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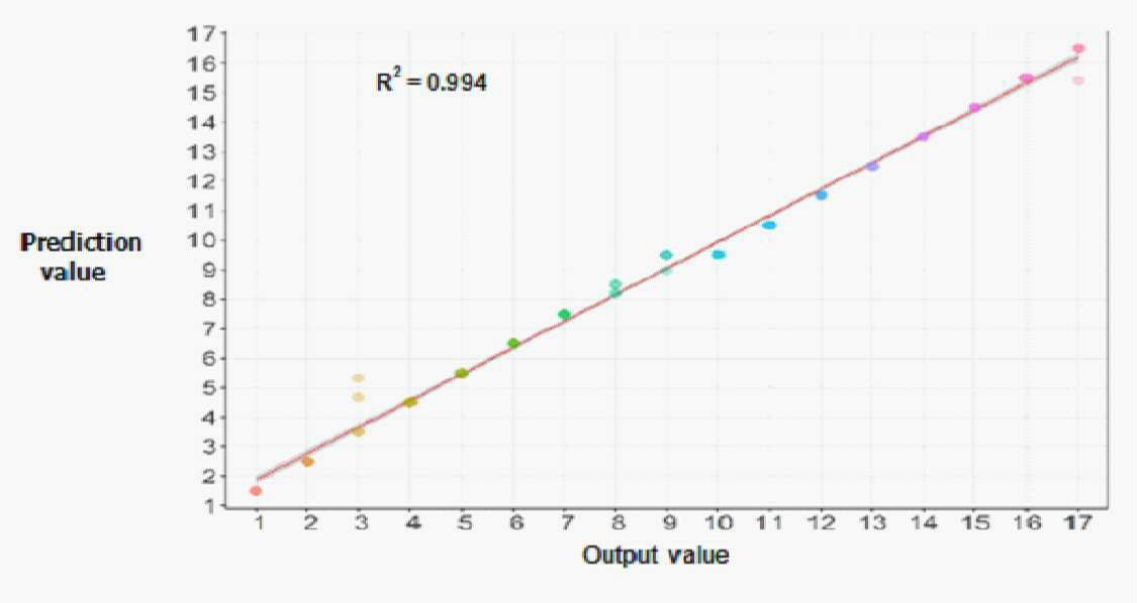
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(54) 발명의 명칭 **생체 방사선 피폭 선량을 평가하는 방법, 기록 매체 및 장치**

(57) 요 약

생체 방사선 피폭 선량을 평가하는 방법, 기록 매체 및 장치에 관한 것이다. 일 양상에 따른 방사선 피폭 평가 방법, 기록매체, 및 장치를 이용하여 방사선 피폭 선량이나 시간을 간편하게 평가할 수 있고, 방사선 치료 효과를 예측할 수 있다.

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연구과제명 방사선 노출 후 단백질체 분석법을 이용한 정량적 생체 선량측정 진단법 개발
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명 세 서

청구범위

청구항 1

개체로부터 분리된 시료에서 추출된, TUBA4A, PFDN6, MRPL40, CD74, PGAM1, MRPS7, TRNT1, IFITM2, GINS3, MGMT, HAUS7, TOMM34, RPL4, LUC7L, UPF1, TUBA1A, RACK1, YME1L1, PHB2, RPS5, OSBPL8, ACTA1, MIF, KMT2A, CEP350, FOXO1, TIMM9, CHD4, SEC16A, ORM1, RPS15, TUBB2A, CNTRL, ARPC3, PLPBP, IKZF2, KARS, LETM1, EIF4A1, SKA3, KRT78, ANKLE2, ACO2, TNRC6B 및 SHTN1로 이루어진 군으로부터 선택된 적어도 15개 이상의 임의의 단백질의 발현량을 측정하는 단계; 및 상기 측정된 발현량과 미리 도출된 표준 펩타이드의 발현량을 비교하여 상기 개체의 방사선 피폭 선량 및 시간을 판정하는 단계를 포함하는 것인 방사선 피폭 평가 방법.

청구항 2

청구항 1에 있어서, 상기 단백질의 발현량을 측정하는 단계는 LC-MS/MS를 이용하는 것인 방사선 피폭 평가 방법.

청구항 3

청구항 1에 있어서, 상기 시료는 액체 생검 시료인 것인 방사선 피폭 평가 방법.

청구항 4

청구항 1에 있어서, 상기 표준 펩타이드는, 방사선 피폭된 세포에서 추출된 단백질의 발현량을 측정하여 분석한 결과를 기초로 인공지능 모델을 이용하여 획득된 것인 방사선 피폭 평가 방법.

청구항 5

청구항 4에 있어서, 상기 인공지능 모델은 단백질의 발현량을 측정하여 도출된 분석 결과가 입력되면 방사선 피폭 선량 및 시간을 출력하는 서포트 벡터 회귀(Support vector regression, SVR)인 것인 방사선 피폭 평가 방법.

청구항 6

청구항 4에 있어서, 상기 방사선 피폭된 세포는 0.1 내지 2.0Gy의 선량으로 0 내지 36시간 동안 피폭된 것인 방사선 피폭을 평가하는 방법.

청구항 7

청구항 4에 있어서, 상기 방사선 피폭된 세포는 말초 혈액 단핵세포(Peripheral blood mononuclear cells, PBMC)인 것인 방사선 피폭을 평가하는 방법.

청구항 8

청구항 1에 있어서, 상기 15개 이상의 임의의 단백질은 적어도 MIF, TRNT1, ARPC3, GINS3, TUBA4A, ACTA1, MRPS7, PGAM1, RPS15, HAUS7, PHB2, TOMM34, RACK1, MRPL40 및 RPL4를 포함하는 것인 방사선 피폭 평가 방법.

청구항 9

청구항 1 내지 8 중 어느 한 항의 방법을 컴퓨터에서 실행시키기 위한 프로그램을 기록한 컴퓨터로 읽을 수 있는 기록매체.

청구항 10

개체로부터 분리된 시료에서 추출된, TUBA4A, PFDN6, MRPL40, CD74, PGAM1, MRPS7, TRNT1, IFITM2, GINS3, MGMT, HAUS7, TOMM34, RPL4, LUC7L, UPF1, TUBA1A, RACK1, YME1L1, PHB2, RPS5, OSBPL8, ACTA1, MIF, KMT2A, CEP350, FOXO1, TIMM9, CHD4, SEC16A, ORM1, RPS15, TUBB2A, CNTRL, ARPC3, PLPBP, IKZF2, KARS, LETM1,

EIF4A1, SKA3, KRT78, ANKLE2, ACO2, TNRC6B 및 SHTN1로 이루어진 군으로부터 선택된 적어도 15개 이상의 임의의 단백질의 발현량을 측정하는 측정부; 및 상기 측정된 발현량과 미리 도출된 표준 펩타이드의 발현량과 비교하여 상기 개체의 방사선 피폭 선량 및 시간을 판정하는 판정부를 포함하는 것인 방사선 피폭 평가 장치.

청구항 11

청구항 10에 있어서, 상기 단백질의 발현량을 측정하는 단계는 LC-MS/MS를 이용하는 것인 방사선 피폭 평가 장치.

발명의 설명

기 술 분 야

[0001] 생체 방사선 피폭 선량을 평가하는 방법, 기록 매체 및 장치에 관한 것이다.

배 경 기 술

[0002] 방사선 피폭은 심장질환이나 암 발생의 위험을 증가시킨다. 방사선 피폭에 의한 인체 손상 정도를 측정하기 위해 세포학적, 유전학적인 측정법들이 지난 수십 년간 사용되어 왔다. 하지만 이러한 측정법들은 방사선에 대한 인체의 유전자 또는 세포의 손상 여부를 확인해 줄 수 있을 뿐, 방사선에 대한 인체 반응의 분자적 기작에 대한 정보는 제공하지는 않는다. 따라서, 방사선 피폭을 편리하고 정확하게 진단할 수 있도록 하는 마커를 찾기 위해 지금도 많은 노력이 경주되고 있다.

