaa gtgactttca agaaagatca gaggaatttg actcagagaa aactagatcc aaatcccagc tctactgtct ctcccgaatt agccttggga aaatcattta tatgctaaat aatttacctt tttatctagg agatgaaaag aggataatgt ttccttccat aaagaaagtt cttgtaagaa tcaaaagaaa tggtgagctt taagtggttt gtaaaccata aaacacatca taaaagttct atctata

FIGURE 361

Met Leu Ala Ala Met Gly Ser Leu Ala Ala Ala Leu Trp Ala Val Val His Pro Arg Thr Leu Leu Leu Gly Thr Val Ala Phe Leu Leu Ala Ala Asp Phe Leu Lys Arg Arg Arg Pro Lys Asn Tyr Pro Pro Gly Pro Trp Arg Leu Pro Phe Leu Gly Asn Phe Phe Leu Val Asp Phe Glu Gln Ser His Leu Glu Val Gln Leu Phe Val Lys Lys Tyr Gly Asn Leu Phe Ser Leu Glu Leu Gly Asp Ile Ser Ala Val Leu Ile Thr Gly Leu Pro Leu Ile Lys Glu Ala Leu Ile His Met Asp Gln Asn Phe Gly Asn Arg Pro Val Thr Pro Met Arg Glu His Ile Phe Lys Lys Asn Gly Leu Ile Met Ser Ser Gly Gln Ala Trp Lys Glu Gln Arg Arg Phe Thr Leu Thr Ala Leu Arg Asn Phe Gly Leu Gly Lys Lys Ser Leu Glu Glu Arg Ile Gln Glu Glu Ala Gln His Leu Thr Glu Ala Ile Lys Glu Glu Asn Gly Gln Pro Phe Asp Pro His Phe Lys Ile Asn Asn Ala Val Ser Asn Ile Ile Cys Ser Ile Thr Phe Gly Glu Arg Phe Glu Tyr Gln Asp Ser Trp Phe Gln Gln Leu Leu Lys Leu Leu Asp Glu Val Thr Tyr Leu Glu Ala Ser Lys Thr Cys Gln Leu Tyr Asn Val Phe Pro Trp Ile Met Lys Phe Leu Pro Gly Pro His Gln Thr Leu Phe Ser Asn Trp Lys Lys Leu Lys Leu Phe Val Ser His Met Ile Asp Lys His Arg Lys Asp Trp Asn Pro Ala Glu Thr Arg Asp Phe Ile Asp Ala Tyr Leu Lys Glu Met Ser Lys His Thr Gly Asn Pro Thr Ser Ser Phe His Glu Glu Asn Leu Ile Cys Ser Thr Leu Asp Leu Phe Phe Ala Gly Thr Glu Thr Thr Ser Thr Thr Leu Arg Trp Ala Leu Leu Tyr Met Ala Leu Tyr Pro Glu Ile Gln Glu Lys Val Gln Val Glu Ile Asp Arg Val Ile Gly Gln Gly Gln Gln Pro Ser Thr Ala Ala Arg Glu Ser Met Pro Tyr Thr Asn Ala Val Ile His Glu Val Gln Arg Met Gly Asn Ile Ile Pro Gln Asn Val Pro Arg Glu Val Thr Val Asp Thr Thr Leu Ala Gly Tyr His Leu Pro Lys Gly Thr Met Ile Leu Thr Asn Leu Thr Ala Leu His Arg Asp Pro Thr Glu Trp Ala Thr Pro Asp Thr Phe Asn Pro Asp His Phe Leu Glu Asn Gly Gln Phe Lys Lys Arg Glu Ala Phe Met Pro Phe Ser Ile Gly Lys Arg Ala Cys Leu Gly Glu Gln Leu Ala Arg Thr Glu Leu Phe Ile Phe Phe Thr Ser Leu Met Gln Lys Phe Thr Phe Arg Pro Pro Asn Asn Glu Lys Leu Ser Leu Lys Phe Arg Met Gly Ile Thr Ile Ser Pro Val Ser His Arg Leu Cys Ala Val Pro Gln Val

FIGURE 362

gaattcctga cacgctcctg ggtcgtaggc acaggagtgg gggccaaagc atggagaatc aagagaaggc gagtatcgcg ggccacatgt tcgacgtagt cgtgatcgga ggtggcattt caggactatc tgctgccaaa ctcttgactg aatatggcgt tagtgttttg gttttagaag ctcgggacag ggttggagga agaacatata ctataaggaa tgagcatgtt gattacgtag atgttggtgg agcttatgtg ggaccaaccc aaaacagaat cttacgcttg tctaaggagc tgggcataga gacttacaaa gtgaatgtca gtgagcgtct cgttcaatat gtcaagggga aaacatatcc atttcggggc gcctttccac cagtatggaa tcccattgca tatttggatt acaataatct gtggaggaca atagataaca tggggaagga gattccaact gatgcaccct gggaggctca acatgctgac aaatgggaca aaatgaccat gaaagagctc attgacaaaa tctgctggac aaagactgct aggcggtttg cttatctttt tgtgaatatc aatgtgacct ctgagcctca cgaagtgtct gccctgtggt tcttgtggta tgtgaagcag tgcgggggca ccactcggat attctctgtc accaatggtg gccaggaacg gaagtttgta ggtggatctg gtcaagtgag cgaacggata atggacctcc tcggagacca agtgaagctg aaccatcctg tcactcacgt tgaccagtca agtgacaaca tcatcataga gacgctgaac catgaacatt atgagtgcaa atacgtaatt aatgcgatcc ctccgacctt gactgccaag attcacttca gaccagagct tccagcagag agaaaccagt taattcagcg tcttccaatg ggagctgtca ttaagtgcat gatgtattac aaggaggcct tctggaagaa gaaggattac tgtggctgca tgatcattga agatgaagat gctccaattt caataacctt ggatgacacc aagccagatg ggtcactgcc tgccatcatg ggcttcattc ttgcccggaa agctgatcga cttgctaagc tacataagga aataaggaag aagaaaatct gtgagctcta tgccaaagtg ctgggatccc aagaagcttt acatccagtg cattatgaag agaagaactg gtgtgaggag cagtactctg ggggctgcta cacggcctac ttccctcctg ggatcatgac tcaatatgga agggtgattc gtcaacccgt gggcaggatt ttctttgcgg gcacagagac tgccacaaag tggagcggct acatggaagg ggcagttgag gctggagaac gagcagctag ggaggtctta aatggtctcg ggaaggtgac cgagaaagac atctgggtac aagaacctga atcaaaggac gttccagcgg tagaaatcac ccacaccttc tgggaaagga acctgccctc tgtttctggc ctgctgaaga tcattggatt ttccacatca gtaactgccc tggggtttgt gctgtacaaa tacaagctcc tgccacggtc ttgaagttct gttcttatgc tctctgctca ctggttttca ataccaccaa gaggaaaata ttgacaagtt taaaggctgt gtcattgggc catgtttaag tgtactggat ttaactacct ttggcttaat tccaatcatt gttaaagtaa aaacaattca aagaatcacc taattaattt cagtaagatc aagctccatc ttatttgtca gtgtagatca actcatgtta attgatagaa taaagccttg tgatcacttt ctgaaattca caaagttaaa cgtgatgtgc tcatcagaaa c

FIGURE 363

Met Glu Asn Gln Glu Lys Ala Ser Ile Ala Gly His Met Phe Asp Val Val Val Ile Gly Gly Gly Ile Ser Gly Leu Ser Ala Ala Lys Leu Leu Thr Glu Tyr Gly Val Ser Val Leu Val Leu Glu Ala Arg Asp Arg Val Gly Gly Arg Thr Tyr Thr Ile Arg Asn Glu His Val Asp Tyr Val Asp Val Gly Gly Ala Tyr Val Gly Pro Thr Gln Asn Arg Ile Leu Arg Leu Ser Lys Glu Leu Gly Ile Glu Thr Tyr Lys Val Asn Val Ser Glu Arg Leu Val Gln Tyr Val Lys Gly Lys Thr Tyr Pro Phe Arg Gly Ala Phe Pro Pro Val Trp Asn Pro Ile Ala Tyr Leu Asp Tyr Asn Asn Leu Trp Arg Thr Ile Asp Asn Met Gly Lys Glu Ile Pro Thr Asp Ala Pro Trp Glu Ala Gln His Ala Asp Lys Trp Asp Lys Met Thr Met Lys Glu Leu Ile Asp Lys Ile Cys Trp Thr Lys Thr Ala Arg Arg Phe Ala Tyr Leu Phe Val Asn Ile Asn Val Thr Ser Glu Pro His Glu Val Ser Ala Leu Trp Phe Leu Trp Tyr Val Lys Gln Cys Gly Gly Thr Thr Arg Ile Phe Ser Val Thr Asn Gly Gly Gln Glu Arg Lys Phe Val Gly Gly Ser Gly Gln Val Ser Glu Arg Ile Met Asp Leu Leu Gly Asp Gln Val Lys Leu Asn His Pro Val Thr His Val Asp Gln Ser Ser Asp Asn Ile Ile Ile Glu Thr Leu Asn His Glu His Tyr Glu Cys Lys Tyr Val Ile Asn Ala Ile Pro Pro Thr Leu Thr Ala Lys Ile His Phe Arg Pro Glu Leu Pro Ala Glu Arg Asn Gln Leu Ile Gln Arg Leu Pro Met Gly Ala Val Ile Lys Cys Met Met Tyr Tyr Lys Glu Ala Phe Trp Lys Lys Lys Asp Tyr Cys Gly Cys Met Ile Ile Glu Asp Glu Asp Ala Pro Ile Ser Ile Thr Leu Asp Asp Thr Lys Pro Asp Gly Ser Leu Pro Ala Ile Met Gly Phe Ile Leu Ala Arg Lys Ala Asp Arg Leu Ala Lys Leu His Lys Glu Ile Arg Lys Lys Lys Ile Cys Glu Leu Tyr Ala Lys Val Leu Gly Ser Gln Glu Ala Leu His Pro Val His Tyr Glu Glu Lys Asn Trp Cys Glu Glu Gln Tyr Ser Gly Gly Cys Tyr Thr Ala Tyr Phe Pro Pro Gly Ile Met Thr Gln Tyr Gly Arg Val Ile Arg Gln Pro Val Gly Arg Ile Phe Phe Ala Gly Thr Glu Thr Ala Thr Lys Trp Ser Gly Tyr Met Glu Gly Ala Val Glu Ala Gly Glu Arg Ala Ala Arg Glu Val Leu Asn Gly Leu Gly Lys Val Thr Glu Lys Asp Ile Trp Val Gln Glu Pro Glu Ser Lys Asp Val Pro Ala Val Glu Ile Thr His Thr Phe Trp Glu Arg Asn Leu Pro Ser Val Ser Gly Leu Leu Lys Ile Ile Gly Phe Ser Thr Ser Val Thr Ala Leu Gly Phe Val Leu Tyr Lys Tyr Lys Leu Leu Pro Arg Ser

FIGURE 364

gatcagtgtg tgagggaact gccatcatga ggtctgacaa gtcagctttg gtatttctgc tcctgcagct cttctgtgtt ggctgtggat tctgtgggaa agtcctggtg tggccctgtg acatgagcca ttggcttaat gtcaaggtca ttctagaaga gctcatagtg agaggccatg aggtaacagt attgactcac tcaaagcctt cgttaattga ctacaggaag ccttctgcat tgaaatttga ggtggtccat atgccacagg acagaacaga agaaaatgaa atatttgttg acctagctct gaatgtcttg ccaggcttat caacctggca atcagttata aaattaaatg attttttgt tgaaataaga ggaactttaa aaatgatgtg tgagagcttt atctacaatc agacgcttat gaagaagcta caggaaacca actacgatgt aatgcttata gaccctgtga ttccctgtgg agacctgatg gctgagttgc ttgcagtccc ttttgtgctc acacttagaa tttctgtagg aggcaatatg gagcgaagct gtgggaaact tccagctcca ctttcctatg tacctgtgcc tatgacagga ctaacagaca gaatgacctt tctggaaaga gtaaaaaatt caatgctttc agttttgttc cacttctgga ttcaggatta cgactatcat ttttgggaag agttttatag taaggcatta ggaaggccca ctacattatg tgagactgtg ggaaaagctg agatatggct aatacgaaca tattgggatt ttgaatttcc tcaaccatac caacctaact ttgagtttgt tggaggattg cactgtaaac ctgccaaagc tttgcctaag gaaatggaaa attttgtcca gagttcaggg gaagatggta ttgtggtgtt ttctctgggg tcactgtttc aaaatgttac agaagaaaag gctaatatca ttgcttcagc ccttgcccag atcccacaga aggtgttatg gaggtacaaa ggaaaaaaac catccacatt aggagccaat actcggctgt atgattggat accccagaat gatcttcttg gtcatcccaa aaccaaagct tttatcactc atggtggaat gaatgggatc tatgaagcta tttaccatgg ggtccctatg gtgggagttc ccatatttgg tgatcagctt gataacatag ctcacatgaa ggccaaagga gcagctgtag aaataaactt caaaactatg acaagcgaag atttactgag ggctttgaga acagtcatta ccgattcctc ttataaagag aatgctatga gattatcaag aattcaccat gatcaacctg taaagcccct agatcgagca gtcttctgga tcgagtttgt catgcgccac aaaggagcca agcacctgcg atcagctgcc catgacctca cctggttcca gcactactct atagatgtga ttgggttcct gctgacctgt gtggcaactg ctatattctt gttcacaaaa tgtttttat tttcctgtca aaaatttaat aaaactagaa agatagaaaa gagggaatag atctttccaa attcaagaaa gacctgatgg ggtaatcctg ttaattccag ccacatagaa tttggtgaaa accttgctat tttcatatta tctattctgt tattttatct tagctatata gcctagaatt ccatgatcat gaggttgtga gtatatctca ttctttcgtt gtattttcct aggtgtcttt actctcttct ctcactttgt gacacaagga catgaataca tctaaatttt cctatttctg atatgactgt tttgatgatg tcattacttc tataacctta agtgataggg tgacatgcaa tatgattatt cctggtgtgc gcccaaacac atggatataa agaggtaaaa aacttaaaat tcacaaaatt cagtaaacca cacaaatcag gtaagtgttc tatgagatta gctggctatg agaaacataa tgatgtttct ttttcaattt aaataagcct ttctacatag ccagcatcag tgatctcaga aaataaattg ctaataatga tgacatggca ttatgcttag aaaagtttgc tgtatttcca tagacctcat ctagatgtca tggcctacat ttctgccatc actcaaccaa tacttttttc tgttttcttg atgataaaaa gacctttctc atgattgcca tcaaataaca aaagaaacta ttttttttct cacatagaga acatgtcagt aagatattca aggtgaacag atatttttgg gattagtaac tatttgaaat atgtggtgat aattactgag tttataaaat ttatttgata gtacacttaa agaagattta tatgtttatt ctttaaaaat gatgaatact cataattctt atctctataa tcaaaagtat aatttactgt agaaaaataa agagatgctt gttctgaaag taagatcagt gaactgcttt tcagtctcaa tctttgagaa ttgtaaattc atcaaataat tgcttacata gtaaaaattt aaggtattag aaaacctgca taacaaatag tattatatat taaatatttt gatatgtaaa gctctacaca aagctaaata tagtgtaata atgtttacac tagtaagcaa atatgttaat cttctcattt ttttactgtc atataatctt agtgatatgc ctattaatag ttttaaataa ataaattggc ttatctggct ttttgaaaat tttgaaattc ttacagatgt tgattaggta tatctacaaa ttaatttcaa ttttaaaatg atgatataaa aataaatata agtatttttc ttgtgtatgt atacaataaa tataaataaa attgtttact gttttgaaag tttcttaagt ttta

FIGURE 365

Met Arg Ser Asp Lys Ser Ala Leu Val Phe Leu Leu Leu Gln Leu Phe Cys Val Gly Cys Gly Phe Cys Gly Lys Val Leu Val Trp Pro Cys Asp Met Ser His Trp Leu Asn Val Lys Val Ile Leu Glu Glu Leu Ile Val Arg Gly His Glu Val Thr Val Leu Thr His Ser Lys Pro Ser Leu Ile Asp Tyr Arg Lys Pro Ser Ala Leu Lys Phe Glu Val Val His Met Pro Gln Asp Arg Thr Glu Glu Asn Glu Ile Phe Val Asp Leu Ala Leu Asn Val Leu Pro Gly Leu Ser Thr Trp Gln Ser Val Ile Lys Leu Asn Asp Phe Phe Val Glu Ile Arg Gly Thr Leu Lys Met Met Cys Glu Ser Phe Ile Tyr Asn Gln Thr Leu Met Lys Lys Leu Gln Glu Thr Asn Tyr Asp Val Met Leu Ile Asp Pro Val Ile Pro Cys Gly Asp Leu Met Ala Glu Leu Leu Ala Val Pro Phe Val Leu Thr Leu Arg Ile Ser Val Gly Gly Asn Met Glu Arg Ser Cys Gly Lys Leu Pro Ala Pro Leu Ser Tyr Val Pro Val Pro Met Thr Gly Leu Thr Asp Arg Met Thr Phe Leu Glu Arg Val Lys Asn Ser Met Leu Ser Val Leu Phe His Phe Trp Ile Gln Asp Tyr Asp Tyr His Phe Trp Glu Glu Phe Tyr Ser Lys Ala Leu Gly Arg Pro Thr Thr Leu Cys Glu Thr Val Gly Lys Ala Glu Ile Trp Leu Ile Arg Thr Tyr Trp Asp Phe Glu Phe Pro Gln Pro Tyr Gln Pro Asn Phe Glu Phe Val Gly Gly Leu His Cys Lys Pro Ala Lys Ala Leu Pro Lys Glu Met Glu Asn Phe Val Gln Ser Ser Gly Glu Asp Gly Ile Val Val Phe Ser Leu Gly Ser Leu Phe Gln Asn Val Thr Glu Glu Lys Ala Asn Ile Ile Ala Ser Ala Leu Ala Gln Ile Pro Gln Lys Val Leu Trp Arg Tyr Lys Gly Lys Lys Pro Ser Thr Leu Gly Ala Asn Thr Arg Leu Tyr Asp Trp Ile Pro Gln Asn Asp Leu Leu Gly His Pro Lys Thr Lys Ala Phe Ile Thr His Gly Gly Met Asn Gly Ile Tyr Glu Ala Ile Tyr His Gly Val Pro Met Val Gly Val Pro Ile Phe Gly Asp Gln Leu Asp Asn Ile Ala His Met Lys Ala Lys Gly Ala Ala Val Glu Ile Asn Phe Lys Thr Met Thr Ser Glu Asp Leu Leu Arg Ala Leu Arg Thr Val Ile Thr Asp Ser Ser Tyr Lys Glu Asn Ala Met Arg Leu Ser Arg Ile His His Asp Gln Pro Val Lys Pro Leu Asp Arg Ala Val Phe Trp Ile Glu Phe Val Met Arg His Lys Gly Ala Lys His Leu Arg Ser Ala Ala His Asp Leu Thr Trp Phe Gln His Tyr Ser Ile Asp Val Ile Gly Phe Leu Leu Thr Cys Val Ala Thr Ala Ile Phe Leu Phe Thr Lys Cys Phe Leu Phe Ser Cys Gln Lys Phe Asn Lys Thr Arg Lys Ile Glu Lys Arg Glu

FIGURE 366

agtatgtttt gcagacaaga cccagagaag tccagactgg acttgttgca gactgcaaaa ctgccattgg aaggcctccg tcccagtcct tctacagagt agccagtggg actcccagcc atgggcgagg tgacagcaga ggaggtggag aagttcctgg actcgaatat tggctttgcc aaacagtact acaacctcca ctaccgggcc aagctcatct ccgacctcct tggggccaag gaggctgccg tggacttcag caactaccac tccccgagca gcatggagga gagcgaaatc atctttgatc tcctgcggga ctttcaggag aatttacaga cagagaaatg catcttcaat gtcatgaaga agctgtgctt cctcctgcag gcagaccgca tgagcctgtt catgtaccgg acccgcaatg gcatcgcaga gctggccacc aggcttttca atgtccacaa ggatgctgtc ctcgaggact gcctggtgat gcccgaccaa gagatcgtct tccctttgga catgggcatc gtgggccatg tcgcacactc taagaagatt gctaacgtcc ccaacacaga ggaggatgag catttctgtg actttgtgga catcctcaca gagtacaaga ccaagaacat cttggcttcc cccataatga atgggaagga tgtggtggcc ataatcatgg ctgtgaataa agtggatgga tcccacttca ccaagagaga tgaagagatt cttctcaagt acctcaattt tgcaaatcta atcatgaagt ggtaccacct gagttacctg cacaactgtg aaactcgacg tggccagata ctgctgtggt ctgggagcaa agtctttgaa gaacttacgg acatcgaacg acagttccac aaagccctgt acacagtccg tgctttcctc aactgtgaca gatactctgt gggtctctta gacatgacca agcagaagga atttttgat gtgtggccgg ttctgatggg tgaagttcca ccttactctg gtcccaggac tccggatgga agagaaatta actttacaa ggtcattgac tacatcctgc atggcaaaga ggacatcaaa gtcatcccga atccacctcc tgaccattgg gctttagtaa gcggtctccc cgcttatgtt gcccagaatg gcctgatttg caacatcatg aacgcgcctg cggaggactt ttttgcattt cagaaagaac ctctggatga gtctggatgg atgattaaaa atgtgctttc aatgccgatt gtgaacaaga aggaagaaat tgttggagtg gccacatttt acaatcgtaa agatgggaag ccctttgatg aaatggatga gacgctcatg gagtctttga ctcaatttct gggctggtct gtcttaaatc ctgacaccta tgagtcaatg aataaacttg aaaataggaa ggatattttc caggacatag taaaatatca tgtgaagtgt gacaatgaag aaattcagaa aatcttgaaa accagagagg tgtatgggaa ggagccatgg gagtgtgagg aagaggagct ggctgagatc ctgcaagcgg agctgccaga tgcagataaa tacgaaatta ataaatttca cttcagtgac ttacccctaa cagaactgga gctggtaaaa tgtggaatac agatgtatta tgagctcaaa gtggtggata aatttcacat tccacaagag gccctggtgc ggttcatgta ctccctgagt aagggctacc gcaagatcac ctaccacaac tggcggcacg gcttcaacgt ggggcagacc atgttctccc tgctggtgac gggaaagctg aagcgctact tcacggacct agaggccttg gccatggtca ctgctgcttt ctgccatgac attgaccaca gaggcaccaa taacctctac cagatgaaat cccagaaccc actggccaag ctccatgggt cctctatctt ggaaagacac cacttggagt ttggcaaaac actgctcaga gacgagagcc tgaatatctt tcaaaacctc aatcgtcgac agcatgagca tgccatccac atgatggaca ttgcaatcat tgccacagac ctcgccctgt atttcaagaa gaggacgatg ttccaaaaga tcgtggatca gtctaagaca tatgagagtg aacaggagtg gacacagtac atgatgctgg agcagacacg gaaggaaatc gttatggcca tgatgatgac cgcctgtgat ctctcagcca tcaccaaacc ctgggaggtg cagagccagg tagctctgct ggtggctgct gaattctggg aacaaggtga cctggagcgc acggtgctgc aacagaatcc cattcccatg atggacagaa acaaagcaga tgaactccct aagcttcaag tcggcttcat tgactttgtt tgcaccttcg tctacaagga attctcccgt ttccacgagg agatcacccc aatgttggac gggatcacca acaatcgcaa ggagtggaag gcgcttgctg atgagtacga tgccaagatg aaggtgcagg aggagaagaa gcagaaacag cagtcggcca agtcagcagc cgcaggaaat cagccggggg gaaaccccag cccaggggct gcaactacat ccaagtcctg ctgcatccag taacaccact ggggatgtgc tggctggacg gcaccaccct ttcctgggaa gagatgactc aagccagtgg aagaccacac accttgagaa gtagaagagt cataggattt gaaagctgtt agagaattta gcttccagga ctgttcaatc ttttggcttc cctgggccac attggaagaa ttgtcttggg tcacacataa aatacagtaa cactaatgat agctgttgaa cttaaaaaaa aaaatcgcca aaaaaaaaat ttcataatgt tttaagaaag tttatgaatt tgtg

FIGURE 367

Met Gly Glu Val Thr Ala Glu Glu Val Glu Lys Phe Leu Asp Ser Asn Ile Gly Phe Ala Lys Gln Tyr Tyr Asn Leu His Tyr Arg Ala Lys Leu Ile Ser Asp Leu Leu Gly Ala Lys Glu Ala Ala Val Asp Phe Ser Asn Tyr His Ser Pro Ser Ser Met Glu Glu Ser Glu Ile Ile Phe Asp Leu Leu Arg Asp Phe Gln Glu Asn Leu Gln Thr Glu Lys Cys Ile Phe Asn Val Met Lys Lys Leu Cys Phe Leu Leu Gln Ala Asp Arg Met Ser Leu Phe Met Tyr Arg Thr Arg Asn Gly Ile Ala Glu Leu Ala Thr Arg Leu Phe Asn Val His Lys Asp Ala Val Leu Glu Asp Cys Leu Val Met Pro Asp Gln Glu Ile Val Phe Pro Leu Asp Met Gly Ile Val Gly His Val Ala His Ser Lys Lys Ile Ala Asn Val Pro Asn Thr Glu Glu Asp Glu His Phe Cys Asp Phe Val Asp Ile Leu Thr Glu Tyr Lys Thr Lys Asn Ile Leu Ala Ser Pro Ile Met Asn Gly Lys Asp Val Val Ala Ile Ile Met Ala Val Asn Lys Val Asp Gly Ser His Phe Thr Lys Arg Asp Glu Glu Ile Leu Leu Lys Tyr Leu Asn Phe Ala Asn Leu Ile Met Lys Trp Tyr His Leu Ser Tyr Leu His Asn Cys Glu Thr Arg Arg Gly Gln Ile Leu Leu Trp Ser Gly Ser Lys Val Phe Glu Glu Leu Thr Asp Ile Glu Arg Gln Phe His Lys Ala Leu Tyr Thr Val Arg Ala Phe Leu Asn Cys Asp Arg Tyr Ser Val Gly Leu Leu Asp Met Thr Lys Gln Lys Glu Phe Phe Asp Val Trp Pro Val Leu Met Gly Glu Val Pro Pro Tyr Ser Gly Pro Arg Thr Pro Asp Gly Arg Glu Ile Asn Phe Tyr Lys Val Ile Asp Tyr Ile Leu His Gly Lys Glu Asp Ile Lys Val Ile Pro Asn Pro Pro Pro Asp His Trp Ala Leu Val Ser Gly Leu Pro Ala Tyr Val Ala Gln Asn Gly Leu Ile Cys Asn Ile Met Asn Ala Pro Ala Glu Asp Phe Phe Ala Phe Gln Lys Glu Pro Leu Asp Glu Ser Gly Trp Met Ile Lys Asn Val Leu Ser Met Pro Ile Val Asn Lys Lys Glu Glu Ile Val Gly Val Ala Thr Phe Tyr Asn Arg Lys Asp Gly Lys Pro Phe Asp Glu Met Asp Glu Thr Leu Met Glu Ser Leu Thr Gln Phe Leu Gly Trp Ser Val Leu Asn Pro Asp Thr Tyr Glu Ser Met Asn Lys Leu Glu Asn Arg Lys Asp Ile Phe Gln Asp Ile Val Lys Tyr His Val Lys Cys Asp Asn Glu Glu Ile Gln Lys Ile Leu Lys Thr Arg Glu Val Tyr Gly Lys Glu Pro Trp Glu Cys Glu Glu Glu Glu Leu Ala Glu Ile Leu Gln Ala Glu Leu Pro Asp Ala Asp Lys Tyr Glu Ile Asn Lys Phe His Phe Ser Asp Leu Pro Leu Thr Glu Leu Glu Leu Val Lys Cys Gly Ile Gln Met Tyr Tyr Glu Leu Lys Val Val Asp Lys Phe His Ile Pro Gln Glu Ala Leu Val Arg Phe Met Tyr Ser Leu Ser Lys Gly Tyr Arg Lys Ile Thr Tyr His Asn Trp Arg His Gly Phe Asn Val Gly Gln Thr Met Phe Ser Leu Leu Val Thr Gly Lys Leu Lys Arg Tyr Phe Thr Asp Leu Glu Ala Leu Ala Met Val Thr Ala Ala Phe Cys His Asp Ile Asp His Arg Gly Thr Asn Asn Leu Tyr Gln Met Lys Ser Gln Asn Pro Leu Ala Lys Leu His Gly Ser Ser Ile Leu Glu Arg His His Leu Glu Phe Gly Lys Thr Leu Leu Arg Asp Glu Ser Leu Asn Ile Phe Gln Asn Leu Asn Arg Arg Gln His Glu His Ala Ile His Met Met Asp Ile Ala Ile Ile Ala Thr Asp Leu Ala Leu Tyr Phe Lys Lys Arg Thr Met Phe Gln Lys Ile Val Asp Gln Ser Lys Thr Tyr Glu Ser Glu Gln Glu Trp Thr Gln Tyr Met Met Leu Glu Gln Thr Arg Lys Glu Ile Val Met Ala Met Met Met Thr Ala Cys Asp Leu Ser Ala Ile Thr Lys Pro Trp Glu Val Gln Ser Gln Val Ala Leu Leu Val Ala Ala Glu Phe Trp Glu Gln Gly Asp Leu Glu Arg Thr Val Leu Gln Gln Asn Pro Ile Pro Met Met Asp Arg Asn Lys Ala Asp Glu Leu Pro Lys Leu Gln Val Gly Phe Ile Asp Phe Val Cys Thr Phe Val Tyr Lys Glu Phe Ser Arg Phe His Glu Glu Ile Thr Pro Met Leu Asp Gly Ile Thr Asn Asn Arg Lys Glu Trp Lys Ala Leu Ala Asp Glu Tyr Asp Ala Lys Met Lys Val Gln Glu Glu Lys Lys Gln Lys Gln Gln Ser Ala Lys Ser Ala Ala Ala Gly Asn Gln Pro Gly Gly Asn Pro Ser Pro Gly Gly Ala Thr Thr Ser Lys Ser Cys Cys Ile Gln

FIGURE 368

ctgggaatat gattatgctt aatctatgct cagtcgaaag gggctggggc tgctttctcc cctcccttct tgactctctg ttcacagaac tcaggctgcc tccagccagc ctttgcccgc tagactcact ggccctgagc acttgaaggt gcagcaagtc actgagaatg agcactttct tctcggacac agcatggatc tgcctggctg tccccacagt actatgtggg acagtatttt gcaaatacaa gaagagctca gggcagctgt ggagctggat ggtctgcctg gcaggcctct gtgcagtctg cctgctcatc ctgtcccctt tttggggctt gatcctcttc tcggtgtcat gcttcctcat gtatacttac ttatctggcc aagaattgtt acctgtggat cagaaggcag tcctggtgac aggtggtgat tgcgggcttg gccatgcttt gtgcaagtat ctggatgagc tgggcttcac ggtatttgcc ggagttttga atgaaaatgg cccaggagct gaggaattgc gaagaacctg ctctccgcgc ctctcggtgc tccaaatgga catcacgaag ccagtgcaga taaaagatgc ttacagcaag gttgcagcaa tgctgcagga cagaggactg tgggctgtga tcaacaatgc tggggtgctt ggctttccaa ctgatgggga gcttcttctt atgactgact acaaacaatg catggccgtg aacttctttg gaactgtgga ggtcacaaag acgtttttgc ctcttcttag aaaatccaaa gggaggctgg tgaatgtcag cagcatggga ggaggggccc caatggaaag gctggcatct tatggctcat caaaggcggc tgtgaccatg ttctcatcag ttatgagact ggagctttcc aagtggggaa ttaaagttgc ttccatccaa cctggaggct tcctaacaaa tatcgcaggc accagtgaca agtgggaaaa gctggagaag gacattctgg accacctccc cgctgaggta caggaagact acggccagga ctacatctta gcacagcgga atttcctcct attgatcaac tcgttagcca gcaaggactt ctctccggtg ctgcgggaca tccagcatgc tatcttggcg aagagccctt ttgcctatta cacgccaggg aaaggcgctt acttgtggat ctgccttgct cactatttgc ctattggcat atatgattac tttgctaaaa gacattttgg ccaagacaag cccatgccca gagctctaag aatgcctaac tacaagaaaa aggccaccta ggcaatggaa gccctcaaag aagtcggaat gtcatagtct tgaaatgaaa gggaaactgg gaaactgggt ttctcattaa agttgtttcc cactctg

FIGURE 369

Met Ser Thr Phe Phe Ser Asp Thr Ala Trp Ile Cys Leu Ala Val Pro Thr Val Leu Cys Gly Thr Val Phe Cys Lys Tyr Lys Lys Ser Ser Gly Gln Leu Trp Ser Trp Met Val Cys Leu Ala Gly Leu Cys Ala Val Cys Leu Leu Ile Leu Ser Pro Phe Trp Gly Leu Ile Leu Phe Ser Val Ser Cys Phe Leu Met Tyr Thr Tyr Leu Ser Gly Gln Glu Leu Leu Pro Val Asp Gln Lys Ala Val Leu Val Thr Gly Gly Asp Cys Gly Leu Gly His Ala Leu Cys Lys Tyr Leu Asp Glu Leu Gly Phe Thr Val Phe Ala Gly Val Leu Asn Glu Asn Gly Pro Gly Ala Glu Glu Leu Arg Arg Thr Cys Ser Pro Arg Leu Ser Val Leu Gln Met Asp Ile Thr Lys Pro Val Gln Ile Lys Asp Ala Tyr Ser Lys Val Ala Ala Met Leu Gln Asp Arg Gly Leu Trp Ala Val Ile Asn Asn Ala Gly Val Leu Gly Phe Pro Thr Asp Gly Glu Leu Leu Leu Met Thr Asp Tyr Lys Gln Cys Met Ala Val Asn Phe Phe Gly Thr Val Glu Val Thr Lys Thr Phe Leu Pro Leu Leu Arg Lys Ser Lys Gly Arg Leu Val Asn Val Ser Ser Met Gly Gly Gly Ala Pro Met Glu Arg Leu Ala Ser Tyr Gly Ser Ser Lys Ala Ala Val Thr Met Phe Ser Ser Val Met Arg Leu Glu Leu Ser Lys Trp Gly Ile Lys Val Ala Ser Ile Gln Pro Gly Gly Phe Leu Thr Asn Ile Ala Gly Thr Ser Asp Lys Trp Glu Lys Leu Glu Lys Asp Ile Leu Asp His Leu Pro Ala Glu Val Gln Glu Asp Tyr Gly Gln Asp Tyr Ile Leu Ala Gln Arg Asn Phe Leu Leu Leu Ile Asn Ser Leu Ala Ser Lys Asp Phe Ser Pro Val Leu Arg Asp Ile Gln His Ala Ile Leu Ala Lys Ser Pro Phe Ala Tyr Tyr Thr Pro Gly Lys Gly Ala Tyr Leu Trp Ile Cys Leu Ala His Tyr Leu Pro Ile Gly Ile Tyr Asp Tyr Phe Ala Lys Arg His Phe Gly Gln Asp Lys Pro Met Pro Arg Ala Leu Arg Met Pro Asn Tyr Lys Lys Lys Ala Thr

FIGURE 370

agcccagcga ggcctgtgct gtgaggggct gtgctgtgcc aggggaggcc ccgcacccgg gaagcccaga ggagagtgtg cactcacgga gccctcctgg cagggccgcg tctctggagc agcagacccg tgtccctctg ggaggtcaac tgcggcctca cagctgggcc tgtcccagca cagcccttgt tggagggcgc acccccgtgt cctcagcacc ccagtgttga gtgccttgac ctgcagaggg gagcctgtgc tggtcccggg cgtctgtgtg gctcctgggt gcccatctgc acccctggcc ctgctctggg cttcagtgga gccgtgccac cgtgggagtg tccagggtcc tgacgtagcc ctgagacgtg gccagctccc tggcctgctg cccgcacagt gggcccttgt ctctgctctg ggtcaggcga ggcagccacc catgatgagc tctgcagcct tcccaaggtg gctgagcatg ggggtccctc gtaccccttc acggacagtg ctcttcgagc gggagaggac gggcctgacc taccgcgtgc cctcgttgct ccccgtgccc cccgggccca ccctgctggc ctttgtggag cagcggctca gccctgacga ctcccacgcc caccgcctgg tgctgaggag gggcacgctg gccgggggct ccgtgcggtg gggtgccctg cacgtgctgg ggacagcagc cctggcggag caccggtcca tgaacccctg ccctgtgcac gatgctggca cgggcaccgt cttcctcttc ttcatcgcgg tgctgggcca cacgcctgag gccgtgcaga tcgccacggg aaggaacgcc gcgcgcctct gctgtgtggc cagccgtgac gccggcctct cgtggggcag cgcccgggac ctcaccgagg aggccatcgg tggtgccgtg caggactggg ccacattcgc tgtgggtccc ggccacggcg tgcagctgcc ctcaggccgc ctgctggtac ccgcctacac ctaccgcgtg gaccgccgag agtgttttgg caagatctgc cggaccagcc ctcactcctt cgccttctac agcgatgacc acggccgcac ctggcgctgt ggaggcctcg tgcccaacct gcgctcaggc gagtgccagc tggcggcggt ggacggtggg caggccggca gcttcctcta ctgcaatgcc cggagcccac tgggcagccg tgtgcaggcg ctcagcactg acgagggcac ctccttcctg cccgcagagc gcgtggcttc cctgcccgag actgcctggg gctgccaggg cagcatcgtg ggcttcccag cccccgcccc

FIGURE 371

Met Met Ser Ser Ala Ala Phe Pro Arg Trp Leu Ser Met Gly Val Pro Arg Thr Pro Ser Arg Thr Val Leu Phe Glu Arg Glu Arg Thr Gly Leu Thr Tyr Arg Val Pro Ser Leu Leu Pro Val Pro Pro Gly Pro Thr Leu Leu Ala Phe Val Glu Gln Arg Leu Ser Pro Asp Asp Ser His Ala His Arg Leu Val Leu Arg Arg Gly Thr Leu Ala Gly Gly Ser Val Arg Trp Gly Ala Leu His Val Leu Gly Thr Ala Ala Leu Ala Glu His Arg Ser Met Asn Pro Cys Pro Val His Asp Ala Gly Thr Gly Thr Val Phe Leu Phe Phe Ile Ala Val Leu Gly His Thr Pro Glu Ala Val Gln Ile Ala Thr Gly Arg Asn Ala Ala Arg Leu Cys Cys Val Ala Ser Arg Asp Ala Gly Leu Ser Trp Gly Ser Ala Arg Asp Leu Thr Glu Glu Ala Ile Gly Gly Ala Val Gln Asp Trp Ala Thr Phe Ala Val Gly Pro Gly His Gly Val Gln Leu Pro Ser Gly Arg Leu Leu Val Pro Ala Tyr Thr Tyr Arg Val Asp Arg Arg Glu Cys Phe Gly Lys Ile Cys Arg Thr Ser Pro His Ser Phe Ala Phe Tyr Ser Asp Asp His Gly Arg Thr Trp Arg Cys Gly Gly Leu Val Pro Asn Leu Arg Ser Gly Glu Cys Gln Leu Ala Ala Val Asp Gly Gly Gln Ala Gly Ser Phe Leu Tyr Cys Asn Ala Arg Ser Pro Leu Gly Ser Arg Val Gln Ala Leu Ser Thr Asp Glu Gly Thr Ser Phe Leu Pro Ala Glu Arg Val Ala Ser Leu Pro Glu Thr Ala Trp Gly Cys Gln Gly Ser Ile Val Gly Phe Pro Ala Pro Ala

FIGURE 372

taaagtaaca acggtaataa agagttttca ctctccaaat cacagggctc ctaggtattt tccctaaact aaccactgct ttccaggatg gcctgcctcc ttcgctcatt tcagagaatt tctgcagggg ttttcttctt agctctttgg ggcatggttg taggtgacaa gctgctggtg gtccctcagg acggaagcca ctggcttagt atgaaggata tagttgaggt tctcagtgac cggggtcatg agattgtagt ggtggtgcct gaagttaatt tgcttttgaa agaatacaaa tactacacaa gaaaaatcta tccagtgccg tatgaccaag aagagctgaa gaaccgttac caatcatttg gaaacaatca ctttgctgag cgatcattcc taactgctcc tcagacagag tacaggaata acatgattgt tattggcctg tacttcatca actgccagag cctcctgcag gacagggaca ccctgaactt ctttaaggag agcaagtttg atgctctttt cacagaccca gccttaccct gtggggtgat cctggctgag tatttgggcc taccatctgt gtacctcttc aggggttttc cgtgttccct ggagcataca ttcagcagaa gcccagaccc tgtgtcctac attcccaggt gctacacaaa gttttcagac cacatgactt tttcccaacg agtggccaac ttccttgtta atttgttgga gccctatcta ttttattgtc tgttttcaaa gtatgagaaa ctcgcatcag ctgtcctcaa gagagatgtg gatataatca ccttatcaga ggtctctgtt tggctgttaa gatatgactt tgtgcttgaa tatcctaggc cggtcatgcc caacatggtc ttcattggag gtatcaactg taagaagagg aaagacttgt ctcaggaatt tgaagcctac attaatgctt ctggagaaca tggaattgtg gttttctctt tgggatcaat ggtctcagaa attccagaga agaaagctat ggcaattgct gatgctttgg gcaaaaaccc tcagacagtc ctgtggcggt acactggaac ccgaccatcg aatcttgcga acaacacgat acttgttaag tggctacccc aaaacgatct gcttggtcac ccgatgaccc gtgcctttat cacccatgct ggttcccatg gtgtttatga aagcatatgc aatggcgttc ccatggtgat gatgcccttg tttggtgatc agatggacaa tgcaaagcgc atggagacta agggagctgg agtgaccctg aatgttctgg aaatgacttc tgaagattta gaaaatgctc taaaagcagt catcaatgac aaaagttaca aggagaacat catgcgcctc tccagccttc acaaggaccg cccggtggag ccgctggacc tggccgtgtt ctgggtggag tttgtgatga ggcacaaggg cgcgccacac ctgcgccccg cagcccacga cctcacctgg taccagtacc attccttgga cgtgattggt ttcctcttgg ccgtcgtgct gacagtggcc ttcatcacct ttaaatgttg tccttatggc tacccgaaat gcttggggaa aaaagggcga gttaagaaag cccacaaatc caagacccat tgagaggtgg gtgggaaata aggtaaaatt ttgaaccatc cctagtcatt tccaaacttg aaaacagaat cagtgttaaa ttcattttat tcttattaag gaaatacttt gcataaatta atcagcccca gagtgtcttt aaaaaattct cttaaataaa aataatagac tcgctagtca gtaaagatat ttgaatatgt atcgtgcccc ctccggagtc tttgatcagg atgacatgtg ccatttttca gaggacgtgc agacaggctg gcattctaga ttacttttct tactctgaaa catggcctgt ttgggagtgc gggattcaaa ggtggtccca cggctgcccc tactgcaaat ggcagtttta atcttatctt ttggcttctg cagatggttg cattgatcct taaccaataa tggtcagtcc tcatctctgt cctgacttca taggtgccac cttgtggttt aaagaaggga agctttgtac ctttagagtg taggtgaaat gaatgaatgg cttggagtgc actgagaaca gcatatgatt tcttgctttg gggaaaaaga atgatgctat gaaattggtg ggtggtgtat ttgagaagat aatcattgct tatgtcaaat ggagctgaat ttgataaaaa cccaaaatac agctatgaag tgctgggcaa gtttactttt ttttctgatg tttcctacaa ctaaaaataa attaataaat ttatataatt ct

FIGURE 373

Met Ala Cys Leu Leu Arg Ser Phe Gln Arg Ile Ser Ala Gly Val Phe Phe Leu Ala Leu Trp Gly Met Val Val Gly Asp Lys Leu Leu Val Val Pro Gln Asp Gly Ser His Trp Leu Ser Met Lys Asp Ile Val Glu Val Leu Ser Asp Arg Gly His Glu Ile Val Val Val Pro Glu Val Asn Leu Leu Leu Lys Glu Tyr Lys Tyr Tyr Thr Arg Lys Ile Tyr Pro Val Pro Tyr Asp Gln Glu Glu Leu Lys Asn Arg Tyr Gln Ser Phe Gly Asn Asn His Phe Ala Glu Arg Ser Phe Leu Thr Ala Pro Gln Thr Glu Tyr Arg Asn Asn Met Ile Val Ile Gly Leu Tyr Phe Ile Asn Cys Gln Ser Leu Leu Gln Asp Arg Asp Thr Leu Asn Phe Phe Lys Glu Ser Lys Phe Asp Ala Leu Phe Thr Asp Pro Ala Leu Pro Cys Gly Val Ile Leu Ala Glu Tyr Leu Gly Leu Pro Ser Val Tyr Leu Phe Arg Gly Phe Pro Cys Ser Leu Glu His Thr Phe Ser Arg Ser Pro Asp Pro Val Ser Tyr Ile Pro Arg Cys Tyr Thr Lys Phe Ser Asp His Met Thr Phe Ser Gln Arg Val Ala Asn Phe Leu Val Asn Leu Leu Glu Pro Tyr Leu Phe Tyr Cys Leu Phe Ser Lys Tyr Glu Lys Leu Ala Ser Ala Val Leu Lys Arg Asp Val Asp Ile Ile Thr Leu Ser Glu Val Ser Val Trp Leu Leu Arg Tyr Asp Phe Val Leu Glu Tyr Pro Arg Pro Val Met Pro Asn Met Val Phe Ile Gly Gly Ile Asn Cys Lys Lys Arg Lys Asp Leu Ser Gln Glu Phe Glu Ala Tyr Ile Asn Ala Ser Gly Glu His Gly Ile Val Val Phe Ser Leu Gly Ser Met Val Ser Glu Ile Pro Glu Lys Lys Ala Met Ala Ile Ala Asp Ala Leu Gly Lys Asn Pro Gln Thr Val Leu Trp Arg Tyr Thr Gly Thr Arg Pro Ser Asn Leu Ala Asn Asn Thr Ile Leu Val Lys Trp Leu Pro Gln Asn Asp Leu Leu Gly His Pro Met Thr Arg Ala Phe Ile Thr His Ala Gly Ser His Gly Val Tyr Glu Ser Ile Cys Asn Gly Val Pro Met Val Met Met Pro Leu Phe Gly Asp Gln Met Asp Asn Ala Lys Arg Met Glu Thr Lys Gly Ala Gly Val Thr Leu Asn Val Leu Glu Met Thr Ser Glu Asp Leu Glu Asn Ala Leu Lys Ala Val Ile Asn Asp Lys Ser Tyr Lys Glu Asn Ile Met Arg Leu Ser Ser Leu His Lys Asp Arg Pro Val Glu Pro Leu Asp Leu Ala Val Phe Trp Val Glu Phe Val Met Arg His Lys Gly Ala Pro His Leu Arg Pro Ala Ala His Asp Leu Thr Trp Tyr Gln Tyr His Ser Leu Asp Val Ile Gly Phe Leu Leu Ala Val Val Leu Thr Val Ala Phe Ile Thr Phe Lys Cys Cys Pro Tyr Gly Tyr Pro Lys Cys Leu Gly Lys Lys Gly Arg Val Lys Lys Ala His Lys Ser Lys Thr His

FIGURE 374

gtgctctgct tctggcagct gaagatccca gtagacagct tcttaaacca tggctttccc tgcaggattt ggatgggcgg cagccactgc agcttatcaa gtagaaggag gctgggatgc agatggaaaa ggcccttgtg tctgggacac atttactcat cagggaggag agagagtttt caagaaccag actggcgatg tagcttgtgg cagctacact ctgtgggagg aagatttgaa atgtatcaaa cagcttggat tgactcatta ccgcttctct ctttcctggt cacgtctgtt acctgatggg acgacaggtt tcatcaacca gaaaggaatt gattattaca acaagatcat cgatgatttg ttaaaaaatg gggttactcc cattgtgacc ctctaccact ttgatttgcc tcagacttta gaagaccaag gaggttggtt gtcagaggca atcattgaat cctttgacaa atatgctcag ttttgcttca gtacctttgg ggatcgtgtc aagcagtgga tcaccataaa tgaagctaat gttctttctg tgatgtcata tgacttaggt atgtttcctc cgggtatccc tcactttggg actggaggtt atcaggcagc tcataatttg attaaggctc atgccagatc ctggcacagc tatgattcct tatttcgaaa aaagcagaaa ggtatggtgt ctctatcact ttttgcggtc tggttggaac cagcagatcc caactcagtg tctgaccagg aagctgctaa aagagccatc actttccatc tggatttatt tgctaaaccc atattcatcg atggtgatta tcctgaagtt gtcaagtctc agattgcctc catgagtcaa aagcaaggct atccatcatc gaggcttcca gaattcactg aagaagagaa gaaaatgatc aaaggcactg ctgatttttt tgctgtgcaa tattatacaa ctcgcttaat caagtaccag gagaacaaga aaggagaact aggtattctc caggatgcgg aaattgaatt ttttccagat ccatcttgga aaaatgtgga ttggatctac gtggtaccat ggggagtatg taaactactg aaatatatta aggatacata taataaccct gtaatttaca tcactgagaa tgggtttccc cagagtgacc cagcgcctct tgatgacact caacgctggg agtatttcag acaaacattt caggaactgt tcaaagctat ccaacttgat aaagtcaatc ttcaagtata ttgtgcatgg tctcttctgg ataactttga gtggaaccag ggatacagca gccggtttgg tctcttccac gttgattttg aagacccagc tagaccccga gtcccttaca catcggccaa ggaatatgcc aagatcatcc gaaacaatgg ccttgaagca catctgtagg caagatggct gagaaataca ggagaggcgt ctgcttttgg aaaggaaatc tgctttggtg atgatctttc aggcaatctc aacttacttc tttaatcaac atttaatatc aatggatctg tgattaaaag gtctgaatat gtaatgcctc gtgaagtatt taataatggc ctttatttgt atttggatca atgaggtttt taaaaaaaat ggaagagaaa accactaacc ttgatttttg tattgcaaaa tcagatagac ctggaaacat aaatttaaat ccttagacat ttttctagaa aaaaatgcaa agtttataaa gatgatacaa ccatgatttg caactgtaac aggagaccat ttattataag cgtacctgtt tgtgaactta attattctga ttccataagc tgtttttgct taggtgatcc actgccatgt gatccataat ttttctacat aaaaaatcaa agttaaaagt cacattatac agttatgcat tcatttcaac aaaatagtga attgataatc tacttgttaa tatattcggc ccatattttg tgtgtttgga caaggtacat ctccctttg cctaatgaac ttttgaaaaa taataaaata atagaataaa ttagactttg aatggcaaaa aaaaaaaaaa aaaaa

FIGURE 375

Met Ala Phe Pro Ala Gly Phe Gly Trp Ala Ala Ala Thr Ala Ala Tyr Gln Val Glu Gly Gly Trp Asp Ala Asp Gly Lys Gly Pro Cys Val Trp Asp Thr Phe Thr His Gln Gly Gly Glu Arg Val Phe Lys Asn Gln Thr Gly Asp Val Ala Cys Gly Ser Tyr Thr Leu Trp Glu Glu Asp Leu Lys Cys Ile Lys Gln Leu Gly Leu Thr His Tyr Arg Phe Ser Leu Ser Trp Ser Arg Leu Leu Pro Asp Gly Thr Thr Gly Phe Ile Asn Gln Lys Gly Ile Asp Tyr Tyr Asn Lys Ile Ile Asp Asp Leu Leu Lys Asn Gly Val Thr Pro Ile Val Thr Leu Tyr His Phe Asp Leu Pro Gln Thr Leu Glu Asp Gln Gly Gly Trp Leu Ser Glu Ala Ile Ile Glu Ser Phe Asp Lys Tyr Ala Gln Phe Cys Phe Ser Thr Phe Gly Asp Arg Val Lys Gln Trp Ile Thr Ile Asn Glu Ala Asn Val Leu Ser Val Met Ser Tyr Asp Leu Gly Met Phe Pro Pro Gly Ile Pro His Phe Gly Thr Gly Gly Tyr Gln Ala Ala His Asn Leu Ile Lys Ala His Ala Arg Ser Trp His Ser Tyr Asp Ser Leu Phe Arg Lys Lys Gln Lys Gly Met Val Ser Leu Ser Leu Phe Ala Val Trp Leu Glu Pro Ala Asp Pro Asn Ser Val Ser Asp Gln Glu Ala Ala Lys Arg Ala Ile Thr Phe His Leu Asp Leu Phe Ala Lys Pro Ile Phe Ile Asp Gly Asp Tyr Pro Glu Val Val Lys Ser Gln Ile Ala Ser Met Ser Gln Lys Gln Gly Tyr Pro Ser Ser Arg Leu Pro Glu Phe Thr Glu Glu Glu Lys Lys Met Ile Lys Gly Thr Ala Asp Phe Phe Ala Val Gln Tyr Tyr Thr Thr Arg Leu Ile Lys Tyr Gln Glu Asn Lys Lys Gly Glu Leu Gly Ile Leu Gln Asp Ala Glu Ile Glu Phe Phe Pro Asp Pro Ser Trp Lys Asn Val Asp Trp Ile Tyr Val Val Pro Trp Gly Val Cys Lys Leu Leu Lys Tyr Ile Lys Asp Thr Tyr Asn Asn Pro Val Ile Tyr Ile Thr Glu Asn Gly Phe Pro Gln Ser Asp Pro Ala Pro Leu Asp Asp Thr Gln Arg Trp Glu Tyr Phe Arg Gln Thr Phe Gln Glu Leu Phe Lys Ala Ile Gln Leu Asp Lys Val Asn Leu Gln Val Tyr Cys Ala Trp Ser Leu Leu Asp Asn Phe Glu Trp Asn Gln Gly Tyr Ser Ser Arg Phe Gly Leu Phe His Val Asp Phe Glu Asp Pro Ala Arg Pro Arg Val Pro Tyr Thr Ser Ala Lys Glu Tyr Ala Lys Ile Ile Arg Asn Asn Gly Leu Glu Ala His Leu

FIGURE 376

cgcgaagatg ccccggcgca gcctgcacgc ggcggccgtg ctcctgctgg tgatcttaaa ggaacagcct tccagcccgg ccccagtgaa cggttccaag tggacttatt ttggtcctga tggggagaat agctggtcca agaagtaccc gtcgtgtggg ggcctgctgc agtcccccat agacctgcac agtgacatcc tccagtatga cgccagcctc acgcccctcg agttccaagg ctacaatctg tctgccaaca agcagtttct cctgaccaac aatggccatt cagtgaagct gaacctgccc tcggacatgc acatccaggg cctccagtct cgctacagtg ccacgcagct gcacctgcac tgggggaacc cgaatgaccc gcacggctct gagcacaccg tcagcggaca gcacttcgcc gccgagctgc acattgtcca ttataactca gacctttatc ctgacgccag cactgccagc aacaagtcag aaggcctcgc tgtcctggct gttctcattg agatgggctc cttcaatccg tcctatgaca agatcttcag tcaccttcaa catgtaaagt acaaaggcca ggaagcattc gtcccgggat tcaacattga agagctgctt ccggagagga ccgctgaata ttaccgctac cgggggtccc tgaccacacc cccttgcaac cccactgtgc tctggacagt tttccgaaac cccgtgcaaa tttcccagga gcagctgctg gctttggaga cagccctgta ctgcacacac atggacgacc cttccccccag agaaatgatc aacaacttcc ggcaggtcca gaagttcgat gagaggctgg tatacacctc cttctcccaa gtgcaagtct gtactgcggc aggactgagt ctgggcatca tcctctcact ggccctggct ggcattcttg gcatctgtat tgtggtggtg gtgtccattt ggcttttcag aaggaagagt atcaaaaaag gtgataacaa gggagtcatt tacaagccag ccaccaagat ggagactgag gcccacgctt gaggtccccg gagctcccgg gcacatccag gaaggacctt gctttggacc ctacacactt cggctctctg gacacttgcg acacctcaag gtgttctctg tagctcaatc tgcaaacatg ccaggcctca gggatcctct gctgggtgcc tccttgtctt gggaccatgg ncaccccaga gccatccgat cgatggatgg gatgcactct cagaccaagc agcaggaatt caaagctgct tgctgtaatt gtgtgagatt gtgaagtggt ctgaattctg gaatcacaaa ccaaccatgc tggtgggcca ttaatggttg gaaaacactt tcatccgggg ctttgccaga gcgtgctttc aagtgtcctg gaaattctgc tgcttctcca agctttcaga caagaatgtg cactctctgc ttaggttttg cttgggaaac tcaacttctt tcctctggag acggggcatc tccctctgat ttccttctgc tatgacaaaa cctttaatct gcaccttaca actcggggac aaatggggac aggaaggatc aagttgtaga gnagaaaaag aaaacaagag atacattgtg atatatatta gggacacttt cacagtcctg tcctctggat cacagacact gcacagacct tagggaaatg gcaggttcaa agttccactt cttggtgggg atgagaaggg agagagagct agagggacaa agagaatgag aagacatgga tgatctggga gagtctcact tcggaatcag aattggaatc acattctgtt tatcaagcca taatgtaagg acagaataat acaataataa gtccaaatcc aacctcctgt cagtggagca gttatgtttt atactctaca gattttacaa ataatgaggc tgttccttga aaatgtgttg ttgctgtgtc ctggaggaga catgagttcc gagatgacca actcnngcnt tgnatnctng gaggnaatan ggcagaacca aaatgactgt agaacttatt ctctgtaggc caaatttcat ttcagccact tctgcaggat cctactgcca acctggaatg gagactttta tctacttctc tctctctgaa gatgtcaaat cgtggtttag atcaaatata tttcaagcta taaaagcagg aggttatctg tgcaggggge tggcatcatg tatttagggg caagtaataa tggaatgcta ctaagatact ccatattctt ccccgaatca cacagacagt ttctgacagg cgcaactcct ccattttcct cccgcaggtg agaaccctgt ggagatgagt cagtgccatg actgagaagg aaccgacccc tagttgagag caccttgcag ttccccgaga actttctgat tgcacagtct cattttgaca gcatgaaatg tcctcttgaa gcatagcttt ttaaatatct ttttccttct actcctccct ctgactctag gaattctctc ttctggaatc gcttgaaccc aggaggcgga ggttgcagta agccaaggtc atgccactgc actctagcct gggtgacaga gcgagactcc atctcaaaaa aaaaaaaaa

FIGURE 377

Met Pro Arg Arg Ser Leu His Ala Ala Ala Val Leu Leu Leu Val Ile Leu Lys Glu Gln Pro Ser Ser Pro Ala Pro Val Asn Gly Ser Lys Trp Thr Tyr Phe Gly Pro Asp Gly Glu Asn Ser Trp Ser Lys Lys Tyr Pro Ser Cys Gly Gly Leu Leu Gln Ser Pro Ile Asp Leu His Ser Asp Ile Leu Gln Tyr Asp Ala Ser Leu Thr Pro Leu Glu Phe Gln Gly Tyr Asn Leu Ser Ala Asn Lys Gln Phe Leu Leu Thr Asn Asn Gly His Ser Val Lys Leu Asn Leu Pro Ser Asp Met His Ile Gln Gly Leu Gln Ser Arg Tyr Ser Ala Thr Gln Leu His Leu His Trp Gly Asn Pro Asn Asp Pro His Gly Ser Glu His Thr Val Ser Gly Gln His Phe Ala Ala Glu Leu His Ile Val His Tyr Asn Ser Asp Leu Tyr Pro Asp Ala Ser Thr Ala Ser Asn Lys Ser Glu Gly Leu Ala Val Leu Ala Val Leu Ile Glu Met Gly Ser Phe Asn Pro Ser Tyr Asp Lys Ile Phe Ser His Leu Gln His Val Lys Tyr Lys Gly Gln Glu Ala Phe Val Pro Gly Phe Asn Ile Glu Glu Leu Leu Pro Glu Arg Thr Ala Glu Tyr Tyr Arg Tyr Arg Gly Ser Leu Thr Thr Pro Pro Cys Asn Pro Thr Val Leu Trp Thr Val Phe Arg Asn Pro Val Gln Ile Ser Gln Glu Gln Leu Leu Ala Leu Glu Thr Ala Leu Tyr Cys Thr His Met Asp Asp Pro Ser Pro Arg Glu Met Ile Asn Asn Phe Arg Gln Val Gln Lys Phe Asp Glu Arg Leu Val Tyr Thr Ser Phe Ser Gln Val Gln Val Cys Thr Ala Ala Gly Leu Ser Leu Gly Ile Ile Leu Ser Leu Ala Leu Ala Gly Ile Leu Gly Ile Cys Ile Val Val Val Val Ser Ile Trp Leu Phe Arg Arg Lys Ser Ile Lys Lys Gly Asp Asn Lys Gly Val Ile Tyr Lys Pro Ala Thr Lys Met Glu Thr Glu Ala His Ala

FIGURE 378

gagactggga gcagtctctt aaacaaaagc aaaagaataa gcttcgggcg ctgtagtacc tgccagcttt cgccacagga ggctgccacc tgtaggtcac ttgggctcca gctatgtggc tgcctcttct gctgggtgcc ttactctggg cagtgctgtg gttgctcagg gaccggcaga gcctgcccgc cagcaatgcc tttgtcttca tcaccggctg tgactcaggc tttgggcgcc ttctggcact gcagctggac cagaaaagct tccgagtcct ggccagctgc ctgacccccc ccggggcgga ggacctgcag ggggtggctt cttccggctt caacaccacc ctgttggata tcactgatcc ccagagcttc cagcaggcag ccaagtgggt ggagatgcac gttaaggaag cagggctttt tggtctggtg aataatgctg gtgtggctgg tatcatcgga cccacaccat ggctgacccg ggacgatttc cagcgggtgc tgaatgtgaa cacaatgggt cccatcgggg tcacccttgc cctgctgcct ctgctgcagc aagcccgggg ccgggtgatc aacatcacca gcgtcctggg tcgcctggca gccaatggtg ggggctactg tgtctccaaa tttggcctgg aggccttctc tgacagcctg aggcgggatg tagctcattt tgggatacgg gagtccatcg tggagcctgg tttcttccga acccctgtga ccaacttgga gagtctggag aaaaccctgc aggcctgctg ggcacggctg cctcctgcca cacaggccca ctatgggggg gccttcctca ccaagtacct gaaaatgcaa cagcgcatca tgaacctgat ctgtgacccg gacctaacca aggtgagccg atgcctggag catgccctga ctgctcgaca cccccgaacc cgctacagcc caggttggga tgccaagctg ctctggctgc ctgcctccta cctgccagcc agcctggtgg atgctgtgct cacctgggtc cttcccaagc ctgcccaagc agtctactga atccagcctt ccagcaagag attgtttttc aaggacaagg actttgattt atttctgccc ccaccctggt actgcctggt gcctgccaca aaataagcac taacaaaagt gtattgttta aaaaataaaa agaaggtggg cagaaatgtg cccagtggaa

FIGURE 379

Met Trp Leu Pro Leu Leu Leu Gly Ala Leu Leu Trp Ala Val Leu Trp Leu Leu Arg Asp Arg Gln Ser Leu Pro Ala Ser Asn Ala Phe Val Phe Ile Thr Gly Cys Asp Ser Gly Phe Gly Arg Leu Leu Ala Leu Gln Leu Asp Gln Lys Ser Phe Arg Val Leu Ala Ser Cys Leu Thr Pro Ser Gly Ala Glu Asp Leu Gln Gly Val Ala Ser Ser Gly Phe Asn Thr Thr Leu Leu Asp Ile Thr Asp Pro Gln Ser Phe Gln Gln Ala Ala Lys Trp Val Glu Met His Val Lys Glu Ala Gly Leu Phe Gly Leu Val Asn Asn Ala Gly Val Ala Gly Ile Ile Gly Pro Thr Pro Trp Leu Thr Arg Asp Asp Phe Gln Arg Val Leu Asn Val Asn Thr Met Gly Pro Ile Gly Val Thr Leu Ala Leu Leu Pro Leu Leu Gln Gln Ala Arg Gly Arg Val Ile Asn Ile Thr Ser Val Leu Gly Arg Leu Ala Ala Asn Gly Gly Gly Tyr Cys Val Ser Lys Phe Gly Leu Glu Ala Phe Ser Asp Ser Leu Arg Arg Asp Val Ala His Phe Gly Ile Arg Glu Ser Ile Val Glu Pro Gly Phe Phe Arg Thr Pro Val Thr Asn Leu Glu Ser Leu Glu Lys Thr Leu Gln Ala Cys Trp Ala Arg Leu Pro Pro Ala Thr Gln Ala His Tyr Gly Gly Ala Phe Leu Thr Lys Tyr Leu Lys Met Gln Gln Arg Ile Met Asn Leu Ile Cys Asp Pro Asp Leu Thr Lys Val Ser Arg Cys Leu Glu His Ala Leu Thr Ala Arg His Pro Arg Thr Arg Tyr Ser Pro Gly Trp Asp Ala Lys Leu Leu Trp Leu Pro Ala Ser Tyr Leu Pro Ala Ser Leu Val Asp Ala Val Leu Thr Trp Val Leu Pro Lys Pro Ala Gln Ala Val Tyr

FIGURE 380

ggcagccttc cccaggtgag cagcaacaag gccacgtgct gctgggtctc agtcctccac ttcccgtgtc ctctggaagt tgtcaggagc aatgttgcgc ttgtacgtgt tggtaatggg agtttctgcc ttcacccttc agcctgcggc acacacaggg gctgccagaa gctgccggtt tcgtgggagg cattacaagc gggagttcag gctggaaggg gagcctgtag ccctgaggtg ccccccaggtg ccctactggt tgtgggcctc tgtcagcccc cgcatcaacc tgacatggca taaaaatgac tctgctagga cggtcccagg agaagaagag acacggatgt gggcccagga cggtgctctg tggcttctgc cagccttgca ggaggactct ggcacctacg tctgcactac tagaaatgct tcttactgtg acaaaatgtc cattgagctc agagtttttg agaatacaga tgctttcctg ccgttcatct catacccgca aattttaacc ttgtcaacct ctggggtatt agtatgccct gacctgagtg aattcacccg tgacaaaact gacgtgaaga ttcaatggta caaggattct cttcttttgg ataaagacaa tgagaaattt ctaagtgtga gggggaccac tcacttactc gtacacgatg tggccctgga agatgctggc tattaccgct gtgtcctgac atttgcccat gaaggccagc aatacaacat cactaggagt attgagctac gcatcaagaa aaaaaaagaa gagaccattc ctgtgatcat ttccccccctc aagaccatat cagcttctct ggggtcaaga ctgacaatcc cgtgtaaggt gtttctggga accggcacac ccttaaccac catgctgtgg tggacggcca atgacaccca catagagagc gcctacccgg gaggccgcgt gaccgagggg ccacgccagg aatattcaga aaataatgag aactacattg aagtgccatt gatttttgat cctgtcacaa gagaggattt gcacatggat tttaaatgtg ttgtccataa taccctgagt tttcagacac tacgcaccac agtcaaggaa gcctcctcca cgttctcctg gggcattgtg ctggccccac tttcactggc cttcttggtt ttgggggaa tatggatgca cagacggtgc aaacacagaa ctggaaaagc agatggtctg actgtgctat ggcctcatca tcaagacttt caatcctatc ccaagtgaaa taaatggaat gaaataattc aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa

FIGURE 381

Met Leu Arg Leu Tyr Val Leu Val Met Gly Val Ser Ala Phe Thr Leu Gln Pro Ala Ala His Thr Gly Ala Ala Arg Ser Cys Arg Phe Arg Gly Arg His Tyr Lys Arg Glu Phe Arg Leu Glu Gly Glu Pro Val Ala Leu Arg Cys Pro Gln Val Pro Tyr Trp Leu Trp Ala Ser Val Ser Pro Arg Ile Asn Leu Thr Trp His Lys Asn Asp Ser Ala Arg Thr Val Pro Gly Glu Glu Glu Thr Arg Met Trp Ala Gln Asp Gly Ala Leu Trp Leu Leu Pro Ala Leu Gln Glu Asp Ser Gly Thr Tyr Val Cys Thr Thr Arg Asn Ala Ser Tyr Cys Asp Lys Met Ser Ile Glu Leu Arg Val Phe Glu Asn Thr Asp Ala Phe Leu Pro Phe Ile Ser Tyr Pro Gln Ile Leu Thr Leu Ser Thr Ser Gly Val Leu Val Cys Pro Asp Leu Ser Glu Phe Thr Arg Asp Lys Thr Asp Val Lys Ile Gln Trp Tyr Lys Asp Ser Leu Leu Leu Asp Lys Asp Asn Glu Lys Phe Leu Ser Val Arg Gly Thr Thr His Leu Leu Val His Asp Val Ala Leu Glu Asp Ala Gly Tyr Tyr Arg Cys Val Leu Thr Phe Ala His Glu Gly Gln Gln Tyr Asn Ile Thr Arg Ser Ile Glu Leu Arg Ile Lys Lys Lys Lys Glu Glu Thr Ile Pro Val Ile Ile Ser Pro Leu Lys Thr Ile Ser Ala Ser Leu Gly Ser Arg Leu Thr Ile Pro Cys Lys Val Phe Leu Gly Thr Gly Thr Pro Leu Thr Thr Met Leu Trp Trp Thr Ala Asn Asp Thr His Ile Glu Ser Ala Tyr Pro Gly Gly Arg Val Thr Glu Gly Pro Arg Gln Glu Tyr Ser Glu Asn Asn Glu Asn Tyr Ile Glu Val Pro Leu Ile Phe Asp Pro Val Thr Arg Glu Asp Leu His Met Asp Phe Lys Cys Val Val His Asn Thr Leu Ser Phe Gln Thr Leu Arg Thr Thr Val Lys Glu Ala Ser Ser Thr Phe Ser Trp Gly Ile Val Leu Ala Pro Leu Ser Leu Ala Phe Leu Val Leu Gly Gly Ile Trp Met His Arg Arg Cys Lys His Arg Thr Gly Lys Ala Asp Gly Leu Thr Val Leu Trp Pro His His Gln Asp Phe Gln Ser Tyr Pro Lys

FIGURE 382

gcagcgcctg gagcatgagc cgggtggtgg cgtgcacgga ggatcgcggg aggctgccgc ctcgggacac cccactcaca cagggcaaaa ggatgtatac actccatctt catttaaaac actggaggat tggaaaggag aaaaggaaca ggacagaaaa aaaaacagag tgttctgaac atcaacacaa agtggaagaa ccttaagctg aaggtacagt atattattta cactgaaggg gcttgtgtgt ggacaagaaa gcgctgacag ctcaaatgga tcccatggaa ctgagaaatg tcaacatcga accagatgat gagagcagca gtggagaaag tgctccagat agctacatcg ggataagaaa ttcagaaaag gcagcaatga gcagtcaatt tgctaatgaa gacactgaaa gtcagaaatt cctgacaaat ggatttttgg ggaaaaagaa gctggcagat tatgctgatg aacaccatcc cggaacgact tcctttggaa tgtcttcatt taacctgagt aatgccatca tgggcagtgg gatcctgggc ttgtcctatg ccatggccaa cacagggatc atacttttta taatcatgct gcttgctgtg gcaatattat cactgtattc agttcacctt ttattaaaaa cagccaagga aggagggtct ttgatttatg aaaaattagg agaaaaggca tttggatggc cgggaaaaat tggagctttt gtttccatta caatgcagaa cattggagca atgtcaagct acctctttat cattaaatat gaactacctg aagtaatcag agcattcatg ggacttgaag aaaatactgg agaatggtac ctcaatggca actacctcat catatttgtg tctgttggaa ttattcttcc actttcgctc cttaaaaatt taggttatct tggctatacc agtggatttt ctcttacctg catggtgttt tttgttagtg tggtgatcta caagaaaata agtttctttt tgcaaatttt tatcatacta aagttgttct tttaatttag catatctaaa ataggaatta gttcagttta gctcacacag gtgtttgctg acattcattg gccatttaat acagtgttga gtggttctcc gtaaaagtat aagtgctaac actacgaaga aatgcacacg atcattcttg ctcacttcta taacaaactt acataaaatg gatttaaaaa ttcctactca cagcctaaaa cttctggagt tcactacctt tttttcaaat catagtaaga tcacttgtgt attttatatt ttagtaaagc caattatgaa gtacaagtat catacacgta cttttgagct actattattt gaaaaaaatc tgccaaatag catctttagg atatatttac attttcactc atctaaaaag tatacaaaaa taaaaagtgg aaaaaggtat cttctgaatg ttcaagagca tcctatagtg ccaaataata aagcaccatt tttttcttca taaccaggat taaaattcat atatactgca gggcagacat acatatgata gcttgtgctg attaatttaa ccccatttgt aaacagatga aaattttatt ttcttatttc atttataaga tggctcaatg tattgggagg cttctttttt attacagaaa gtgtatattg gtatataata aatgaacttt tcaaatgac

FIGURE 383

Met Asp Pro Met Glu Leu Arg Asn Val Asn Ile Glu Pro Asp Asp Glu Ser Ser Ser Gly Glu Ser Ala Pro Asp Ser Tyr Ile Gly Ile Arg Asn Ser Glu Lys Ala Ala Met Ser Ser Gln Phe Ala Asn Glu Asp Thr Glu Ser Gln Lys Phe Leu Thr Asn Gly Phe Leu Gly Lys Lys Lys Leu Ala Asp Tyr Ala Asp Glu His His Pro Gly Thr Thr Ser Phe Gly Met Ser Ser Phe Asn Leu Ser Asn Ala Ile Met Gly Ser Gly Ile Leu Gly Leu Ser Tyr Ala Met Ala Asn Thr Gly Ile Ile Leu Phe Ile Ile Met Leu Leu Ala Val Ala Ile Leu Ser Leu Tyr Ser Val His Leu Leu Leu Lys Thr Ala Lys Glu Gly Gly Ser Leu Ile Tyr Glu Lys Leu Gly Glu Lys Ala Phe Gly Trp Pro Gly Lys Ile Gly Ala Phe Val Ser Ile Thr Met Gln Asn Ile Gly Ala Met Ser Ser Tyr Leu Phe Ile Ile Lys Tyr Glu Leu Pro Glu Val Ile Arg Ala Phe Met Gly Leu Glu Glu Asn Thr Gly Glu Trp Tyr Leu Asn Gly Asn Tyr Leu Ile Ile Phe Val Ser Val Gly Ile Ile Leu Pro Leu Ser Leu Leu Lys Asn Leu Gly Tyr Leu Gly Tyr Thr Ser Gly Phe Ser Leu Thr Cys Met Val Phe Phe Val Ser Val Val Ile Tyr Lys Lys Ile Ser Phe Phe Leu Gln Ile Phe Ile Ile Leu Lys Leu Phe Phe