[0003] 지난 수십 년간 방사선 피폭 마커에 대한 연구는 주로 암에 집중되어 왔지만 최근 들어 방사선에 노출된 정상 조직이나 시료에서 발견될 수 있는 피폭 마커를 찾는 연구로 더욱 확대되었다. 지금까지 방사선 피폭 마커로 연구되어 온 단백질 마커들이 일부 존재하나, 방사선 피폭 정도를 정량적으로 예측하기는 어려웠다.

[0004] 일반적으로, 방사선 종사자들이 작업 시 사용하는 TLD 배지(badge)로 선량계의 방사선 노출 정도를 계산하는 방법과 피폭 상황을 재구성하여 방사선 선량을 수학적으로 계산하는 방법이 사용되지만, 배지 패용에 대한 간접 측정 또는 이론적 측정으로 인해 개별 인체에 미치는 선량도 측정의 신뢰도가 떨어지는 한계가 있다. 또한, 소핵 형성도 측정, 적혈구의 glycophorin A의 돌연변이 측정, DNA절단 정도, 및 치아의 에나멜(enamel)을 이용한 EST(Electron Spin Resonance)등의 방법들이 시도되었지만 개인차에 따라 지표들의 오차 범위가 매우 커서 방사선 선량측정이 거의 불가능하였다. 방사선 피폭 개체의 피폭 선량을 측정하기 위해, 염색체 이상측정법(conventional chromosome aberration)으로 피폭환자의 말초혈액을 채취하여 림프구를 배양하고 림프구내에 형성된 염색체 이상인 이동원체(dicentrics)와 환(ring)의 발생빈도를 광학현미경 및 미세구조 관찰장비를 통해 판별할 수 있는 gold standard 방법이 연구되었으나, 많은 시간 및 비용이 들며, 소수 전문가들만이 진단할 수 있는 한계로 거의 활용되지 못하고 있는 실정이다.

[0005] 따라서, 채취가 간편한 액체 시료에서 방사선 피폭 선량에 정량적으로 반응하여 방사선 피폭을 정확하고 빠르게 진단할 수 있는 바이오마커에 대한 연구가 필요한 실정이다.

발명의 내용

해결하려는 과제

[0006] 일 양상은 개체로부터 분리된 시료에서 추출된, TUBA4A, PFDN6, MRPL40, CD74, PGAM1, MRPS7, TRNT1, IFITM2, GINS3, MGMT, HAUS7, TOMM34, RPL4, LUC7L, UPF1, TUBA1A, RACK1, YME1L1, PHB2, RPS5, OSBPL8, ACTA1, MIF, KMT2A, CEP350, FOXO1, TIMM9, CHD4, SEC16A, ORM1, RPS15, TUBB2A, CNTRL, ARPC3, PLPBP, IKZF2, KARS, LETM1, EIF4A1, SKA3, KRT78, ANKLE2, ACO2, TNRC6B 및 SHTN1로 이루어진 군으로부터 선택된 적어도 15개 이상의 임의의 단백질의 발현량을 측정하는 단계; 및 상기 측정된 발현량과 미리 도출된 표준 펩타이드의 발현량을 비교하여 상기 개체의 방사선 피폭 선량 및 시간을 판정하는 단계를 포함하는 것인 방사선 피폭 평가 방법을 제공하는 것이다.

[0007] 다른 양상은 상기 방법을 컴퓨터에서 실행시키기 위한 프로그램을 기록한 컴퓨터로 읽을 수 있는 기록매체를 제공하는 것이다.

[0008] 또 다른 양상은 개체로부터 분리된 시료에서 추출된, TUBA4A, PFDN6, MRPL40, CD74, PGAM1, MRPS7, TRNT1,

IFITM2, GINS3, MGMT, HAUS7, TOMM34, RPL4, LUC7L, UPF1, TUBA1A, RACK1, YME1L1, PHB2, RPS5, OSBPL8, ACTA1, MIF, KMT2A, CEP350, FOXO1, TIMM9, CHD4, SEC16A, ORM1, RPS15, TUBB2A, CNTRL, ARPC3, PLPBP, IKZF2, KARS, LETM1, EIF4A1, SKA3, KRT78, ANKLE2, ACO2, TNRC6B 및 SHTN1로 이루어진 군으로부터 선택된 적어도 15개 이상의 임의의 단백질의 발현량을 측정하는 측정부; 및 상기 측정된 발현량과 미리 도출된 표준 펩타이드의 발현량과 비교하여 상기 개체의 방사선 피폭 선량 및 시간을 판정하는 판정부를 포함하는 것인 방사선 피폭 평가 장치를 제공하는 것이다.

과제의 해결 수단

[0009] 일 양상은 개체로부터 분리된 시료에서 추출된, TUBA4A, PFDN6, MRPL40, CD74, PGAM1, MRPS7, TRNT1, IFITM2, GINS3, MGMT, HAUS7, TOMM34, RPL4, LUC7L, UPF1, TUBA1A, RACK1, YME1L1, PHB2, RPS5, OSBPL8, ACTA1, MIF, KMT2A, CEP350, FOXO1, TIMM9, CHD4, SEC16A, ORM1, RPS15, TUBB2A, CNTRL, ARPC3, PLPBP, IKZF2, KARS, LETM1, EIF4A1, SKA3, KRT78, ANKLE2, ACO2, TNRC6B 및 SHTN1로 이루어진 군으로부터 선택된 적어도 15개 이상의 임의의 단백질의 발현량을 측정하는 단계; 및 상기 측정된 발현량과 미리 도출된 표준 펩타이드의 발현량을 비교하여 상기 개체의 방사선 피폭 선량 및 시간을 판정하는 단계를 포함하는 것인 방사선 피폭 평가 방법을 제공한다.

[0010] 상기 **TUBA4A**는 Tubulin alpha-4A chain, Tubulin, Alpha1, TUBA1, H2-ALPHA, ALS22등으로 표시될 수 있으며, 인간에서 Genebank GeneGI: 7277의 뉴클레오티드 서열을 포함하는 핵산으로부터 암호화된 단백질일 수 있다. 상기 TUBA4A 단백질은 TUBA4A 동형 단백질이나 이들의 전구체일 수 있다.

[0011] 상기TUBA4A단백질은 TUBA4A동형 단백질이나 이들의 전구체일 수 있다. 용어 "동형(isform)"은 동일한 단백질의 다른 형태를 말한다. 상기 TUBA4A 단백질은 예를 들어, GeneBank Accession No. NM_029913.1, NM_006000.3, NM_001278552.1, XM_017004824.1, NP_005991, NP_005991.1, NP_001265481, NP_001265481.1, NP_006078.2, NP_001276052.1, NP_001276056.1, NP_001276060.1, NP_006078.2, AAH09238.1, XP_016860313, BC009238.2 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 TUBA4A 단백질은 서열번호 1 내지 7 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0012] 상기 **PFDN6**는 Prefoldin subunit 6, HLA Class II Region Expressed Gene KE2, HKE2, PFD6, KE2 protein, prefoldin 6, H2-KE2, KE-2등으로 표시될 수 있으며, 인간에서 Genebank Gene GI: 10471의 뉴클레오티드 서열을 포함하는 핵산으로부터 암호화된 단백질일 수 있다. 상기PFDN6 단백질은 PFDN6 동형 단백질이나 이들의 전구체일 수 있다. 상기 PFDN6 단백질은 예를 들어, GeneBank Accession No. NM_001185181.3, NM_001265595.2, NM_001265596.1, NM_014260.3, BC059783.1, NP_001172110.1, NP_001252524.1, NP_001252525.1, NP_055075.1, AAH59783.1, AAH39033.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질 일 수 있다. 상기 PFDN6단백질은 서열번호 8의 아미노산 서열을 포함하는 단백질일 수 있다.