FIGURE 384

tgacagcagt tggtaaactg cttttaggga tactggctga cttcaagtgg attaatacct tgtatcttta tgttgctacc ttaatcatca tgggcctagc cttgtgtgca attccatttg ccaaaagcta tgtcacattg gcgttgcttt ctgggatcct agggtttctt actggtaatt ggtccatctt tccatatgtg accacgaaga ctgtgggaat tgaaaaatta gcccatgcct atgggatatt aatgttcttt gctggacttg gaaatagcct aggaccaccc atcgttggtt ggttttatga ctggacccag acctatgata ttgcatttta ttttagtggc ttctgcgtcc tgctgggagg ttttattctg ctgctggcag ccttgccctc ttgggataca tgcaacaagc aactccccaa gccagctcca acaactttct tgtacaaagt tgcctctaat gtttagaaga atattggaag acactatttt tgctatttta taccatatag caacgatatt ttaacagatt ctcaagcaaa ttttctagag tcaagactat tttctcatag caaaatttca caatgactga ctctgaatga attatttttt tttatatatc ctatttttta tgtagtgtat gcgtagcctc tatctcgtat ttttttctat ttctcctccc cacaccatca atgggactat tctgttttgc tgttattcac tagttcttaa cattgtaaaa agtttgacca gcctcagaag gctttctctg tgtaaagaag tataatttct ctgctgactc catttaatcc actgcaaggc acctagagag actgctccta ttttaaaagt gatgcaagca tcatgataag atatgtgtga agcccactag gaaataaatc attctcttct ctatgtttga cttgctagta aacagaagac ttcaagccag ccaggaaatt aaagtggcga ctaaaacagc cttaagaatt gcagtggagc aaattggtca ttttttaaaa aaatatattt taacctacag tcaccagttt tcattattct atttacctca ctgaagtact cgcatgttgt ttggtaccca ctgagcaact gtttcagttc ctaaggtatt tgctgagatg tgggtgaact ccaaatggag aagtagtcac tgtagacttt cttcatggtt gaccactcca accttgctca cttttgcttc ttggccatcc actcagctga tgtttcctgg aagtgctaat tttacctgtt tccaaattgg aaacacattt ctcaatcatt ccgttctggc aaatgggaaa catccatttg ctttgggcac agtggggatg ggctgcaagt tcttgcatat cctcccagtg aagcatttat ttgctactat cagattttac cactatcaaa tataattcaa gggcagaatt aaacgtgagt gtgtgtgtgt gtgtgtgtgt gtgtgctatg catgctctaa gtctgcatgg gatatgggaa tggaaaaggg caataagaaa ttaataccct tatgcagttg catttaacct taagaaaaat gtccttggga taaactccaa tgtttaatac attgattttt tttctaaaga aatgggtttt aaactttggt atgcatcaga attccctata gatcttttg aaaatatagg tacctgggta tcacacatag aacttttaat tctgctggtg taggctgttg cccaaacatc tataatttta ctgagctctt caagtgattc tgataacaca gcctggattg agaattttta taagattggc aatggaaaaa catttattct tttaaataat aatttttta aaacccaaga ggtcagggga ttttataaac caatagccaa gtgttcttta aataggaggc acccttccca ttgtgccaaa atcatctttt catttatttt gaaatttgta tgattatttt atacttgtat gttgcctttc ttcgaaggcg cctgaagcac tttataaaca caaatcctca caatacctct gtgaggtagg taaatagtac ttttctatgt agtaaacctg gaatatggag aatttcataa cagttcattc tacttaataa tgcaataatg gagctccaag ttgtcttgga cttctacacc acactcagac ttctggaaag ttttctgtac ctcattcttt agtccctgtc aaggttagta aataaaataa gtgacataaa aaaaaaaaaa aaactaaact acttgttgtg ttgaaagttc ctttttgcca gttatgttca ggaaacccaa taacctgaaa aagtttgact ttgatgtgac atcttcatat tcatcaatgc tgataattgt ccaaaggcat cttcactatg tctgctaaat aacatccaat gtgggcgtta tctgttgtct aggggatgaa ttttaagtta caataaaata tttttctttg ttttgcatca aaaaaaaaa

FIGURE 385

Thr Ala Val Gly Lys Leu Leu Leu Gly Ile Leu Ala Asp Phe Lys Trp Ile Asn Thr Leu Tyr Leu Tyr Val Ala Thr Leu Ile Ile Met Gly Leu Ala Leu Cys Ala Ile Pro Phe Ala Lys Ser Tyr Val Thr Leu Ala Leu Leu Ser Gly Ile Leu Gly Phe Leu Thr Gly Asn Trp Ser Ile Phe Pro Tyr Val Thr Thr Lys Thr Val Gly Ile Glu Lys Leu Ala His Ala Tyr Gly Ile Leu Met Phe Phe Ala Gly Leu Gly Asn Ser Leu Gly Pro Pro Ile Val Gly Trp Phe Tyr Asp Trp Thr Gln Thr Tyr Asp Ile Ala Phe Tyr Phe Ser Gly Phe Cys Val Leu Leu Gly Gly Phe Ile Leu Leu Leu Ala Ala Leu Pro Ser Trp Asp Thr Cys Asn Lys Gln Leu Pro Lys Pro Ala Pro Thr Thr Phe Leu Tyr Lys Val Ala Ser Asn Val

FIGURE 386

taggagataa gagtatcttg cacagcaggt gcaggtttcc cagcagctca ggcaagagtc cgatgtttgt gccatctgat cctgatgtct ggagagatag ccatgtgtga gcctgaattt ggcaatgaca aggccaggga gccgagcgtg ggtggcaggt ggcgagtgtc ctggtacgaa cggtttgtgc agccatgtct ggtcgaactg ctgggctctg ctctcttcat cttcatcggg tgcctgtcgg tcattgagaa tgggacggac actgggctgc tgcagccggc cctggcccac gggctggctt tggggctcgt gattgccacg ctggggaata tcagtggtgg acacttcaac cctgcggtgt ccctggcagc catgctgatc ggaggcctca acctggtgat gctcctcccg tactgggtct cacagctgct cgggggggatg ctcggggctg ccttggccaa ggtggtgagt cctgaggaga ggttctggaa tgcatctggg gcggcctttg tgacagtcca ggagcagggg caggtggcag gggcgttggt ggcagagatc atcctgacga cgctgctggc cctggctgta tgcatgggtg ccatcaatga gaagacaaag ggccctctgg ccccgttctc catcggcttt gccgtcaccg tggatatcct ggctgggggc cctgtgtctg gaggctgcat gaatcccgcc cgtgcttttg gacctgcggt ggtggccaac cactggaact tccactggat ctactggctg ggcccactcc tggctggcct gcttgttgga ctgctcatta ggtgcttcat tggagatggg aagacccgcc tcatcctgaa ggctcggtga gcagagctcg tgggattcct gctgctccag gtgtcctcag ctcacctgtc ccagactgag gacaggggag ttcctgcatt tcctgccagg gcagaggccc agaggagcga ccccctgctt ccactgcttg ggcctgcttt ctcagataga ctgactgctg aggaggctct aggttcttgg aattcctttg tgctcatcag agaccccagc ctggggaaca cgctgcccgc actgcccaga gagcagtgca aacaccacaa cacgagcgtg tttcttgaga ggaatgtccc cgagttggac aaggaggctg tttctgcaca tcagctcatt tcccgcaccc catttcttgc ttgattgctt tgttgggggc ctggccactt ccttgcttct caagctgaca attctcactt tgcaataaat agtccagtgt ttccttcat

FIGURE 387

Met Ser Gly Glu Ile Ala Met Cys Glu Pro Glu Phe Gly Asn Asp Lys Ala Arg Glu Pro Ser Val Gly Gly Arg Trp Arg Val Ser Trp Tyr Glu Arg Phe Val Gln Pro Cys Leu Val Glu Leu Leu Gly Ser Ala Leu Phe Ile Phe Ile Gly Cys Leu Ser Val Ile Glu Asn Gly Thr Asp Thr Gly Leu Leu Gln Pro Ala Leu Ala His Gly Leu Ala Leu Gly Leu Val Ile Ala Thr Leu Gly Asn Ile Ser Gly Gly His Phe Asn Pro Ala Val Ser Leu Ala Ala Met Leu Ile Gly Gly Leu Asn Leu Val Met Leu Leu Pro Tyr Trp Val Ser Gln Leu Leu Gly Gly Met Leu Gly Ala Ala Leu Ala Lys Val Val Ser Pro Glu Glu Arg Phe Trp Asn Ala Ser Gly Ala Ala Phe Val Thr Val Gln Glu Gln Gly Gln Val Ala Gly Ala Leu Val Ala Glu Ile Ile Leu Thr Thr Leu Leu Ala Leu Ala Val Cys Met Gly Ala Ile Asn Glu Lys Thr Lys Gly Pro Leu Ala Pro Phe Ser Ile Gly Phe Ala Val Thr Val Asp Ile Leu Ala Gly Gly Pro Val Ser Gly Gly Cys Met Asn Pro Ala Arg Ala Phe Gly Pro Ala Val Val Ala Asn His Trp Asn Phe His Trp Ile Tyr Trp Leu Gly Pro Leu Leu Ala Gly Leu Leu Val Gly Leu Leu Ile Arg Cys Phe Ile Gly Asp Gly Lys Thr Arg Leu Ile Leu Lys Ala Arg

FIGURE 388

tttaggaacg caccgtgcac atgcttggtg gtcttgttaa gtggaaactg ctgctttaga gtttgtttgg aaggtccggg tgactcatcc caacatttac atccttaatt gttaaagcgc tgcctccgag cgcacgcatc ctgagatcct gagcctttgg ttaagaccga gctctattaa gctgaaaaga taaaaactct ccagatgtct tccagtaatg tcgaagtttt tatcccagtg tcacaaggaa acaccaatgg cttccccgcg acagtttcca atgacctgaa ggcatttact gaaggagctg tgttaagttt tcataacatc tgctatcgag taaaactgaa gagtggcttt ctaccttgtc gaaaaccagt tgagaaagaa atattatcga atatcaatgg gatcatgaaa cctggtctca acgccatcct gggacccaca ggtggaggca aatcttcgtt attagatgtc ttagctgcaa ggaaagatcc aagtggatta tctggagatg ttctgataaa tggagcaccg cgacctgcca atttcaaatg taattcaggt tacgtggtac aagatgatgt tgtgatgggc actctgacgg tgagagaaaa cttacagttc tcagcagctc ttcggcttgc aacaactatg acgaatcatg aaaaaaacga acggattaac agggtcattg aagagttagg tctggataaa gtggcagact ccaaggttgg aactcagttt atccgtggtg tgtctggagg agaaagaaaa aggactagta taggaatgga gcttatcact gatccttcca tcttgtcctt ggatgagcct acaactggct tagactcaag cacagcaaat gctgtccttt tgctcctgaa aaggatgtct aagcagggac gaacaatcat cttctccatt catcagcctc gatattccat cttcaagttg tttgatagcc tcaccttatt ggcctcagga agacttatgt tccacgggcc tgctcaggag gccttgggat actttgaatc agctggttat cactgtgagg cctataataa ccctgcagac ttcttcttgg acatcattaa tggagattcc actgctgtgg cattaaacag agaagaagac tttaaagcca cagagatcat agagccttcc aagcaggata agccactcat agaaaaatta gcggagattt atgtcaactc ctccttctac aaagagacaa aagctgaatt acatcaactt tccgggggtg agaagaagaa gaagatcaca gtcttcaagg agatcagcta caccacctcc ttctgtcatc aactcagatg ggtttccaag cgttcattca aaaacttgct gggtaatccc caggcctcta tagctcagat cattgtcaca gtcgtactgg gactggttat aggtgccatt tactttgggc taaaaaatga ttctactgga atccagaaca gagctggggt tctcttcttc ctgacgacca accagtgttt cagcagtgtt tcagccgtgg aactctttgt ggtagagaag aagctcttca tacatgaata catcagcgga tactacagag tgtcatctta tttccttgga aaactgttat ctgatttatt acccatgagg atgttaccaa gtattatatt tacctgtata gtgtacttca tgttaggatt gaagccaaag gcagatgcct tcttcgttat gatgtttacc cttatgatgg tggcttattc agccagttcc atggcactgg ccatagcagc aggtcagagt gtggtttctg tagcaacact tctcatgacc atctgttttg tgtttatgat gatttttca ggtctgttgg tcaatctcac aaccattgca tcttggctgt catggcttca gtacttcagc attccacgat atggatttac ggctttgcag cataatgaat ttttgggaca aaacttctgc ccaggactca atgcaacagg aaacaatcct tgtaactatg caacatgtac tggcgaagaa tatttggtaa agcagggcat cgatctctca ccctggggct tgtggaagaa tcacgtggcc ttggcttgta tgattgttat tttcctcaca attgcctacc tgaaattgtt atttcttaaa aaatattctt aaatttcccc ttaattcagt atgatttatc ctcacataaa aaagaagcac tttgattgaa gtattcaatc aagttttttt gttgttttct gttcccttgc catcacactg ttgcacagca gcaattgttt taaagagata cattttaga aatcacaaca aactgaatta aacatgaaag aacccaagac atcatgtatc gcatattagt taatctcctc agacagtaac catggggaag aaatctggtc taatttatta atctaaaaaa ggagaattga attctggaaa ctcctgacaa gttattactg tctctggcat ttgtttcctc atctttaaaa tgaataggta ggttagtagc ccttcagtct taatacttta tgatgctatg gtttgccatt atttaatata tgacaaatgt attaatgcta tactggaaat gtaaaattga aaatatgttg gaaaaaagat tctgtcttat agggtaaaaa aagccaccgg tgatagaaaa aaaatctttt tgataagcac attaaagtta atagaactt

FIGURE 389

Met Ser Ser Ser Asn Val Glu Val Phe Ile Pro Val Ser Gln Gly Asn Thr Asn Gly Phe Pro Ala Thr Val Ser Asn Asp Leu Lys Ala Phe Thr Glu Gly Ala Val Leu Ser Phe His Asn Ile Cys Tyr Arg Val Lys Leu Lys Ser Gly Phe Leu Pro Cys Arg Lys Pro Val Glu Lys Glu Ile Leu Ser Asn Ile Asn Gly Ile Met Lys Pro Gly Leu Asn Ala Ile Leu Gly Pro Thr Gly Gly Gly Lys Ser Ser Leu Leu Asp Val Leu Ala Ala Arg Lys Asp Pro Ser Gly Leu Ser Gly Asp Val Leu Ile Asn Gly Ala Pro Arg Pro Ala Asn Phe Lys Cys Asn Ser Gly Tyr Val Val Gln Asp Asp Val Val Met Gly Thr Leu Thr Val Arg Glu Asn Leu Gln Phe Ser Ala Ala Leu Arg Leu Ala Thr Thr Met Thr Asn His Glu Lys Asn Glu Arg Ile Asn Arg Val Ile Glu Glu Leu Gly Leu Asp Lys Val Ala Asp Ser Lys Val Gly Thr Gln Phe Ile Arg Gly Val Ser Gly Gly Glu Arg Lys Arg Thr Ser Ile Gly Met Glu Leu Ile Thr Asp Pro Ser Ile Leu Ser Leu Asp Glu Pro Thr Thr Gly Leu Asp Ser Ser Thr Ala Asn Ala Val Leu Leu Leu Leu Lys Arg Met Ser Lys Gln Gly Arg Thr Ile Ile Phe Ser Ile His Gln Pro Arg Tyr Ser Ile Phe Lys Leu Phe Asp Ser Leu Thr Leu Leu Ala Ser Gly Arg Leu Met Phe His Gly Pro Ala Gln Glu Ala Leu Gly Tyr Phe Glu Ser Ala Gly Tyr His Cys Glu Ala Tyr Asn Asn Pro Ala Asp Phe Phe Leu Asp Ile Ile Asn Gly Asp Ser Thr Ala Val Ala Leu Asn Arg Glu Glu Asp Phe Lys Ala Thr Glu Ile Ile Glu Pro Ser Lys Gln Asp Lys Pro Leu Ile Glu Lys Leu Ala Glu Ile Tyr Val Asn Ser Ser Phe Tyr Lys Glu Thr Lys Ala Glu Leu His Gln Leu Ser Gly Gly Glu Lys Lys Lys Lys Ile Thr Val Phe Lys Glu Ile Ser Tyr Thr Thr Ser Phe Cys His Gln Leu Arg Trp Val Ser Lys Arg Ser Phe Lys Asn Leu Leu Gly Asn Pro Gln Ala Ser Ile Ala Gln Ile Ile Val Thr Val Val Leu Gly Leu Val Ile Gly Ala Ile Tyr Phe Gly Leu Lys Asn Asp Ser Thr Gly Ile Gln Asn Arg Ala Gly Val Leu Phe Phe Leu Thr Thr Asn Gln Cys Phe Ser Ser Val Ser Ala Val Glu Leu Phe Val Val Glu Lys Lys Leu Phe Ile His Glu Tyr Ile Ser Gly Tyr Tyr Arg Val Ser Ser Tyr Phe Leu Gly Lys Leu Leu Ser Asp Leu Leu Pro Met Arg Met Leu Pro Ser Ile Ile Phe Thr Cys Ile Val Tyr Phe Met Leu Gly Leu Lys Pro Lys Ala Asp Ala Phe Phe Val Met Met Phe Thr Leu Met Met Val Ala Tyr Ser Ala Ser Ser Met Ala Leu Ala Ile Ala Ala Gly Gln Ser Val Val Ser Val Ala Thr Leu Leu Met Thr Ile Cys Phe Val Phe Met Met Ile Phe Ser Gly Leu Leu Val Asn Leu Thr Thr Ile Ala Ser Trp Leu Ser Trp Leu Gln Tyr Phe Ser Ile Pro Arg Tyr Gly Phe Thr Ala Leu Gln His Asn Glu Phe Leu Gly Gln Asn Phe Cys Pro Gly Leu Asn Ala Thr Gly Asn Asn Pro Cys Asn Tyr Ala Thr Cys Thr Gly Glu Glu Tyr Leu Val Lys Gln Gly Ile Asp Leu Ser Pro Trp Gly Leu Trp Lys Asn His Val Ala Leu Ala Cys Met Ile Val Ile Phe Leu Thr Ile Ala Tyr Leu Lys Leu Leu Phe Leu Lys Lys Tyr Ser

FIGURE 390

gttctttgtg acacatcaca cagaattgga gtgctgtcct tctggagagt ggtggagaac caagatacag ttcagaacca aaggaataga gaagggcttt gatttctttt tggctttaga ttggggattt gggaggctta gcaggaaaga tgtccactga aaatgtggaa gggaagccca gtaaccttgg ggagagagga agagcccgga gctccacttt cctcagggtt gtccagccaa tgtttaacca cagtattttc acttctgcag tctctcctgc tgcagaacgc atccgattca tcttgggaga ggaggatgac agcccagctc cccctcagct cttcacggaa ctggatgagc tgctggccgt ggatgggcag gagatggagt ggaaggaaac agccaggtgg atcaagtttg aagaaaaagt ggaacagggt ggggaaagat ggagcaagcc ccatgtggcc acattgtccc ttcatagttt atttgagctg aggacatgta tggagaaagg atccatcatg cttgatcggg aggcttcttc tctcccacag ttggtggaga tgattgttga ccatcagatt gagacaggcc tattgaaacc tgaacttaag gataaggtga cctatacttt gctccggaag caccggcatc aaaccaagaa atccaacctt cggtccctgg ctgacattgg gaagacagtc tccagtgcaa gtaggatgtt taccaaccct gataatggta gcccagccat gacccatagg aatctgactt cctccagtct gaatgacatt tctgataaac cggagaagga ccagctgaag aataagttca tgaaaaaatt gccacgtgat gcagaagctt ccaacgtgct tgttggggag gttgactttt tggatactcc tttcattgcc tttgttaggc tacagcaggc tgtcatgctg ggtgccctga ctgaagttcc tgtgcccaca aggttcttgt tcattctctt aggtcctaag gggaaagcca agtcctacca cgagattggc agagccattg ccaccctgat gtctgatgag gtgttccatg acattgctta taaagcaaaa gacaggcacg acctgattgc tggtattgat gagttcctag atgaagtcat cgtccttcca cctggggaat gggatccagc aattaggata gagcctccta agagtcttcc atcctctgac aaaagaaaga atatgtactc aggtggagag aatgttcaga tgaatgggga tacgccccat gatggaggtc acggaggagg aggacatggg gattgtgaag aattgcagcg aactggacgg ttctgtggtg gactaattaa agacataaag aggaaagcgc catttttgc cagtgatttt tatgatgctt taaatattca agctctttcg gcaattctct tcatttatct ggcaactgta actaatgcta tcacttttgg aggactgctt ggggatgcca ctgacaacat gcagggcgtg ttggagagtt tcctgggcac tgctgtctct ggagccatct tttgcctttt tgctggtcaa ccactcacta ttctgagcag caccggacct gtcctagttt ttgagaggct tctatttaat ttcagcaagg acaataattt tgactatttg gagtttcgcc tttggattgg cctgtggtcc gccttcctat gtctcatttt ggtagccact gatgccagct tcttggttca atacttcaca cgtttcacgg aggagggctt ttcctctctg attagcttca tctttatcta tgatgctttc aagaagatga tcaagcttgc agattactac cccatcaact ccaacttcaa agtgggctac aacactctct tttcctgtac ctgtgtgcca cctgacccag ctaatatctc aatatctaat gacaccacac tggccccaga gtatttgcca actatgtctt ctactgacat gtaccataat actacctttg actgggcatt tttgtcgaag aaggagtgtt caaaatacgg aggaaacctt gtcgggaaca actgtaattt tgttcctgat atcacactca tgtcttttat cctcttcttg ggaacctaca cctcttccat ggctctgaaa aaattcaaaa ctagtcctta ttttccaacc acagcaagaa aactgatcag tgattttgcc attatcttgt ccattctcat cttttgtgta atagatgccc tagtaggcgt ggacacccca aaactaattg tgccaagtga gttcaagcca acaagtccaa accgaggttg gttcgttcca ccgtttggag aaaacccctg gtgggtgtgc cttgctgctg ctatcccggc tttgttggtc actatactga ttttcatgga ccaacaaatt acagctgtga ttgtaaacag gaaagaacat aaactcaaga aaggagcagg gtatcacttg gatctctttt gggtggccat cctcatggtt atatgctccc tcatggctct tccgtggtat gtagctgcta cggtcatctc cattgctcac atcgacagtt tgaagatgga gacagagact tctgcacctg gagaacaacc aaagtttcta ggagtgaggg aacaaagagt cactggaacc cttgtgttta ttctgactgg tctgtcagtc tttatggctc ccatcttgaa gtttataccc atgcctgtac tctatggtgt gttcctgtat atgggagtag catcccttaa tggtgtgcag ttcatggatc gtctgaagct gcttctgatg cctctgaagc atcagcctga cttcatctac ctgcgtcatg ttcctctgcg cagagtccac ctgttcactt tcctgcaggt gttgtgtctg gccctgcttt ggatcctcaa gtcaacggtg gctgctatca tttttccagt aatgatcttg gcacttgtag ctgtcagaaa aggcatggac tacctcttct cccagcatga cctcagcttc ctggatgatg tcattccaga aaaggacaag aaaaagaagg aggatgagaa gaaaaagaaa aagaagaagg gaagtctgga cagtgacaat gatgattctg actgcccata ctcagaaaaa gttccaagta ttaaaattcc aatggacatc atggaacagc aacctttcct aagcgatagc aaaccttctg acagagaaag atcaccaaca ttccttgaac gccacacatc atgctgataa aattcctttc cttcagtcac tcggtatgcc aagtcctcct agaactccag taaaagttgc ctcaaattag actagaactt gaacctgaag acaatgatta tttctggagg agcaagggaa cagaaactac attgtaacct gtttgtcttt cttaaaactg acatttgttg ttaatgtcat ttgtttttgt ttggctgttt gtttattttt taacttttat ttcgtctcag tttttggtca caggccaaat aatacagcgc tctctctgct tctctcttgc atagatacaa tcaagacaat agtgcaccgt tccttaaaaa cagcatctga ggaatccccc ttttgttctt aaactttcag atgtgtcctt tgataaccaa attctgtcac tcaagacaca gacacccaca gaccctgtcc tttgcctcta ttaagcagag gatggaagta ttaaggattt tgtaacacct tttatgaaaa tgttgaagga acttaaaact ttagctttgg agctgtgctt actggcttgt ctttgtctgg tagaacaaac cttgacctcc agacagagtc ccttctcact tatagagctc tccaggactg gaaaaagtgc tgctatttta acttgctctt gcttgtaaat cctaatctta gagttatcaa aagaagaaaa aactgaaggt actttactcc ctatagagaa accattgcca tcattgtagc aagtgctgga atgtcccttt tttcctatgc aacttttta taacccttta atgaacttat ctgtggagta cattgaagaa tatttttctt cctagatttt gttgtttaaa ttatggggcc taacctgcca cttatttttt gtcaattttt aaaacttttt tttaattact gtaaagaaaa tgaatttttt cctgcagcag gaaacatagt tttcagtagt tctacctctt atttgtagct

gccaggcttt ctgtaaaaat tgtattgtat ataatgtgat ttttacacat acatacacac acaaatacac aatctctagg gtaagccaga aggcaagatc agattaaaaa caccatgttt ctaagcatcc atttttccct ttctttaaaa gaaacttaac tgttctatga aggagattga gggagaagag acaaactcct atgtcatgag aataaccgat gttctgataa tagtagcatc taggtacaga tgctggttgt attaccacgt caatgtccta tgcagtattg ttagacattt tctcattttg aaatatttgt gtgtttgtgt atgtgctctg tgccatggct ggtgtatata tgtgcaatgt tagaaggcaa aagagtgatg gtaggcagag ggcaaagtca ttgaatctct tatgccagtt ttcataaaac ccaaaccaca tatgaaaaaa tccattaagg gtccaagaag tctgtccata tgaaaatgag ggtaaatata gtttatttcc caggtatcag tcattataat tgatataata gctctaacat gcaatataaa attcatagga gtattaatag cccatttaca catctataaa atgtaatggg attgcagagc tgcagagtac agtgtaacag tactctcatg caatttttt caggatgcaa aggcaattat tctttgtaag cgggacattt agatatattt gtgtacatat tatatgtatg tatatttcaa agtaccacac tgaaaattag acatttatta accaaattta acgtggtatt taaaggtaat atttttaata tgatacatta catattgtga atgtatacta aaaaaacatt ttaaatgtta aaattataat ttcagattca tataaccaca actgtgatat atcctaacta taaccagttg ttgaggggta tactagaagc agaatgaaac cacatttttt ggtttgataa tatgcactta ttgactccca ctcattgtta tgttaattaa gttattattc tgtctccttg taattttgat tacaaaaatt ttattatcct gagttagctg ttacttttac agtacctgat actcctaaaa cttttaactt atacaaatta gtcaataatg accccaattt tttcattaaa ataatagtgg tgaattatat gttattgtgt taaaacctca cttgccaaat tctggcttca catttgtatt tagggctatc cttaaaatga tgagtctata ttatctagct ttctattacc ctaatataaa ctggtataag aagactttcc ttttttcttt atgcatggaa gcatcaataa attgtttaaa aaccatgtat agtaaattca gcttaacccg tgatcttctt aagttaaagg tacttttgtt ttataaaagc tctagataaa actttctttt ctgatcatga atcaagtatc tgtggtttca tgcccctctc tatacctttc aaagaactcc tgaagcaact taactcatca tttcagcctc tgagtagagg taaaacctat gtgtacttct gtttatgatc catattgata tttatgacat gaacacagaa tagtacctta catttgctaa acagacagtt aatatcaaat cctttcaata ttctgggaac ccagggaagt ttttaaaaat gtcattactt tcaaaggaac agaagtagtt aaccaaacta acaagcaaaa cctgaggttt acctagtgac accaaattat cggtatttta actgaattta cccattgact aagaatgaac cggatttggt ggtggttttg tttctatgca aactggacac aaattacaac agtaaatttt tttataagtg cttctccctt ctccatgatg tgacttccgg agataaagga ttcaaaagat aaagacaaag tacgctcaga gttgttaacc agaaagtcct ggctgtggtt gcagaaacac tgttggaaga aaagagatga ctaagtcaag tgtctgcctt atcaaaagag caaaaatgcc tctggttttg tgtttgggag aaaaatatct tggacgcact gttttccttg ataaaagtca tcttctctac tgtgtgaaat gaatacttgg aattctaatt gttttgtgtg ccaggggcag taatgtccct gcctcttctc ccaatcaagg ttgaggagtg gggctgggga gaggacttaa ctgacttaag aagtaggaaa acaaaaacct ctctcctcag ccttccacct ccaagagagg aggaaaaaca gttgtctgct gtctgtaatt cagtttgcgt gtattttatg ctcatgcacc aacccataca gagtaaatct tttatcaact atatactggt gtttaataga gaatgattgt cttccgagtt ttttggttcc ttttttaact gtgttaaagt acttgaaatg tattgactgc tgactatatt ttaaaaacaa aatgaaataa tttgagttgt attacagagg ttgacattgt tcagggatgg gacaaagcct tcttcaatcc ttttcatact acttaatgat tttggtgcag gaacctgaga ttttctgatt tatatttcat gatatttcac atttgctctt cacagcatga gcatgaagcc cagtggcacc aaatggctgg gtacaatcaa gtgatatttt gtagcacctc actatctgaa aggccatgag ttttcagatg atttcattga gcttcattgc agcctgaaat tttaaaaaag ttgtgtaata cgccaaccag tcaagttgtg ttttggccag agatttagat atgtccaatt tcctggctca tttcattgtg ctctatgggt acgtataaaa agcaagaatt ctgtttccta ggcaaacatt gcaactcagg gctaaagtca tccagtgaaa cttttagagc cagaagtaac tttgtcccag tcctacaatg tgaaaagagt gaatagttgc ctctttttag ccattttcat ggctggtaca tattcgtacg cattactttt cagaatcaat acgcactttc agatattctt atttttattc tcttaagtct ttattaactt tggagagaga aatgatgcat ctttttattt taaatgaagt agatcaacat ggtggaacaa aatgataaag aacagaaaac atttcaatat attactaata acttttcca atataaatcc taaaattcct ataacatagt attttacagt tttatgaagc tttctattgt gacttttatg gaattaagag atgaagaaga tgagatattt tagcatttat atttttcaaa attatatgta tacttaaaaa taaagtaact ttatgc

FIGURE 391

Met Ser Thr Glu Asn Val Glu Gly Lys Pro Ser Asn Leu Gly Glu Arg Gly Arg Ala Arg Ser Ser Thr Phe Leu Arg Val Val Gln Pro Met Phe Asn His Ser Ile Phe Thr Ser Ala Val Ser Pro Ala Ala Glu Arg Ile Arg Phe Ile Leu Gly Glu Glu Asp Asp Ser Pro Ala Pro Pro Gln Leu Phe Thr Glu Leu Asp Glu Leu Leu Ala Val Asp Gly Gln Glu Met Glu Trp Lys Glu Thr Ala Arg Trp Ile Lys Phe Glu Glu Lys Val Glu Gln Gly Gly Glu Arg Trp Ser Lys Pro His Val Ala Thr Leu Ser Leu His Ser Leu Phe Glu Leu Arg Thr Cys Met Glu Lys Gly Ser Ile Met Leu Asp Arg Glu Ala Ser Ser Leu Pro Gln Leu Val Glu Met Ile Val Asp His Gln Ile Glu Thr Gly Leu Leu Lys Pro Glu Leu Lys Asp Lys Val Thr Tyr Thr Leu Leu Arg Lys His Arg His Gln Thr Lys Lys Ser Asn Leu Arg Ser Leu Ala Asp Ile Gly Lys Thr Val Ser Ser Ala Ser Arg Met Phe Thr Asn Pro Asp Asn Gly Ser Pro Ala Met Thr His Arg Asn Leu Thr Ser Ser Ser Leu Asn Asp Ile Ser Asp Lys Pro Glu Lys Asp Gln Leu Lys Asn Lys Phe Met Lys Lys Leu Pro Arg Asp Ala Glu Ala Ser Asn Val Leu Val Gly Glu Val Asp Phe Leu Asp Thr Pro Phe Ile Ala Phe Val Arg Leu Gln Gln Ala Val Met Leu Gly Ala Leu Thr Glu Val Pro Val Pro Thr Arg Phe Leu Phe Ile Leu Leu Gly Pro Lys Gly Lys Ala Lys Ser Tyr His Glu Ile Gly Arg Ala Ile Ala Thr Leu Met Ser Asp Glu Val Phe His Asp Ile Ala Tyr Lys Ala Lys Asp Arg His Asp Leu Ile Ala Gly Ile Asp Glu Phe Leu Asp Glu Val Ile Val Leu Pro Pro Gly Glu Trp Asp Pro Ala Ile Arg Ile Glu Pro Pro Lys Ser Leu Pro Ser Ser Asp Lys Arg Lys Asn Met Tyr Ser Gly Gly Glu Asn Val Gln Met Asn Gly Asp Thr Pro His Asp Gly Gly His Gly Gly Gly Gly His Gly Asp Cys Glu Glu Leu Gln Arg Thr Gly Arg Phe Cys Gly Gly Leu Ile Lys Asp Ile Lys Arg Lys Ala Pro Phe Phe Ala Ser Asp Phe Tyr Asp Ala Leu Asn Ile Gln Ala Leu Ser Ala Ile Leu Phe Ile Tyr Leu Ala Thr Val Thr Asn Ala Ile Thr Phe Gly Gly Leu Leu Gly Asp Ala Thr Asp Asn Met Gln Gly Val Leu Glu Ser Phe Leu Gly Thr Ala Val Ser Gly Ala Ile Phe Cys Leu Phe Ala Gly Gln Pro Leu Thr Ile Leu Ser Ser Thr Gly Pro Val Leu Val Phe Glu Arg Leu Leu Phe Asn Phe Ser Lys Asp Asn Asn Phe Asp Tyr Leu Glu Phe Arg Leu Trp Ile Gly Leu Trp Ser Ala Phe Leu Cys Leu Ile Leu Val Ala Thr Asp Ala Ser Phe Leu Val Gln Tyr Phe Thr Arg Phe Thr Glu Glu Gly Phe Ser Ser Leu Ile Ser Phe Ile Phe Ile Tyr Asp Ala Phe Lys Lys Met Ile Lys Leu Ala Asp Tyr Tyr Pro Ile Asn Ser Asn Phe Lys Val Gly Tyr Asn Thr Leu Phe Ser Cys Thr Cys Val Pro Pro Asp Pro Ala Asn Ile Ser Ile Ser Asn Asp Thr Thr Leu Ala Pro Glu Tyr Leu Pro Thr Met Ser Ser Thr Asp Met Tyr His Asn Thr Thr Phe Asp Trp Ala Phe Leu Ser Lys Lys Glu Cys Ser Lys Tyr Gly Gly Asn Leu Val Gly Asn Asn Cys Asn Phe Val Pro Asp Ile Thr Leu Met Ser Phe Ile Leu Phe Leu Gly Thr Tyr Thr Ser Ser Met Ala Leu Lys Lys Phe Lys Thr Ser Pro Tyr Phe Pro Thr Thr Ala Arg Lys Leu Ile Ser Asp Phe Ala Ile Ile Leu Ser Ile Leu Ile Phe Cys Val Ile Asp Ala Leu Val Gly Val Asp Thr Pro Lys Leu Ile Val Pro Ser Glu Phe Lys Pro Thr Ser Pro Asn Arg Gly Trp Phe Val Pro Pro Phe Gly Glu Asn Pro Trp Trp Val Cys Leu Ala Ala Ala Ile Pro Ala Leu Leu Val Thr Ile Leu Ile Phe Met Asp Gln Gln Ile Thr Ala Val Ile Val Asn Arg Lys Glu His Lys Leu Lys Lys Gly Ala Gly Tyr His Leu Asp Leu Phe Trp Val Ala Ile Leu Met Val Ile Cys Ser Leu Met Ala Leu Pro Trp Tyr Val Ala Ala Thr Val Ile Ser Ile Ala His Ile Asp Ser Leu Lys Met Glu Thr Glu Thr Ser Ala Pro Gly Glu Gln Pro Lys Phe Leu Gly Val Arg Glu Gln Arg Val Thr Gly Thr Leu Val Phe Ile Leu Thr Gly Leu Ser Val Phe Met Ala Pro Ile Leu Lys Phe Ile Pro Met Pro Val Leu Tyr Gly Val Phe Leu Tyr Met Gly Val Ala Ser Leu Asn Gly Val Gln Phe Met Asp Arg Leu Lys Leu Leu Leu Met Pro Leu Lys His Gln Pro Asp Phe Ile Tyr Leu Arg His Val Pro Leu Arg Arg Val His Leu Phe Thr Phe Leu Gln Val Leu Cys Leu Ala Leu Leu Trp Ile Leu Lys Ser Thr Val Ala Ala Ile Ile Phe Pro Val Met Ile Leu Ala Leu Val Ala Val Arg Lys Gly Met Asp Tyr Leu Phe Ser Gln His Asp Leu Ser Phe Leu Asp Asp Val Ile Pro Glu Lys Asp Lys Lys Lys Lys Lys Glu Asp Glu Lys Lys Lys Lys Lys Lys Lys Gly Ser Leu Asp Ser Asp Asn Asp Asp Ser Asp Cys Pro Tyr Ser Glu Lys Val Pro Ser Ile Lys Ile Pro Met Asp Ile Met Glu Gln Gln Pro Phe Leu Ser Asp Ser Lys Pro Ser Asp Arg Glu Arg Ser Pro Thr Phe Leu Glu Arg His Thr Ser Cys