[0013] 상기 **MRPL40**는 39S ribosomal protein L40, mitochondrial, Nuclear Localization signal -Containing Protein Deleted in Velocardiofacial Syndrome, Up-Regulated in metastasis, MRP-L40, NLVCF, L40mt, URIM, MRP-L22, MRPL22등으로 표시될 수 있으며, Genebank Gene ID: 64976의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 MRPL40 단백질은MRPL40동형 단백질이나 이들의 전구체일 수 있다. 상기 MRPL40 단백질은 예를 들어, GeneBank Accession No. NM_003776.3, NM_001318151.2, NM_001318152.1, BC009707.1, NP_001305081.1, NP_003767.2, NP_001305080.1, AAH09707.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 MRPL40단백질은 서열번호 9 및 10 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0014] 상기 **CD74**는 HLA class II histocompatibility antigen gamma chain, CD74 Antigen (Invariant Polypeptide of major Histocompatibility complex, class II Antigen-Associated), HLA-DR Antigens-Associated Invariant Chain, Gamma Chain of Class II antigens, Ia-Associated Invariant Chain, MHC HLA-DR Gamma Chain, HLA-DR-Gamma, DHLAG, P33, La Antigen-Associated Invariant Chain, CD74 Antigen, La-Gamma, HLADG, I1, Ii등으로 표시될 수 있으며, 인간에서 Genebank Gene GI: 972의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 CD74 단백질은CD74동형 단백질이나 이들의 전구체일 수 있다. 상기 CD74 단백질은 예를 들어, GeneBank Accession No. GI: 343488507, GI: 39774022, GI: 183448200, NP_004346.1, NP_001020329.1, NP_001351012.1, XP_016865578.1, XP_016865579.1, NP_001351013.1 NP_001020330.1, ACC62876.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질 일 수 있다. 상기 CD74단백질은 서열번호 11

내지 17 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0015] 상기 **PGAM1**는 Phosphoglycerate mutase 1, Phosphoglycerate Mutase A, Nonmuscle form, Phosphoglycerate mutase lsozyme B, BPG-Dependent PGAM1, PGAM-B, PGAMA, Epididymis Secretory protein Li35, HEL-S-35등으로 표시될 수 있으며, 인간에서 Genebank Gene GI: 5223의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 PGAM1 단백질은 PGAM1동형 단백질이나 이들의 전구체일 수 있다. 상기 PGAM1 단백질은 예를 들어, GeneBank Accession No. GI: 1916727, CAG: 46544.1, CAG: 46460.1, P18669.2, NP_001304008.1, NP_002620.1, AAH73742.1, AAH66959.1, AAI57874.1, AAH53356.1, AAH62302.1, AAH11678.1, AAH10038.1, AAH00455.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 PGAM1단백질은 서열번호 18 및 19 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0016] 상기 **MRPS7**는 28S ribosomal protein S7, mitochondrial, Mitochondrial Small Ribosomal Subunit Protein US7m, BMRP-27a, BRP-S7, S7mt, 30S Ribosomal Protein S7 Homolog, COXPD34, MRP-S, RP-S7, RPMS7등으로 표시할 수 있으며, 인간에서 GeneBank Gene ID: 51081의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 MRPS7 단백질은 MRPS7 동형 단백질이나 이들의 전구체일 수 있다. 상기 MRPS7단백질은 예를 들어, GeneBank Accession No. AY135355.1, AY135354.1, Q9Y2R9.2, NP_057055.2, BAB54938.1, AAH00241.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 MRPS7단백질은 서열번호 20의 아미노산 서열을 포함하는 단백질일 수 있다.

[0017] 상기 **TRNT1**는 CCA tRNA nucleotidyltransferase 1, mitochondrial, TRNA Nucleotidyl Tranasferase 1, TRNA Nucleotidyl Transferase, CCA-Adding 1, ATP(CTP); TRNA Nucleotidyltreansferase 1, Mt TRNA CCA-Pyrophosphorylase, Mt TRNA CCA-Diphosphorylase, Mt TRNA adenylyltrasferase, mt CCA-Adding Enzyme, CCA-Adding Enzyme, CGI-47, MtCCA, CCA1, RPEM, SIFD등으로 표시할 수 있으며, 인간에서 GeneBank Gene ID: 51095의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 TRNT1 단백질은 TRNT1 동형 단백질이나 이들의 전구체일 수 있다. 상기 TRNT1단백질은 예를 들어, GeneBank Accession No. NG_041800.2, AAH05184.1, AAH12537.1, NP_001354251.1, NP_001354252.1, NP_001354250.1, NP_001289875.2, NP_886552.3, Q96Q11.2, EAW63889.1, EAW63888.1, EAW63887.1, EAW63886.1, EAW63885.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 TRNT1단백질은 서열번호 21 및 22 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0018] 상기 **IFITM2**는 Interferon-induced transmembrane protein 2, Dispanin Subfamily A Member 2C, Interferon-Induced Transmembrane Protein2, Interferon-Induced protein 1-8D, DSPA2c, 1-8D등으로 표시할 수 있으며, 인간에서 GeneBank Gene ID: 10581의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 IFITM2 단백질은 IFITM2 동형 단백질이나 이들의 전구체일 수 있다. 상기 IFITM2단백질은 예를 들어, GeneBank Accession No. CAG_46672.1, CAG33175.1, Q01629.2, NP_006426.2, EAW61221.1, EAW61220.1, AAH09696.1, NP_003632.3, NP_066362.2 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 IFITM2 단백질은 서열번호 23의 아미노산 서열을 포함하는 단백질일 수 있다.

[0019] 상기 **GINS3**은 DNA replication complex GINS protein PSF3, GINS complex subunit3, GINS Complex subunit3 (Psf3 Homolog), PSF3등으로 표시할 수 있으며, 인간에서 GeneBank Gene ID: 64785의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 GINS3 단백질은 GINS3 동형 단백질이나 이들의 전구체일 수 있다. 상기 GINS3 단백질은 예를 들어, GeneBank Accession No. HF583449.1, AIC52154.1, CCQ42946.1, Q9BRX5.1, ALQ34213.1, ALQ34212.1, ALQ34211.1, ALQ34210.1, NP_001119602.1, NP_001119601.1, NP_073607.2, AAH14437.1, AAH05879.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질 일 수 있다. 상기 GINS3 단백질은 서열번호 24 내지 26 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0020] 상기 **MGMT**는 Methylated-DNA--protein-cysteine methyltransferase, O-6-Methylguanine-DNA Methyltransferase, 6-O-Methylguanine-DNA Methyltransferase, EC2.1.1.63 등으로 표시할 수 있으며, 인간에서 Genebank Gene GI:4255의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 MGMT1 단백질은 MGMT동형 단백질이나 이들의 전구체일 수 있다. 상기 MGMT1 단백질은 예를 들어, GeneBank Accession No. NM_002412.5, XM_017016275.1, XM_005252682.2, M29971.1, BC000824.1, KC249995.1, M31767.1, M60761.1, NP_002403.3, XP_016871764.1, XP_005252739.1, AAA59596.1, AAH00824.1, AAA59594.1, AAA52317.1, AGQ03777.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 MGMT 단백질은 서열번호 27 및 28 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0021] 상기 **HAUS7**는 HAUS augmin-like complex subunit 7, 26S Proteasome-Associated UCH37-Interacting Protein1, UCHL5 Interacting Protein, X-Linked Protein STS1769, UCHL5IP, UIP1, 26S Proteasome-Associated UCH Interacting Protein 1, UCH37 Interacting Protein, UCHL5-Interacting Protein등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 55559의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 HAUS7 단백질은 HAUS7동형 단백질이나 이들의 전구체일 수 있다. 상기 HAUS7 단백질은 예를 들어, GeneBank Accession No. NM_017518.7, NP_059988, XP_001125086, XP_001125087, Q99871.3 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질 일 수 있다. 상기 HAUS7 단백질은 서열번호 29 및 30 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0022] 상기 **TOMM34**는 Mitochondrial import receptor subunit TOM34, Translocase of Outer Mitochondrial Membrane 34, Translocase of Outer Membrane 34Kda Subunit, Htom34, URCC3, HTOM34P, TOM34등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 10953의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 TOMM34 단백질은 TOMM34 동형 단백질이나 이들의 전구체일 수 있다. 상기 TOMM34 단백질은 예를 들어, GeneBank Accession No. CR456765.1, NM_006809.5, XM_017027600.2, XM_005260254.2, XM_011528501.1, BC007423.2, BC014907.1, AK299465.1, AK129538.1, CAG33046.1, NP_006800.2, XP_016883089.1, XP_016883089.1, XP_005260311.1, XP_011526803.1, AAH0, 7423.1, AAH14907.1, AAH01763.1, BAG61431.1, BAC85180.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질 일 수 있다. 상기 TOMM34 단백질은 서열번호 31 내지 34 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0023] 상기 **RPL4**는 60S ribosomal protein L4, Ribosomal Protein L4, Large Ribosomal Subunit Protein UL4, 60S Ribosomal Protein L1, RPL1, L4등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 6124의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 RPL4 단백질은 RPL4동형 단백질이나 이들의 전구체일 수 있다. 상기 RPL4 단백질은 예를 들어, GeneBank Accession No. NM_000968.4, L20868.2, BC095427.1, BC066925.1, BC010151.2, BC009888.2, BC005817.2, BC001365.2, BC014653.1, BC007996.1, AK291859.1, AK291117.1, NP_000959.2, AAA60281.2, AAH95427.1, AAH66925.1, AAH10151.1, AAH09888.1, AAH14653.1, AAH07996.1, BAF84548.1, BAF83806.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 RPL4 단백질은 서열번호 35의 아미노산 서열을 포함하는 단백질일 수 있다.