FIGURE 392

cagccctggc aatctgacta ataacaaact gagctaacaa gaaatactag aaaaggagga aggagaacat tgctgtagct tggatctaca acctaagaaa gcaagagtga tcaatctcag ctctgttaaa catcttgttt acttactgca ttcagcagct tgcaaatggt taactatatg caaaaaagtc agcatagctg tgaagtatgc cgtgaatttt aattgaggga aaaagggaca attgcttcag gatgctctag tatgcactct gcttgaaata ttttcaatga aatgctcagt attctatctt tgaccagagg ttttaacttt atgaagctat gggacttgac aaaaagtgat atttgagaag aaagtacgca gtggttggtg ttttcttttt tttaataaag gaattgaatt actttgaaca cctcttccag ctgtgcatta cagataacgt caggaagagt ctctgcttta cagaatcgga tttcatcaca tgacaacatg aagctgtgga ttcatctctt ttattcatct ctccttgcct gtatatcttt acactcccaa actccagtgc tctcatccag aggctcttgt gattctcttt gcaattgtga ggaaaaagat ggcacaatgc taataaattg tgaagcaaaa ggtatcaaga tggtatctga aataagtgtg ccaccatcac gacctttcca actaagctta ttaaataacg gcttgacgat gcttcacaca aatgactttt ctgggcttac caatgctatt tcaatacacc ttggatttaa caatattgca gatattgaga taggtgcatt taatggcctt ggcctcctga aacaacttca tatcaatcac aattctttag aaattcttaa agaggatact ttccatggac tggaaaacct ggaattcctg caagcagata acaattttat cacagtgatt gaaccaagtg cctttagcaa gctcaacaga ctcaaagtgt taattttaaa tgacaatgct attgagagtc ttcctccaaa catcttccga tttgttcctt taacccatct agatcttcgt ggaaatcaat tacaaacatt gccttatgtt ggttttctcg aacacattgg ccgaatattg gatcttcagt tggaggacaa caaatgggcc tgcaattgtg acttattgca gttaaaaact tggttggaga acatgcctcc acagtctata attggtgatg ttgtctgcaa cagccctcca ttttttaaag gaagtatact cagtagacta aagaaggaat ctatttgccc tactccacca gtgtatgaag aacatgagga tccttcagga tcattacatc tggcagcaac atcttcaata aatgatagtc gcatgtcaac taagaccacg tccattctaa aactacccac caaagcacca ggtttgatac cttatattac aaagccatcc actcaacttc caggacctta ctgccctatt ccttgtaact gcaaagtcct atccccatca ggacttctaa tacattgtca ggagcgcaac attgaaagct tatcagatct gagacctcct ccgcaaaatc ctagaaagct cattctagcg ggaaatatta ttcacagttt aatgaagtct gatctagtgg aatatttcac tttggaaatg cttcacttgg gaaacaatcg tattgaagtt cttgaagaag gatcgtttat gaacctaacg agattacaaa aactctatct aaatggtaac cacctgacca aattaagtaa aggcatgttc cttggtctcc ataatcttga atacttatat cttgaataca atgccattaa ggaaatactg ccaggaacct ttaatccaat gcctaaactt aaagtcctgt atttaaataa caacctcctc caagttttac caccacatat tttttcaggg gttcctctaa ctaaggtaaa tcttaaaaca aaccagttta cccatctacc tgtaagtaat attttggatg atcttgattt actaacccag attgaccttg aggataaccc ctgggactgc tcctgtgacc tggttggact gcagcaatgg atacaaaagt taagcaagaa cacagtgaca gatgacatcc tctgcacttc ccccgggcat ctcgacaaaa aggaattgaa agccctaaat agtgaaattc tctgtccagg tttagtaaat aacccatcca tgccaacaca gactagttac cttatggtca ccactcctgc aacaacaaca aatacggctg atactatttt acgatctctt acggacgctg tgccactgtc tgttctaata ttgggacttc tgattatgtt catcactatt gttttctgtg ctgcagggat agtggttctt gttcttcacc gcaggagaag atacaaaaag aaacaagtag atgagcaaat gagagacaac agtcctgtgc atcttcagta cagcatgtat ggccataaaa ccactcatca cactactgaa agaccctctg cctcactcta tgaacagcac atggtgagcc ccatggttca tgtctataga agtccatcct ttggtccaaa gcatctggaa gaggaagaag agaggaatga gaaagaagga agtgatgcaa aacatctcca aagaagtctt ttggaacagg aaaatcattc accactcaca gggtcaaata tgaaatacaa aaccacgaac caatcaacag aatttttatc cttccaagat gccagctcat tgtacagaaa cattttagaa aaagaaaggg aacttcagca actgggaatc acagaatacc taaggaaaaa cattgctcag ctccagcctg atatggaggc acattatcct ggagcccacg aagagctgaa gttaatggaa acattaatgt actcacgtcc aaggaaggta ttagtggaac agacaaaaaa tgagtatttt gaacttaaag ctaatttaca tgctgaacct gactatttag aagtcctgga gcagcaaaca tagatggaga gtttgagggc tttcgcagaa atgctgtgat tctgttttaa gtccatacct tgtaaataag tgccttacgt gagtgtgtca tcaatcagaa cctaagcaca gcagtaaact atggggaaaa aaaaagaaga agaaaaagaa actcagggat cactgggaga agccatggca ttatcttcag gcaatttagt ctgtcccaaa taaaataaat ccttgcatgt aaatcattca agggttatag taatatttca tatactgaaa agtgtctcat aggagtcctc ttgcacatct aaaaaggctg aacatttaag tatcccgaat tttcttgaat tgctttccct atagattaat tacaattgga tttcatcatt taaaaaccat acttgtatat gtagttataa tatgtaagga atacattgtt tataaccagt atgtacttca aaaatgtgta ttgtcaaaca tacctaactt tcttgcaata aatgcaaaag aaactggaac ttgacaatta taaatagtaa tagtgaagaa aaaatagaaa ggttgcaatt atataggcca tgggtggctc aaaactttga acatttgagc ttaaacaaat gccactctca tgcattctaa attaaaaagt taaaatgatt aatagttcag gtggaagaaa taagcatact ttttgggttt tctacacatt ttgtgtagac aattttaatg tcagtgctgc tgtgaactaa agtatgtcat ttatgctcaa agtttaattc ttcttcttgg gatattttaa aaatgctact gagattctgc tgtaaatatg actagagaat atattgggtt tgctttattt cataggctta attctttgta aatctgaatg accataatag aaatacattt cttgtggcaa gtaattcaca gttgtaaagt aaataggaaa aattatttta tttttattga tgtacattga

tagatgccat aaatcagtag caaaaggcac ttctaaaggt aagtggttta agttgcctca agagagggac aatgtagctt tattttacaa gaaggcatag ttagatttct atgaaatatt tattctgtac agttttatat agttttggtt cacaaaagta attattcttg ggtgcctttc aagaaaatta aaaatactac ccactacaat aaaactaaaa tgaaaactca aaaaaaa

FIGURE 393

Met Lys Leu Trp Ile His Leu Phe Tyr Ser Ser Leu Leu Ala Cys Ile Ser Leu His Ser Gln Thr Pro Val Leu Ser Ser Arg Gly Ser Cys Asp Ser Leu Cys Asn Cys Glu Glu Lys Asp Gly Thr Met Leu Ile Asn Cys Glu Ala Lys Gly Ile Lys Met Val Ser Glu Ile Ser Val Pro Pro Ser Arg Pro Phe Gln Leu Ser Leu Leu Asn Asn Gly Leu Thr Met Leu His Thr Asn Asp Phe Ser Gly Leu Thr Asn Ala Ile Ser Ile His Leu Gly Phe Asn Asn Ile Ala Asp Ile Glu Ile Gly Ala Phe Asn Gly Leu Gly Leu Leu Lys Gln Leu His Ile Asn His Asn Ser Leu Glu Ile Leu Lys Glu Asp Thr Phe His Gly Leu Glu Asn Leu Glu Phe Leu Gln Ala Asp Asn Asn Phe Ile Thr Val Ile Glu Pro Ser Ala Phe Ser Lys Leu Asn Arg Leu Lys Val Leu Ile Leu Asn Asp Asn Ala Ile Glu Ser Leu Pro Pro Asn Ile Phe Arg Phe Val Pro Leu Thr His Leu Asp Leu Arg Gly Asn Gln Leu Gln Thr Leu Pro Tyr Val Gly Phe Leu Glu His Ile Gly Arg Ile Leu Asp Leu Gln Leu Glu Asp Asn Lys Trp Ala Cys Asn Cys Asp Leu Leu Gln Leu Lys Thr Trp Leu Glu Asn Met Pro Pro Gln Ser Ile Ile Gly Asp Val Val Cys Asn Ser Pro Pro Phe Phe Lys Gly Ser Ile Leu Ser Arg Leu Lys Lys Glu Ser Ile Cys Pro Thr Pro Pro Val Tyr Glu Glu His Glu Asp Pro Ser Gly Ser Leu His Leu Ala Ala Thr Ser Ser Ile Asn Asp Ser Arg Met Ser Thr Lys Thr Thr Ser Ile Leu Lys Leu Pro Thr Lys Ala Pro Gly Leu Ile Pro Tyr Ile Thr Lys Pro Ser Thr Gln Leu Pro Gly Pro Tyr Cys Pro Ile Pro Cys Asn Cys Lys Val Leu Ser Pro Ser Gly Leu Leu Ile His Cys Gln Glu Arg Asn Ile Glu Ser Leu Ser Asp Leu Arg Pro Pro Pro Gln Asn Pro Arg Lys Leu Ile Leu Ala Gly Asn Ile Ile His Ser Leu Met Lys Ser Asp Leu Val Glu Tyr Phe Thr Leu Glu Met Leu His Leu Gly Asn Asn Arg Ile Glu Val Leu Glu Glu Gly Ser Phe Met Asn Leu Thr Arg Leu Gln Lys Leu Tyr Leu Asn Gly Asn His Leu Thr Lys Leu Ser Lys Gly Met Phe Leu Gly Leu His Asn Leu Glu Tyr Leu Tyr Leu Glu Tyr Asn Ala Ile Lys Glu Ile Leu Pro Gly Thr Phe Asn Pro Met Pro Lys Leu Lys Val Leu Tyr Leu Asn Asn Asn Leu Leu Gln Val Leu Pro Pro His Ile Phe Ser Gly Val Pro Leu Thr Lys Val Asn Leu Lys Thr Asn Gln Phe Thr His Leu Pro Val Ser Asn Ile Leu Asp Asp Leu Asp Leu Leu Thr Gln Ile Asp Leu Glu Asp Asn Pro Trp Asp Cys Ser Cys Asp Leu Val Gly Leu Gln Gln Trp Ile Gln Lys Leu Ser Lys Asn Thr Val Thr Asp Asp Ile Leu Cys Thr Ser Pro Gly His Leu Asp Lys Lys Glu Leu Lys Ala Leu Asn Ser Glu Ile Leu Cys Pro Gly Leu Val Asn Asn Pro Ser Met Pro Thr Gln Thr Ser Tyr Leu Met Val Thr Thr Pro Ala Thr Thr Thr Asn Thr Ala Asp Thr Ile Leu Arg Ser Leu Thr Asp Ala Val Pro Leu Ser Val Leu Ile Leu Gly Leu Leu Ile Met Phe Ile Thr Ile Val Phe Cys Ala Ala Gly Ile Val Val Leu Val Leu His Arg Arg Arg Arg Tyr Lys Lys Lys Gln Val Asp Glu Gln Met Arg Asp Asn Ser Pro Val His Leu Gln Tyr Ser Met Tyr Gly His Lys Thr Thr His His Thr Thr Glu Arg Pro Ser Ala Ser Leu Tyr Glu Gln His Met Val Ser Pro Met Val His Val Tyr Arg Ser Pro Ser Phe Gly Pro Lys His Leu Glu Glu Glu Glu Glu Arg Asn Glu Lys Glu Gly Ser Asp Ala Lys His Leu Gln Arg Ser Leu Leu Glu Gln Glu Asn His Ser Pro Leu Thr Gly Ser Asn Met Lys Tyr Lys Thr Thr Asn Gln Ser Thr Glu Phe Leu Ser Phe Gln Asp Ala Ser Ser Leu Tyr Arg Asn Ile Leu Glu Lys Glu Arg Glu Leu Gln Gln Leu Gly Ile Thr Glu Tyr Leu Arg Lys Asn Ile Ala Gln Leu Gln Pro Asp Met Glu Ala His Tyr Pro Gly Ala His Glu Glu Leu Lys Leu Met Glu Thr Leu Met Tyr Ser Arg Pro Arg Lys Val Leu Val Glu Gln Thr Lys Asn Glu Tyr Phe Glu Leu Lys Ala Asn Leu His Ala Glu Pro Asp Tyr Leu Glu Val Leu Glu Gln Gln Thr

FIGURE 394

gcggcccagg cccggaacct tccctggtcg tgcgccctat gtaaggccag ccgcggcagg accaaggcgg cggtgtcagc tcgcgagcct accctccgcg gacggtcttg ggtcgcctgc tgcctggctt gcctggtcgg cggcgggtgc cccgcgcgca cgcgcaaagc ccgccgcgtt ccccgacccc aggccgcgct ctgtgggcct ctgagggcgg catgcgggac tacgacgagg tgaccgcctt cctgggcgag tgggggccct tccagcgcct catcttcttc ctgctcagcg ccagcatcat ccccaatggc ttcaccggcc tgtcctccgt gttcctgata gcgaccccgg agcaccgctg ccgggtgccg gacgccgcga acctgagcag cgcctggcgc aaccacactg tcccactgcg gctgcgggac ggccgcgagg tgccccacag ctgccgccgc taccggctcg ccaccatcgc caacttctcg gcgctcgggc tggagccggg gcgcgacgtg gacctggggc agctggagca ggagagctgt ctggatggct gggagttcag tcaggacgtc tacctgtcca ccattgtgac cgagtggaac ctggtgtgtg aggacgactg gaaggcccca ctcacaatct ccttgttctt cgtgggtgtg ctgttgggct ccttcatttc agggcagctg tcagacaggt ttggccggaa gaatgtgctg ttcgtgacca tgggcatgca gacaggcttc agcttcctgc agatcttctc gaagaatttt gagatgtttg tcgtgctgtt tgtccttgta ggcatgggcc agatctccaa ctatgtggca gcatttgtcc tggggacaga aattcttggc aagtcagttc gtataatatt ctctacgtta ggagtgtgca tattttatgc atttggctac atggtgctgc cactgtttgc ttacttcatc cgagactggc ggatgctgct ggtggcgctg acgatgccgg gggtgctgtg cgtggcactc tggtggttca tccctgagtc cccccgatgg ctcatctctc agggacgatt tgaagaggca gaggtgatca tccgcaaggc tgccaaagcc aatgggattg ttgtgccttc cactatcttt gacccgagtg agttacaaga cctaagttcc aagaagcaac agtcccacaa cattctggat ctgcttcgaa cctggaatat ccggatggtc accatcatgt ccataatgct gtggatgacc atatcagtgg gctattttgg gctttcgctt gatactccta acttgcatgg ggacatcttt gtgaactgct tcctttcagc gatggttgaa gtcccagcat atgtgttggc ctggctgctg ctgcaatatt tgccccggcg ctattccatg gccactgccc tcttcctggg tggcagtgtc cttctcttca tgcagctggt acccccagac ttgtattatt tggctacagt cctggtgatg gtgggcaagt ttggagtcac ggctgccttt tccatggtct acgtgtacac agccgagctg tatcccacag tggtgagaaa catgggtgtg ggagtcagct ccacagcatc ccgcctgggc agcatcctgt ctccctactt cgtttacctt ggtgcctacg accgcttcct gccctacatt ctcatgggaa gtctgaccat cctgacagcc atcctcacct tgtttctccc agagagcttc ggtaccccac tcccagacac cattgaccag atgctaagag tcaaaggaat gaaacacaga aaaactccaa gtcacacaag gatgttaaaa gatggtcaag aaaggcccac aatccttaaa agcacagcct tctaacatcg cttccagtaa gggagaaact gaagaggaaa gactgtcttg ctagaaatgg ccagcttgtg cagactccga gtccttcagt gacaaaggcc tttgctgttt gtcctcttga cctgtgtctg acttgctcct ggatgggcac ccacactcag aggctacata tggccctaga gcaccacctt cctctaggga cactggggct acctacagac aacttcatct aagtcctaac tattacaatg atggactcag cacctccaaa gcagttaatt tttcactaga accagtgaga tctggaggaa tgtgagaagc atatgctaaa tgtacatttt aattttagac tacttgaaaa ggcccctaat aaggctagag gtctaagtcc cccacccctt tccccactcc cctctagtgg tgaactttag aggaaaagga agtaattgca caaggagttt gattcttacc ttttctcagt tacagaggac attaactgga tcattgcttc cccagggcag gagagcgcag agctagggaa agtgaaaggt aatgaagatg gagcagaatg agcagatgca gatcaccagc aaagtgcact gatgtgtgag ctcttaagac cactcagcat gacgactgag tagacttgtt tacatctgat caaagcactg ggcttgtcca ggctcataat aaatgctcca ttgaatctac tattcttgtt ttccactgct gtggaaacct ccttgctact atagcgtctt atgtatggtt taaaggaaat ttatcaggtg agagagatga gcaacgttgt cttttctctc aaagctgtaa tgtgggtttt gttttactgt ttatttgttt gttgttgtat ccttttctcc ttgttatttg cccttcagaa tgcacttggg aaaggctggt tccttagcct cctggtttgt gtctttttt ttttttttt aaacacagaa tcactctggc aattgtctgc agctgccact ggtgcaaggc cttaccagcc ctagcctcta gcacttctct aagtgccaaa aacagtgtca ttgtgtgtgt tcctttcttg atacttagtc atgggaggat attacaaaaa agaaatttaa attgtgttca tagtctttca gagtagctca ctttagtcct gtaactttat tgggtgatat tttgtgttca gtgtaattgt cttctctttg ctgattatgt taccatggta ctcctaaagc atatgcctca cctggttaaa aaagaacaaa catgtttttg tgaaagctac tgaagtgcct tgggaaatga gaaagtttta ataagtaaaa tgatttttta aatatcaaaa aaaaaaaaaa aa

FIGURE 395

Met Arg Asp Tyr Asp Glu Val Thr Ala Phe Leu Gly Glu Trp Gly Pro Phe Gln Arg Leu Ile Phe Phe Leu Leu Ser Ala Ser Ile Ile Pro Asn Gly Phe Thr Gly Leu Ser Ser Val Phe Leu Ile Ala Thr Pro Glu His Arg Cys Arg Val Pro Asp Ala Ala Asn Leu Ser Ser Ala Trp Arg Asn His Thr Val Pro Leu Arg Leu Arg Asp Gly Arg Glu Val Pro His Ser Cys Arg Arg Tyr Arg Leu Ala Thr Ile Ala Asn Phe Ser Ala Leu Gly Leu Glu Pro Gly Arg Asp Val Asp Leu Gly Gln Leu Glu Gln Glu Ser Cys Leu Asp Gly Trp Glu Phe Ser Gln Asp Val Tyr Leu Ser Thr Ile Val Thr Glu Trp Asn Leu Val Cys Glu Asp Asp Trp Lys Ala Pro Leu Thr Ile Ser Leu Phe Phe Val Gly Val Leu Leu Gly Ser Phe Ile Ser Gly Gln Leu Ser Asp Arg Phe Gly Arg Lys Asn Val Leu Phe Val Thr Met Gly Met Gln Thr Gly Phe Ser Phe Leu Gln Ile Phe Ser Lys Asn Phe Glu Met Phe Val Val Leu Phe Val Leu Val Gly Met Gly Gln Ile Ser Asn Tyr Val Ala Ala Phe Val Leu Gly Thr Glu Ile Leu Gly Lys Ser Val Arg Ile Ile Phe Ser Thr Leu Gly Val Cys Ile Phe Tyr Ala Phe Gly Tyr Met Val Leu Pro Leu Phe Ala Tyr Phe Ile Arg Asp Trp Arg Met Leu Leu Val Ala Leu Thr Met Pro Gly Val Leu Cys Val Ala Leu Trp Trp Phe Ile Pro Glu Ser Pro Arg Trp Leu Ile Ser Gln Gly Arg Phe Glu Glu Ala Glu Val Ile Ile Arg Lys Ala Ala Lys Ala Asn Gly Ile Val Val Pro Ser Thr Ile Phe Asp Pro Ser Glu Leu Gln Asp Leu Ser Ser Lys Lys Gln Gln Ser His Asn Ile Leu Asp Leu Leu Arg Thr Trp Asn Ile Arg Met Val Thr Ile Met Ser Ile Met Leu Trp Met Thr Ile Ser Val Gly Tyr Phe Gly Leu Ser Leu Asp Thr Pro Asn Leu His Gly Asp Ile Phe Val Asn Cys Phe Leu Ser Ala Met Val Glu Val Pro Ala Tyr Val Leu Ala Trp Leu Leu Leu Gln Tyr Leu Pro Arg Arg Tyr Ser Met Ala Thr Ala Leu Phe Leu Gly Gly Ser Val Leu Leu Phe Met Gln Leu Val Pro Pro Asp Leu Tyr Tyr Leu Ala Thr Val Leu Val Met Val Gly Lys Phe Gly Val Thr Ala Ala Phe Ser Met Val Tyr Val Tyr Thr Ala Glu Leu Tyr Pro Thr Val Val Arg Asn Met Gly Val Gly Val Ser Ser Thr Ala Ser Arg Leu Gly Ser Ile Leu Ser Pro Tyr Phe Val Tyr Leu Gly Ala Tyr Asp Arg Phe Leu Pro Tyr Ile Leu Met Gly Ser Leu Thr Ile Leu Thr Ala Ile Leu Thr Leu Phe Leu Pro Glu Ser Phe Gly Thr Pro Leu Pro Asp Thr Ile Asp Gln Met Leu Arg Val Lys Gly Met Lys His Arg Lys Thr Pro Ser His Thr Arg Met Leu Lys Asp Gly Gln Glu Arg Pro Thr Ile Leu Lys Ser Thr Ala Phe

FIGURE 396

ccgaattcgg gggcagcagc cacattggca gtgaggccgt ggcagcgtca gcagcagagg atgccccagg ccctggagcg tgcagatggc agctgggcct gggtggtgct gctggccacc atggtgaccc agggcctcac cctgggcttc cccacgtgta tcggcatctt cttcactgaa ctgcaatggg agttccaggc cagcaacagc gagacctctt ggttcccctc catcctcacg gctgtgctcc acatggcagg gcccctgtgc agcatcctgg tgggacgctt cggctgccga gtgaccgtga tgctgggggg cgtgctggcc agcctgggca tggtggccag ctccttctct cacaacctca gccagctcta cttcacagca ggattcatca caggcctggg catgtgcttc agcttccagt caagcatcac ggtgctgggc ttctactttg tccgccggcg ggtgctggcc aacgcgctgg cctcgatggg cgtctccctg ggcatcaccc tctggccgct gctctcccgt taccttctgg agaacctggg ctggaggggt accttccttg tcttcggcgg gatctttctc cactgctgca tctgcggggc catcataagg cctgtggcca ccagtgtggc ccctgagacc aaagaatgtc ccccgccacc tcccgagaca cctgcacttg gctgcctggc tgcatgcggc cggaccatcc agcgccacct ggccttcgac atcctgcggc acaacacagg ctactgcgtg tacatactgg gtgtgatgtg gtccgtcctg ggcttcccac tgccacaagt cttcctggtg ccatatgcca tgtggcacag cgtggacgag cagcaggcag ccctcctcat ctccatcatc ggcttcagca acatcttcct gaggccccta gccgggctga tggcaggacg gccggccttt gctagccacc gcaagtacct gttcagcctg gcactcctgc tcaatgggct cactaacctg gtgtgtgcgg catcaggtga cttctgggtg ctcgtgggct actgcctggc gtacagcgtg tccatgagtg gcatcggcgc cctcatcttc caggttctca tggacatcgt ccccatggat cagttcccca gagccctggg actcttcact gtcctggacg gccttgcttt cctcatctcc ccaccactgg ccgggttgct cctggacgcc accaacaact ttagctatgt tttctacatg tccagcttct tcctcatctc agctgccctc ttcatgggtg gcagcttcta cgccctgcag aagaaggagc aaggcaagca ggctgtcgcg gcggatgccc tggagcggga tcttttcttg gaagccaaag acggtcctgg gaagcaacgg tcccctgaga tcatgtgcca gtcttcccgc cagccacgtc cagctggcgt caataagcat ctttggggat gtcctgcctc ctccaggacc agccatgagt ggctcttatg gccaaaggcg gtactgcagg ccaagcaaac ggctctgggc tggaatagcc ctacctgagt gccctgtttg actccgccac tatctgccat gtgagttggg caaattgttg accacctctg agccttgaaa aagtaggagg ttactttgtt agagcaaaat aataaaattt aattttaaaa aagaaaaaaa aaaaaaaaa

FIGURE 397

Met Pro Gln Ala Leu Glu Arg Ala Asp Gly Ser Trp Ala Trp Val Val Leu Leu Ala Thr Met Val Thr Gln Gly Leu Thr Leu Gly Phe Pro Thr Cys Ile Gly Ile Phe Phe Thr Glu Leu Gln Trp Glu Phe Gln Ala Ser Asn Ser Glu Thr Ser Trp Phe Pro Ser Ile Leu Thr Ala Val Leu His Met Ala Gly Pro Leu Cys Ser Ile Leu Val Gly Arg Phe Gly Cys Arg Val Thr Val Met Leu Gly Gly Val Leu Ala Ser Leu Gly Met Val Ala Ser Ser Phe Ser His Asn Leu Ser Gln Leu Tyr Phe Thr Ala Gly Phe Ile Thr Gly Leu Gly Met Cys Phe Ser Phe Gln Ser Ser Ile Thr Val Leu Gly Phe Tyr Phe Val Arg Arg Arg Val Leu Ala Asn Ala Leu Ala Ser Met Gly Val Ser Leu Gly Ile Thr Leu Trp Pro Leu Leu Ser Arg Tyr Leu Leu Glu Asn Leu Gly Trp Arg Gly Thr Phe Leu Val Phe Gly Gly Ile Phe Leu His Cys Cys Ile Cys Gly Ala Ile Ile Arg Pro Val Ala Thr Ser Val Ala Pro Glu Thr Lys Glu Cys Pro Pro Pro Pro Pro Glu Thr Pro Ala Leu Gly Cys Leu Ala Ala Cys Gly Arg Thr Ile Gln Arg His Leu Ala Phe Asp Ile Leu Arg His Asn Thr Gly Tyr Cys Val Tyr Ile Leu Gly Val Met Trp Ser Val Leu Gly Phe Pro Leu Pro Gln Val Phe Leu Val Pro Tyr Ala Met Trp His Ser Val Asp Glu Gln Gln Ala Ala Leu Leu Ile Ser Ile Ile Gly Phe Ser Asn Ile Phe Leu Arg Pro Leu Ala Gly Leu Met Ala Gly Arg Pro Ala Phe Ala Ser His Arg Lys Tyr Leu Phe Ser Leu Ala Leu Leu Leu Asn Gly Leu Thr Asn Leu Val Cys Ala Ala Ser Gly Asp Phe Trp Val Leu Val Gly Tyr Cys Leu Ala Tyr Ser Val Ser Met Ser Gly Ile Gly Ala Leu Ile Phe Gln Val Leu Met Asp Ile Val Pro Met Asp Gln Phe Pro Arg Ala Leu Gly Leu Phe Thr Val Leu Asp Gly Leu Ala Phe Leu Ile Ser Pro Pro Leu Ala Gly Leu Leu Leu Asp Ala Thr Asn Asn Phe Ser Tyr Val Phe Tyr Met Ser Ser Phe Phe Leu Ile Ser Ala Ala Leu Phe Met Gly Gly Ser Phe Tyr Ala Leu Gln Lys Lys Glu Gln Gly Lys Gln Ala Val Ala Ala Asp Ala Leu Glu Arg Asp Leu Phe Leu Glu Ala Lys Asp Gly Pro Gly Lys Gln Arg Ser Pro Glu Ile Met Cys Gln Ser Ser Arg Gln Pro Arg Pro Ala Gly Val Asn Lys His Leu Trp Gly Cys Pro Ala Ser Ser Arg Thr Ser His Glu Trp Leu Leu Trp Pro Lys Ala Val Leu Gln Ala Lys Gln Thr Ala Leu Gly Trp Asn Ser Pro Thr

FIGURE 398

gtctcctgct atcaggtaat gccaacctca acccccctgga ccagtcaccc cgatcagact ttgcttgcct gattttaggc caggtcagac atcagaggag agcccagatc cttgtttcct ctccccccgc agggcttccc ctttcttggt catcgatccc tagagctctg gctctttctc ttcttggggt gagaaactgc taagaacagt ttatttccca tgcatgcatc tgggcttgcc actgatctgc cttttccccc ctcctcccca ggttagggac acctgggtcc aaccttccca aggaatatgg ggatgggggt tggagatgaa gtttagtgct agactgtaag gtaggtgggg tggaagtaca tgagggaaag ggctaaaatg gtactaatgg tgttaaggat agggtgaatt atttaagagg aaaaagacta ggcccaggtt ctccttagcc atgtggcttt cccagggcag agggtggccc ctccctaccc aggggcccag cagagactga cttttgatcc ctaccccaga gaccagtgaa ccattaactc ctctcttatg tgagccttca cacactggcc ccacccctga ccccgcccca aggcaggtgg gctaggaggg ggtgcatgtc catctcagcc ttctatgtga cgtggcctcc gatccacctg gacacctgga ggctaagcct ggattccccc ttccctgact caggaactgc ttaacgtcta cagcaaggcc taatagggga cctgagggca cagtcctcag gatgtttcgg ggagaatagg agccagaacc tgagccccta agctattccc ctcaccaatg atggggtccc cagtgagtca tctgctggcc ggcttctgtg tgtgggtcgt cttgggctgg gtagggggct cagtccccaa cctgggccct gctgagcagg agcagaacca ttacctggcc cagctgtttg gcctgtacgg cgagaatggg acgctgactg caggggggctt ggcgcggctt ctccacagcc tggggctagg ccgagttcag gggcttcgcc tgggacagca tgggcctctg actggacggg ctgcatcccc agctgcagac aattccacac acaggccaca gaaccctgag ctgagtgtgg atgtctgggc agggatgcct ctgggtccct cagggtgggg tgacctggaa gagtcaaagg cccctcacct accccgtggg ccagcccccct cgggcctgga cctccttcac aggcttctgt tgctggacca ctcattggct gaccacctga atgaggattg tctgaacggc tcccagctgc tggtcaattt tggcttgagc cccgctgctc ctctgacccc tcgtcagttt gctctgctgt gcccagccct gctttatcag atcgacagcc gcgtctgcat cggcgctccg gcccctgcac ccccagggga tctactatct gccctgcttc agagtgccct ggcagtcctg ttgctcagcc tcccttctcc cctatccctg ctgctgctgc ggctcctggg acctcgtcta ctacggccct tgctgggctt cctgggggcc ctggcggtgg gcactctttg tggggatgca ctgctacatc tgctaccgca tgcacaagaa gggcggcacg caggacctgg cggactacca gagaaggacc tgggcccggg gctgtcagtg ctcggaggcc tcttcctgct ctttgtgctg gagaacatgc tggggctttt gcggcaccga gggctcaggc caagatgctg caggcgaaaa cgaaggaatc tcgaaacacg caacttggat ccggagaatg gcagtgggat ggcccttcag cccctacagg cagctccaga gccaggggct cagggccaga gggagaagaa cagccagcac ccaccagctc tggccccctcc tgggcaccaa ggccacagtc atgggcacca gggtggcact gatatcacgt ggatggtcct cctgggagat ggtctacaca acctcactga tgggctggcc ataggtgctg ccttctctga tggcttctcc agcggcctca gtaccacctt agcggtcttc tgccatgagc tgccccacga actgggtgac tttgccatgc tgctccagtc agggctgtcc tttcggcggc tgctgctgct gagcctcgtg tctggagccc tgggattggg gggtgcagtc ctgggggtgg ggctcagcct gggccctgtc cccctcactc cctgggtgtt tggggtcact gctggggtct tcctctatgt ggcccttgtg gacatgctac cagccctgct tcgtcctccg gagcccctgc ctacgcccca tgtgctcctg caggggctgg ggctgctgct gggggggcggc ctcatgcttg ccataaccct gctggaggag cggctactgc ccgtgaccac tgagggctga tggggccagt ggaaaggggt cgggttgccc ttccttcccc ccaaccacag gaatggaggc gggacacagg gccagtagga gcaataggat tttaataaac agaacccatc ccaaagccat gactacgaca gttgtacttg caccaaaaca gcatagaaaa ccagagtgtg gtgggaggac ccgaagccgg ttgggggagg atgtgagtag gggcctggag ggtgcagggt cattaatctg cggggagaac attgtgcttt agcccaggga ggggaggggt ggggcaaatg caccgaggtc cccacttttt cctgctgccc tcggcaccct ggggatgcag gcatctgggc acatctgccc cttattgctg cccaccagcg ttaaacgccc ccgatcccaa cactagcacc acaggtggtt ccggggcagg gagaggcagg aatgggaaaa ttgcttagag aaagattcca ctagaatcca gtgaattgtg ctcagttctc tttacttcct acaaccgagt acatgggtca cagggtggag ggtgcaacag gacatggaac atgcccctcc gtgcccccca acacacacct gcacacagga tggtggtgtc tgcagcatca caggtcatgc agggcatggg gaaggggagg ttcacacaca catagatgcc cacagcgggt accagacgga gaacacccct gaatatacat agctgtacat ggggaacccc caggtcccca ccccaaccct ctcccctgtc ttgctgtccc ccgcagggga actatattgc tttgagagag ccaccccagg ggctgctctg ccaggcaccc tcccctccca cccacccccа ttttggcaca tctgcaagac acacagcagc gagagtaggc accctccctt cccaggcttc tgtggcctgg agctggagaa gggggtagga gacttcatcc tccatcctcc cctaaccctt cccaaacccc tgccaaaccc actcaagcca gaacccaccc ccacccccca aacacacata caaagctgag ctatccagga acacaaggga aacaaggaga ttgtccaggg tgggagcgga ggcagcgggg gaagaagact ggaagcagag acctcccccc ttgtgggggg cagactggca caacagctac tttagtgcaa ttggagaggg tgcccagagt gagaggtgga gaagggaggg aaggcggtcc ccaacttccc tgggggcaaa gtcaggcttc cagattcccc agggaaaggg cctagcagga gtgggtgagg gccaaggtgg atcctctggt tacccgccac cctctgccct

FIGURE 399 (Continued)

cccaaatgca gtgacagtgt ccccctcaca cctaagtggg caacagcagc cttggagtca gtaccttcaa gtaattcaaa gagcagaccc tccccacccc agcttcaccc catctctggg atttggtcgc ttctctaggg gttgggttgg gaggagggag cccccaaggc agacccttcc ctctctacct cccgattccc agaccactgg gcttggtcct caaagattcc tcacctccgc ccttgcccaa cctgggtcaa ggctgcagaa ggctggagcc accacaatta gaggggaagg ggctgctttg ttccttatcc ctccttctta aaaggtaggg ttcaaactag gcgggatggg ggcccatact ggtttgcccc aggagtaggg tttctgggct agggtctgta aggctatttt cctttgcggt gggaagggga ggtaggggat gaacactggg tatgggaagt gggtgagaaa tggctgagag ggaaggagga aggggcctcc ccgctggagc agtcactgga gtcatttaga caaaaacact catgtgcata agatacacag tgcgcaaact cagccctgcc agcccggccc caatcccacc tctcaggact ccttccaaga ccctggagga ggttctgggg atacagctgt agaaccgttc actctggccc catccacccc acctccagcc tcttctcccc ttctaggtcc agggagtaag aaggtgctcg ggtgggcaga cagtggtgga aacagtattg agttttcctt tggttacata ttgaaggcaa aggtgagctg gacttacagt caaaacggat aggggtgagg aaggaagagg ggccatggct ggggttggag agggaggtag gccctcctca gcccctccac cccaagaaac acatctacgt ggggtggcag tccctcagtc ttttctctcc cacgccccac agcaccaaac aaaaggagaa gccccctccc ccaggggctg ctccccaccc caacctgggc tgtacattca gtggttttca gcagtcctat ggctcagggg gccacggggc aggggaggtg gcccgtcagt ctcagtggac agtggcagtg acccgggtct gctggtcctt cctgggaccc acggtttgtg ccattcgttt ttctgaagga tagtatatga ccctaccaga gccaccgccc aatcagaaat agctccccca aaatcagaaa ctaaaaactg gctctttcca tctcaccctc tgattcacac gtctgtttcc ctgtctccta tgtcgccctc gctctgtttc ctttgctggg acctgggggct gctcccaggg tcctcgctta aaataggcct tttcacaaaa gtgcttatta cttgaagcaa gtgctttagg gctgcggtgg ggagaggggg gagggggagg gcaaagggaa ggcgctgttc cctccccgcc ctcccccatg aagactgggg ggcattctgc ctgttttact tctccacacc cgtttaagtc aaagaggttt aaaaaaaatc ttaacattaa aataaatatg cagtggccat gagaatggtc aaaatgcttc aaaaaacact agggctgggg agcccagggt ggggcgtggg gtttcctttg gcataaggag aggaggctgc ttgtccccca ggcttcctca cagccacata tggagggaca gaggactccc caccacctcc cagcactgct gacagtgcgc tgagggcagc agggcgcaga cagcccccag aaatctcatc tagcaagaca acggggctct gacactcaga cgcttcccgc catcaccaaa catcacgaaa ggagaacacg actcacaccc ggcaagttct ctctggagga cccatcttct cactcccctt gccccccacc acctaattcc cagcaccaag atgagaggga gggggtggaa tgggaagatt tcaggagaga gaattgaagg gaaggcaagc tttgcagagc cagcagggtt ggggatgggg gctgcagccc ttaagagagg tcacattgat tgtcatatag gggaggacac ggtgtggagg gaggtgggca agaggggcgt cacaaggccc tttggctttg aaaataaaaa taaaaactaa aagctgcaca atccttctca tcaataatgg tcatttggaa gccttgaaat gatttaggaa ctgagggttg ggagaagcaa aacacagaga gacaggggat caaaagggac catgaaaaga taaggacttg gacaacaccc caggcttctg gaaaccagca tgaggtatgg ttaaaggtat ccgttgggga gggagggggt ccctgggacg ccccctccc ctcagcccac ccttgacaag ggtggcaaga cattcagggt atacaactaa aagatgggta agactgtgaa taaagcaaac ttgagtaggg gagggaggct gaaggatccc ccctcagggg agaccctgta ctgtgtaaac gaagcctgtc cagttctcag gggacaatac tgatggcagc caaactgggc aaggatgcag tgtgggggcg gaggggcat gacctctatt caagttctgt gtcttggccc ctggctgagg tattgagtgt gaggaaggga acactgggct gcaggagtgg gtccaactgt ccaggaggct gcactaggag atgggtggac agagcactta aagggaccag ggccaaattc aatgctacat ttagagagaa aactgccccc tcttcactcc agcccagttt ggcttttggg gtgcgacttt agaaatctta tcagtgcagc ccccagctca atcccatctt tcctccctgc tgggaaggca gggaccaagc cccagtacct attcatctct ctctaggtca gagcttcttc ctcacactgg aggggaagcc tgggtcccga gtagccacgg tcccttgtcg gccctgcccc tcctaccatc tttggcttca gatcaggagt gactggggca gtgggtactc ttggacataa cggaaggtgg aggcagatag ggagcacaga taaactatgg gcttggcggc acaggaggaa gaacatggtc cctccctcca tatacatgca aacacatgcc tgaaacacag tggacatact agggctgtgg ttttgaaatg ggcaggaaat taatttgttt cttcccctaa aggataaaac gcttacttaa aaattcatga caagcctcaa agttcaaggg aaggagagcc agggcaggaa tgaccacagg ctctgccctc ccaaaagaag ataaaagaaa gaagcaaggt taaagtgcgt ggttaggggc caggctagga gtgggaggga atggggaggg ggcaggctgt gggggcagaa ccagcccttg atttgcatat gaggagccag gggagagtgc aggattgggg cccaggtaca gtagttgctg cttcaagtgt tttgcatttg aactttaggg gtgatagggt acagaagtgg ggaaaaagct ccaggcccca gtgctaaata tcctcccccc tcatcctcta gctgcccctg aaggggggag ggggacaccc ccagagtgct cacacagtac cagaaattaa ggcttctcac tgctgcgggg atggagggac cggccgagca gggaggcagt gatgggtatg gaagaagagg ggatctgcct ggcagtaggg gcaggggaga agggggacac

FIGURE 399 (Continued)

agagaggagt ccccagggaa gagtcggggg agctggcagc agaaagaggg aaccaagaga tggagtcaaa gagtggggga gccaggcatt tagcaatcat tttgggacac ttggcagaag gggtcgccct gggggtacca agggcctggg gtgctccctg tcagtcccag acccctgcca ggccaagatg gtgtggcaaa ggggtgagca gctgctcccc agggcttcct tcccctccgc cccctccacc cagtcgtgtt ctcctttaaa gtgccctaaa tgtttagact ttttctaaat aaatagaatt agatatcaag ccaccggcgg gggagggaca ctggaggggg ctactcagag tagcagccat ctaacccaat ggcgccgggc cgctcctggc tgtaggggca ggaggcccca tggggcaggg cgccgcagcc acccaccgtc ttggcggctg caatgctgca gttcttgagc aggctgaagc tgaaaggact gacggcgtcc ttgggtggga aa

FIGURE 399

Met Met Gly Ser Pro Val Ser His Leu Leu Ala Gly Phe Cys Val Trp Val Val Leu Gly Trp Val Gly Gly Ser Val Pro Asn Leu Gly Pro Ala Glu Gln Glu Gln Asn His Tyr Leu Ala Gln Leu Phe Gly Leu Tyr Gly Glu Asn Gly Thr Leu Thr Ala Gly Gly Leu Ala Arg Leu Leu His Ser Leu Gly Leu Gly Arg Val Gln Gly Leu Arg Leu Gly Gln His Gly Pro Leu Thr Gly Arg Ala Ala Ser Pro Ala Ala Asp Asn Ser Thr His Arg Pro Gln Asn Pro Glu Leu Ser Val Asp Val Trp Ala Gly Met Pro Leu Gly Pro Ser Gly Trp Gly Asp Leu Glu Glu Ser Lys Ala Pro His Leu Pro Arg Gly Pro Ala Pro Ser Gly Leu Asp Leu Leu His Arg Leu Leu Leu Leu Asp His Ser Leu Ala Asp His Leu Asn Glu Asp Cys Leu Asn Gly Ser Gln Leu Leu Val Asn Phe Gly Leu Ser Pro Ala Ala Pro Leu Thr Pro Arg Gln Phe Ala Leu Leu Cys Pro Ala Leu Leu Tyr Gln Ile Asp Ser Arg Val Cys Ile Gly Ala Pro Ala Pro Ala Pro Pro Gly Asp Leu Leu Ser Ala Leu Leu Gln Ser Ala Leu Ala Val Leu Leu Leu Ser Leu Pro Ser Pro Leu Ser Leu Leu Leu Leu Arg Leu Leu Gly Pro Arg Leu Leu Arg Pro Leu Leu Gly Phe Leu Gly Ala Leu Ala Val Gly Thr Leu Cys Gly Asp Ala Leu Leu His Leu Leu Pro His Ala Gln Glu Gly Arg His Ala Gly Pro Gly Gly Leu Pro Glu Lys Asp Leu Gly Pro Gly Leu Ser Val Leu Gly Gly Leu Phe Leu Leu Phe Val Leu Glu Asn Met Leu Gly Leu Leu Arg His Arg Gly Leu Arg Pro Arg Cys Cys Arg Arg Lys Arg Arg Asn Leu Glu Thr Arg Asn Leu Asp Pro Glu Asn Gly Ser Gly Met Ala Leu Gln Pro Leu Gln Ala Ala Pro Glu Pro Gly Ala Gln Gly Gln Arg Glu Lys Asn Ser Gln His Pro Pro Ala Leu Ala Pro Pro Gly His Gln Gly His Ser His Gly His Gln Gly Gly Thr Asp Ile Thr Trp Met Val Leu Leu Gly Asp Gly Leu His Asn Leu Thr Asp Gly Leu Ala Ile Gly Ala Ala Phe Ser Asp Gly Phe Ser Ser Gly Leu Ser Thr Thr Leu Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp Phe Ala Met Leu Leu Gln Ser Gly Leu Ser Phe Arg Arg Leu Leu Leu Leu Ser Leu Val Ser Gly Ala Leu Gly Leu Gly Gly Ala Val Leu Gly Val Gly Leu Ser Leu Gly Pro Val Pro Leu Thr Pro Trp Val Phe Gly Val Thr Ala Gly Val Phe Leu Tyr Val Ala Leu Val Asp Met Leu Pro Ala Leu Leu Arg Pro Pro Glu Pro Leu Pro Thr Pro His Val Leu Leu Gln Gly Leu Gly Leu Leu Leu Gly Gly Gly Leu Met Leu Ala Ile Thr Leu Leu Glu Glu Arg Leu Leu Pro Val Thr Thr Glu Gly

FIGURE 400

cctctgggaa agggcagcag gagccaggtg tggcagtgac agggaggtgt gaatgaggca ggatgaactg gacaggtttg tacaccttgc tcagtggcgt gaaccggcat tctactgcca ttggccgagt atggctctcg gtcatcttca tcttcagaat catggtgctg gtggtggctg cagagagtgt gtggggtgat gagaaatctt ccttcatctg caacacactc cagcctggct gcaacagcgt ttgctatgac caattcttcc ccatctccca tgtgcggctg tggtccctgc agctcatcct agtttccacc ccagctctcc tcgtggccat gcacgtggct caccagcaac acatagagaa gaaaatgcta cggcttgagg gccatgggga ccccctacac ctggaggagg tgaagaggca caaggtccac atctcaggga cactgtggtg gacctatgtc atcagcgtgg tgttccggct gttgtttgag gccgtcttca tgtatgtctt ttatctgctc taccctggct atgccatggt gcggctggtc aagtgcgacg tctacccctg ccccaacaca gtggactgct tcgtgtcccg ccccaccgag aaaaccgtct tcaccgtctt catgctagct gcctctggca tctgcatcat cctcaatgtg gccgaggtgg tgtacctcat catccgggcc tgtgcccgcc gagcccagcg ccgctccaat ccaccttccc gcaagggctc gggcttcggc caccgcctct cacctgaata caagcagaat gagatcaaca agctgctgag tgagcaggat ggctccctga aagacatact gcgccgcagc cctggcaccg gggctgggct ggctgaaaag agcgaccgct gctcggcctg ctgatgccac ataccaggca acctgccatc catccccgac cctgccctgg gcgaagccct cctccttctc ccctgccggt gcacaggcct ctgcctgctg gggattactc gatcaaaacc ttccttccct ggctacttcc cttcctcccg gggccttcct tttaggtgct ggagctggag gggtggggag ctagaggcca cctatgccag tgctcaaggt tactgggagt gtgggctgcc cttgttgcct gcacccttcc ctcttccctc tccctctctc tgggaccact gggtacaaga gatgggatgc tccgacagcg tctccaatta tgaaactaat cttaaccctg tgctgtcaga taccctggtt ttctggagtc acagtcagtg aggaggatgt ggtaagagga ggcagagggc aggggtgctg tggacatgtg ggtggagaag ggagggtggc cagcactagt aaaggaggaa tagtgcttgc tggccacaag gaaaaggagg aggtgtctgg ggtgagggag ttagggagag agaagcaggc agataagttg gagcaggggt ggtcaaggcc acctctgcct ctagtcccca aggcctctct ctgcctgaaa tgttacacat taaacaggat tttacagt

FIGURE 401

Met Asn Trp Thr Gly Leu Tyr Thr Leu Leu Ser Gly Val Asn Arg His Ser Thr Ala Ile Gly Arg Val Trp Leu Ser Val Ile Phe Ile Phe Arg Ile Met Val Leu Val Val Ala Ala Glu Ser Val Trp Gly Asp Glu Lys Ser Ser Phe Ile Cys Asn Thr Leu Gln Pro Gly Cys Asn Ser Val Cys Tyr Asp Gln Phe Phe Pro Ile Ser His Val Arg Leu Trp Ser Leu Gln Leu Ile Leu Val Ser Thr Pro Ala Leu Leu Val Ala Met His Val Ala His Gln Gln His Ile Glu Lys Lys Met Leu Arg Leu Glu Gly His Gly Asp Pro Leu His Leu Glu Glu Val Lys Arg His Lys Val His Ile Ser Gly Thr Leu Trp Trp Thr Tyr Val Ile Ser Val Val Phe Arg Leu Leu Phe Glu Ala Val Phe Met Tyr Val Phe Tyr Leu Leu Tyr Pro Gly Tyr Ala Met Val Arg Leu Val Lys Cys Asp Val Tyr Pro Cys Pro Asn Thr Val Asp Cys Phe Val Ser Arg Pro Thr Glu Lys Thr Val Phe Thr Val Phe Met Leu Ala Ala Ser Gly Ile Cys Ile Ile Leu Asn Val Ala Glu Val Val Tyr Leu Ile Ile Arg Ala Cys Ala Arg Arg Ala Gln Arg Arg Ser Asn Pro Pro Ser Arg Lys Gly Ser Gly Phe Gly His Arg Leu Ser Pro Glu Tyr Lys Gln Asn Glu Ile Asn Lys Leu Leu Ser Glu Gln Asp Gly Ser Leu Lys Asp Ile Leu Arg Arg Ser Pro Gly Thr Gly Ala Gly Leu Ala Glu Lys Ser Asp Arg Cys Ser Ala Cys

FIGURE 402

ctcgccgccg ctgccgccgc caccgccgcc gccgccgccg ccgccgccgc ggcttcagca ccagcgcccg gacagcggtg ccgcccacgg gcatggacgg tgacagcagc agcagcagcg gcggcagcgg tccggctccc ggcccgggtc cggaagggga gcaacggccc gagggggagc ccttggcccc agacggcggc tccccggaca gcacccagac caaggctgtg gcccctgagg caagcccaga gagaagctcc tccctccaca gctgccccct ggaggaccct ttcagctctt taggaccccc accaacaact ttcaccctcc agcctgtggg tccatccagc cccttggccc ctgcccactt tacctatacc cgggcactgt aggaatacca ggggggcagt tccctgccag gacttgggga tcgggcagct ctctgctccc acggctccag cctcagccct tctccagccc cctcacagcg cgatgggacc tggaagccac ccgctgtgca gcaccatgtg gtcagcgtca ggcaggaacg agccttccag atgccaaaga gctattccca gctgattgct gagtggccag tggccgtgct gatgctgtgt ctggctgtca tcttcctctg caccctggct ggactgttgg gggcccggct gcccgacttc tccaagcctt tgctgggctt tgagccacgg gacacagaca ttgggagcaa gttagtggtc tggagagcac tacaagccct cacaggcccc aggaagctgc ttttcctttc cccagacctt gagctgaaca gctcgagctc ccacaacact ctgaggcctg cacccagagg cagtgcccag gagagcgctg tccggcctcg gagaatggtg gagcccctgg aggacagaag gcaagagaac ttcttctgtg gccccccctga gaagagctat gcaaagctgg tgttcatgtc cacctcctcg ggcagcctat ggaacctgca tgccatccat tccatgtgtc gcatggaaca ggaccagatc cgctcccata ccagcttcgg ggctctgtgc cagcggacag cagccaacca gtgctgcccc agctggtccc tgggcaacta tctggctgtg ctctccaacc gctcctcctg cctggacact acccaagctg acgcagcccg cacactggcc ctgcttcgga cctgtgccct ctactaccac agtggcgcct tggtgccctc ttgtctggga cctgggcaga acaagtcccc acgctgtgcc caggttccca ccaagtgctc ccagagtagt gccatctacc aactcctgca ctttctgctt gacagggact ttctgagtcc ccagaccact gactaccagg tgccttccct caagtacagc ctgctcttcc tgcccacccc aaagggtgct tccctcatgg acatctacct ggaccggctg gccacccccct gggggcttgc tgacaactac acctctgtca ctggcatgga cctgggcctc aagcaggagc tgctgaggca cttcctggtc caggacacgg tgtacccctt gctggctctg gttgccatct tcttcggcat ggccctgtac ctgcgctcac tcttcctcac gctcatggtg ctgctggggg tgctgggctc actgctggtg gccttcttcc tttaccaggt ggccttccgc atggcctact tccccttcgt caatctggca gccctcctcc tgctgagcag cgtctgcgcc aaccacacgc tcatcttctt cgacctgtgg cgccttagca agagccagct gccgtcgggg gggctggcgc agcgcgtggg ccgcaccatg caccacttcg gctacctgct gctggtctcc ggcctcacca cgagcgcggc cttctatgcc agctacctga gccgcctgcc ggccgttcgc tgcctcgccc tcttcatggg cacggctgtg ctggtgcacc tggcgctcac gctggtctgg ctgcccgcct ccgccgtgct ccacgagcgc tacctggcgc gcggctgtgc gcgccgggcg cggggccggt gggagggcag cgcgccccgg cggctactgc tggcgctgca ccggcggctc cgcggcctgc ggagggcggc ggctggcacc tcgcgtctgc tcttccagcg cctgctgccc tgcggcgtca tcaagttccg ctacatctgg atctgctggt tcgcagcact ggcggcaggg ggcgcctaca tcgccggagt cagcccccgc ctgcggctgc ccacgctgcc gccgcccggc ggccaggtct tccggcccag ccaccccttc gagcgcttcg acgcagagta tcgccagctg ttcctgttcg agcagctgcc gcagggcgag ggcggccaca tgcccgtggt tttggtgtgg ggcgtcctgc ctgtggacac tggcgaccct ctggaccctc gtagcaacag cagcctggtg agggaccctg ccttctcggc cagcggccct gaggcccagc gctggctgct ggcactctgt caccgggccc ggaatcagag cttcttcgac accctgcagg aaggctggcc cacgctgtgt ttcgtggaga ccctccagcg ctggatggag agccccagct gcgcccgcct ggggcctgac ctctgctgcg gccactcgga cttcccctgg gccccccagt ttttcctgca ctgcctgaaa atgatggctc tggagcaagg ccccgatggc acccaggacc tgggactccg ctttgatgcc catggcagcc tggccgccct ggtcctacaa ttccagacca acttccggaa cagtccggac tacaaccaga cccagctctt ctacaatgag gtcagccact ggctggcagc ggagctgggc atggcacctc caggcctccg ccgtggttgg ttcactagcc gtctagagct gtatagcctg cagcacagcc tgagcactga gcctgctgtg gtgctgggcc tggctttggc gctggccttt gccacactgc tcctgggcac ctggaatgtt cccctcagcc tattctccgt ggcagctgtg gcaggcaccg tgctgctcac tgtaggactc ctggttctcc tcgagtggca gctcaacact gccgaggccc tgtttctctc tgcctcagtg ggcctctcag tagacttcac tgtcaactac tgcatctcct atcacctgtg cccacaccct gaccgcctga gccgtgtggc cttctctctg cgccagacca gctgcgccac agccgtgggg gctgcagccc tgtttgcggc aggcgtgctc atgctgcctg ccacagtgct gctctatcgc aagctgggca tcatcctcat gatggtcaaa tgcgtcagtt gtggctttgc cagcttcttc ttccaatctc tctgctgttt cttcgggcca gagaagaact gtgggcagat cctctggccc tgtgcccacc tgccatggga tgctggtact ggggaccctg gtggggagaa ggcaggccgc ccacgaccag ggtcagtggg agggatgccc gggtcctgct cagagcaata tgagctacag cccctggcac ggcgtcggag ccccagcttt gacaccagca cagccaccag caagctgtcc caccggccct cagtactctc tgaggatctg cagctccatg atggtccgtg ctgttcccgg ccccccaccag cccctgcctc cccaagggag ctgctgctgg accaccaggc agtcttcagc cagtgccctg ccctgcagac

FIGURE 403 (Continued)

ctcctccccc tataagcagg ctggccccag ccccaaaacc cgggccaggc aggactccca aggggaggag gctgagcccc tgccagcctc accagaagcc ccagcccact ctcctaaggc caaggctgca gatcctcctg atggcttctg ttcctcagcc agcaccctgg aggggctcag cgtctctgat gagacctgcc taagcacctc tgagcccagt gcccgtgtac cagattccgt gggtgtgtcc ccagatgacc tggatgacac tgggcagcca gtccttgagc gaggccagct caatgggaag cgggacaccc tgtggctggc gctgagggag acagtgtatg acccatcatt gcccgcttcc catcacagca gcttgtcctg gaagggccga ggggggccag gggatggcag ccctgtggtg ctgcccaata gccagccaga cctgccagat gtttggctgc gcaggcccag cactcacacg tcaggctata gcagctgagg gggacccggg gaggctggac agggcgcgga accctgtcat ggatgacaag gcaagggcag caataggctg gagcccgaag gtatttctcc agatccacag ggagaggtct caccctccag ctgtggatgt taaaccctgc cagatgtccc agccttgatc tgtctgctcc tactcctcac atctggagga ttccagcagg agggttttg gaggggacct gcttgcgacc tgctgagggc ttgtctgctc ccacagcacc atctaagacc cctcctctag aagtggggaa ggccagatgt gtagcttcgg gtatcagagg aggctgacct ggcccccatc ccaagttaca agaacttcag tgagactaag ggaccccccat cctagggatc ttgtcagggt tccttactga ccagaggagc ccgcagcaat ctccacagcc tcctgggtct cacccctttc atgggctctt catcaggaca cttccctctc ttttgggagc ttctctgggc agaattgggc tgggacctct ctccccaact gccctgctct cctcatactc accggtttga ccagaaattc tccaaatcca gccatagatg gctgctgggt gtgcagcagg agaaggagga tggtcagcct tggagcatct ctcaattacg ggacagtccc tctttggaag caggctcctg tgctttcctg tgttaataaa cagtaataat cctttccatc tctgc

FIGURE 403

Leu Val Val Trp Arg Ala Leu Gln Ala Leu Thr Gly Pro Arg Lys Leu Leu Phe Leu Ser Pro Asp Leu Glu Leu Asn Ser Ser Ser Ser His Asn Thr Leu Arg Pro Ala Pro Arg Gly Ser Ala Gln Glu Ser Ala Val Arg Pro Arg Arg Met Val Glu Pro Leu Glu Asp Arg Arg Gln Glu Asn Phe Phe Cys Gly Pro Pro Glu Lys Ser Tyr Ala Lys Leu Val Phe Met Ser Thr Ser Ser Gly Ser Leu Trp Asn Leu His Ala Ile His Ser Met Cys Arg Met Glu Gln Asp Gln Ile Arg Ser His Thr Ser Phe Gly Ala Leu Cys Gln Arg Thr Ala Ala Asn Gln Cys Cys Pro Ser Trp Ser Leu Gly Asn Tyr Leu Ala Val Leu Ser Asn Arg Ser Ser Cys Leu Asp Thr Thr Gln Ala Asp Ala Ala Arg Thr Leu Ala Leu Leu Arg Thr Cys Ala Leu Tyr Tyr His Ser Gly Ala Leu Val Pro Ser Cys Leu Gly Pro Gly Gln Asn Lys Ser Pro Arg Cys Ala Gln Val Pro Thr Lys Cys Ser Gln Ser Ser Ala Ile Tyr Gln Leu Leu His Phe Leu Leu Asp Arg Asp Phe Leu Ser Pro Gln Thr Thr Asp Tyr Gln Val Pro Ser Leu Lys Tyr Ser Leu Leu Phe Leu Pro Thr Pro Lys Gly Ala Ser Leu Met Asp Ile Tyr Leu Asp Arg Leu Ala Thr Pro Trp Gly Leu Ala Asp Asn Tyr Thr Ser Val Thr Gly Met Asp Leu Gly Leu Lys Gln Glu Leu Leu Arg His Phe Leu Val Gln Asp Thr Val Tyr Pro Leu Leu Ala Leu Val Ala Ile Phe Phe Gly Met Ala Leu Tyr Leu Arg Ser Leu Phe Leu Thr Leu Met Val Leu Leu Gly Val Leu Gly Ser Leu Leu Val Ala Phe Phe Leu Tyr Gln Val Ala Phe Arg Met Ala Tyr Phe Pro Phe Val Asn Leu Ala Ala Leu Leu Leu Leu Leu Ser Ser Val Cys Ala Asn His Thr Leu Ile Phe Phe Asp Leu Trp Arg Leu Ser Lys Ser Gln Leu Pro Ser Gly Gly Leu Ala Gln Arg Val Gly Arg Thr Met His His Phe Gly Tyr Leu Leu Leu Val Ser Gly Leu Thr Thr Ser Ala Ala Phe Tyr Ala Ser Tyr Leu Ser Arg Leu Pro Ala Val Arg Cys Leu Ala Leu Phe Met Gly Thr Ala Val Leu Val His Leu Ala Leu Thr Leu Val Trp Leu Pro Ala Ser Ala Val Leu His Glu Arg Tyr Leu Ala Arg Gly Cys Ala Arg Arg Ala Arg Gly Arg Trp Glu Gly Ser Ala Pro Arg Arg Leu Leu Leu Ala Leu His Arg Arg Leu Arg Gly Leu Arg Arg Ala Ala Ala Gly Thr Ser Arg Leu Leu Phe Gln Arg Leu Leu Pro Cys Gly Val Ile Lys Phe Arg Tyr Ile Trp Ile Cys Trp Phe Ala Ala Leu Ala Ala Gly Gly Ala Tyr Ile Ala Gly Val Ser Pro Arg Leu Arg Leu Pro Thr Leu Pro Pro Pro Gly Gly Gln Val Phe Arg Pro Ser His Pro Phe Glu Arg Phe Asp Ala Glu Tyr Arg Gln Leu Phe Leu Phe Glu Gln Leu Pro Gln Gly Glu Gly Gly His Met Pro Val Val Leu Val Trp Gly Val Leu Pro Val Asp Thr Gly Asp Pro Leu Asp Pro Arg Ser Asn Ser Ser Leu Val Arg Asp Pro Ala Phe Ser Ala Ser Gly Pro Glu Ala Gln Arg Trp Leu Leu Ala Leu Cys His Arg Ala Arg Asn Gln Ser Phe Phe Asp Thr Leu Gln Glu Gly Trp Pro Thr Leu Cys Phe Val Glu Thr Leu Gln Arg Trp Met Glu Ser Pro Ser Cys Ala Arg Leu Gly Pro Asp Leu Cys Cys Gly His Ser Asp Phe Pro Trp Ala Pro Gln Phe Phe Leu His Cys Leu Lys Met Met Ala Leu Glu Gln Gly Pro Asp Gly Thr Gln Asp Leu Gly Leu Arg Phe Asp Ala His Gly Ser Leu Ala Ala Leu Val Leu Gln Phe Gln Thr Asn Phe Arg Asn Ser Pro Asp Tyr Asn Gln Thr Gln Leu Phe Tyr Asn Glu Val Ser His Trp Leu Ala Ala Glu Leu Gly Met Ala Pro Pro Gly Leu Arg Arg Gly Trp Phe Thr Ser Arg Leu Glu Leu Tyr Ser Leu Gln His Ser Leu Ser Thr Glu Pro Ala Val Val Leu Gly Leu Ala Leu Ala Leu Ala Phe Ala Thr Leu Leu Leu Gly Thr Trp Asn Val Pro Leu Ser Leu Phe Ser Val Ala Ala Val Ala Gly Thr Val Leu Leu Thr Val Gly Leu Leu Val Leu Leu Glu Trp Gln Leu Asn Thr Ala Glu Ala Leu Phe Leu Ser Ala Ser Val Gly Leu Ser Val Asp Phe Thr Val Asn Tyr Cys Ile Ser Tyr His Leu Cys Pro His Pro Asp Arg Leu Ser Arg Val Ala Phe Ser Leu Arg Gln Thr Ser Cys Ala Thr Ala Val Gly Ala Ala Ala Leu Phe Ala Ala Gly Val Leu Met Leu Pro Ala Thr Val Leu Leu Tyr Arg Lys Leu Gly Ile Ile Leu Met Met Val Lys Cys Val Ser Cys Gly Phe Ala Ser Phe Phe Phe Gln Ser Leu Cys Cys Phe Phe Gly Pro Glu Lys Asn Cys Gly Gln Ile Leu Trp Pro Cys Ala His Leu Pro Trp Asp Ala Gly Thr Gly Asp Pro Gly Gly Glu Lys Ala Gly Arg Pro Arg Pro Gly Ser Val Gly Gly Met Pro Gly Ser Cys Ser Glu Gln Tyr Glu Leu Gln Pro Leu Ala Arg Arg Arg Ser Pro Ser Phe Asp Thr Ser Thr Ala Thr Ser Lys Leu Ser His Arg Pro Ser Val Leu Ser Glu Asp Leu Gln Leu His Asp Gly Pro Cys Cys Ser Arg Pro Pro Pro Ala Pro Ala Ser Pro Arg Glu Leu Leu Leu Asp His Gln Ala Val Phe Ser Gln Cys Pro Ala Leu Gln Thr Ser Ser Pro Tyr Lys Gln Ala Gly Pro Ser Pro Lys Thr Arg Ala Arg Gln Asp Ser Gln Gly Glu Glu Ala Glu Pro Leu Pro Ala Ser Pro Glu Ala Pro Ala His Ser Pro Lys Ala Lys Ala Ala Asp Pro Pro Asp Gly Phe Cys Ser Ser Ala Ser Thr Leu Glu Gly Leu Ser Val Ser Asp Glu Thr Cys Leu Ser

Thr Ser Glu Pro Ser Ala Arg Val Pro Asp Ser Val Gly Val Ser Pro Asp Asp Leu Asp Asp Thr Gly Gln Pro Val Leu Glu Arg Gly Gln Leu Asn Gly Lys Arg Asp Thr Leu Trp Leu Ala Leu Arg Glu Thr Val Tyr Asp Pro Ser Leu Pro Ala Ser His His Ser Ser Leu Ser Trp Lys Gly Arg Gly Gly Pro Gly Asp Gly Ser Pro Val Val Leu Pro Asn Ser Gln Pro Asp Leu Pro Asp Val Trp Leu Arg Arg Pro Ser Thr His Thr Ser Gly Tyr Ser Ser

FIGURE 404

ggtctggaag cagagccggc ggagggagcg ccggggccct gggctgcagg aggttgcggc ggccgcggca gcatggtggt gccggagaag gagcagagct ggatccccaa gatcttcaag aagaagacct gcacgacgtt catagttgac tccacagatc cgggagggac cttgtgccag tgtgggcgcc cccggaccgc ccaccccgca gtggccatgg aggatgcctt cggggcagcc gtggtgaccg tgtgggacag cgatgcacac accacggaga agcccaccga tgcctacgga gagctggact tcacgggggc cggccgcaag cacagcaatt tcctccggct ctctgaccga acggatccag ctgcagttta tagtctggtc acacgcacat ggggcttccg tgccccgaac ctggtggtgt cagtgctggg gggatcgggg ggccccgtcc tccagacctg gctgcaggac ctgctgcgtc gtgggctggt gcgggctgcc cagagcacag gagcctggat tgtcactggg ggtctgcaca cgggcatcgg ccggcatgtt ggtgtggctg tacgggacca tcagatggcc agcactgggg gcaccaaggt ggtggccatg ggtgtggccc cctggggtgt ggtccggaat agagacaccc tcatcaaccc caagggctcg ttccctgcga ggtaccggtg gcgcggtgac ccggaggacg gggtccagtt tcccctggac tacaactact cggccttctt cctggtggac gacggcacac acggctgcct ggggggcgag aaccgcttcc gcttgcgcct ggagtcctac atctcacagc agaagacggg cgtgggaggg actggaattg acatccctgt cctgctcctc ctgattgatg gtgatgagaa gatgttgacg cgaatagaga acgccaccca ggctcagctc ccatgtctcc tcgtggctgg ctcaggggga gctgcggact gcctggcgga gaccctggaa gacactctgg ccccagggag tgggggagcc aggcaaggcg aagcccgaga tcgaatcagg cgtttctttc ccaaagggga ccttgaggtc ctgcaggccc aggtggagag gattatgacc cggaaggagc tcctgacagt ctattcttct gaggatgggt ctgaggaatt cgagaccata gttttgaagg cccttgtgaa ggcctgtggg agctcggagg cctcagccta cctggatgag ctgcgtttgg ctgtggcttg gaaccgcgtg gacattgccc agagtgaact ctttcggggg gacatccaat ggcggtcctt ccatctcgaa gcttccctca tggacgccct gctgaatgac cggcctgagt tcgtgcgctt gctcatttcc cacggcctca gcctgggcca cttcctgacc ccgatgcgcc tggcccaact ctacagcgcg gcgccctcca actcgctcat ccgcaacctt ttggaccagg cgtcccacag cgcaggcacc aaagccccag ccctaaaagg gggagctgcg gagctccggc cccctgacgt ggggcatgtg ctgaggatgc tgctggggaa gatgtgcgcg ccgaggtacc cctccggggg cgcctgggac cctcacccag gccagggctt cggggagagc atgtatctgc tctcggacaa ggccacctcg ccgctctcgc tggatgctgg cctcgggcag gccccctgga gcgacctgct tctttgggca ctgttgctga acagggcaca gatggccatg tacttctggg agatgggttc caatgcagtt tcctcagctc ttggggcctg tttgctgctc cgggtgatgg cacgcctgga gcctgacgct gaggaggcag cacggaggaa agacctggcg ttcaagtttg aggggatggg cgttgacctc tttggcgagt gctatcgcag cagtgaggtg agggctgccc gcctcctcct ccgtcgctgc ccgctctggg gggatgccac ttgcctccag ctggccatgc aagctgacgc ccgtgccttc tttgcccagg atggggtaca gtctctgctg acacagaagt ggtggggaga tatggccagc actacaccca tctgggccct ggttctcgcc ttcttttgcc ctccactcat ctacacccgc ctcatcacct tcaggaaatc agaagaggag cccacacggg aggagctaga gtttgacatg gatagtgtca ttaatgggga agggcctgtc gggacggcgg acccagccga gaagacgccg ctgggggtcc cgcgccagtc gggccgtccg ggttgctgcg ggggccgctg cgggggggcgc cggtgcctac gccgctggtt ccacttctgg ggcgcgccgg tgaccatctt catgggcaac gtggtcagct acctgctgtt cctgctgctt ttctcgcggg tgctgctcgt ggatttccag ccggcgccgc ccggctccct ggagctgctg ctctatttct gggctttcac gctgctgtgc gaggaactgc gccagggcct gagcggaggc gggggcagcc tcgccagcgg gggccccggg cctggccatg cctcactgag ccagcgcctg cgcctctacc tcgccgacag ctggaaccag tgcgacctag tggctctcac ctgcttcctc ctgggcgtgg gctgccggct gaccccgggt ttgtaccacc tgggccgcac tgtcctctgc atcgacttca tggttttcac ggtgcggctg cttcacatct tcacggtcaa caaacagctg gggcccaaga tcgtcatcgt gagcaagatg atgaaggacg tgttcttctt cctcttcttc ctcggcgtgt ggctggtagc ctatggcgtg gccacggagg ggctcctgag gccacgggac agtgacttcc caagtatcct gcgccgcgtc ttctaccgtc cctacctgca gatcttcggg cagattcccc aggaggacat ggacgtggcc ctcatggagc acagcaactg ctcgtcggag cccggcttct gggcacaccc tcctggggcc caggcgggca cctgcgtctc ccagtatgcc aactggctgg tggtgctgct cctcgtcatc ttcctgctcg tggccaacat cctgctggtc aacttgctca ttgccatgtt cagttacaca ttcggcaaag tacagggcaa cagcgatctc tactggaagg cgcagcgtta ccgcctcatc cgggaattcc actctcggcc cgcgctggcc ccgcccttta tcgtcatctc ccacttgcgc ctcctgctca ggcaattgtg caggcgaccc cggagccccc agccgtcctc cccggccctc gagcatttcc gggtttacct ttctaaggaa gccgagcgga agctgctaac gtgggaatcg gtgcataagg agaactttct gctggcacgc gctagggaca agcgggagag cgactccgag cgtctgaagc gcacgtccca gaaggtggac ttggcactga aacagctggg acacatccgc gagtacgaac agcgcctgaa agtgctggag cgggaggtcc agcagtgtag ccgcgtcctg gggtgggtgg ccgaggccct gagccgctct gccttgctgc ccccaggtgg gccgccaccc cctgacctgc ctgggtccaa agactgagcc ctgctggcgg acttcaagga gaagccccca caggggattt tgctcctaga gtaaggctca tctgggcctc ggcccccgca cctggtggcc ttgtccttga ggtgagcccc atgtccatct gggccactgt

caggaccacc tttgggagtg tcatccttac aaaccacagc atgcccggct cctcccagaa ccagtcccag cctgggagga tcaaggcctg gatcccgggc cgttatccat ctggaggctg cagggtcctt ggggtaacag ggaccacaga cccctcacca ctcacagatt cctcacactg gggaaataaa gccatttcag aggaaaaaaa a

FIGURE 405

Met Val Val Pro Glu Lys Glu Gln Ser Trp Ile Pro Lys Ile Phe Lys Lys Lys Thr Cys Thr Thr Phe
Ile Val Asp Ser Thr Asp Pro Gly Gly Thr Leu Cys Gln Cys Gly Arg Pro Arg Thr Ala His Pro
Ala Val Ala Met Glu Asp Ala Phe Gly Ala Ala Val Val Thr Val Trp Asp Ser Asp Ala His Thr
Thr Glu Lys Pro Thr Asp Ala Tyr Gly Glu Leu Asp Phe Thr Gly Ala Gly Arg Lys His Ser Asn
Phe Leu Arg Leu Ser Asp Arg Thr Asp Pro Ala Ala Val Tyr Ser Leu Val Thr Arg Thr Trp Gly
Phe Arg Ala Pro Asn Leu Val Val Ser Val Leu Gly Gly Ser Gly Gly Pro Val Leu Gln Thr Trp
Leu Gln Asp Leu Leu Arg Arg Gly Leu Val Arg Ala Ala Gln Ser Thr Gly Ala Trp Ile Val Thr
Gly Gly Leu His Thr Gly Ile Gly Arg His Val Gly Val Ala Val Arg Asp His Gln Met Ala Ser
Thr Gly Gly Thr Lys Val Val Ala Met Gly Val Ala Pro Trp Gly Val Val Arg Asn Arg Asp Thr
Leu Ile Asn Pro Lys Gly Ser Phe Pro Ala Arg Tyr Arg Trp Arg Gly Asp Pro Glu Asp Gly Val
Gln Phe Pro Leu Asp Tyr Asn Tyr Ser Ala Phe Phe Leu Val Asp Asp Gly Thr His Gly Cys Leu
Gly Gly Glu Asn Arg Phe Arg Leu Arg Leu Glu Ser Tyr Ile Ser Gln Gln Lys Thr Gly Val Gly
Gly Thr Gly Ile Asp Ile Pro Val Leu Leu Leu Leu Ile Asp Gly Asp Glu Lys Met Leu Thr Arg Ile
Glu Asn Ala Thr Gln Ala Gln Leu Pro Cys Leu Leu Val Ala Gly Ser Gly Gly Ala Ala Asp Cys
Leu Ala Glu Thr Leu Glu Asp Thr Leu Ala Pro Gly Ser Gly Gly Ala Arg Gln Gly Glu Ala Arg
Asp Arg Ile Arg Arg Phe Phe Pro Lys Gly Asp Leu Glu Val Leu Gln Ala Gln Val Glu Arg Ile
Met Thr Arg Lys Glu Leu Leu Thr Val Tyr Ser Ser Glu Asp Gly Ser Glu Glu Phe Glu Thr Ile
Val Leu Lys Ala Leu Val Lys Ala Cys Gly Ser Ser Glu Ala Ser Ala Tyr Leu Asp Glu Leu Arg
Leu Ala Val Ala Trp Asn Arg Val Asp Ile Ala Gln Ser Glu Leu Phe Arg Gly Asp Ile Gln Trp
Arg Ser Phe His Leu Glu Ala Ser Leu Met Asp Ala Leu Leu Asn Asp Arg Pro Glu Phe Val Arg
Leu Leu Ile Ser His Gly Leu Ser Leu Gly His Phe Leu Thr Pro Met Arg Leu Ala Gln Leu Tyr
Ser Ala Ala Pro Ser Asn Ser Leu Ile Arg Asn Leu Leu Asp Gln Ala Ser His Ser Ala Gly Thr Lys
Ala Pro Ala Leu Lys Gly Gly Ala Ala Glu Leu Arg Pro Pro Asp Val Gly His Val Leu Arg Met
Leu Leu Gly Lys Met Cys Ala Pro Arg Tyr Pro Ser Gly Gly Ala Trp Asp Pro His Pro Gly Gln
Gly Phe Gly Glu Ser Met Tyr Leu Leu Ser Asp Lys Ala Thr Ser Pro Leu Ser Leu Asp Ala Gly
Leu Gly Gln Ala Pro Trp Ser Asp Leu Leu Leu Trp Ala Leu Leu Leu Asn Arg Ala Gln Met Ala
Met Tyr Phe Trp Glu Met Gly Ser Asn Ala Val Ser Ser Ala Leu Gly Ala Cys Leu Leu Leu Arg
Val Met Ala Arg Leu Glu Pro Asp Ala Glu Glu Ala Ala Arg Arg Lys Asp Leu Ala Phe Lys Phe
Glu Gly Met Gly Val Asp Leu Phe Gly Glu Cys Tyr Arg Ser Ser Glu Val Arg Ala Ala Arg Leu
Leu Leu Arg Arg Cys Pro Leu Trp Gly Asp Ala Thr Cys Leu Gln Leu Ala Met Gln Ala Asp Ala
Arg Ala Phe Phe Ala Gln Asp Gly Val Gln Ser Leu Leu Thr Gln Lys Trp Trp Gly Asp Met Ala
Ser Thr Thr Pro Ile Trp Ala Leu Val Leu Ala Phe Phe Cys Pro Pro Leu Ile Tyr Thr Arg Leu Ile
Thr Phe Arg Lys Ser Glu Glu Glu Pro Thr Arg Glu Glu Leu Glu Phe Asp Met Asp Ser Val Ile
Asn Gly Glu Gly Pro Val Gly Thr Ala Asp Pro Ala Glu Lys Thr Pro Leu Gly Val Pro Arg Gln
Ser Gly Arg Pro Gly Cys Cys Gly Gly Arg Cys Gly Gly Arg Arg Cys Leu Arg Arg Trp Phe His
Phe Trp Gly Ala Pro Val Thr Ile Phe Met Gly Asn Val Val Ser Tyr Leu Leu Phe Leu Leu Leu
Phe Ser Arg Val Leu Leu Val Asp Phe Gln Pro Ala Pro Pro Gly Ser Leu Glu Leu Leu Leu Tyr
Phe Trp Ala Phe Thr Leu Leu Cys Glu Glu Leu Arg Gln Gly Leu Ser Gly Gly Gly Gly Ser Leu
Ala Ser Gly Gly Pro Gly Pro Gly His Ala Ser Leu Ser Gln Arg Leu Arg Leu Tyr Leu Ala Asp
Ser Trp Asn Gln Cys Asp Leu Val Ala Leu Thr Cys Phe Leu Leu Gly Val Gly Cys Arg Leu Thr
Pro Gly Leu Tyr His Leu Gly Arg Thr Val Leu Cys Ile Asp Phe Met Val Phe Thr Val Arg Leu
Leu His Ile Phe Thr Val Asn Lys Gln Leu Gly Pro Lys Ile Val Ile Val Ser Lys Met Met Lys Asp
Val Phe Phe Phe Leu Phe Phe Leu Gly Val Trp Leu Val Ala Tyr Gly Val Ala Thr Glu Gly Leu
Leu Arg Pro Arg Asp Ser Asp Phe Pro Ser Ile Leu Arg Arg Val Phe Tyr Arg Pro Tyr Leu Gln Ile
Phe Gly Gln Ile Pro Gln Glu Asp Met Asp Val Ala Leu Met Glu His Ser Asn Cys Ser Ser Glu
Pro Gly Phe Trp Ala His Pro Pro Gly Ala Gln Ala Gly Thr Cys Val Ser Gln Tyr Ala Asn Trp
Leu Val Val Leu Leu Leu Val Ile Phe Leu Leu Val Ala Asn Ile Leu Leu Val Asn Leu Leu Ile
Ala Met Phe Ser Tyr Thr Phe Gly Lys Val Gln Gly Asn Ser Asp Leu Tyr Trp Lys Ala Gln Arg
Tyr Arg Leu Ile Arg Glu Phe His Ser Arg Pro Ala Leu Ala Pro Pro Phe Ile Val Ile Ser His Leu