[0024] 상기 **LUC7L**는 Putative RNA-binding protein Luc7-like 1, LUC7 Like, Putative SR Protein LUC7B1, SR+89, Sarcoplasmic Reticulum Protein LUC7B1, LUC7(S. Cerevisiae)-Like, LUC7-Like, Hluc7B1, LUC7B1, LUC7L1, Luc7등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 55692의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 LUC7L 단백질은 LUC7L동형 단백질이나 이들의 전구체일 수 있다. 상기 LUC7L 단백질은 예를 들어, GeneBank Accession No. NM_001330420.1, NM_201412.2, NM_001320226.1, NM_018032.5, XM_017023440.2, XM_017023438.2, XM_024450344.1, XM_017023437.2, XM_005255429.3, XM_005255427.3, XM_011522561.2, BC065198.1, BC003194.1, AY005111.1, NP_001317349, XP_016878928, NP_958815.1, NP_001307155, XP_005255483, NP_060502.1, XP_016878929.1, XP_024306112.1, XP_016878927.1, XP_016878926.1, XP_005255486.1, XP_005255484.1, XP_011520863.1, AAH65198.1, AAH03194.1, AAG22846.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질 일 수 있다. 상기 LUC7L 단백질은 서열번호 36 내지 46 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0025] 상기 **UPF1**는 Regulator of nonsense transcripts 1, UPF1 RNA Helicase And ATPase, Up-Frameshift Suppressor 1 Homolog, Nonsense MRNA Reducing Factor1, ATP-Dependent Helicase RENT1, RENT1, NORF1, Smg-2 homolog, Nonsense Mediated MRNA Decay Factor (C. Elegans), UPF1 Regulatro of Nonsense Transcripts Homolog(Yeast), Smg-2 Homolog, Nonsense Mediated MRNA Decay Factor, UP-Frameshift Mutation 1 Homolog, Yeast Upf1 Homolog, UP Frameshift 1, Delta Helicase, EC3.6.1, KIAA0221, EC3.6.1, PNORF1, HUPF1, Smg-2, Hupf1등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 5976 의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 UPF1단백질은 UPF1동형 단백질이나 이들의 전구체일 수 있다. 상기 UPF1 단백질은 예를 들어, GeneBank Accession No. MH183201.1, NM_002911.4, NM_001297549.2, XM_017027106.2, XM_017027105.2, BC039817.1, MH183202.1, MK089816.1, U59323.1, BC034291.1, AAC51140.1, AAH39817.1, XP_016882594.1, XP_016882595.1, NP_001284478, XP_005260072, NP_002902.2, AZI15648.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 UPF1 단백질은 서열번호 47 내지 50 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0026] 상기 **TUBA1A**는 Tubulin alpha-1A chain, Tubulin Alpha 1a, Tubulin alpha, Brain-specific, Tubulin Alpha-3

Chain, Tubulin B-Alpha-1, TUBA3, Alpha-Tubulin 3, Hum-A-Tub1, Hum-A-Tub2, B-ALPHA-1, LIS3등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 7846의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 TUBA1A 단백질은 TUBA1A동형 단백질이나 이들의 전구체일 수 있다. 상기 TUBA1A 단백질은 예를 들어, GeneBank Accession No. NM_001270400.1, NM_001270399.1, NM_006009.4, BC050637.2, BC006468.1, AAH06468.1, AAH50637.1, NP_006000.2, NP_001257328.1, NP_001257329.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 TUBA1A 단백질은 서열번호 51 및 52 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0027] 상기 **RACK1**는 Receptor of activated protein C kinase 1, Guanine Nucleotide Binding Protein (G protein), Beta Polypeptide2-Like1, Cell Proliferation-inducing Gene 21 Protein, Receptor of Activated Protein C kinase1, Small Ribosomal Subunit Protein RACK1, Human Lung Cancer Oncogene 7 Protein, GNB2L1, HLC-7, Protein Homologous to Chicken B Complex Protein, Guanine Nucleotide Binding, Gnb2-Rs1, H12.3, PIG21등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 10399의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 RACK1 단백질은 RACK1동형 단백질이나 이들의 전구체일 수 있다. 상기 RACK1단백질은 예를 들어, GeneBank Accession No. NM_006098.5, BC032006.1, BC014788.1, BC019093.2, BC017287.2, BC000366.2, BC010119.2, BC021993.1, BC019362.1, BC014256.1, BC000214.1, AAH00214.1, AAH14256.1, AAH19362.1, AAH21993.1, AAH10119.1, AAH00366.1, AAH17287.1, AAH19093.1, AAH32006.1, NP_006089.1 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 RACK1 단백질은 서열번호 53의 아미노산 서열을 포함하는 단백질일 수 있다.

[0028] 상기 **YME1L1**는 ATP-dependent zinc metalloprotease YME1L1, YME1 Like 1 ATPase, Presenilin-Associated Metalloprotease, YME1-Like protein1, Meg-4, YME1L, PAMP, ATP-Dependent Metalloprotease FtsH1 Homolog, EC3.4.24, OPA11, FTSH1, FTSH, MEG4등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 10730의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 YME1L1 단백질은 YME1L1동형 단백질이나 이들의 전구체일 수 있다. 상기 YME1L1 단백질은 예를 들어, GeneBank Accession No. AY358484.1, NM_139312.3, NM_014263.4, NM_001253866.1, XM_011519300.3, BC019602.1, BC007795.2, BC023507.2, BC024032.2, AK297973.1, AK291292.1, AJ132637.1, CAB51858.1, BAF83981.1, BAG60283.1, AAH24032.1, AAH23507.1, AAH07795.1, AAH19602.1, XP_011517602.1, NP_001240795.1, NP_055078.1, NP_647473.1, AAQ88848.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 YME1L1 단백질은 서열번호 54 내지 57 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0029] 상기 **PHB2**는 Prohibitin-2, B-Cell Receptor-Associated Protein BAP37, Repressor of Estrogen Receptor Activity, D-Prohibitin, BAP, REA, B-Cell Associated protein, PNAS-141, BCAP37, Bap37, HBAP, P22등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 11331의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 PHB2 단백질은 PHB2동형 단백질이나 이들의 전구체일 수 있다. 상기 PHB2 단백질은 예를 들어, GeneBank Accession No. NM_001144831.2, NM_001267700.1, MG816139.1, BC014766.1, BC110322.1, AAI10323.1, AAH14766.1, AYN61561.1, NP_001254629.1, NP_001138303.1등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 PHB2 단백질은 서열번호 58 및 59 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0030] 상기 **RPS5**는 40S ribosomal protein S5, Ribosomal Protein S5, Small Ribosomal Subunit Protein US7, S5등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 6193의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 RPS5 단백질은 RPS5동형 단백질이나 이들의 전구체일 수 있다. 상기 RPS5 단백질은 예를 들어, GeneBank Accession No. NM_001009.4, BC018151.1, BC015405.1, DN989515.1, AK311938.1, NP_001000, AAH18151, AAH15405, BAG34879등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질 일 수 있다. 상기 RPS5 단백질은 서열번호 60의 아미노산 서열을 포함하는 단백질일 수 있다.