Arg Leu Leu Leu Arg Gln Leu Cys Arg Arg Pro Arg Ser Pro Gln Pro Ser Ser Pro Ala Leu Glu His Phe Arg Val Tyr Leu Ser Lys Glu Ala Glu Arg Lys Leu Leu Thr Trp Glu Ser Val His Lys Glu Asn Phe Leu Leu Ala Arg Ala Arg Asp Lys Arg Glu Ser Asp Ser Glu Arg Leu Lys Arg Thr Ser Gln Lys Val Asp Leu Ala Leu Lys Gln Leu Gly His Ile Arg Glu Tyr Glu Gln Arg Leu Lys Val Leu Glu Arg Glu Val Gln Gln Cys Ser Arg Val Leu Gly Trp Val Ala Glu Ala Leu Ser Arg Ser Ala Leu Leu Pro Pro Gly Gly Pro Pro Pro Pro Asp Leu Pro Gly Ser Lys Asp

FIGURE 406

acacagagcc gcctttcagc cgcccgagaa ctgcccgccg cactccgcga ctgcggcgcc tgctctcggg ccggggtctg cgcgcaccac gcggccggca gaaagggtaa gagaagggaa ccccgctttg cagggctcca acttcggcgg acgcgttacg gcgagggcga aatgagtcgg ccgtgaacgg tgtttcctgt tccgaatccc gagagccctg gaaagttttg aaggaggagg catggcccgg cagccttatc gttttcccca ggcaaggatt ccggagagag gatcaggtgt tttcaggtta accgtcagaa acgcaatggc acatcgtgat tctgagatga aaggagaatg tctaagggaa gacctgaagt tttacttcat gagcccttgt gaaaaatacc gagccagacg ccagattccg tgaaaactgg gtttgcagat tttgaagata gtcatggtca ccacacagct tgttcgtttt ggtttaagta accagctggt ggttgctttc aaagaagata acactgttgc ttttaagcac ttgtttttga aaggatattc tggtacagat gaagatgact acagctgcag tgtatatact caagaggatg cctatgagag catcttttt gctattaatc agtatcatca gctaaaggac attaccctgg ggacccttgg ttatggagaa aatgaagaca atagaattgg cttaaaagtc tgtaagcagc attacaagaa agggaccatg tttccttcta atgagacact gaatattgac aacgacgttg agctcatttc ttgttctttc attgccctag attgtgttca attagacctt caggacctct ccaagaagcc tccggactgg aagaactcat cattcttcag actggaattt tatcggctct tacaggttga aatctccttt catcttaaag gcattgacct acagacaatt cattcccgtg agttaccaga ctgttatgtc tttcagaata cgattatctt tgacaataaa gctcacagtg gcaaaatcaa aatctatttt gacagtgatg ccaaaattga agaatgtaaa gacttgaaca tatttggatc tactcagaaa aatgctcagt atgtcctggt gtttgatgca tttgtcattg tgatttgctt ggcatctctt attctgtgta caagatccat tgttcttgct ctaaggttac ggaagagatt tctaaatttc ttcctggaga agtacaagcg gcctgtgtgt gacaccgacc agtgggagtt catcaacggc tggtatgtcc tggtgattat cagcgaccta atgacaatca ttggctccat attaaaaatg gaaatcaaag caaagaatct cacaaactat gatctctgca gcatttttct tggaacctct acgctcttgg tttgggttgg agtcatcaga tacctgggtt atttccaggc atataatgtg ctgattttaa caatgcaggc ctcactgcca aaagttcttc ggttttgtgc ttgtgctggt atgatttatc tgggttacac attctgtggc tggattgtct taggaccata ccatgacaag tttgaaaatc tgaacacagt tgctgagtgt ctgttttctc tggtcaacgg tgatgacatg tttgcaacct ttgcccaaat ccagcagaag agcatcttgg tgtggctgtt cagtcgtctg tatttatatt ccttcatcag ccttttata tatatgattc tcagtctttt tattgcactt attacagatt cttatgacac cattaagaaa ttccaacaga atgggtttcc tgaaacggat ttgcaggaat tcctgaagga atgcagtagc aaagaagagt atcagaaaga gtcctcagcc ttcctgtcct gcatctgctg tcggaggagg aaaagaagtg atgatcactt gatacctatt agctaaagtt ctgctaaaga tgattaaagt tcaggcatcc ttatccagcg gctgagcaga ggaaccccaa atgacttgga caagcagttc caaaatgact ctcttattta attgtggagt gggaaagagg actcacagtt agccagctga ccatgactga agttccagct ttacttttta taaacttgaa tgataaagaa tagaccatgg gctactactg ggcattagtg caatataaca gcgataataa aattctctat tagtctgtta atttatgaca tgatctcgga atggaaaaag atcatttcag agtgtgcgaa ataatagtct ttaaccatgt aattaaatat gtgtgtttat tgtcaaataa ggatttgttt taaaggtgat tcttgggttt gaagacattt gttaattcat ggtctgtaca gaaatgaagc tggttgcaat accaatctag agagtccaag ctggcgaact attaagctgt ttaaagatca cccttggcct ggcacagtgg ttcacacctg taatcccagc actttgggag gcctaggcag gcagactgag ctcaggagct tgagaccagc ctgggcaaca tggcaaaaac ccacctctac aaaaagtaca aaaattagtc gggcgtgatg gcaggcatct gtagtcccag ctacttggga agctgaagtg ggaggatcac ctgagctctg gaggtggagg ctgccatgag ccatgatcgt gccactacac tccagcctgg gtgacagagt gagatcctgt ctcaaaaaaa aaaaaaaatc acccttaaat caacaaaaag acctcatgct catgcagtgg acatttcttg gcctgttttc ctgtgggttt tcttcagcat gatatgaagc aactgttggc atagccagtg ggataaataa gaaatggaat catttggctg cctcgtcact tgtgctaatg gtcagttgta cacacatgac atgtggaagt gacctgtagc agcggtcact cattttaaca attgaactct gctgggttgg gtatttacct ttgtctagaa aagaaatatg atatattttc tctaaataaa tttattttct aagttaaaaa gaaaaa

FIGURE 407

Met Val Thr Thr Gln Leu Val Arg Phe Gly Leu Ser Asn Gln Leu Val Val Ala Phe Lys Glu Asp Asn Thr Val Ala Phe Lys His Leu Phe Leu Lys Gly Tyr Ser Gly Thr Asp Glu Asp Asp Tyr Ser Cys Ser Val Tyr Thr Gln Glu Asp Ala Tyr Glu Ser Ile Phe Phe Ala Ile Asn Gln Tyr His Gln Leu Lys Asp Ile Thr Leu Gly Thr Leu Gly Tyr Gly Glu Asn Glu Asp Asn Arg Ile Gly Leu Lys Val Cys Lys Gln His Tyr Lys Lys Gly Thr Met Phe Pro Ser Asn Glu Thr Leu Asn Ile Asp Asn Asp Val Glu Leu Ile Ser Cys Ser Phe Ile Ala Leu Asp Cys Val Gln Leu Asp Leu Gln Asp Leu Ser Lys Lys Pro Pro Asp Trp Lys Asn Ser Ser Phe Phe Arg Leu Glu Phe Tyr Arg Leu Leu Gln Val Glu Ile Ser Phe His Leu Lys Gly Ile Asp Leu Gln Thr Ile His Ser Arg Glu Leu Pro Asp Cys Tyr Val Phe Gln Asn Thr Ile Ile Phe Asp Asn Lys Ala His Ser Gly Lys Ile Lys Ile Tyr Phe Asp Ser Asp Ala Lys Ile Glu Glu Cys Lys Asp Leu Asn Ile Phe Gly Ser Thr Gln Lys Asn Ala Gln Tyr Val Leu Val Phe Asp Ala Phe Val Ile Val Ile Cys Leu Ala Ser Leu Ile Leu Cys Thr Arg Ser Ile Val Leu Ala Leu Arg Leu Arg Lys Arg Phe Leu Asn Phe Phe Leu Glu Lys Tyr Lys Arg Pro Val Cys Asp Thr Asp Gln Trp Glu Phe Ile Asn Gly Trp Tyr Val Leu Val Ile Ile Ser Asp Leu Met Thr Ile Ile Gly Ser Ile Leu Lys Met Glu Ile Lys Ala Lys Asn Leu Thr Asn Tyr Asp Leu Cys Ser Ile Phe Leu Gly Thr Ser Thr Leu Leu Val Trp Val Gly Val Ile Arg Tyr Leu Gly Tyr Phe Gln Ala Tyr Asn Val Leu Ile Leu Thr Met Gln Ala Ser Leu Pro Lys Val Leu Arg Phe Cys Ala Cys Ala Gly Met Ile Tyr Leu Gly Tyr Thr Phe Cys Gly Trp Ile Val Leu Gly Pro Tyr His Asp Lys Phe Glu Asn Leu Asn Thr Val Ala Glu Cys Leu Phe Ser Leu Val Asn Gly Asp Asp Met Phe Ala Thr Phe Ala Gln Ile Gln Gln Lys Ser Ile Leu Val Trp Leu Phe Ser Arg Leu Tyr Leu Tyr Ser Phe Ile Ser Leu Phe Ile Tyr Met Ile Leu Ser Leu Phe Ile Ala Leu Ile Thr Asp Ser Tyr Asp Thr Ile Lys Lys Phe Gln Gln Asn Gly Phe Pro Glu Thr Asp Leu Gln Glu Phe Leu Lys Glu Cys Ser Ser Lys Glu Glu Tyr Gln Lys Glu Ser Ser Ala Phe Leu Ser Cys Ile Cys Cys Arg Arg Arg Lys Arg Ser Asp Asp His Leu Ile Pro Ile Ser

FIGURE 408

aggaagctga accatctatc tccagaaatg tcttcagaaa gtaaagagca acataacgtt tcacccagag actcagctga aggaaatgac agttatccat ctgggatcca tctggaactt caaagggaat caagtactga cttcaagcaa tttgagacca atgatcaatg cagaccttat cataggatcc ttattgagcg tcaagagaaa tcagatacaa acttcaagga gtttgttatt aaaaagctgc agaagaattg ccagtgcagt ccagccaaag ccaaaaatat gattttaggt ttccttcctg ttttgcagtg gctcccaaaa tacgacctaa agaaaaacat tttaggggat gtgatgtcag gcttgattgt gggcatatta ttggtgcccc agtccattgc ttattccctg ctggctggcc aagaacctgt ctatggtctg tacacatctt tttttgccag catcatttat tttctcttgg gtacctcccg tcacatctct gtgggcattt ttggagtact gtgccttatg attggtgaga cagttgaccg agaactacag aaagctggct atgacaatgc ccatagtgct ccttccttag gaatggtttc aaatgggagc acattattaa atcatacatc agacaggata tgtgacaaaa gttgctatgc aattatggtt ggcagcactg taacctttat agctggagtt tatcaggtag cgatgggctt ctttcaagtg ggttttgttt ctgtctacct ctcagatgcc ttgctgagtg gatttgtcac tggtgcctcc ttcactattc ttacatctca ggccaagtat cttcttgggc tcaaccttcc tcggactaat ggtgtgggct cactcatcac tacctggata catgtcttca gaaacatcca taagaccaat ctctgtgatc ttatcaccag ccttttgtgc cttttggttc ttttgccaac caaagaactc aatgaacact tcaaatccaa gcttaaggca ccgattccta ttgaacttgt tgttgttgta gcagccacat tagcctctca ttttggaaaa ctacatgaaa attataattc tagtattgct ggacatattc ccactgggtt tatgccaccc aaagtaccag aatggaacct aattcctagt gtggctgtag atgcaatagc tatttccatc attggttttg ctatcactgt atcactttct gagatgtttg ccaagaaaca tggttacaca gtcaaagcaa accaggaaat gtatgccatt ggcttttgta atatcatccc ttccttcttc cactgtttta ctactagtgc agctcttgca aagacattgg ttaaagaatc aacaggctgc catactcagc tttctggtgt ggtaacagcc ctggttcttt tgttggtcct cctagtaata gctcctttgt tctattccct tcaaaaaagt gtccttggtg tgatcacaat tgtaaatcta cggggagccc ttcgtaaatt tagggatctt cccaaaatgt ggagtattag tagaatggat acagttatct ggtttgttac tatgctgtcc tctgcactgc taagtactga aataggccta cttgttgggg tttgtttttc tatattttgt gtcatcctcc gcactcagaa gccaaagagt tcactgcttg gcttggtgga agagtctgag gtctttgaat ctgtgtctgc ttacaagaac cttcagacta agccaggcat caagattttc cgctttgtag cccctctcta ctacataaac aaagaatgct ttaaatctgc tttatacaaa caaactgtca acccaatctt aataaaggtg gcttggaaga aggcagcaaa gagaaagatc aaagaaaaag tagtgactct tggtggaatc caggatgaaa tgtcagtgca actttcccat gatcccttgg agctgcatac tatagtgatt gactgcagtg caattcaatt tttagataca gcagggatcc acacactgaa agaagttcgc agagattatg aagccattgg aatccaggtt ctgctggctc agtgcaatcc cactgtgagg gattccctaa ccaacggaga atattgcaaa aaggaagaag aaaaccttct cttctatagt gtgtatgaag cgatggcttt tgcagaagta tctaaaaatc agaaaggagt atgtgttccc aatggtctga gtcttagtag tgattaattg agaaggtaga tagaagaatg tctagccaat aggttaaaat ttcaagtgtc caacatttcc cagttccaca gtgggaaatt ttgcacactt gaaattttaa ccaagtggct agatattatt cctcctttga agctaatggc atttgtatat acacactgca gcagagcttg tagctggaca gagtcaaaaa gaagaaaata cggtttcagg ctttcttgca gatatgaagt attcttggaa tgcaataagt atgtattgaa ctgtactgta aagtagctcc aaaacttaat tactctcctg ttttaggggt tatacatttg gactgtgcat tctccaagag atgaagcggt gaagttggga tttacattgg aagtgctgta gacttcttta tgtggctcag tggagagagg gaaagaatgt tgcacctgct ctagtaccat aggtcaagag gcttctggat cacaaagtca taactagaca ggtttgttct tgtagttttc tatccccagt ctttgctccc cagatggcag tagtttttag taggaaagtg ccattcctgt ccttaaggca cagtctcatc ag

FIGURE 409

Met Ser Ser Glu Ser Lys Glu Gln His Asn Val Ser Pro Arg Asp Ser Ala Glu Gly Asn Asp Ser Tyr Pro Ser Gly Ile His Leu Glu Leu Gln Arg Glu Ser Ser Thr Asp Phe Lys Gln Phe Glu Thr Asn Asp Gln Cys Arg Pro Tyr His Arg Ile Leu Ile Glu Arg Gln Glu Lys Ser Asp Thr Asn Phe Lys Glu Phe Val Ile Lys Lys Leu Gln Lys Asn Cys Gln Cys Ser Pro Ala Lys Ala Lys Asn Met Ile Leu Gly Phe Leu Pro Val Leu Gln Trp Leu Pro Lys Tyr Asp Leu Lys Lys Asn Ile Leu Gly Asp Val Met Ser Gly Leu Ile Val Gly Ile Leu Leu Val Pro Gln Ser Ile Ala Tyr Ser Leu Leu Ala Gly Gln Glu Pro Val Tyr Gly Leu Tyr Thr Ser Phe Phe Ala Ser Ile Ile Tyr Phe Leu Leu Gly Thr Ser Arg His Ile Ser Val Gly Ile Phe Gly Val Leu Cys Leu Met Ile Gly Glu Thr Val Asp Arg Glu Leu Gln Lys Ala Gly Tyr Asp Asn Ala His Ser Ala Pro Ser Leu Gly Met Val Ser Asn Gly Ser Thr Leu Leu Asn His Thr Ser Asp Arg Ile Cys Asp Lys Ser Cys Tyr Ala Ile Met Val Gly Ser Thr Val Thr Phe Ile Ala Gly Val Tyr Gln Val Ala Met Gly Phe Phe Gln Val Gly Phe Val Ser Val Tyr Leu Ser Asp Ala Leu Leu Ser Gly Phe Val Thr Gly Ala Ser Phe Thr Ile Leu Thr Ser Gln Ala Lys Tyr Leu Leu Gly Leu Asn Leu Pro Arg Thr Asn Gly Val Gly Ser Leu Ile Thr Thr Trp Ile His Val Phe Arg Asn Ile His Lys Thr Asn Leu Cys Asp Leu Ile Thr Ser Leu Leu Cys Leu Leu Val Leu Leu Pro Thr Lys Glu Leu Asn Glu His Phe Lys Ser Lys Leu Lys Ala Pro Ile Pro Ile Glu Leu Val Val Val Val Ala Ala Thr Leu Ala Ser His Phe Gly Lys Leu His Glu Asn Tyr Asn Ser Ser Ile Ala Gly His Ile Pro Thr Gly Phe Met Pro Pro Lys Val Pro Glu Trp Asn Leu Ile Pro Ser Val Ala Val Asp Ala Ile Ala Ile Ser Ile Ile Gly Phe Ala Ile Thr Val Ser Leu Ser Glu Met Phe Ala Lys Lys His Gly Tyr Thr Val Lys Ala Asn Gln Glu Met Tyr Ala Ile Gly Phe Cys Asn Ile Ile Pro Ser Phe Phe His Cys Phe Thr Thr Ser Ala Ala Leu Ala Lys Thr Leu Val Lys Glu Ser Thr Gly Cys His Thr Gln Leu Ser Gly Val Val Thr Ala Leu Val Leu Leu Leu Val Leu Leu Val Ile Ala Pro Leu Phe Tyr Ser Leu Gln Lys Ser Val Leu Gly Val Ile Thr Ile Val Asn Leu Arg Gly Ala Leu Arg Lys Phe Arg Asp Leu Pro Lys Met Trp Ser Ile Ser Arg Met Asp Thr Val Ile Trp Phe Val Thr Met Leu Ser Ser Ala Leu Leu Ser Thr Glu Ile Gly Leu Leu Val Gly Val Cys Phe Ser Ile Phe Cys Val Ile Leu Arg Thr Gln Lys Pro Lys Ser Ser Leu Leu Gly Leu Val Glu Glu Ser Glu Val Phe Glu Ser Val Ser Ala Tyr Lys Asn Leu Gln Thr Lys Pro Gly Ile Lys Ile Phe Arg Phe Val Ala Pro Leu Tyr Tyr Ile Asn Lys Glu Cys Phe Lys Ser Ala Leu Tyr Lys Gln Thr Val Asn Pro Ile Leu Ile Lys Val Ala Trp Lys Lys Ala Ala Lys Arg Lys Ile Lys Glu Lys Val Val Thr Leu Gly Gly Ile Gln Asp Glu Met Ser Val Gln Leu Ser His Asp Pro Leu Glu Leu His Thr Ile Val Ile Asp Cys Ser Ala Ile Gln Phe Leu Asp Thr Ala Gly Ile His Thr Leu Lys Glu Val Arg Arg Asp Tyr Glu Ala Ile Gly Ile Gln Val Leu Leu Ala Gln Cys Asn Pro Thr Val Arg Asp Ser Leu Thr Asn Gly Glu Tyr Cys Lys Lys Glu Glu Glu Asn Leu Leu Phe Tyr Ser Val Tyr Glu Ala Met Ala Phe Ala Glu Val Ser Lys Asn Gln Lys Gly Val Cys Val Pro Asn Gly Leu Ser Leu Ser Ser Asp

FIGURE 410

agtttactct acatcatagc agagaaaatg gacaaaacac agctgttttg catgtaggag aatactaacc ctgcacagat tgtgatggtg atgtggaata tactaaagcc tagaacgcac ctcctctgca tgactaatat gttctgcaca agacatgaag gcacagacag cactgtcttt cttcctcatt ctcataacat ctctgagtgg atctcaaggc atattccctt tggctttctt catttatgtt cctatgaatg aacaaatcgt cattggaaga cttgatgaag atataattct cccttcttca tttgagaggg gatccgaagt cgtaatacac tggaagtatc aagatagcta taaggttcac agttactaca aaggcagtga ccatttggaa agccaagatc ccagatatgc aaacaggaca tccctttct ataatgagat tcaaaatggg aatgcgtcgc tatttttcag aagagtaagc cttctggacg aaggaattta cacctgctat gtaggaacag caattcaagt gattacaaac aaagtggtgc taaaggtggg agtttttctc acacccgtga tgaagtatga aaagaggaac acaaacagct tcttaatatg cagcgtgtta agtgtttatc ctcgtccaat tatcacgtgg aaaatggaca acacacctat ctctgaaaac aacatggaag aaacagggtc tttggattct ttttctatta acagcccact gaatattaca ggatcaaatt catcttatga atgtacaatt gaaaattcac tgctgaagca aacatggaca gggcgctgga cgatgaaaga tggccttcat aaaatgcaaa gtgaacacgt ttcactctca tgtcaacctg taaatgatta tttttcacca aaccaagact tcaaagttac ttggtccaga atgaaaagtg ggactttctc tgtcctggct tactatctga gctcctcaca aaatacaatt atcaatgaat cccgattctc atggaacaaa gagctgataa accagagtga cttctctatg aatttgatgg atcttaatct ttcagacagt ggggaatatt tatgcaatat ttcttcggat gaatatactt tacttaccat ccacacagtg catgtagaac cgagccaaga aacagcttcc cataacaaag gcttatggat tttggtgccc tctgcgattt tggcagcttt tctgctgatt tggagcgtaa aatgttgcag agcccagcta gaagccagga ggagcagaca ccctgctgat ggagcccaac aagaaagatg ttgtgtccct cctggtgagc gctgtcccag tgcacccgat aatggcgaag aaaatgtgcc tctttcagga aaagtatagg aaatgagaga agactgtgac aactcatgac ctgcatcctt aatatccagt gacttcatct ccccttttctt caccacaatt ccaggcaatg gcctgtcgga ccagacaatt ctaccactgc aaagagttgt aaccattttc tggtatcaca tttatttttc aagacatact tttcaagaca tcattcactg acccactacc tgcattgagt ataaatgcct ggatgttaag gattccaatt taactttgaa aagaactgtc tcattcattt acatttctgt tacagtcagc ccaggaggtt acagtgagct ctccactaag aatctggaag aaatgcatca ctaggggttg attcccaatc tgatcaactg ataatgggtg agagagcagg taagagccaa agtcacctta gtggaaaggt taaaaaccag agcctggaaa ccaagatgat tgatttgaca aggtatttta gtctagtttt atatgaacgg ttgtatcagg gtaaccaact cgatttggga tgaatcttag ggcaccaaag actaagacag tatctttaag attgctaggg aaaagggccc tatgtgtcag gcctctgagc ccaagccaag catcgcatcc cctgtgattt gcacgtatac atccagatgg cctaaagtaa ctgaagatcc acaaaagaag taaaaatagc cttaactgat gacattccac cattgtgatt tgttcctgcc ccaccctaac tgatcaatgt actttgtaat ctccccccacc cttaagaagg tactttgtaa tcttccccac ccttaagaag gttctttgta attctcccca cccttgagaa tgtactttgt gagatccacc ctgcccacaa aacattgctc ttaacttcac cgcctaaccc aaaacctata agaactaatg ataatccatc acccttcgct gactctcttt tcggactcag cccacctgca cccaggtgaa ataaacagct ttattgctca aaaaaa

FIGURE 411

Met Lys Ala Gln Thr Ala Leu Ser Phe Phe Leu Ile Leu Ile Thr Ser Leu Ser Gly Ser Gln Gly Ile Phe Pro Leu Ala Phe Phe Ile Tyr Val Pro Met Asn Glu Gln Ile Val Ile Gly Arg Leu Asp Glu Asp Ile Ile Leu Pro Ser Ser Phe Glu Arg Gly Ser Glu Val Val Ile His Trp Lys Tyr Gln Asp Ser Tyr Lys Val His Ser Tyr Tyr Lys Gly Ser Asp His Leu Glu Ser Gln Asp Pro Arg Tyr Ala Asn Arg Thr Ser Leu Phe Tyr Asn Glu Ile Gln Asn Gly Asn Ala Ser Leu Phe Phe Arg Arg Val Ser Leu Leu Asp Glu Gly Ile Tyr Thr Cys Tyr Val Gly Thr Ala Ile Gln Val Ile Thr Asn Lys Val Val Leu Lys Val Gly Val Phe Leu Thr Pro Val Met Lys Tyr Glu Lys Arg Asn Thr Asn Ser Phe Leu Ile Cys Ser Val Leu Ser Val Tyr Pro Arg Pro Ile Ile Thr Trp Lys Met Asp Asn Thr Pro Ile Ser Glu Asn Asn Met Glu Glu Thr Gly Ser Leu Asp Ser Phe Ser Ile Asn Ser Pro Leu Asn Ile Thr Gly Ser Asn Ser Ser Tyr Glu Cys Thr Ile Glu Asn Ser Leu Leu Lys Gln Thr Trp Thr Gly Arg Trp Thr Met Lys Asp Gly Leu His Lys Met Gln Ser Glu His Val Ser Leu Ser Cys Gln Pro Val Asn Asp Tyr Phe Ser Pro Asn Gln Asp Phe Lys Val Thr Trp Ser Arg Met Lys Ser Gly Thr Phe Ser Val Leu Ala Tyr Tyr Leu Ser Ser Ser Gln Asn Thr Ile Ile Asn Glu Ser Arg Phe Ser Trp Asn Lys Glu Leu Ile Asn Gln Ser Asp Phe Ser Met Asn Leu Met Asp Leu Asn Leu Ser Asp Ser Gly Glu Tyr Leu Cys Asn Ile Ser Ser Asp Glu Tyr Thr Leu Leu Thr Ile His Thr Val His Val Glu Pro Ser Gln Glu Thr Ala Ser His Asn Lys Gly Leu Trp Ile Leu Val Pro Ser Ala Ile Leu Ala Ala Phe Leu Leu Ile Trp Ser Val Lys Cys Cys Arg Ala Gln Leu Glu Ala Arg Arg Ser Arg His Pro Ala Asp Gly Ala Gln Gln Glu Arg Cys Cys Val Pro Pro Gly Glu Arg Cys Pro Ser Ala Pro Asp Asn Gly Glu Glu Asn Val Pro Leu Ser Gly Lys Val

FIGURE 412

atccattgtg ctggcgcgga ttctttatca ctgtcgccag cccggcgccc cggtgctgag gaatcattga catagagtaa ctccacagca tgtgtcttca agagcttccc taaaagatta aaggttatac aaaacttaaa agaagcagca attctattcg cttgttattg gacttgaaac tccctttgac ctcggaaact gaagatgagg ttgccatggg aactgctggt actgcaatca ttcattttgt gccttgcaga tgattccaca ctgcatggcc cgatttttat tcaagaacca agtcctgtaa tgttcccttt ggattctgag gagaaaaaag tgaagctcaa ttgtgaagtt aaaggaaatc caaaacctca tatcaggtgg aagttaaatg gaacagatgt tgacactggt atggatttcc gctacagtgt tgttgaaggg agcttgttga tcaataaccc caataaaacc caagatgctg gaacgtacca gtgcacagcg acaaactcgt ttggaacaat tgttagcaga gaagcaaagc ttcagtttgc ttatcttgac aactttaaaa caagaacaag aagcactgtg tctgtccgtc gaggtcaagg aatggtgcta ctgtgtggcc cgccacccca ttctggagag ctgagttatg cctggatctt caatgaatac ccttcctatc aggataatcg ccgctttgtt tctcaagaga ctgggaatct gtatattgcc aaagtagaaa aatcagatgt tgggaattat acctgtgtgg ttaccaatac cgtgacaaac cacaaggtcc tggggccacc tacaccacta atattgagaa atgatggagt gatgggtgaa tatgagccca aaatagaagt gcagttccca gaaacagttc cgactgcaaa aggagcaacg gtgaagctgg aatgctttgc tttaggaaat ccagtaccaa ctattatctg gcgaagagct gatggaaagc caatagcaag gaaagccaga agacacaagt caaatggaat tcttgagatc cctaattttc agcaggagga tgctggttta tatgaatgtg tagctgaaaa ttccagaggg aaaaatgtag caaggggaca gctaactttc tatgctcaac ctaattggat tcaaaaaata aatgatattc acgtggccat ggaagaaaat gtcttttggg aatgtaaagc aaatggaagg cctaagccta catacaagtg gctaaaaaat ggcgaacctc tgctaactcg ggatagaatt caaattgagc aaggaacact caacataaca atagtgaacc tctcagatgc tggcatgtat cagtgtttgg cagagaataa acatggagtt atcttttcca acgcagagct tagtgttata gctgtaggtc cagatttttc aagaacactc ttgaaaagag taactcttgt caaagtggga ggtgaagttg tcattgagtg taagccaaaa gcgtctccaa aacctgttta cacctggaag aaaggaaggg atatattaaa agaaaatgaa agaattacca tttctgaaga tggaaacctc agaatcatca acgttactaa atcagacgct gggagttata cctgtatagc cactaaccat tttggaactg ctagcagtac tggaaacttg gtagtgaaag atccaacaag ggtaatggta ccccccttcca gtatggatgt cactgttgga gagagtattg ttttaccgtg ccaggtaacg catgatcact cgctagacat cgtgtttact tggtcattta atggacacct gatagacttt gacagagatg gggaccactt tgaaagagtt ggagggcagg attcagctgg tgatttgatg atccgaaaca tccaactgaa gcatgctggg aaatatgtct gcatggtcca aacaagtgtg gacaggctat ctgctgctgc agacctgatt gtaagaggtc ctccaggtcc cccagaggct gtgacaatag acgaaatcac agataccact gctcagctct cctggagacc cgggcctgac aatcacagcc ccatcaccat gtatgtcatt caagccagga ctccgttctc cgtgggctgg caagcagtca gtacagtccc agaactcatt gatgggaaga cattcacagc gaccgtggtg ggtttgaacc cttgggttga atatgaattc cgcacagttg cagccaacgt gattgggatt ggggagccca gccgcccctc agagaaacgg agaacagaag aagctctccc cgaagtcaca ccagcgaatg tcagtggtgg cggaggcagc aaatctgaac tggttataac ctgggagacg gtccctgagg aattacagaa tggtcgtggc tttggttatg tggtggcctt ccggccctac ggtaaaatga tctggatgct gacagtgctg gcctcagctg acgcctctag atacgtgttc aggaatgaga gcgtgcaccc cttctctccc tttgaggtta aagtaggtgt cttcaacaac aaaggagaag gcccttcag tcccaccacg gtggtgtatt ctgcagaaga agaacccacc aaaccaccag ccagtatctt tgccagaagt ctttctgcca cagatattga agttttctgg gcctccccac tggagaagaa tagaggacga atacaaggtt atgaggttaa atattggaga catgaagaca aagaagaaaa tgctagaaaa atacgaacag ttggaaatca gacatcaaca aaaatcacga acttaaaagg cagtgtgctg tatcacttag ctgtcaaggc atataattct gctgggacag gcccctctag tgcaacagtc aatgtgacaa cccgaaagcc accaccaagt caacccccccg gaaacatcat atggaattca tcagactcca aaattatcct gaattgggat caagtgaagg ccctggataa tgagtcggaa gtaaaaggat acaaagtctt gtacagatgg aacagacaaa gcagcacatc tgtcattgaa acaaataaaa catcggtgga gctttctttg cctttcgatg aagattatat aatagaaatt aagccattca gcgacggagg agatggcagc agcagtgaac aaattcgaat tccaaagata tcaaatgcct acgcgagagg atctggggct tccacttcga atgcatgtac gctgtcagcc atcagtacaa taatgatttc cctcacagct aggtccagtt tatgacaaaa gttatctgaa ggacttgctg tttataatat aagcaacatt tagctagttg ttttgaagac acccagtact aagtaatatt gttgttcaag tacatcttat tactggaata aaaatgtttt ttgcttcttt aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a