[0031] 상기 **OSBPL8**는 Oxysterol-binding protein-related protein 8, Oxysterol Binding Protein Like8, OSBP-Related Protein8, OSBP10, ORP8, KIAA1451, MSTP120, MST120 등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 114882의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 OSBPL8 단백질은 OSBPL8동형 단백질이나 이들의 전구체일 수 있다. 상기 OSBPL8 단백질은 예를 들어, GeneBank Accession No. NM_001319652.2, NM_001319653.2, NM_001003712.2, NM_001319655.2, NM_020841.5, AF392452.1, XM_024448829.1, XM_006719224.3, XM_017018769.2, XM_005268621.5, XM_011537857.3, XM_011537856.3, XM_011537855.3, XM_017018768.2, XM_017018768.2, BC082235.1, BC012935.1, BC101529.1, BC093834.1,

DR001474.1, DN989271.1, AK289997.1, NP_001306581, XP_005268680, NP_001306582, XP_005268679, NP_001003712, NP_001306584, XP_011536161, NP_065892, AAL40665, XP_024304597, XP_006719287, XP_016874258, XP_005268678, XP_011536159, XP_011536158, XP_011536157, XP_016874257, AAI11729, AAH82235, AAH12935, AAH93834, AAH93834, BAF8268 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 OSBPL8 단백질은 서열번호 61 내지 70중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0032] 상기 **ACTA1**는 Actin, alpha skeletal muscle, Actin Alpha 1, Skeletal Muscle, Nemaline Myopahty Type3, ACTA, Alpha-Actin-1, CFTD1, CFTDM, ASMA, CFTD, MPFD, NEM1, NEM2, NEM3, SHPM등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 58의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 ACTA1단백질은 ACTA1동형 단백질이나 이들의 전구체일 수 있다. 상기 ACTA1 단백질은 예를 들어, GeneBank Accession No. CR541796.1, CR536516.1, NM_001100.3, J00068.1, AY280960.1, BC012597.1, AAH12597, AAP37280, AAB59376, NP_001091, CAG38754, CAG46595등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 ACTA1 단백질은 서열번호 71의 아미노산 서열을 포함하는 단백질일 수 있다.

[0033] 상기 **MIF**는 Macrophage migration inhibitory factor, Phenylpyruvate Tautomerase, Glycosylation-Inhibiting Factor, L-Dopachrome Tautomerase, L-Dopachrome Isomerase, GLIF, MMIF, GIF, Epididymis Secretory Sperm Binding Protein, EC 5.3.3.12, EC 5.3.2.1등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 4282의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기MIF단백질은 MIF동형 단백질이나 이들의 전구체일 수 있다. 상기 MIF 단백질은 예를 들어, GeneBank Accession No. CR541651.1, CR456520.1, CR407644.1, NM_002415.2, EF611126.1, EF492869.1, AF469046.1, BC022414.1, BC013976.2, BC000447.2, BC008914.2, BC053376.1, BC007676.1, M25639.1, AK311929.1, AAA36315.1, CAG46452, CAG30406, CAG28572, NP_002406, ABQ95571, ABR12395, AAL78635, AAH22414, AAH13976, AAH00447, AAH08914, AAH53376, AAH07676 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 MIF 단백질은 서열번호 72의 아미노산 서열을 포함하는 단백질일 수 있다.

[0034] 상기 **KMT2A**는 Histone-lysine N-methyltransferase 2a, Lysine Methyltransferase 2a, Myeloid/Lymphoid or Mixed-Lineage leukemia, Lysine(K) Specific Methyltransferase, CXXC-Type Zinc Finger protein7, Zinc Finger protein HRX, Trithorax-Like protein, ALL-1, CXXC7, MLL1, TRX1, MLL, HRX, EC 2.1.1.43, HTRX1, MLL1A, WDSTS, HTRX등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 4297의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 KMT2A 단백질은 KMT2A동형 단백질이나 이들의 전구체일 수 있다. 상기 KMT2A 단백질은 예를 들어, GeneBank Accession No. NM_005933.4, NM_001197104.1, XM_006718839.3, XM_011542833.2, XM_011542831.2, XM_011542830.2, XM_011542829.2, NP_005924, NP_001184033, XP_006718902, XP_011541135, XP_011541133, XP_011541132, XP_011541131 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 KMT2A 단백질은 서열번호 73 내지 79 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0035] 상기 **CEP350**는 Centrosome-associated protein 350, Centrosome Protein 350, Centrosome Protein 350kDa, CAP350, KIAA0480, Cep350, GM133등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 9857의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 CEP350 단백질은 CEP350동형 단백질이나 이들의 전구체일 수 있다. 상기 CEP350 단백질은 예를 들어, GeneBank Accession No. NM_014810.5, XM_011510198.2, XM_017002931.1, XM_017002930.1, XM_017002929.1, XM_011510191.2, BC017847.1, AAH17847, XP_011508493, XP_01685841, XP_016858420, Q5VT06.1, CCQ43462.1, NP_055625.4, EAW91073.1, EAW91072.1, EAW91071.1, EAW91070.1, XP_016858418.1, XP_016858419.1, XP_011508500.1, 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 CEP350 단백질은 서열번호 80 내지 85 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0036] 상기 **FOXO1**는 Forkhead box protein O1, Forkhead Box Protein O1A, FOXO1A, FKHR, Forkhead, Drosophila, Homolog of in Rhabdomyosarcoma, FKH1등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 2308의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 FOXO1 단백질은 FOXO1동형 단백질이나 이들의 전구체일 수 있다. 상기 FOXO1 단백질은 예를 들어, GeneBank Accession No. NM_002015.4, XM_011535010.2, XM_011535008.2, BC070065.1, BC021981.2, AAH21981, AAH70065, XP_011533310, XP_011533312, NP_002006등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 FOXO1 단백질

은 서열번호 86 내지 88 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0037] 상기 **TIMM9**는 Mitochondrial import inner membrane translocase subunit Tim9, Translocase of inner Mitochondrial Membrane9, TIM9A, TIM9, TIMM9A등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 26520의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 TIMM9단백질은 TIMM9동형 단백질이나 이들의 전구체일 수 있다. 상기 TIMM9 단백질은 예를 들어, GeneBank Accession No. AY358266.1, AF152353.1, NM_012460.4, NM_001304491.1, NM_001304488.1, NM_001304489.1, NM_001304486.1, NM_001304490.1, NM_001304487.1, NM_001304485.1, BC054875.1, BC020213.1, DN994833.1, AK312095.1, AAQ88633, AAF15103, NP_036592, NP_001291420, NP_001291417, NP_001291415, , NP_001291418, NP_001291419, NP_001291416, NP_001291414, AAH54875, AAH20213, BAG35031등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 TIMM9 단백질은 서열번호 89 내지 92 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0038] 상기 **CHD4**는 Chromodomain-helicase-DNA-binding protein 4, Mi-2 Autoantigen 218Kda Protein, ATP-Dependent Helicase CHD4, CHD-4, EC3.6.4.12, Mi2-BETA, Mi2-Beta, EC3.6.1, SIHIWES, Mi-2b등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 1108의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 CHD4 단백질은 CHD4동형 단백질이나 이들의 전구체일 수 있다. 상기 CHD4 단백질은 예를 들어, GeneBank Accession No. NM_001273.5, NM_001363606.2, NM_001297553.2, BC038596.2, BC025962.1, BC014964.1, DR000362.1, AAH14964, AAH25962, AAH38596, NP_001284482, NP_001350535, XP_006719025, NP_001264등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 CHD4 단백질은 서열번호 93 내지 95 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0039] 상기 **SEC16A**는 Protein transport protein Sec16A, SEC16 Homolog A. Endoplasmic Reticulum Export Factor, KIAA0310, SEC16L, P250, Protein SEC16 Homolog A, SEC16 등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 9919의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 SEC16A 단백질은 SEC16A동형 단백질이나 이들의 전구체일 수 있다. 상기 SEC16A 단백질은 예를 들어, GeneBank Accession No. NM_014866.2, NM_001276418.1, AB621812.1, AB593115.1, XM_011519259.2, XM_011519247.2, XM_017015364.1, XM_011519264.2, XM_011519263.2, XM_011519260.2, XM_011519255.2, XM_017015363.1, XM_011519252.2 , XM_011519250.2 , XM_011519248.2 , XM_011519246.2, XM_011519262.1, XM_011519261.1, XM_011519258.1, XM_011519257.1, XM_011519256.1, XM_011519254.1, XM_011519253.1, XM_011519251.1, XM_011519249.1, XM_005266134.2 , XR_929881.2, BC125018.1, BC125019.1, BC098454.1, BC016873.1, BC001404.2, BC028183.1, BC008332.1, NP_055681, XP_005266192, XP_088459, XP_947583, NP_001263347, BAK64148, BAJ84055, XP_011517561, XP_016870853, XP_011517566, XP_011517565, XP_011517562, XP_011517557, XP_016870852, XP_011517549, XP_011517563, XP_011517554, XP_011517552, XP_011517550, XP_011517548, XP_011517564, XM_011519261.1, XP_011517560, XP_011517560, XP_011517559, XP_011517558, XP_011517556, XP_011517555, XP_011517553, XP_011517551, XP_005266191, AAI25019, AAI25020, AAH98454, AAH16873, AAH01404, AAH28183, AAH08332 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 SEC16A 단백질은 서열번호 96 내지 116 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0040] 상기 **ORM1**는 Alpha-1-acid glycoprotein, Orosomucoid1, AGP 1, OMD 1, AGP1, Epididymis Secretory Sperm Binidng Protein Li 153w, HEL-S-153w, AGP-A, ORM등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 5004의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 ORM1 단백질은 ORM1동형 단백질이나 이들의 전구체일 수 있다. 상기 ORM1 단백질은 예를 들어, GeneBank Accession No. NM_000607.2, BC026238.1, BC143314.1, BC143313.1, BC104818.1, BC104820.1, DR003932.1, AK312035.1, BAG34972, DR003932.1, AAI04821, AAI04819, AAI43314, AAI43315, AAH26238, NP_000598등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 ORM1 단백질은 서열번호 117의 아미노산 서열을 포함하는 단백질일 수 있다.

[0041] 상기 **RPS15**은 40S ribosomal protein S15, Ribosomal Protein S15, Small Ribosomal Subunit protein US19, Homolog of Rat insulinoma, insulinoma Protein, RIG, RIG protein, S15등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 6209의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 RPS15 단백질은 RPS15동형 단백질이나 이들의 전구체일 수 있다. 상기 RPS15 단백질은 예를 들어, GeneBank Accession No. NM_001018.4, NM_001308226.1, BC141832.1, BC105810.1, BC064908.1, DN996236.1, NM_000997.5, NP_001009, NP_001074300, NP_001295155, XP_011526478, AAI41833, AAI05811, AAH64908, NP_000988등의 뉴클

레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 RPS15 단백질은 서열번호 118 및 119 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0042] 상기 **TUBB2A**는 Tubulin beta-2A chain, Tubulin Beta 2ª Class IIa, Class IIa Beta-Tubulin, TUBB2, Tubulin, Beta Polypeptide2, CDCBM5, TUBB등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 7280의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 TUBB2A단백질은TUBB2A동형 단백질이나 이들의 전구체일 수 있다. 상기 TUBB2A 단백질은 예를 들어, GeneBank Accession No. NM_001069.3, NM_001310315.2, BC141924.1, BC141925.1, BC018780.1, BC001194.1, AAH01194, AAH18780, AAI41926, AAI41925, NP_001297244, NP_001060등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 TUBB2A 단백질은 서열번호 120 및 121 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0043] 상기 **CNTRL**은 Centriolin, Centrosomal Protein of 110 KDa, Centrosomal Protein1, CEP110, CEP1, BA165P4.2, Centriole Associated Protein, 110 KDa Centrosomal Protein, BA165P4.1, Cep110, FAN등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 11064의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 CNTRL 단백질은 CNTRL동형 단백질이나 이들의 전구체일 수 있다. 상기 CNTRL 단백질은 예를 들어, GeneBank Accession No. NM_001330762.2, NM_007018.5, NM_001369896.1, NM_001369895.1, NM_001369894.1, NM_001369893.1, NM_001369892.1, XM_011518173.2, XM_017014229.2, XM_006716944.4, XM_011518172.3, XM_017014224.2, XM_006716940.3, XM_011518170.2, XM_024447392.1, XM_017014223.2, XM_011518168.2, XM_005251679.4, XM_011518166.2, XM_011518167.1, XM_006716942.1, XP_006717005, XP_011516469, XP_011516468, XP_005251736, XP_011516470, XP_016869712, XP_024303160, XP_011516472, XP_006717003, XP_016869713, XP_011516474, XP_006717007, XP_016869718, XP_011516475, NP_001356821, NP_001356822, XP_016869716, NP_001356823, NP_001356824, XP_016869717, NP_001356825, NP_008949, XP_352973, NP_001317691, XP_016869715 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 CNTRL 단백질은 서열번호 122 내지 141 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0044] 상기 **ARPC3**은 Actin-related protein 2/3 complex subunit 3, Arp2/3 Complex 21 KDa subunit, ARC21, Actin Related Protein 2/3 Complex, Subunit3(21KDa), ARP2/3 Protein Complex Subunit P21, P21-Arc, P21-ARC등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 10094의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 ARPC3 단백질은 ARPC3동형 단백질이나 이들의 전구체일 수 있다. 상기 ARPC3 단백질은 예를 들어, GeneBank Accession No. CR407667.1, NM_001278556.2, NM_001287222.1, DQ328220.1, BC067747.1, BC078162.1, DN993782.1, AK311789.1, AK297309.1, CAG28595, NP_001265485, NP_005710, NP_001274151, XP_005253878, ABC59627, AAH67747, AAH78162, BAG34732, BAG59775등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 ARPC3 단백질은 서열번호 142 및 143 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0045] 상기 **PLPBP**은 Pyridoxal phosphate homeostasis protein, Pyridoxal phosphate Binding protein, Proline Synthase Co-Transcribed Bacterial Homolog Protein, PLP Homeostasis Protein, PROSC, Proline Synthetase Co- Transcribed Bacterial Homolg Protein, EPVB6D등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 11212의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 PLPBP 단백질은 PLPBP동형 단백질이나 이들의 전구체일 수 있다. 상기 PLPBP 단백질은 예를 들어, GeneBank Accession No. NM_007198.4, NM_001349346.2, NM_001349348.2, NM_001349347.2, NM_001349349.1, NG_053030.1, NP_009129, NP_001336275, NP_001336277, NP_001336276, NP_001336278, 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 PLPBP 단백질은 서열번호 144 내지 148 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0046] 상기 **IKZF2**은 Zinc finger protein Helios, IKAROS Family Zinc Finger 2, Zinc Finger Protein, Subfamily 1a, (Helios), ZNFN1A2, HELIOS, ANF1A2, ZNF1A2등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 22807의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 IKZF2 단백질은 IKZF2동형 단백질이나 이들의 전구체일 수 있다. 상기 IKZF2단백질은 예를 들어, GeneBank Accession No. NM_001371274.1, NM_001371277.1, NM_001371276.1, NM_001371275.1, NM_016260.3, NM_001079526.2, XM_011510819.3, XM_017003592.2, XM_017003591.2, XM_011510818.3, XM_011510817.3, XM_011510816.3, XM_005246386.5 , XM_011510815.3, XM_005246384.5, XM_005246385.4, XM_011510812.3, XM_011510811.3, XM_011510810.3, XM_011510809.3, XM_011510807.3, XM_011510808.3, XM_011510804.3, XM_011510805.3, XM_011510802.3, XM_011510803.3, BC028936.1, NP_001358203, XP_011509116, NP_001358206, NP_001358205, XP_016859079,