FIGURE 413

Met Arg Leu Pro Trp Glu Leu Leu Val Leu Gln Ser Phe Ile Leu Cys Leu Ala Asp Asp Ser Thr Leu His Gly Pro Ile Phe Ile Gln Glu Pro Ser Pro Val Met Phe Pro Leu Asp Ser Glu Glu Lys Lys Val Lys Leu Asn Cys Glu Val Lys Gly Asn Pro Lys Pro His Ile Arg Trp Lys Leu Asn Gly Thr Asp Val Asp Thr Gly Met Asp Phe Arg Tyr Ser Val Val Glu Gly Ser Leu Leu Ile Asn Asn Pro Asn Lys Thr Gln Asp Ala Gly Thr Tyr Gln Cys Thr Ala Thr Asn Ser Phe Gly Thr Ile Val Ser Arg Glu Ala Lys Leu Gln Phe Ala Tyr Leu Asp Asn Phe Lys Thr Arg Thr Arg Ser Thr Val Ser Val Arg Arg Gly Gln Gly Met Val Leu Leu Cys Gly Pro Pro Pro His Ser Gly Glu Leu Ser Tyr Ala Trp Ile Phe Asn Glu Tyr Pro Ser Tyr Gln Asp Asn Arg Arg Phe Val Ser Gln Glu Thr Gly Asn Leu Tyr Ile Ala Lys Val Glu Lys Ser Asp Val Gly Asn Tyr Thr Cys Val Val Thr Asn Thr Val Thr Asn His Lys Val Leu Gly Pro Pro Thr Pro Leu Ile Leu Arg Asn Asp Gly Val Met Gly Glu Tyr Glu Pro Lys Ile Glu Val Gln Phe Pro Glu Thr Val Pro Thr Ala Lys Gly Ala Thr Val Lys Leu Glu Cys Phe Ala Leu Gly Asn Pro Val Pro Thr Ile Ile Trp Arg Arg Ala Asp Gly Lys Pro Ile Ala Arg Lys Ala Arg Arg His Lys Ser Asn Gly Ile Leu Glu Ile Pro Asn Phe Gln Gln Glu Asp Ala Gly Leu Tyr Glu Cys Val Ala Glu Asn Ser Arg Gly Lys Asn Val Ala Arg Gly Gln Leu Thr Phe Tyr Ala Gln Pro Asn Trp Ile Gln Lys Ile Asn Asp Ile His Val Ala Met Glu Glu Asn Val Phe Trp Glu Cys Lys Ala Asn Gly Arg Pro Lys Pro Thr Tyr Lys Trp Leu Lys Asn Gly Glu Pro Leu Leu Thr Arg Asp Arg Ile Gln Ile Glu Gln Gly Thr Leu Asn Ile Thr Ile Val Asn Leu Ser Asp Ala Gly Met Tyr Gln Cys Leu Ala Glu Asn Lys His Gly Val Ile Phe Ser Asn Ala Glu Leu Ser Val Ile Ala Val Gly Pro Asp Phe Ser Arg Thr Leu Leu Lys Arg Val Thr Leu Val Lys Val Gly Gly Glu Val Val Ile Glu Cys Lys Pro Lys Ala Ser Pro Lys Pro Val Tyr Thr Trp Lys Lys Gly Arg Asp Ile Leu Lys Glu Asn Glu Arg Ile Thr Ile Ser Glu Asp Gly Asn Leu Arg Ile Ile Asn Val Thr Lys Ser Asp Ala Gly Ser Tyr Thr Cys Ile Ala Thr Asn His Phe Gly Thr Ala Ser Ser Thr Gly Asn Leu Val Val Lys Asp Pro Thr Arg Val Met Val Pro Pro Ser Ser Met Asp Val Thr Val Gly Glu Ser Ile Val Leu Pro Cys Gln Val Thr His Asp His Ser Leu Asp Ile Val Phe Thr Trp Ser Phe Asn Gly His Leu Ile Asp Phe Asp Arg Asp Gly Asp His Phe Glu Arg Val Gly Gly Gln Asp Ser Ala Gly Asp Leu Met Ile Arg Asn Ile Gln Leu Lys His Ala Gly Lys Tyr Val Cys Met Val Gln Thr Ser Val Asp Arg Leu Ser Ala Ala Ala Asp Leu Ile Val Arg Gly Pro Pro Gly Pro Pro Glu Ala Val Thr Ile Asp Glu Ile Thr Asp Thr Thr Ala Gln Leu Ser Trp Arg Pro Gly Pro Asp Asn His Ser Pro Ile Thr Met Tyr Val Ile Gln Ala Arg Thr Pro Phe Ser Val Gly Trp Gln Ala Val Ser Thr Val Pro Glu Leu Ile Asp Gly Lys Thr Phe Thr Ala Thr Val Val Gly Leu Asn Pro Trp Val Glu Tyr Glu Phe Arg Thr Val Ala Ala Asn Val Ile Gly Ile Gly Glu Pro Ser Arg Pro Ser Glu Lys Arg Arg Thr Glu Glu Ala Leu Pro Glu Val Thr Pro Ala Asn Val Ser Gly Gly Gly Gly Ser Lys Ser Glu Leu Val Ile Thr Trp Glu Thr Val Pro Glu Glu Leu Gln Asn Gly Arg Gly Phe Gly Tyr Val Val Ala Phe Arg Pro Tyr Gly Lys Met Ile Trp Met Leu Thr Val Leu Ala Ser Ala Asp Ala Ser Arg Tyr Val Phe Arg Asn Glu Ser Val His Pro Phe Ser Pro Phe Glu Val Lys Val Gly Val Phe Asn Asn Lys Gly Glu Gly Pro Phe Ser Pro Thr Thr Val Val Tyr Ser Ala Glu Glu Glu Pro Thr Lys Pro Pro Ala Ser Ile Phe Ala Arg Ser Leu Ser Ala Thr Asp Ile Glu Val Phe Trp Ala Ser Pro Leu Glu Lys Asn Arg Gly Arg Ile Gln Gly Tyr Glu Val Lys Tyr Trp Arg His Glu Asp Lys Glu Glu Asn Ala Arg Lys Ile Arg Thr Val Gly Asn Gln Thr Ser Thr Lys Ile Thr Asn Leu Lys Gly Ser Val Leu Tyr His Leu Ala Val Lys Ala Tyr Asn Ser Ala Gly Thr Gly Pro Ser Ser Ala Thr Val Asn Val Thr Thr Arg Lys Pro Pro Pro Ser Gln Pro Pro Gly Asn Ile Ile Trp Asn Ser Ser Asp Ser Lys Ile Ile Leu Asn Trp Asp Gln Val Lys Ala Leu Asp Asn Glu Ser Glu Val Lys Gly Tyr Lys Val Leu Tyr Arg Trp Asn Arg Gln Ser Ser Thr Ser Val Ile Glu Thr Asn Lys Thr Ser Val Glu Leu Ser Leu Pro Phe Asp Glu Asp Tyr Ile Ile Glu Ile Lys Pro Phe Ser Asp Gly Gly Asp Gly Ser Ser Ser Glu Gln Ile Arg Ile Pro Lys Ile Ser Asn Ala Tyr Ala Arg Gly Ser Gly Ala Ser Thr Ser Asn Ala Cys Thr Leu Ser Ala Ile Ser Thr Ile Met Ile Ser Leu Thr Ala Arg Ser Ser Leu

FIGURE 414

taatttttgc ccagtctgcc tgttgtgggg ctcctcccct ttggggatat aagcccggcc tggggctgct ccgttctctg cctggcctga ggctccctga gccgcctccc caccatcacc atggccaagg gcttctatat ttccaagtcc ctgggcatcc tggggatcct cctgggcgtg gcagccgtgt gcacaatcat cgcactgtca gtggtgtact cccaggagaa gaacaagaac gccaacagct ccccccgtggc ctccaccacc ccgtccgcct cagccaccac caaccccgcc tcggccacca ccttggacca aagtaaagcg tggaatcgtt accgcctccc caacacgctg aaacccgatt cctaccaggt gacgctgaga ccgtacctca cccccaatga caggggcctg tacgttttta agggctccag caccgtccgt ttcacctgca aggaggccac tgacgtcatc atcatccaca gcaagaagct caactacacc ctcagccagg ggcacagggt ggtcctgcgt ggtgtgggag gctcccagcc ccccgacatt gacaagactg agctggtgga gcccaccgag tacctggtgg tgcacctcaa gggctccctg gtgaaggaca gccagtatga gatggacagc gagttcgagg gggagttggc agatgacctg gcgggcttct accgcagcga gtacatggag ggcaatgtca gaaaggtggt ggccactaca cagatgcagg ctgcagatgc ccggaagtcc ttcccatgct tcgatgagcc ggccatgaag gccgagttca acatcacgct tatccacccc aaggacctga cagccctgtc caacatgctt cccaaaggtc ccagcacccc acttccagaa gaccccaact ggaatgtcac tgagttccac accacgccca agatgtccac gtacttgctg gccttcattg tcagtgagtt cgactacgtg gagaagcagg catccaatgg tgtcttgatc cggatctggg cccggcccag tgccattgcg gcgggccacg gcgattatgc cctgaacgtg acgggcccca tccttaactt ctttgctggt cattatgaca caccctaccc actcccaaaa tcagaccaga ttggcctgcc agacttcaac gccggcgcca tggagaactg gggactggtg acctaccggg agaactccct gctgttcgac cccctgtcct cctccagcag caacaaggag cgggtggtca ctgtgattgc tcatgagctg gcccaccagt ggttcgggaa cctggtgacc atagagtggt ggaatgacct gtggctgaac gagggcttcg cctcctacgt ggagtacctg ggtgctgact atgcggagcc cacctggaac ttgaaagacc tcatggtgct gaatgatgtg taccgcgtga tggcagtgga tgcactggcc tcctcccacc cgctgtccac acccgcctcg gagatcaaca cgccggccca gatcagtgag ctgtttgacg ccatctccta cagcaagggc gcctcagtcc tcaggatgct ctccagcttc ctgtccgagg acgtattcaa gcagggcctg gcgtcctacc tccacacctt tgcctaccag aacaccatct acctgaacct gtgggaccac ctgcaggagg ctgtgaacaa ccggtccatc caactcccca ccaccgtgcg ggacatcatg aaccgctgga ccctgcagat gggcttcccg gtcatcacgg tggataccag cacggggacc ctttcccagg agcacttcct ccttgacccc gattccaatg ttacccgccc ctcagaattc aactacgtgt ggattgtgcc catcacatcc atcagagatg gcagacagca gcaggactac tggctgatag atgtaagagc ccagaacgat ctcttcagca catcaggcaa tgagtgggtc ctgctgaacc tcaatgtgac gggctattac cgggtgaact acgacgaaga gaactggagg aagattcaga ctcagctgca gagagaccac tcggccatcc ctgtcatcaa tcgggcacag atcattaatg acgccttcaa cctggccagt gcccataagg tccctgtcac tctggcgctg aacaacaccc tcttcctgat tgaagagaga cagtacatgc cctgggaggc cgccctgagc agcctgagct acttcaagct catgtttgac cgctccgagg tctatggccc catgaagaac tacctgaaga agcaggtcac acccctcttc attcacttca gaaataatac caacaactgg agggagatcc cagaaaacct gatggaccag tacagcgagg ttaatgccat cagcaccgcc tgctccaacg gagttccaga gtgtgaggag atggtctctg gccttttcaa gcagtggatg gagaacccca ataataaccc gatccacccc aacctgcggt ccaccgtcta ctgcaacgct atcgcccagg gcggggagga ggagtgggac ttcgcctggg agcagttccg aaatgccaca ctggtcaatg aggctgacaa gctccgggca gccctggcct gcagcaaaga gttgtggatc ctgaacaggt acctgagcta caccctgaac ccggacttaa tccggaagca ggacgccacc tctaccatca tcagcattac caacaacgtc attgggcaag gtctggtctg ggactttgtc cagagcaact ggaagaagct ttttaacgat tatggtggtg gctcgttctc cttctccaac ctcatccagg cagtgacacg acgattctcc accgagtatg agctgcagca gctggagcag ttcaagaagg acaacgagga aacaggcttc ggctcaggca cccgggccct ggagcaagcc ctggagaaga cgaaagccaa catcaagtgg gtgaaggaga acaaggaggt ggtgctccag tggttcacag aaaacagcaa atagtcccca gcccttgaag tcacccggcc ccgatgcaag gtgcccacat gtgtccatcc cagcggctgg tgcagggcct ccattcctgg agcccgaggc accagtgtcc tcccctcaag gacaaagtct ccagcccacg ttctctctgc ctgtgagcca gtctagttcc tgatgaccca ggctgcctga gcacctccca gcccctgccc ctcatgccaa ccccgcccta ggcctggcat ggcacctgtc gcccagtgcc ctggggctga tctcagggaa gcccagctcc agggccagat gagcagaagc tctcgatgga caatgaacgg ccttgctggg ggccgccctg taccctcttt caccttccc taaagaccct aaatctgagg aatcaacagg gcagcagatc tgtatatttt tttctaagag aaaatgtaaa taaaggattt ctagatgaaa aaaaaaaaaa aaaa

FIGURE 415

Met Ala Lys Gly Phe Tyr Ile Ser Lys Ser Leu Gly Ile Leu Gly Ile Leu Leu Gly Val Ala Ala Val Cys Thr Ile Ile Ala Leu Ser Val Val Tyr Ser Gln Glu Lys Asn Lys Asn Ala Asn Ser Ser Pro Val Ala Ser Thr Thr Pro Ser Ala Ser Ala Thr Thr Asn Pro Ala Ser Ala Thr Thr Leu Asp Gln Ser Lys Ala Trp Asn Arg Tyr Arg Leu Pro Asn Thr Leu Lys Pro Asp Ser Tyr Gln Val Thr Leu Arg Pro Tyr Leu Thr Pro Asn Asp Arg Gly Leu Tyr Val Phe Lys Gly Ser Ser Thr Val Arg Phe Thr Cys Lys Glu Ala Thr Asp Val Ile Ile Ile His Ser Lys Lys Leu Asn Tyr Thr Leu Ser Gln Gly His Arg Val Val Leu Arg Gly Val Gly Gly Ser Gln Pro Pro Asp Ile Asp Lys Thr Glu Leu Val Glu Pro Thr Glu Tyr Leu Val Val His Leu Lys Gly Ser Leu Val Lys Asp Ser Gln Tyr Glu Met Asp Ser Glu Phe Glu Gly Glu Leu Ala Asp Asp Leu Ala Gly Phe Tyr Arg Ser Glu Tyr Met Glu Gly Asn Val Arg Lys Val Val Ala Thr Thr Gln Met Gln Ala Ala Asp Ala Arg Lys Ser Phe Pro Cys Phe Asp Glu Pro Ala Met Lys Ala Glu Phe Asn Ile Thr Leu Ile His Pro Lys Asp Leu Thr Ala Leu Ser Asn Met Leu Pro Lys Gly Pro Ser Thr Pro Leu Pro Glu Asp Pro Asn Trp Asn Val Thr Glu Phe His Thr Thr Pro Lys Met Ser Thr Tyr Leu Leu Ala Phe Ile Val Ser Glu Phe Asp Tyr Val Glu Lys Gln Ala Ser Asn Gly Val Leu Ile Arg Ile Trp Ala Arg Pro Ser Ala Ile Ala Ala Gly His Gly Asp Tyr Ala Leu Asn Val Thr Gly Pro Ile Leu Asn Phe Phe Ala Gly His Tyr Asp Thr Pro Tyr Pro Leu Pro Lys Ser Asp Gln Ile Gly Leu Pro Asp Phe Asn Ala Gly Ala Met Glu Asn Trp Gly Leu Val Thr Tyr Arg Glu Asn Ser Leu Leu Phe Asp Pro Leu Ser Ser Ser Ser Ser Asn Lys Glu Arg Val Val Thr Val Ile Ala His Glu Leu Ala His Gln Trp Phe Gly Asn Leu Val Thr Ile Glu Trp Trp Asn Asp Leu Trp Leu Asn Glu Gly Phe Ala Ser Tyr Val Glu Tyr Leu Gly Ala Asp Tyr Ala Glu Pro Thr Trp Asn Leu Lys Asp Leu Met Val Leu Asn Asp Val Tyr Arg Val Met Ala Val Asp Ala Leu Ala Ser Ser His Pro Leu Ser Thr Pro Ala Ser Glu Ile Asn Thr Pro Ala Gln Ile Ser Glu Leu Phe Asp Ala Ile Ser Tyr Ser Lys Gly Ala Ser Val Leu Arg Met Leu Ser Ser Phe Leu Ser Glu Asp Val Phe Lys Gln Gly Leu Ala Ser Tyr Leu His Thr Phe Ala Tyr Gln Asn Thr Ile Tyr Leu Asn Leu Trp Asp His Leu Gln Glu Ala Val Asn Asn Arg Ser Ile Gln Leu Pro Thr Thr Val Arg Asp Ile Met Asn Arg Trp Thr Leu Gln Met Gly Phe Pro Val Ile Thr Val Asp Thr Ser Thr Gly Thr Leu Ser Gln Glu His Phe Leu Leu Asp Pro Asp Ser Asn Val Thr Arg Pro Ser Glu Phe Asn Tyr Val Trp Ile Val Pro Ile Thr Ser Ile Arg Asp Gly Arg Gln Gln Gln Asp Tyr Trp Leu Ile Asp Val Arg Ala Gln Asn Asp Leu Phe Ser Thr Ser Gly Asn Glu Trp Val Leu Leu Asn Leu Asn Val Thr Gly Tyr Tyr Arg Val Asn Tyr Asp Glu Glu Asn Trp Arg Lys Ile Gln Thr Gln Leu Gln Arg Asp His Ser Ala Ile Pro Val Ile Asn Arg Ala Gln Ile Ile Asn Asp Ala Phe Asn Leu Ala Ser Ala His Lys Val Pro Val Thr Leu Ala Leu Asn Asn Thr Leu Phe Leu Ile Glu Glu Arg Gln Tyr Met Pro Trp Glu Ala Ala Leu Ser Ser Leu Ser Tyr Phe Lys Leu Met Phe Asp Arg Ser Glu Val Tyr Gly Pro Met Lys Asn Tyr Leu Lys Lys Gln Val Thr Pro Leu Phe Ile His Phe Arg Asn Asn Thr Asn Asn Trp Arg Glu Ile Pro Glu Asn Leu Met Asp Gln Tyr Ser Glu Val Asn Ala Ile Ser Thr Ala Cys Ser Asn Gly Val Pro Glu Cys Glu Glu Met Val Ser Gly Leu Phe Lys Gln Trp Met Glu Asn Pro Asn Asn Asn Pro Ile His Pro Asn Leu Arg Ser Thr Val Tyr Cys Asn Ala Ile Ala Gln Gly Gly Glu Glu Glu Trp Asp Phe Ala Trp Glu Gln Phe Arg Asn Ala Thr Leu Val Asn Glu Ala Asp Lys Leu Arg Ala Ala Leu Ala Cys Ser Lys Glu Leu Trp Ile Leu Asn Arg Tyr Leu Ser Tyr Thr Leu Asn Pro Asp Leu Ile Arg Lys Gln Asp Ala Thr Ser Thr Ile Ile Ser Ile Thr Asn Asn Val Ile Gly Gln Gly Leu Val Trp Asp Phe Val Gln Ser Asn Trp Lys Lys Leu Phe Asn Asp Tyr Gly Gly Gly Ser Phe Ser Phe Ser Asn Leu Ile Gln Ala Val Thr Arg Arg Phe Ser Thr Glu Tyr Glu Leu Gln Gln Leu Glu Gln Phe Lys Lys Asp Asn Glu Glu Thr Gly Phe Gly Ser Gly Thr Arg Ala Leu Glu Gln Ala Leu Glu Lys Thr Lys Ala Asn Ile Lys Trp Val Lys Glu Asn Lys Glu Val Val Leu Gln Trp Phe Thr Glu Asn Ser Lys

FIGURE 416

tcgctgccat gaatgccttc ctgctcttcg cactgtgcct ccttggggcc tgggccgcct tggcaggagg ggtcaccgtg caggatggaa atttctcctt ttctctggag tcagtgaaga agctcaaaga cctccaggag ccccaggagc ccagggttgg gaaactcagg aactttgcac ccatccctgg tgaacctgtg gttcccatcc tctgtagcaa cccgaacttt ccagaagaac tcaagcctct ctgcaaggag cccaatgccc aggagatact tcagaggctg gaggaaatcg ctgaggaccc gggcacatgt gaaatctgtg cctacgctgc ctgtaccgga tgctaggggg gcttgcccac tgcctgcctc ccctccgcag cagggaagct cttttctcct gcagaaaggg ccacccatga tactccactc ccagcagctc aacctaccct ggtccagtcg ggaggagcag cccggggagg aactgggtga ctggaggcct cgccccaaca ctgtccttcc ctgccacttc aacccccagc taataaacca gattccagag t

FIGURE 417

Met Asn Ala Phe Leu Leu Phe Ala Leu Cys Leu Leu Gly Ala Trp Ala Ala Leu Ala Gly Gly Val Thr Val Gln Asp Gly Asn Phe Ser Phe Ser Leu Glu Ser Val Lys Lys Leu Lys Asp Leu Gln Glu Pro Gln Glu Pro Arg Val Gly Lys Leu Arg Asn Phe Ala Pro Ile Pro Gly Glu Pro Val Val Pro Ile Leu Cys Ser Asn Pro Asn Phe Pro Glu Glu Leu Lys Pro Leu Cys Lys Glu Pro Asn Ala Gln Glu Ile Leu Gln Arg Leu Glu Glu Ile Ala Glu Asp Pro Gly Thr Cys Glu Ile Cys Ala Tyr Ala Ala Cys Thr Gly Cys

FIGURE 418

gctgctctcg ttcgcttggc tcagctcagc tcagctcagc gcagctccgc ggccgccaag ccgaggcggg cacggtctcc gagtcgcgga cgccagctcc gagctccctc tctccgccgc gcctccgcca ggtcgcgcct tcgtcgggac cacttcgggc aggagtcgcg tggcgaaggc ctgcggccgc ggcacaaagt tgggggccgc gaagatgagg ctgtccccgg cgcccctgaa gctgagccgg actccggcac tgctggccct ggcgctgccc ctggccgcgg cgctggcctt ctccgacgag accctggaca aagtgcccaa gtcagagggc tactgcagcc gtatcctgcg cgcccagggc acgcggcgcg agggctacac cgagttcagc ctccgcgtgg agggcgaccc cgacttctac aagccgggaa ccagctaccg cgtaacactt tcagctgctc ctccctccta cttcagagga ttcacattaa ttgccctcag agagaacaga gagggtgata aggaagaaga ccatgctggg accttccaga tcatagacga agaagaaact cagtttatga gcaattgccc tgttgcagtc actgaaagca ctccacggag gaggacccgg atccaggtgt tttggatagc accaccagcg ggaacaggct gcgtgattct gaaggccagc atcgtacaaa aacgcattat ttattttcaa gatgagggct ctctgaccaa gaaactttgt gaacaagatt ccacatttga tggggtgact gacaaaccca tcttagactg ctgtgcctgc ggaactgcca agtacagact cacattttat gggaattggt ccgagaagac acacccaaag gattaccctc gtcgggccaa ccactggtct gcgatcatcg gaggatccca ctccaagaat tatgtactgt gggaatatgg aggatatgcc agcgaaggcg tcaaacaagt tgcagaattg ggctcacccg tgaaaatgga ggaagaaatt cgacaacaga gtgatgaggt cctcaccgtc atcaaagcca aagcccagtg gccagcctgg cagcctctca acgtgagagc agcaccttca gctgaatttt ccgtggacag aacgcgccat ttaatgtcct tcctgaccat gatgggccct agtcccgact ggaacgtagg cttatctgca gaagatctgt gcaccaagga atgtggctgg gtccagaagg tggtgcaaga cctgattccc tgggacgctg gcaccgacag cggggtgacc tatgagtcac ccaacaaacc caccattccc caggagaaaa tccggcccct gaccagcctg gaccatcctc agagtccttt ctatgaccca gagggtgggt ccatcactca agtagccaga gttgtcatcg agagaatcgc acggaagggt gaacaatgca atattgtacc tgacaatgtc gatgatattg tagctgacct ggctccagaa gagaaagatg aagatgacac ccctgaaacc tgcatctact ccaactggtc cccatggtcc gcctgcagct cctccacctg tgacaaaggc aagaggatgc gacagcgcat gctgaaagca cagctggacc tcagcgtccc ctgccctgac acccaggact tccagccctg catgggccct ggctgcagtg acgaagacgg ccccacctgc accatgtccg agtggatcac ctggtcgccc tgcagcatct cctgcggcat gggcatgagg tcccgggaga ggtatgtgaa gcagttcccg gaggacggct ccgtgtgcac gctgcccact gaggaaacgg agaagtgcac ggtcaacgag gagtgctctc ccagcagctg cctgatgacc gagtggggcg agtgggacga gtacagcgcc acctgcggca tgggcatgaa gaagcggcac cgcatgatca agatgaaccc cgcagatggc tccatgtgca aagccgagac atcacaggca gagaagcgca tgatgccaga gtgccacacc atcccatgct tgctgtcccc atggtccgag tggagtgact gcagcgtgac ctgcgggaag ggcatgcgaa cccgacagcg gatgctcaag tctctggcag aacttggaga ctgcaatgag gatctggagc aggtggagaa gtgcatgctc cctgaatgcc ccattgactg tgagctcacc gagtggtccc agtggtcgga atgtaacaag tcatgtggga aaggccacgt gattcgaacc cggatgatcc aaatggagcc tcagtttgga ggtgcaccct gcccagagac tgtgcagcga aaaaagtgcc gcatccgaaa atgccttcga aatccatcca tccaaaagct acgctggagg gaggcccgag agagccggcg gagtgagcag ctgaaggaag agtctgaagg ggagcagttc ccaggttgta ggatgcgccc atggacggcc tggtcagaat gcaccaaact gtgcggaggt ggaattcagg aacgttacat gactgtaaag aagagattca aaagctccca gtttaccagc tgcaaagaca agaaggagat cagagcatgc aatgttcatc cttgttagca agggtacgag ttccccaggg ctgcactcta gattccagag tcaccaatgg ctggattatt tgcttgttta agacaattta aattgtgtac gctagttttc atttttgcag tgtggttcgc ccagtagtct tgtggatgcc agagacatcc tttctgaata cttcttgatg ggtacaggct gagtggggcg ccctcacctc cagccagcct cttcctgcag aggagtagtg tcagccacct tgtactaagc tgaaacatgt ccctctggag cttccacctg gccagggagg acggagactt tgacctactc cacatggaga ggcaaccatg tctggaagtg actatgcctg agtcccaggg tgcggcaggt aggaaacatt cacagatgaa gacagcagat tccccacatt ctcatctttg gcctgttcaa tgaaaccatt gtttgcccat ctcttcttag tggaacttta ggtctctttt caagtctcct cagtcatcaa tagttcctgg ggaaaaacag agctggtaga cttgaagagg agcattgatg ttgggtggct tttgttcttt cactgagaaa ttcggaatac atttgtctca cccctgatat tggttcctga tgccccccca acaaaaataa ataaataaat tatggctgct ttatttaaat ataaggtagc tagtttttac acctgagata aataataagc ttagagtgta tttttccctt gcttttgggg gttcagagga gtatgtacaa ttcttctggg aagccagcct tctgaacttt ttggtactaa atccttattg gaaccaagac aaaggaagca aaattggtct ctttagagac caatttgcct aaattttaaa atcttcctac acacatctag acgttcaagt ttgcaaatca gtttttagca agaaaacatt tttgctatac aaacattttg ctaagtctgc ccaaagcccc cccaatgcat tccttcaaca aaatacaatc tctgtacttt aaagttattt tagtcatgaa attttatatg cagagagaaa aagttaccga gacagaaaac aaatctaagg gaaaggaata ttatgggatt aagctgagca agcaattctg gtggaaagtc aaacctgtca gtgctccaca ccagggctgt ggtcctccca gacatgcata ggaatggcca caggtttaca ctgccttccc agcaattata agcacaccag attcagggag actgaccacc aagggatagt gtaaaaggac attttctcag ttgggtccat cagcagtttt tcttcctgca tttattgttg aaaactattg tttcatttct tcttttatag gccttattac tgcttaatcc aaatgtgtac cattggtgag

acacatacaa tgctctgaat acactacgaa tttgtattaa acacatcaga atatttccaa atacaacata gtatagtcct gaatatgtac ttttaacaca agagagacta ttcaataaaa actcactggg tctttcatgt ctttaagcta agtaagtgtt cagaaggttc ttttttatat tgtcctccac ctccatcatt ttcaataaaa gatagggctt ttgctccctt gttcttggag ggaccattat tacatctctg aactaccttt gtatccaaca tgttttaaat ccttaaatga attgctttct cccaaaaaaa gcacagtata aagaaacaca agatttaatt atttttctac ttgggggggaa aaaagtcctc atgtagaagc acccactttt gcaatgttgt tctaagctat ctatctaact ctcagcccat gataaagttc cttaagctgg tgattcctaa tcaaggacaa gccaccctag tgtctcatgt ttgtatttgg tcccagttgg gtacatttta aaatcctgat tttggagact taaaaccagg ttaatggcta agaatgggta acatgactct tgttggattg ttatttttg tttgcaatgg ggaatttata agaagcatca agtctctttc ttaccaaagt cttgttaggt ggtttatagt tcttttggct aacaaatcat tttggaaata aagatttttt actac

FIGURE 419

Met Arg Leu Ser Pro Ala Pro Leu Lys Leu Ser Arg Thr Pro Ala Leu Leu Ala Leu Ala Leu Pro Leu Ala Ala Ala Leu Ala Phe Ser Asp Glu Thr Leu Asp Lys Val Pro Lys Ser Glu Gly Tyr Cys Ser Arg Ile Leu Arg Ala Gln Gly Thr Arg Arg Glu Gly Tyr Thr Glu Phe Ser Leu Arg Val Glu Gly Asp Pro Asp Phe Tyr Lys Pro Gly Thr Ser Tyr Arg Val Thr Leu Ser Ala Ala Pro Pro Ser Tyr Phe Arg Gly Phe Thr Leu Ile Ala Leu Arg Glu Asn Arg Glu Gly Asp Lys Glu Glu Asp His Ala Gly Thr Phe Gln Ile Ile Asp Glu Glu Glu Thr Gln Phe Met Ser Asn Cys Pro Val Ala Val Thr Glu Ser Thr Pro Arg Arg Arg Thr Arg Ile Gln Val Phe Trp Ile Ala Pro Pro Ala Gly Thr Gly Cys Val Ile Leu Lys Ala Ser Ile Val Gln Lys Arg Ile Ile Tyr Phe Gln Asp Glu Gly Ser Leu Thr Lys Lys Leu Cys Glu Gln Asp Ser Thr Phe Asp Gly Val Thr Asp Lys Pro Ile Leu Asp Cys Cys Ala Cys Gly Thr Ala Lys Tyr Arg Leu Thr Phe Tyr Gly Asn Trp Ser Glu Lys Thr His Pro Lys Asp Tyr Pro Arg Arg Ala Asn His Trp Ser Ala Ile Ile Gly Gly Ser His Ser Lys Asn Tyr Val Leu Trp Glu Tyr Gly Gly Tyr Ala Ser Glu Gly Val Lys Gln Val Ala Glu Leu Gly Ser Pro Val Lys Met Glu Glu Glu Ile Arg Gln Gln Ser Asp Glu Val Leu Thr Val Ile Lys Ala Lys Ala Gln Trp Pro Ala Trp Gln Pro Leu Asn Val Arg Ala Ala Pro Ser Ala Glu Phe Ser Val Asp Arg Thr Arg His Leu Met Ser Phe Leu Thr Met Met Gly Pro Ser Pro Asp Trp Asn Val Gly Leu Ser Ala Glu Asp Leu Cys Thr Lys Glu Cys Gly Trp Val Gln Lys Val Val Gln Asp Leu Ile Pro Trp Asp Ala Gly Thr Asp Ser Gly Val Thr Tyr Glu Ser Pro Asn Lys Pro Thr Ile Pro Gln Glu Lys Ile Arg Pro Leu Thr Ser Leu Asp His Pro Gln Ser Pro Phe Tyr Asp Pro Glu Gly Gly Ser Ile Thr Gln Val Ala Arg Val Val Ile Glu Arg Ile Ala Arg Lys Gly Glu Gln Cys Asn Ile Val Pro Asp Asn Val Asp Asp Ile Val Ala Asp Leu Ala Pro Glu Glu Lys Asp Glu Asp Asp Thr Pro Glu Thr Cys Ile Tyr Ser Asn Trp Ser Pro Trp Ser Ala Cys Ser Ser Ser Thr Cys Asp Lys Gly Lys Arg Met Arg Gln Arg Met Leu Lys Ala Gln Leu Asp Leu Ser Val Pro Cys Pro Asp Thr Gln Asp Phe Gln Pro Cys Met Gly Pro Gly Cys Ser Asp Glu Asp Gly Pro Thr Cys Thr Met Ser Glu Trp Ile Thr Trp Ser Pro Cys Ser Ile Ser Cys Gly Met Gly Met Arg Ser Arg Glu Arg Tyr Val Lys Gln Phe Pro Glu Asp Gly Ser Val Cys Thr Leu Pro Thr Glu Glu Thr Glu Lys Cys Thr Val Asn Glu Glu Cys Ser Pro Ser Ser Cys Leu Met Thr Glu Trp Gly Glu Trp Asp Glu Tyr Ser Ala Thr Cys Gly Met Gly Met Lys Lys Arg His Arg Met Ile Lys Met Asn Pro Ala Asp Gly Ser Met Cys Lys Ala Glu Thr Ser Gln Ala Glu Lys Arg Met Met Pro Glu Cys His Thr Ile Pro Cys Leu Leu Ser Pro Trp Ser Glu Trp Ser Asp Cys Ser Val Thr Cys Gly Lys Gly Met Arg Thr Arg Gln Arg Met Leu Lys Ser Leu Ala Glu Leu Gly Asp Cys Asn Glu Asp Leu Glu Gln Val Glu Lys Cys Met Leu Pro Glu Cys Pro Ile Asp Cys Glu Leu Thr Glu Trp Ser Gln Trp Ser Glu Cys Asn Lys Ser Cys Gly Lys Gly His Val Ile Arg Thr Arg Met Ile Gln Met Glu Pro Gln Phe Gly Gly Ala Pro Cys Pro Glu Thr Val Gln Arg Lys Lys Cys Arg Ile Arg Lys Cys Leu Arg Asn Pro Ser Ile Gln Lys Leu Arg Trp Arg Glu Ala Arg Glu Ser Arg Arg Ser Glu Gln Leu Lys Glu Glu Ser Glu Gly Glu Gln Phe Pro Gly Cys Arg Met Arg Pro Trp Thr Ala Trp Ser Glu Cys Thr Lys Leu Cys Gly Gly Gly Ile Gln Glu Arg Tyr Met Thr Val Lys Lys Arg Phe Lys Ser Ser Gln Phe Thr Ser Cys Lys Asp Lys Lys Glu Ile Arg Ala Cys Asn Val His Pro Cys

FIGURE 420

cggcgctcgg accgctgtcc tccaacagcg cagggcagag cggctggcgc cgccggagcg cggagccacg accctccctg gccgcctttg tctactggcc gtgcggcccg gaaccgccac tctccagggc cggggacgcg cccgcagctg tcggtgacag ctcctcccta ccgcaaccct ccggggcgga ggggcggtcg ggccgggccc tgctagcccg cgaccgcaag cccgcgctcg cggatcgatg cccccgcagc agggggaccc cgcgttcccc gaccgctgcg aggcgcctcc ggtgccgccg cgtcgggagc gcggtggacg cgggggacgc gggcctgggg agccgggggg ccgggggcgt gcgggggggtg ccgagggggcg cggcgtcaag tgcgtgctgg tcggcgacgg cgcggtgggc aagacgagcc tggtggtgag ttacaccacc aacggctacc ccaccgagta catccctact gccttcgaca acttctccgc ggtggtgtct gtggatgggc ggcccgtgag actccaactc tgtgacactg ccggacagga tgaatttgac aagctgaggc ctctctgcta caccaacaca gacatcttcc tgctctgctt cagtgtcgtg agcccctcat ccttccagaa cgtcagtgag aaatgggtgc cggagattcg atgccactgt cccaaagccc ccatcatcct agttggaacg cagtcggatc tcagagaaga tgtcaaagtc ctcattgagt tggacaaatg caaagaaaag ccagtgcctg aagaggcggc taagctgtgc gccgaggaaa tcaaagccgc ctcctacatc gagtgttcag ccttgactca aaaaaacctc aaagaggtct ttgatgcagc catcgtcgct ggcattcaat actcggacac tcagcaacag ccaaagaagt ctaaaagcag gactccagat aaaatgaaaa acctctccaa gtcctggtgg aagaagtact gctgtttcgt atgatgctgg caagacaccc agaaaggcta ttttcagatg aaatcgatat tagaagctat attagctgaa acaactcctt ttactgcgta gaacctatat cgagagtgtg tgtatatgta ttataggagg agctctcaat tttatgtatt ctttctgcct ttaattttct tgtttgtttg agcttaggga tgagatactt atgcaagata tttttgaagt aaattaaaca tttttcacat ctctggaaat ttagagttct agacctctgg ttaatttata tctaatatga agaagacacc tctaatctgg atgttaagaa tgaagttctg ctacattata atgtacagaa gagcaaaagg gaggaacact atggttaacc ctctcttgat taagggctac ttaatgcaca gtgcattatg tacacaggtc aaccatggta acaatagttc ttagctttga aactccatgc aaaccatgcc tttttttaa ggagcaaaaa tctgagaaaa aaagtgagag acctctgcct acaaaacttc aaaccagtca cttttgtcaa ttgctaatac ccagttactt atgatttaaa aacaaccaac agaaaacatc ccacagactg tatggcactc tgtagtcaaa aaaggaaact ttcttattgg gacttttctt tcttagtcca gttgtgttga cacatatgaa cacagacaaa gtgctatgcg gaggaaagca agtgttggtc agtagtttca tgttttaggg agtggttcct gtggagatca gaaagtgaca tttgctttcg gtactgtaat acatgcacca aactgcctca atcctaggta acgagggcaa cagggagcac ctgtctggat tgtttttaaa cctccatact caagctgtct cttcggcagg gaggtgaata ctcttgaaag gccaacagca agtgtttgtg ggacacaaca cagataattt tttcttaagt cgaccaagat gtacttctct gtgtgcacac ccatgcacac tcatgcacac agatacatag gtctgtatgg ctgtatttgc tgttgattca gactttcaca ccattaatgg ggaaaagcgt ggccacaaaa acagatgcta ggaagcttgg cttcctcttc ttgttgaccc ttttttgaac caacatcttt tttattatat tcagagtatg tttttaagtg tatcttaata tatacatttt ttaggacatc ttaaatctaa acaaaaaata aaatgaacat ctcttgaaac ctgttaaaac aaccagttaa agccacagat ggctttcagg gcagtagcag cagaggccag tggactctga ggactcctga ggggcggggc gtgtagccag ccaggtgcat gccgggacca tggccccccat acttggctgc ttcctgtgac agtgaaatac atccttcaag gtggcagctg ttagggctga atcttctgga gaaaaaggtg ccatctcagg agaatagctt ttactctggt aggaatgctt ccgagacacc acaaggcagc ctgaacactc agttgcaggg tcgggcttgc ggtgggtgac ccagagccac caaagtcaca tccacaacta atgagggaaa tctgtaaagc cagttagata gaagagtttt atttttctgt gggttttgtg ttgtcttttt tatgttaaaa agaaatccag tttgtgtttt tctatagaaa aagtaaaaga tcaggttata ctttaggtta ggggttctat ttattcctgt tagtaaataa aattaacaaa tttctttgtt taacaaaaga ttaatcttta aaccactaaa atacatagac tgattgatta ttcaacacat tggaattgat gtcggtcata gtttcctgaa gcatttagtt acaacctgaa ggaataaaat gatttgtgga aatgcttaaa atagacctaa ctgaatacag tctcatcttg ccgcgcctgg cttacctatc tgtggaaagc taggcttccc aggctgggct ctgcctgtct ggtgcctgga ggtgtgggag ggaagatgag ttatttaact ggtaagcgat ttgaaacact atttttatat taaagtaaat ggcatggagt atagtgcaaa ttcattttta agatagaaca caaaacttga aagaagtttt atgcgtgtga cagtgtatgg ggctgcagtt ggtctccctg gaggggactt ccacacctcc tgcctttagg ccatgggtgg aaagtgctca gtgaagtaca cctgtgtggc ccagttctga aagctttata cagttgaatt ttaagtgggg ttgataacac cttggactgt tagtgttaaa aatctagtgg gttgaccttt aaatgcaaca gtttttaaaa tatattgctg cattttatag aatagtaaag gtacgattat acttgagatt ttcctccatt tttatttctt cgtgaacata gagtttgggg ccgaaaatgt ttttaaagta tgtgtttgag ttaaatataa agttggttca cttcaaagct aaaaaattgt taaacttgca gcttggtatt gcagagaaga ttttataaga attttgcttt agagaatgcc actttggctg aactacaagt gtaggccacc attataattt ataaatacag catacttcaa aactgtttgt tatctcttgt taccatgtat gtataaatgg accttttata accttgttct ctgcttgaca gactcaagag aaactaccca ggtattacac aagccaaaat gggagcaagg ccttctctcc agactatcgt aacctggtgc cttaccaagt tgtgcttttc tgttttcaag tgtaaatgat gttgagcaga atgttgtact tgaaaatgct ataagtgaga tggtatgaaa taaattctga cttatgaata t