NP_001358204, XP_016859078, NP_057344, NP_001072994, XP_005246444, XP_011509121, XP_016859081, XP_016859080, XP_011509120, XP_011509119, XP_005246443, XP_011509117, XP_005246441, XP_005246442, XP_011509114, XP_011509113, XP_011509112, XP_011509111, XP_011509109, XP_011509110, XP_011509106, XP_011509107, XP_011509104, XP_011509105, AAH28936 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 IKZF2 단백질은 서열번호 149 내지 162 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0047] 상기 **KARS**는 Lysine--tRNA ligase, Lysyl-TRNA Synthetase, EC6.1.1.6, LysRS, Deafness, Autosomal Recessive 89, EC2.7.7, KIAA0070, EC6.1.1, CMTRIB, DFNB89, KARS1, KARS2, KRS등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 3735의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 KARS 단백질은 KARS동형 단백질이나 이들의 전구체일 수 있다. 상기 KARS 단백질은 예를 들어, GeneBank Accession No. AY409863.1, XM_017023217.1, NM_001130089.1, NM_005548.2, NG_028025.1, BC004132.2, AAH04132, NP_005539, NP_001123561, XP_016878706, 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 KARS 단백질은 서열번호 163 내지 165 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0048] 상기 **LETM1**는 Mitochondrial proton/calcium exchanger protein, Leucine Zipper And EF-Hand Containing Transmembrane Protein1, LETM1 and EF-Hand domain-containing Protein1, Mitochondrial, Mdm38 Homolog(Yeast), SLC55A1등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 3954의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 LETM1 단백질은 LETM1동형 단백질이나 이들의 전구체일 수 있다. 상기 LETM1단백질은 예를 들어, GeneBank Accession No. NM_012318.3, AF061025.1, XM_006713884.1, BC021208.1, BC014500.1, DR003020.1, AAH14500, AAH21208, XP_006713947, AAD13138, NP_036450 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 LETM1 단백질은 서열번호 166 및 167 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0049] 상기 **EIF4A1**은 Eukaryotic initiation factor 4A-I, ATP-Dependent RNA Helicase EIF4A-1, EIF-4a-I, EIF4A-I, EIF4A, DDX2A, EC3.6.4.13, EC3.6.1, EIF-4a, 등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 1973의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 EIF4A1 단백질은 EIF4A1동형 단백질이나 이들의 전구체일 수 있다. 상기 EIF4A1 단백질은 예를 들어, GeneBank Accession No. NM_001204510.2, NM_001416.4, BC073752.1, BC009585.1, DR001699.1, AK289453.1, AK291971.1, NM_001130678.3, NM_001331017.1, NM_001130679.2, NM_001968.4, NP_001317946, XP_006714189, NP_001124150, BAF84660, BAF82142, AAH09585, AAH73752, NP_001407, NP_001191439등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 EIF4A1 단백질은 서열번호 168 및 169 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0050] 상기 **SKA3**는 Spindle and kinetochore-associated protein 3, Spindle and kinetochore Associated Complex Subunit3, C13orf3, RAMA1, Chromosome 13 Open Reading Frame3 등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 221150의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 SKA3 단백질은 SKA3동형 단백질이나 이들의 전구체일 수 있다. 상기 SKA3단백질은 예를 들어, GeneBank Accession No. NM_001166017.2, NM_145061.6, XM_005266288.4, XM_011534994.2, XP_011533296, XP_005266345, NP_659498.4, NP_001159489등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 SKA3 단백질은 서열번호 170 내지 173 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0051] 상기 **KRT78**는 Keratin, type II cytoskeletal 78, Keratin78, TypeII cytoskeletal 78, cytokerain-78, Keratin-5b, CK-78, K5B, K78, Kb40, KB40등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 196374의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 KRT78 단백질은 KRT78동형 단백질이나 이들의 전구체일 수 있다. 상기 KRT78단백질은 예를 들어, GeneBank Accession No. NM_173352.4, NM_001300814.1, XM_011538010.1, AK298636.1, NP_775487, NP_001287743, XP_005268752, XP_011536312, BAG60811 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 KRT78 단백질은 서열번호 174 내지 176 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0052] 상기 **ANKLE2**는 Ankyrin repeat and LEM domain-containing protein 2, KIAA0692, Ankyrin Repeat and LEM Domain-Containing Protein2, LEM Domian-Containing protein4, LEM Domain containing7, MCPH16, LEMD7, Lem4, LEM4등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 23141의 뉴클레오티드 서열을 포함한 핵산으

로부터 암호화된 단백질일 수 있다. 상기 ANKLE2 단백질은 ANKLE2동형 단백질이나 이들의 전구체일 수 있다. 상기 ANKLE2 단백질은 예를 들어, GeneBank Accession No. KY056762.1, NM_015114.3, XM_024448899.1, XM_011534787.3, XM_005266160.2, XM_005266159.3, XM_011534788.1, XM_006719735.1, BC082962.1, BC062373.1, BC001530.2, BC043157.1, BC025347.1, ASK40097, NP_055929, XP_931084, XP_024304667, XP_011533089, XP_005266217, XP_005266216, XP_011533090, XP_006719798, AAH82962, AAH62373, AAH01530, AAH25347 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 ANKLE2 단백질은 서열번호 177 내지 181 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0053] 상기 **ACO2**는 Aconitate hydratase, mitochondrial, Aconitase2, Mitochondrial Aconitase, Citrate Hydro-Lyase, EC4.2.1.3, Epididymis Secretory Sperm Binding Protein Li284, HEL-S-284, Aconitase, EC4.2.1, ACONM, ICRD, OCA8, OPA9등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 50의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 ACO2 단백질은 ACO2동형 단백질이나 이들의 전구체일 수 있다. 상기 ACO2 단백질은 예를 들어, GeneBank Accession No. CR536568.1, CR456365.1, NM_001098.3, XM_024452250.1, XM_017028812.1, BC014092.2, BC026196.2, BG319434.1, DN989960.1, AK314845.1, CAG38805, CAG30251, NP_001089, XP_024308018, XP_016884301, AAH14092, AAH26196, BAG37362의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 ACO2 단백질은 서열번호 182 내지 184 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0054] 상기 **TNRC6B**는 Trinucleotide repeat-containing gene 6B protein, Trinucleotide Repeat Contianing Adaptor6B, KIAA1093등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 23112의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 TNRC6B단백질은 TNRC6B동형 단백질이나 이들의 전구체일 수 있다. 상기 TNRC6B 단백질은 예를 들어, GeneBank Accession No. NM_015088.3, NM_001162501.2, NM_001024843.1, BC028626.2, AK304087.1, BAG64993, AAH28626, NP_001020014, XP_039385, NP_001155973, NP_055903, 등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 TNRC6B 단백질은 서열번호 185 내지 187 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0055] 상기 **SHTN1**는 Shootin-1, KIAA1598 등으로 표시할 수 있으며, 인간에서 Genebank Gene GI: 57698의 뉴클레오티드 서열을 포함한 핵산으로부터 암호화된 단백질일 수 있다. 상기 SHTN1 단백질은 SHTN1동형 단백질이나 이들의 전구체일 수 있다. 상기 SHTN1 단백질은 예를 들어, GeneBank Accession No. NM_018330.7, NM_001127211.3, NM_001258299.1, NM_001258300.1, NM_001258298.1, XM_005270002.4, XM_006717931.4, XM_006717931.4, NP_001120683, NP_001245228, NP_001245229, XP_005270060, NP_001245227, XP_005270059, XP_006717994등의 뉴클레오티드 또는 아미노산 서열을 포함한 단백질일 수 있다. 상기 SHTN1 단백질은 서열번호 188 내지 194 중 어느 하나 이상의 아미노산 서열을 포함하는 단백질일 수 있다.

[0056] 상기 미리 도출된 표준 펩타이드의 발현량은 방사선 피폭 선량 또는 피폭 시간에 따라 피폭된 세포의 상기 단백질들을 분리하여 발현량을 도출해낸 것을 의미하는 것으로, 상기 도출된 발현량과 피폭 선량 또는 피폭 시간을 판정하고자 하는 개체의 상기 단백질 발현량과 비교하여 판단하는데 기준이 되는 것일 수 있다.

[0057] 일 구체예에 있어서, 상기 단백질의 발현량을 측정하는 단계는 LS-MS/MS를 이용하는 것일 수 있다.

[0058] 본 명세서에서 용어 "LC-MS/MS"은 질량 분석법의 한 종류로, 액체크로마토그래피/질량분석기(LC/MS)를 이용한 LC-MS 스펙트럼에 한번 더 MS를 측정한 것일 수 있다.