FIGURE 421

Met Pro Pro Gln Gln Gly Asp Pro Ala Phe Pro Asp Arg Cys Glu Ala Pro Pro Val Pro Pro Arg Arg Glu Arg Gly Gly Arg Gly Gly Arg Gly Pro Gly Glu Pro Gly Gly Arg Gly Arg Ala Gly Gly Ala Glu Gly Arg Gly Val Lys Cys Val Leu Val Gly Asp Gly Ala Val Gly Lys Thr Ser Leu Val Val Ser Tyr Thr Thr Asn Gly Tyr Pro Thr Glu Tyr Ile Pro Thr Ala Phe Asp Asn Phe Ser Ala Val Val Ser Val Asp Gly Arg Pro Val Arg Leu Gln Leu Cys Asp Thr Ala Gly Gln Asp Glu Phe Asp Lys Leu Arg Pro Leu Cys Tyr Thr Asn Thr Asp Ile Phe Leu Leu Cys Phe Ser Val Val Ser Pro Ser Ser Phe Gln Asn Val Ser Glu Lys Trp Val Pro Glu Ile Arg Cys His Cys Pro Lys Ala Pro Ile Ile Leu Val Gly Thr Gln Ser Asp Leu Arg Glu Asp Val Lys Val Leu Ile Glu Leu Asp Lys Cys Lys Glu Lys Pro Val Pro Glu Glu Ala Ala Lys Leu Cys Ala Glu Glu Ile Lys Ala Ala Ser Tyr Ile Glu Cys Ser Ala Leu Thr Gln Lys Asn Leu Lys Glu Val Phe Asp Ala Ala Ile Val Ala Gly Ile Gln Tyr Ser Asp Thr Gln Gln Gln Pro Lys Lys Ser Lys Ser Arg Thr Pro Asp Lys Met Lys Asn Leu Ser Lys Ser Trp Trp Lys Lys Tyr Cys Cys Phe Val

FIGURE 422

ggagaattgg agaagcttgt gccctgctgg aaagtgggat ggcagtaccc gcttcatcta gtagtcgggg agatcaagag aggtatggga cctgaagagg atggcagact gtgcagtgcg gtgcacaccg gtctccaggt tgttttcacc ctcctgtctc ctcccaggag ctaacgtgta agcaaacatg tttggataga gggctggtgc cacgccccag gctcaccccg cccgcacagc cgtcgtccac ccctcccctt tcttacagat aaagctgagg ctcggccagg gactgtgata tacccacatc cccggaacta ggtgatcgcg gtgcaggaac caggtgtgcc ttcgcgggat ccatgccttg aggcccagga acgccccgcc gccagcatgc cgtgggacgc gcggcggcct gggggtggcg cggacggcgg gcccgaggcc tcgggcgcgg cgcgctcgcg agcgcagaag cagtgccgca agtcgtcgtt cgccttctac caggcggtgc gcgacctgct acccgtgtgg ctgctggagg atatgcgcgc cagcgaggcc ttccactggg acgagcgcgg gcgcgccgcc gcctactcgc cctctgaggc gctgctctac gcgctcgtgc acgaccacca agcgtacgcg cattacctgc tggccacgtt cccgcggcgc gcgctcgcac cgcccagtgc cggcttccgc tgctgcgcgg ctcccgggcc gcacgtggcg ctggcagtgc gctacaaccg cgtgggcatt ctgcgccgca tcctgcgcac cttgcgcgac ttcccggccg aggagcgggc gcgcgtgctg gaccggcgtg gctgcagccg cgtggagggc ggtggcacgt cgctgcacgt ggcctgtgag ctggcgcgcc ccgagtgcct cttcctgctg ctgggccacg gcgcctcgcc cggtctgcgg gacggcggcg gcctcacgcc tctcgagctg ctgctgcgcc agctgggccg cgacgccggg gccactccct ccgccgccgg agccccccgcc tcagctcccg gggagccgcg ccagcgccgc ctgctgctgc tggacctcct ggcgctgtac accccgtgg gtgccgccgg ctcggcccgc caggagctgc tgggcgaccg gccgcgctgg cagcggctgc tgggtgagga caagttccag tggctggcgg gcctggcgcc gccctcgctc ttcgcgcgcg ccatgcaggt gctggtcacc gccatctctc caggccgctt ccccgaggcc ctggacgagc tgccgctgcc cccattcctg cagccgttgg acctcactgg caaaggctag gcccggagca ccctaggcgc tggattttgg gacaaaacta tttttcagag cgttgtaccg gcactttata tatattgatc tctgtacggc aaaaaaaaaa aaaaaaaaaa aaaaaa

FIGURE 423

Met Pro Trp Asp Ala Arg Arg Pro Gly Gly Gly Ala Asp Gly Gly Pro Glu Ala Ser Gly Ala Ala Arg Ser Arg Ala Gln Lys Gln Cys Arg Lys Ser Ser Phe Ala Phe Tyr Gln Ala Val Arg Asp Leu Leu Pro Val Trp Leu Leu Glu Asp Met Arg Ala Ser Glu Ala Phe His Trp Asp Glu Arg Gly Arg Ala Ala Ala Tyr Ser Pro Ser Glu Ala Leu Leu Tyr Ala Leu Val His Asp His Gln Ala Tyr Ala His Tyr Leu Leu Ala Thr Phe Pro Arg Arg Ala Leu Ala Pro Pro Ser Ala Gly Phe Arg Cys Cys Ala Ala Pro Gly Pro His Val Ala Leu Ala Val Arg Tyr Asn Arg Val Gly Ile Leu Arg Arg Ile Leu Arg Thr Leu Arg Asp Phe Pro Ala Glu Glu Arg Ala Arg Val Leu Asp Arg Arg Gly Cys Ser Arg Val Glu Gly Gly Gly Thr Ser Leu His Val Ala Cys Glu Leu Ala Arg Pro Glu Cys Leu Phe Leu Leu Leu Gly His Gly Ala Ser Pro Gly Leu Arg Asp Gly Gly Gly Leu Thr Pro Leu Glu Leu Leu Leu Arg Gln Leu Gly Arg Asp Ala Gly Ala Thr Pro Ser Ala Ala Gly Ala Pro Ala Ser Ala Pro Gly Glu Pro Arg Gln Arg Arg Leu Leu Leu Leu Asp Leu Leu Ala Leu Tyr Thr Pro Val Gly Ala Ala Gly Ser Ala Arg Gln Glu Leu Leu Gly Asp Arg Pro Arg Trp Gln Arg Leu Leu Gly Glu Asp Lys Phe Gln Trp Leu Ala Gly Leu Ala Pro Pro Ser Leu Phe Ala Arg Ala Met Gln Val Leu Val Thr Ala Ile Ser Pro Gly Arg Phe Pro Glu Ala Leu Asp Glu Leu Pro Leu Pro Pro Phe Leu Gln Pro Leu Asp Leu Thr Gly Lys Gly

FIGURE 424

ctccagacct acccagaaag atgcccggat ggatcctgca gctccgtggc ttttctggga agcagcggcc cctgctctca agagaccctg gctcctgatg gtggccccaa ggttgccagc tggtgctagg gactcaggac agtttcccag aaaaggccaa gcgggcagcc cctccagggg ccgggtgagg aagctggggg gtgcggaggc cacactgggt ccctgaaccc cctgcttggt tacagtgcag ctcctcaagt ccacagacgt gggccggcac agcctcctgt acctgaagga aatcggccgt ggctggttcg ggaaggtgtt cctgggggag gtgaactctg gcatcagcag tgcccaggtg gtggtgaagg agctgcaggc tagtgccagc gtgcaggagc agatgcagtt cctggaggag gtgcagccct acagggccct gaagcacagc aacctgctcc agtgcctggc ccagtgcgcc gaggtgacgc cctacctgct ggtgatggag ttctgcccac tgggggacct caagggctac ctgcggagct gccgggtggc ggagtccatg gctcccgacc cccggaccct gcagcgcatg gcctgtgagg tggcctgtgg cgtcctgcac cttcatcgca acaatttcgt gcacagcgac ctggccctgc ggaactgcct gctcacggct gacctgacgg tgaagattgg tgactatggc ctggctcact gcaagtacag agaggactac ttcgtgactg ccgaccagct gtgggtgcct ctgcgctgga tcgcgccaga gctggtggac gaggtgcata gcaacctgct cgtcgtggac cagaccaaga gcgggaatgt gtggtccctg ggcgtgacca tctgggagct ctttgagctg ggcacgcagc cctatcccca gcactcggac cagcaggtgc tggcgtacac ggtccgggag cagcagctca agctgcccaa gccccagctg cagctgaccc tgtcggaccg ctggtacgag gtgatgcagt tctgctggct gcagcccgag cagcggccca cagccgagga ggtgcacctg ctgctgtcct acctgtgtgc caagggcgcc accgaagcag aggaggagtt tgaacggcgc tggcgctctc tgcggccccgg cgggggcggc gtggggcccg ggcccggtgc ggcggggccc atgctgggcg gcgtggtgga gctcgccgct gcctcgtcct tcccgctgct ggagcagttc gcgggcgacg gcttccacgc ggacggcgac gacgtgctga cggtgaccga gaccagccga ggcctcaatt ttgagtacaa gtgggaggcg ggccgcggcg cggaggcctt cccggccacg ctgagccctg gccgcaccgc acgcctgcag gagctgtgcg cccccgacgg cgcgcccccg ggcgtggttc cggtgctcag cgcgcacagc ccgtcgctgg gcagcgagta cttcatccgc ctagaggagg ccgcacccgc cgccggccac gaccctgact gcgccggctg cgcccccagt ccacctgcca ccgcggacca ggacgacgac tctgacggca gcaccgccgc ctcgctggcc atggagccgc tgctgggcca cgggccaccc gtcgacgtcc cctggggccg cggcgaccac taccctcgca gaagcttggc gcgggacccg ctctgcccct cacgctctcc ctcgccctcg gcggggcccc tgagtctggc ggagggagga gcggaggatg cagactgggg cgtggccgcc ttctgtcctg ccttcttcga ggacccactg ggcacgtccc ctttggggag ctcaggggcg cccccgctgc cgctgactgg cgaggatgag ctagaggagg tgggagcgcg gagggccgcc cagcgcgggc actggcgctc caacgtgtca gccaacaaca acagcggcag ccgctgtcca gagtcctggg accccgtctc tgcgggctgc cacgctgagg gctgccccag tccaaagcag accccacggg cctcccccga gccggggtac cctggagagc ctctgcttgg gctccaggca gcctctgccc aggagccagg ctgctgcccc ggcctccctc atctatgctc tgcccagggc ctggcacctg ctccctgcct ggttacaccc tcctggacag agacagccag tagtgggggt gaccacccgc aggcagagcc caagcttgcc acggaggctg agggcactac cggaccccgc ctgccccttc cttccgtccc ctccccatcc caggagggag ccccacttcc ctcggaggag gccagtgccc ccgacgcccc tgatgccctg cctgactctc ccacgcctgc tactggtggc gaggtgtctg ccatcaagct ggcttctgcc ctgaatggca gcagcagctc tcccgaggtg gaggcaccca gcagtgagga tgaggacacg gctgaggcca cctcaggcat cttcaccgac acgtccagcg acggcctgca ggccaggagg ccggatgtgg tgccagcctt ccgctctctg cagaagcagg tggggacccc cgactccctg gactccctgg acatcccgtc ctcagccagt gatggtggct atgaggtctt cagcccgtcg gccactggcc cctctggagg gcagccgcga gcgctggaca gtggctatga caccgagaac tatgagtccc ctgagtttgt gctcaaggag gcgcaggaag ggtgtgagcc ccaggccttt gcggagctgg cctcagaggg tgagggcccc gggcccgaga cacggctctc cacctccctc agtggcctca acgagaagaa tccctaccga gactctgcct acttctcaga cctcgaggct gaggccgagg ccacctcagg cccagagaag aagtgcggcg gggaccgagc ccccgggcca gagctgggcc tgccgagcac tgggcagccg tctgagcagg tctgtctcag gcctggggtt tccggggagg cacaaggctc tggccccggg gaggtgctgc ccccactgct gcagcttgaa gggtcctccc cagagcccag cacctgcccc tcgggcctgg tcccagagcc tccggagccc caaggcccag ccaaggtgcg gcctgggccc agccccagct gctcccagtt tttcctgctg accccggttc cgctgagatc agaaggcaac agctctgagt tccaggggcc cccaggactg ttgtcagggc cggccccaca aaagcggatg gggggcccag gcacccccag agccccactc cgcctggctc tgcccggcct ccctgcggcc ttggagggcc ggccggagga ggaggaggag gacagtgagg acagcgacga gtctgacgag gagctccgct gctacagcgt ccaggagcct agcgaggaca gcgaagagga ggcgccggcg gtgcccgtgg tggtggctga gagccagagc gcgcgcaacc tgcgcagcct gctcaagatg cccagcctgc tgtccgagac cttctgcgag gacctggaac gcaagaagaa ggccgtgtcc ttcttcgacg acgtcaccgt ctacctcttt gaccaggaaa gccccacccg ggagctcggg gagcccttcc cgggcgccaa ggaatcgccc cctacgttcc ttaggggggag ccccggctct cccagcgccc ccaaccggcc gcagcaggct

FIGURE 425 (Continued)

gatggctccc caaatggctc cacagcggaa gagggtggtg ggttcgcgtg ggacgacgac ttcccgctga tgacggccaa ggcagccttc gccatggccc tagacccggc cgcacccgcc ccggctgcgc ccacgcccac gcccgctccc ttctcgcgct tcacggtgtc gcccgcgccc acgtcccgct tctccatcac gcacgtgtct gactcggacg ccgagtccaa gagaggacct gaagctggtg ccgggggtga gagtaaagag gcttgagacc tgggcagctc ctgcccctca aggctggcgt caccggagcc cctgccaggc agcagcgagg atggtgaccg agaaggtggg gaccacgtcc tggtggctgt tggcagcaga ttcaggtgcc tctgccccac gcggtgtcct ggagaagccc gtgggatgag aggccctgga tggtagatcg gccatgctcc gccccagagg cagaattcgt ctgggctttt aggcttgctg ctagcccctg ggggcgcctg gagccacagt gggtgtctgt acacacatac acactcaaaa ggggccagtg cccctgggca cggcggcccc caccctctgc cctgcctgcc tggcctcgga ggacccgcat gccccatccg gcagctcctc cggtgtgctc acaggacact taaaccagga cgaggcatgg ccccgagaca ctggcaggtt tgtgagcctc ttcccacccc ctgtgccccc acccttgcct ggttcctggt ggctcagggc aaggagtggc cctgggcgcc cgtgtcggtc ctgtttccgc tgcccttatc tcaaagtccg tggctgtttc cccttcactg actcagctag acccgtaagc ccacccttcc cacagggaac aggctgctcc cacctgggtc ccgctgtggc cacggtgggc agcccaaaag atcaggggtg gaggggcttc caggctgtac tcctgccccg tgggccccgt tctagaggtg cccttggcag gaccgtgcag gcagctcccc tctgtggggc agtatctggt cctgtgcccc agctgccaaa ggagagtggg ggccatgccc cgcagtcagt gttgggggggc tcctgcctac agggagaggg atggtgggga aggggtggag ctgggggcag ggcagcacag ggaatatttt tgtaactaac taactgctgt ggttggagcg aatggaagtt gggtgatttt aagttattgt tgccaaagag atgtaaagtt tattgttgct tcgcaggggg atttgttttg tgttttgttt gaggcttaga acgctggtgc aatgttttct tgttccttgt tttttaagag aaatgaagct aagaaaaaag

FIGURE 425 (Continued)

Met Gln Phe Leu Glu Glu Val Gln Pro Tyr Arg Ala Leu Lys His Ser Asn Leu Leu Gln Cys Leu Ala Gln Cys Ala Glu Val Thr Pro Tyr Leu Leu Val Met Glu Phe Cys Pro Leu Gly Asp Leu Lys Gly Tyr Leu Arg Ser Cys Arg Val Ala Glu Ser Met Ala Pro Asp Pro Arg Thr Leu Gln Arg Met Ala Cys Glu Val Ala Cys Gly Val Leu His Leu His Arg Asn Asn Phe Val His Ser Asp Leu Ala Leu Arg Asn Cys Leu Leu Thr Ala Asp Leu Thr Val Lys Ile Gly Asp Tyr Gly Leu Ala His Cys Lys Tyr Arg Glu Asp Tyr Phe Val Thr Ala Asp Gln Leu Trp Val Pro Leu Arg Trp Ile Ala Pro Glu Leu Val Asp Glu Val His Ser Asn Leu Leu Val Val Asp Gln Thr Lys Ser Gly Asn Val Trp Ser Leu Gly Val Thr Ile Trp Glu Leu Phe Glu Leu Gly Thr Gln Pro Tyr Pro Gln His Ser Asp Gln Gln Val Leu Ala Tyr Thr Val Arg Glu Gln Gln Leu Lys Leu Pro Lys Pro Gln Leu Gln Leu Thr Leu Ser Asp Arg Trp Tyr Glu Val Met Gln Phe Cys Trp Leu Gln Pro Glu Gln Arg Pro Thr Ala Glu Glu Val His Leu Leu Leu Ser Tyr Leu Cys Ala Lys Gly Ala Thr Glu Ala Glu Glu Glu Phe Glu Arg Arg Trp Arg Ser Leu Arg Pro Gly Gly Gly Gly Val Gly Pro Gly Pro Gly Ala Ala Gly Pro Met Leu Gly Gly Val Val Glu Leu Ala Ala Ala Ser Ser Phe Pro Leu Leu Glu Gln Phe Ala Gly Asp Gly Phe His Ala Asp Gly Asp Asp Val Leu Thr Val Thr Glu Thr Ser Arg Gly Leu Asn Phe Glu Tyr Lys Trp Glu Ala Gly Arg Gly Ala Glu Ala Phe Pro Ala Thr Leu Ser Pro Gly Arg Thr Ala Arg Leu Gln Glu Leu Cys Ala Pro Asp Gly Ala Pro Pro Gly Val Val Pro Val Leu Ser Ala His Ser Pro Ser Leu Gly Ser Glu Tyr Phe Ile Arg Leu Glu Glu Ala Ala Pro Ala Ala Gly His Asp Pro Asp Cys Ala Gly Cys Ala Pro Ser Pro Pro Ala Thr Ala Asp Gln Asp Asp Asp Ser Asp Gly Ser Thr Ala Ala Ser Leu Ala Met Glu Pro Leu Leu Gly His Gly Pro Pro Val Asp Val Pro Trp Gly Arg Gly Asp His Tyr Pro Arg Arg Ser Leu Ala Arg Asp Pro Leu Cys Pro Ser Arg Ser Pro Ser Pro Ser Ala Gly Pro Leu Ser Leu Ala Glu Gly Gly Ala Glu Asp Ala Asp Trp Gly Val Ala Ala Phe Cys Pro Ala Phe Phe Glu Asp Pro Leu Gly Thr Ser Pro Leu Gly Ser Ser Gly Ala Pro Pro Leu Pro Leu Thr Gly Glu Asp Glu Leu Glu Glu Val Gly Ala Arg Arg Ala Ala Gln Arg Gly His Trp Arg Ser Asn Val Ser Ala Asn Asn Asn Ser Gly Ser Arg Cys Pro Glu Ser Trp Asp Pro Val Ser Ala Gly Cys His Ala Glu Gly Cys Pro Ser Pro Lys Gln Thr Pro Arg Ala Ser Pro Glu Pro Gly Tyr Pro Gly Glu Pro Leu Leu Gly Leu Gln Ala Ala Ser Ala Gln Glu Pro Gly Cys Cys Pro Gly Leu Pro His Leu Cys Ser Ala Gln Gly Leu Ala Pro Ala Pro Cys Leu Val Thr Pro Ser Trp Thr Glu Thr Ala Ser Ser Gly Gly Asp His Pro Gln Ala Glu Pro Lys Leu Ala Thr Glu Ala Glu Gly Thr Thr Gly Pro Arg Leu Pro Leu Pro Ser Val Pro Ser Pro Ser Gln Glu Gly Ala Pro Leu Pro Ser Glu Glu Ala Ser Ala Pro Asp Ala Pro Asp Ala Leu Pro Asp Ser Pro Thr Pro Ala Thr Gly Gly Glu Val Ser Ala Ile Lys Leu Ala Ser Ala Leu Asn Gly Ser Ser Ser Ser Pro Glu Val Glu Ala Pro Ser Ser Glu Asp Glu Asp Thr Ala Glu Ala Thr Ser Gly Ile Phe Thr Asp Thr Ser Ser Asp Gly Leu Gln Ala Arg Arg Pro Asp Val Val Pro Ala Phe Arg Ser Leu Gln Lys Gln Val Gly Thr Pro Asp Ser Leu Asp Ser Leu Asp Ile Pro Ser Ser Ala Ser Asp Gly Gly Tyr Glu Val Phe Ser Pro Ser Ala Thr Gly Pro Ser Gly Gly Gln Pro Arg Ala Leu Asp Ser Gly Tyr Asp Thr Glu Asn Tyr Glu Ser Pro Glu Phe Val Leu Lys Glu Ala Gln Glu Gly Cys Glu Pro Gln Ala Phe Ala Glu Leu Ala Ser Glu Gly Glu Gly Pro Gly Pro Glu Thr Arg Leu Ser Thr Ser Leu Ser Gly Leu Asn Glu Lys Asn Pro Tyr Arg Asp Ser Ala Tyr Phe Ser Asp Leu Glu Ala Glu Ala Glu Ala Thr Ser Gly Pro Glu Lys Lys Cys Gly Gly Asp Arg Ala Pro Gly Pro Glu Leu Gly Leu Pro Ser Thr Gly Gln Pro Ser Glu Gln Val Cys Leu Arg Pro Gly Val Ser Gly Glu Ala Gln Gly Ser Gly Pro Gly Glu Val Leu Pro Pro Leu Leu Gln Leu Glu Gly Ser Ser Pro Glu Pro Ser Thr Cys Pro Ser Gly Leu Val Pro Glu Pro Pro Glu Pro Gln Gly Pro Ala Lys Val Arg Pro Gly Pro Ser Pro Ser Cys Ser Gln Phe Phe Leu Leu Thr Pro Val Pro Leu Arg Ser Glu Gly Asn Ser Ser Glu Phe Gln Gly Pro Pro Gly Leu Leu Ser Gly Pro Ala Pro Gln Lys Arg Met Gly Gly Pro Gly Thr Pro Arg Ala Pro Leu Arg Leu Ala Leu Pro Gly Leu Pro Ala Ala Leu Glu Gly Arg Pro Glu Glu Glu Glu Glu Asp Ser Glu Asp Ser Asp Glu Ser Asp Glu Glu Leu Arg Cys Tyr Ser Val Gln Glu Pro Ser Glu Asp Ser Glu Glu Glu Ala Pro Ala Val Pro Val Val Val Ala Glu Ser Gln Ser Ala Arg Asn Leu Arg Ser Leu Leu Lys

FIGURE 426

Met Pro Ser Leu Leu Ser Glu Thr Phe Cys Glu Asp Leu Glu Arg Lys Lys Lys Ala Val Ser Phe Phe Asp Asp Val Thr Val Tyr Leu Phe Asp Gln Glu Ser Pro Thr Arg Glu Leu Gly Glu Pro Phe Pro Gly Ala Lys Glu Ser Pro Pro Thr Phe Leu Arg Gly Ser Pro Gly Ser Pro Ser Ala Pro Asn Arg Pro Gln Gln Ala Asp Gly Ser Pro Asn Gly Ser Thr Ala Glu Glu Gly Gly Gly Phe Ala Trp Asp Asp Asp Phe Pro Leu Met Thr Ala Lys Ala Ala Phe Ala Met Ala Leu Asp Pro Ala Ala Pro Ala Pro Ala Ala Pro Thr Pro Thr Pro Ala Pro Phe Ser Arg Phe Thr Val Ser Pro Ala Pro Thr Ser Arg Phe Ser Ile Thr His Val Ser Asp Ser Asp Ala Glu Ser Lys Arg Gly Pro Glu Ala Gly Ala Gly Gly Glu Ser Lys Glu Ala

FIGURE 426 (Continued)

Leu Lys Tyr Val Asp Asp Ile Gln Lys Gly Asn Thr Ile Lys Arg Leu Asn Ile Gln Lys Arg Arg Lys Pro Ser Val Pro Cys Pro Glu Pro Arg Thr Thr Ser Gly Gln Gln Gly Ile Trp Thr Ser Thr Glu Ser Leu Ser Ser Ser Asn Ser Asp Asp Asn Lys Gln Cys Pro Asn Phe Leu Ile Ala Arg Ser Gln Val Thr Ser Thr Pro Ile Ser Lys Pro Pro Pro Pro Leu Glu Thr Ser Leu Pro Phe Leu Thr Ile Pro Glu Asn Arg Gln Leu Pro Pro Pro Ser Pro Gln Leu Pro Lys His Asn Leu His Val Thr Lys Thr Leu Met Glu Thr Arg Arg Arg Leu Glu Gln Glu Arg Ala Thr Met Gln Met Thr Pro Gly Glu Phe Arg Arg Pro Arg Leu Ala Ser Phe Gly Gly Met Gly Thr Thr Ser Ser Leu Pro Ser Phe Val Gly Ser Gly Asn His Asn Pro Ala Lys His Gln Leu Gln Asn Gly Tyr Gln Gly Asn Gly Asp Tyr Gly Ser Tyr Ala Pro Ala Ala Pro Thr Thr Ser Ser Met Gly Ser Ser Ile Arg His Ser Pro Leu Ser Ser Gly Ile Ser Thr Pro Val Thr Asn Val Ser Pro Met His Leu Gln His Ile Arg Glu Gln Met Ala Ile Ala Leu Lys Arg Leu Lys Glu Leu Glu Glu Gln Val Arg Thr Ile Pro Val Leu Gln Val Lys Ile Ser Val Leu Gln Glu Glu Lys Arg Gln Leu Val Ser Gln Leu Lys Asn Gln Arg Ala Ala Ser Gln Ile Asn Val Cys Gly Val Arg Lys Arg Ser Tyr Ser Ala Gly Asn Ala Ser Gln Leu Glu Gln Leu Ser Arg Ala Arg Arg Ser Gly Gly Glu Leu Tyr Ile Asp Tyr Glu Glu Glu Glu Met Glu Thr Val Glu Gln Ser Thr Gln Arg Ile Lys Glu Phe Arg Gln Leu Thr Ala Asp Met Gln Ala Leu Glu Gln Lys Ile Gln Asp Ser Ser Cys Glu Ala Ser Ser Glu Leu Arg Glu Asn Gly Glu Cys Arg Ser Val Ala Val Gly Ala Glu Glu Asn Met Asn Asp Ile Val Val Tyr His Arg Gly Ser Arg Ser Cys Lys Asp Ala Ala Val Gly Thr Leu Val Glu Met Arg Asn Cys Gly Val Ser Val Thr Glu Ala Met Leu Gly Val Met Thr Glu Ala Asp Lys Glu Ile Glu Leu Gln Gln Gln Thr Ile Glu Ala Leu Lys Glu Lys Ile Tyr Arg Leu Glu Val Gln Leu Arg Glu Thr Thr His Asp Arg Glu Met Thr Lys Leu Lys Gln Glu Leu Gln Ala Ala Gly Ser Arg Lys Lys Val Asp Lys Ala Thr Met Ala Gln Pro Leu Val Phe Ser Lys Val Val Glu Ala Val Val Gln Thr Arg Asp Gln Met Val Gly Ser His Met Asp Leu Val Asp Thr Cys Val Gly Thr Ser Val Glu Thr Asn Ser Val Gly Ile Ser Cys Gln Pro Glu Cys Lys Asn Lys Val Val Gly Pro Glu Leu Pro Met Asn Trp Trp Ile Val Lys Glu Arg Val Glu Met His Asp Arg Cys Ala Gly Arg Ser Val Glu Met Cys Asp Lys Ser Val Ser Val Glu Val Ser Val Cys Glu Thr Gly Ser Asn Thr Glu Glu Ser Val Asn Asp Leu Thr Leu Leu Lys Thr Asn Leu Asn Leu Lys Glu Val Arg Ser Ile Gly Cys Gly Asp Cys Ser Val Asp Val Thr Val Cys Ser Pro Lys Glu Cys Ala Ser Arg Gly Val Asn Thr Glu Ala Val Ser Gln Val Glu Ala Ala Val Met Ala Val Pro Arg Thr Ala Asp Gln Asp Thr Ser Thr Asp Leu Glu Gln Val His Gln Phe Thr Asn Thr Glu Thr Ala Thr Leu Ile Glu Ser Cys Thr Asn Thr Cys Leu Ser Thr Leu Asp Lys Gln Thr Ser Thr Gln Thr Val Glu Thr Arg Thr Val Ala Val Gly Glu Gly Arg Val Lys Asp Ile Asn Ser Ser Thr Lys Thr Arg Ser Ile Gly Val Gly Thr Leu Leu Ser Gly His Ser Gly Phe Asp Arg Pro Ser Ala Val Lys Thr Lys Glu Ser Gly Val Gly Gln Ile Asn Ile Asn Asp Asn Tyr Leu Val Gly Leu Lys Met Arg Thr Ile Ala Cys Gly Pro Pro Gln Leu Thr Val Gly Leu Thr Ala Ser Arg Arg Ser Val Gly Val Gly Asp Asp Pro Val Gly Glu Ser Leu Glu Asn Pro Gln Pro Gln Ala Pro Leu Gly Met Met Thr Gly Leu Asp His Tyr Ile Glu Arg Ile Gln Lys Leu Leu Ala Glu Gln Gln Thr Leu Leu Ala Glu Asn Tyr Ser Glu Leu Ala Glu Ala Phe Gly Glu Pro His Ser Gln Met Gly Ser Leu Asn Ser Gln Leu Ile Ser Thr Leu Ser Ser Ile Asn Ser Val Met Lys Ser Ala Ser Thr Glu Glu Leu Arg Asn Pro Asp Phe Gln Lys Thr Ser Leu Gly Lys Ile Thr Gly Asn Tyr Leu Gly Tyr Thr Cys Lys Cys Gly Gly Leu Gln Ser Gly Ser Pro Leu Ser Ser Gln Thr Ser Gln Pro Glu Gln Glu Val Gly Thr Ser Glu Gly Lys Pro Ile Ser Ser Leu Asp Ala Phe Pro Thr Gln Glu Gly Thr Leu Ser Pro Val Asn Leu Thr Asp Asp Gln Ile Ala Ala Gly Leu Tyr Ala Cys Thr Asn Asn Glu Ser Thr Leu Lys Ser Ile Met Lys Lys Lys Asp Gly Asn Lys Asp Ser Asn Gly Ala Lys Lys Asn Leu Gln Phe Val Gly Ile Asn Gly Gly Tyr Glu Thr Thr Ser Ser Asp Asp Ser Ser Ser Asp Glu Ser Ser Ser Ser Glu Ser Asp Asp Glu Cys Asp Val Ile Glu Tyr Pro Leu Glu Glu Glu Glu Glu Glu Glu Asp Glu Asp Thr Arg Gly Met Ala Glu Gly His His Ala Val Asn Ile Glu Gly Leu Lys Ser Ala Arg Val Glu Asp Glu Met Gln Val Gln Glu Cys Glu Pro Glu Lys Val Glu Ile Arg Glu Arg Tyr Glu Leu Ser Glu Lys Met Leu Ser Ala Cys Asn Leu Leu Lys Asn Thr Ile Asn Asp Pro Lys Ala Leu Thr Ser Lys Asp Met Arg Phe Cys Leu Asn Thr Leu Gln His Glu Trp Phe Arg Val Ser Ser Gln Lys Ser Ala Ile Pro Ala Met Val Gly Asp

ctcaaatatg tggatgacat acagaaggga aataccatca aaagactgaa catccagaag aggcggaagc cgtccgtgcc atgcccagaa cccaggacca catctggtca gcaaggtata tggacttcca ctgaatccct ctcatcctcc aacagtgatg acaacaagca gtgccccaac ttcctcatag ccagaagtca agttacatca actccaatct caaagccacc tccccctctg gagacctcac tccctttct taccatccca gaaaatcgac agctgccacc tccctcacca caactcccaa agcataacct tcatgtcacc aagacactga tggagacccg gagaagactg gaacaggaga gagccaccat gcagatgaca ccgggtgagt tcagaaggcc caggctggcc agttttggag gcatgggcac cacaagctcc ctcccttctt ttgtgggttc tggaaaccac aatcctgcca agcaccagct tcagaatgga taccaaggta atggggatta tggtagctat gccccagctg ctcccaccac ttcctccatg gggagctcca tccgccacag ccccctgagc tcagggatct ccaccccagt gaccaacgtg agccccatgc acctgcagca catccgcgag cagatggcca ttgctctgaa acgcctgaag gagctggagg agcaggtgcg aaccatccct gtgctccagg taaagatctc tgtcttgcaa gaagagaaaa ggcagttggt ctcacagctg aaaaaccaaa gggctgcatc ccagatcaat gtctgtggtg tgaggaagcg gtcctatagt gcggggaacg cctcccagct ggaacagctc tcccgggccc gaagaagtgg cggggaatta tacattgact atgaggagga agaaatggag accgtagaac agagcacgca gaggataaag gagttccggc aacttacagc agacatgcaa gccctggagc agaagatcca ggacagcagc tgtgaggcct cctcagagct cagggagaat ggagagtgcc ggtctgtggc tgtgggtgcc gaggagaaca tgaacgacat cgtcgtgtac cacagaggct ccaggtcctg taaggatgca gctgtaggga cacttgttga gatgagaaat tgtggggtca gcgtgacaga ggccatgctt ggagtgatga ctgaagctga caaagaaatt gagctccaac agcagaccat agaagccttg aaggaaaaga tctatcgcct agaagtacag cttagagaaa ccacccatga ccgggagatg actaaactga aacaagagct gcaggctgct ggatcgagga aaaaggttga caaagccacg atggcccagc cgcttgtttt cagtaaggtg gtggaggcag tggtgcagac cagagaccaa atggtcggca gtcacatgga cctggtggac acgtgtgttg ggacctccgt ggaaacaaac agtgtaggca tctcctgcca gcctgaatgt aagaataaag tcgtagggcc tgagctgcct atgaattggt ggattgttaa ggagagggtg gaaatgcatg accgatgtgc tgggaggtct gtggaaatgt gtgacaagag tgtgagtgtg gaagtcagcg tctgcgaaac aggcagcaac acagaggagt ctgtgaacga cctcacactc ctcaagacaa acttgaatct caaagaagtg cggtctatcg gttgtggaga ttgttctgtt gacgtgaccg tctgctctcc aaaggagtgc gcctcccggg gcgtgaacac tgaggctgtt agccaggtgg aagctgccgt catggcagtg cctcgtactg cagaccagga cactagcaca gatttggaac aggtgcacca gttcaccaac accgagacgg ccaccctcat agagtcctgc accaacactt gtctaagcac tttggacaag cagaccagca cccagactgt ggagacgcgg acagtagctg taggagaagg ccgtgtcaag gacatcaact cctccaccaa gacgcggtcc attggtgttg gaacgttgct ttctggccat tctgggtttg acaggccatc agctgtgaag accaaagagt caggtgtggg gcagataaat attaacgaca actatctggt tggtctcaaa atgaggacta tagcttgtgg gccaccacag ttgactgtgg ggctgacagc cagcagaagg agcgtggggg ttggggatga ccctgtaggg gaatctctgg agaaccccca gcctcaagct ccacttggaa tgatgactgg cctggatcac tacattgagc gtatccagaa gctgctggca gaacagcaga cactgctggc tgagaactac agtgaactgg cagaagcttt cggggaacct cactcacaga tgggctccct caactctcag ctcatcagca ccctgtcgtc tatcaactct gtcatgaaat ctgcaagcac tgaagagctg aggaaccctg acttccagaa aaccagtctg ggtaaaatca caggcaatta tttgggatat acctgtaagt gtgggggcct tcagtcagga agtcccttaa gctcccagac atcccagcct gagcaagaag tggggacctc agaaggaaag ccaatcagca gcctggatgc cttccccact caggaaggta cgctgtctcc agtgaacctg acagacgacc agatcgccgc tggcctctat gcatgtacaa acaatgaaag tacactgaag tccatcatga agaagaaaga tggtaacaaa gattcaaatg gcgcaaaaaa gaatcttcag tttgttggca ttaatggagg gtatgaaaca acttcaagtg atgattccag ctcagatgaa agctcttctt ccgagtcaga tgacgagtgt gatgtcattg agtatcctct tgaagaagag gaggaggagg aggatgaaga cactcgggga atggcagaag ggcaccatgc agttaatatt gaaggtttga agtctgccag ggtggaagat gaaatgcagg ttcaagaatg tgaacctgag aaggtggaaa tcagagagag gtatgaatta agtgaaaaga tgttgtctgc atgcaactta ctgaaaaata ctataaatga ccccaaagct ttgaccagca aagatatgag gttctgtctg aacaccctcc agcacgagtg gttccgcgtg tccagtcaga agtcagccat tccagccatg gtgggggact acatagctgc ttttgaggcc atttccccag atgtcctccg ctatgtcatc aacttggcag acggcaacgg caacacagcc ctccattaca gcgtgtccca ctccaacttc gagattgtga agctgctgtt agatgccgat gtgtgtaatg tggatcacca gaacaaggca ggctacaccc ccatcatgtt ggcggccctc gccgctgtgg aagcagagaa ggacatgcgg attgtggaag aactctttgg ctgtggggat gtgaatgcca aagctagtca ggcgggacag acggccctca tgctggcggt cagtcacgga cggatagaca tggtgaaggg ccttctggcc tgtggggctg atgtcaacat ccaggatgac gagggctcca cggccctcat gtgtgccagc gagcacgggc acgtggagat tgtcaagctg ctgctggccc agcccggctg caacggtcac ctagaggaca acgatggcag cactgcgctc tcaatcgccc tggaagcagg acacaaggac atcgctgttc ttctgtatgc ccatgtcaac tttgcaaaag cccagtctcc gggcacccct aggcttggaa ggaagacgtc tcctggcccc acccaccgag gttcatttga ttgattgtat gcaaatagcc