[0059] 상기 개체는 방사선 피폭이 의심되는 개체일 수 있고, 인간을 포함한 포유동물일 수 있다.

[0060] 상기 시료는 액체 생검 시료인 것일 수 있다. 액체 생검 시료는 생물로부터 수득된 액체 시료를 말한다. 상기 시료는 혈액, 혈장, 혈청, 복수액, 골수액, 림프액, 타액, 누액, 점막액, 양수, 소변, 객담 또는 이들의 조합일 수 있다. 상기 시료가 혈액 또는 혈장일 경우, 채취가 용이한 혈액, 혈장을 검체로 사용하기 때문에 개체의 장기 조직을 적출하지 않기 때문에 개체에게 부담을 주지 않으면서도 간편하게 분석할 수 있을 뿐만 아니라 진단의 정확도 및 민감도가 높아 방사선 피폭 진단에 유용하게 사용될 수 있다.

[0061] 상기 시료는 온전한(intact) 단백질을 포함할 수 있다. 온전한 단백질은 별도의 단백질의 변형 없이 시료로부터 분리된 단백질일 수 있다. 온전한 단백질은, 예를 들어 단백질 분해 효소에 의한 단백질 분해 없이, 시료로부터 분리된 단백질일 수 있다.

[0062] 상기 적어도 15개 이상의 임의의 단백질은 15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44 또는 45개의

임의의 단백질을 의미하는 것일 수 있다.

[0063] 본 명세서에서 용어 "발현량"은 정량값을 포함할 수 있다.

[0064] 본 명세서에서 용어 "평가"는 어떤 현상에 대하여 그 수준을 판단하는 것을 의미할 수 있다. 본 발명에서의 평가는 방사선 피폭 여부 및/또는 그 정도, 예를 들면, 피폭 선량 및/또는 피폭된 시간을 판단하는 것일 수 있다.

[0065] 일 구체예에 있어서, 상기 표준 펩타이드는, 방사선 피폭된 세포에서 추출된 단백질의 발현량을 측정하여 분석한 결과를 기초로 인공지능 모델을 이용하여 획득된 것일 수 있다.

[0066] 일 구체예에 있어서, 상기 인공지능 모델은 단백질의 발현량을 측정하여 도출된 분석 결과가 입력되면 방사선 피폭 선량 및 시간을 출력하는 서포트 벡터 회귀(Support vector regression, SVR)인 것일 수 있다. 상기 서포트 벡터 회귀는 기계 학습의 한 분야일 수 있다. 상기 인공지능 모델은 단백질의 발현량 측정도를 포함한 LC-MS/MS 및 항체, 압타머, 등을 이용하여 도출된 단백질 분석된 결과가 입력되면 방사선 피폭 선량 및 시간을 출력하는 서포트 벡터 회귀(Support vector regression, SVR)인 것일 수 있다.

[0067] 일 구체예에 있어서, 상기 방사선 피폭된 세포는 0.1 내지 2.0Gy의 선량으로 0 내지 36시간 동안 피폭된 것일 수 있다.

[0068] 상기 방사선 피폭 선량은 0.1 내지 2.0Gy, 예를 들면, 0.1 내지 1.0Gy, 0.1 내지 0.5Gy, 0.1 내지 0.25Gy, 0.25 내지 2.0Gy, 0.25 내지 1.0Gy, 0.25 내지 0.5Gy, 또는 0.5 내지 2.0Gy일 수 있다.

[0069] 상기 방사선 피폭 시간은 0 내지 36시간, 예를 들면, 피폭되지 않았거나 0.0001분 내지 36시간, 0.0001분 내지 24시간, 0.0001분 내지 12시간, 0.0001분 내지 6시간, 1분 내지 36시간, 1분 내지 24시간, 1분 내지 12시간, 1분 내지 6시간, 5분 내지 36시간, 5분 내지 24시간, 5분 내지 12시간, 또는 5분 내지 6시간일 수 있다.

[0070] 일 구체예에 있어서, 상기 방사선 피폭된 세포는 말초 혈액 단핵세포(Peripheral blood mononuclear cells, PBMC)인 것일 수 있다.

[0071] 일 구체예에 있어서, 상기 15개 이상의 임의의 단백질은 적어도 MIF, TRNT1, ARPC3, GINS3, TUBA4A, ACTA1, MRPS7, PGAM1, RPS15, HAUS7, PHB2, TOMM34, RACK1, MRPL40 및 RPL4를 포함하는 것일 수 있다.

[0072] 다른 양상은 상기 방법을 컴퓨터에서 실행시키기 위한 프로그램을 기록한 컴퓨터로 읽을 수 있는 기록매체를 제공한다.

[0073] 상기 컴퓨터로 읽을 수 있는 기록매체는 실시 형태를 위하여 특별히 설계되고 구성된 것들이거나 컴퓨터 소프트웨어 당업자에게 공지되어 사용 가능한 것일 수도 있다. 컴퓨터로 읽을 수 있는 기록매체의 예에는 하드 디스크, 플로피 디스크 및 자기 테이프와 같은 자기 매체, CD-ROM, DVD와 같은 광기록 매체, 플롭티컬 디스크와 같은 자기-광 매체 및 롬, 램, 플래시 메모리 등과 같은 프로그램 명령을 저장하고 수행하도록 특별히 구성된 하드웨어 장치가 포함된다. 프로그램 명령의 예에는 컴파일러에 의해 만들어지는 것과 같은 기계어 코드뿐만 아니라 인터프리터 등을 사용해서 컴퓨터에 의해서 실행될 수 있는 고급 언어 코드를 포함한다.

[0074] 또 다른 양상은 개체로부터 분리된 시료에서 추출된, TUBA4A, PFDN6, MRPL40, CD74, PGAM1, MRPS7, TRNT1, IFITM2, GINS3, MGMT, HAUS7, TOMM34, RPL4, LUC7L, UPF1, TUBA1A, RACK1, YME1L1, PHB2, RPS5, OSBPL8, ACTA1, MIF, KMT2A, CEP350, FOXO1, TIMM9, CHD4, SEC16A, ORM1, RPS15, TUBB2A, CNTRL, ARPC3, PLPBP, IKZF2, KARS, LETM1, EIF4A1, SKA3, KRT78, ANKLE2, ACO2, TNRC6B 및 SHTN1로 이루어진 군으로부터 선택된 적어도 15개 이상의 임의의 단백질의 발현량을 측정하는 측정부; 및 상기 측정된 발현량과 미리 도출된 표준 펩타이드의 발현량과 비교하여 상기 개체의 방사선 피폭 선량 및 시간을 판정하는 판정부를 포함하는 것인 방사선 피폭 평가 장치를 제공한다.

[0075] 일 구체예에 있어서, 상기 단백질의 발현량을 측정하는 단계는 LC-MS/MS를 이용하는 것일 수 있다.

[0076] 상기 기재된 용어는 상기 방사선 피폭 평가 방법에서 상술한 바와 같다.

발명의 효과

[0077] 일 양상에 따른 방사선 피폭 평가 방법, 기록매체, 및 장치를 이용하여 방사선 피폭 선량이나 시간을 간편하게 평가할 수 있고, 방사선 치료 효과를 예측할 수 있다.

도면의 간단한 설명

[0078] 도 1은 혈액세포주에 조사된 방사선 피폭 선량 및 방사선 조사시간을 나타낸 그림이다.

도 2는 방사선 피폭 선량 및 조사시간에 따라 추출된 1602개 단백질체를 분석한 그래프이다.

도 3은 방사선 피폭 선량 및 조사시간을 17개의 조건으로 나타낸 표이다.

도 4는 서포트 벡터 회귀 (Support vector regression, SVR)을 이용하여 단백질 정량 feature를 이용하여 손실함수의 최소값을 보이는 회귀초평면을 만드는 것을 나타낸 그림이다.

도 5는 서포트 벡터 회귀를 이용한 비선형적 방법인 가우시안 방사형 기저함수 커널 함수는 선형 분리를 수행할 수 있도록 데이터를 더 높은 차원의 feature 공간으로 변환한 것을 나타낸 그림이다.

도 6은 오차 범위가 작고 방사선 피폭 선량 및 조사시간을 도출할 수 있는 45개 단백질을 나타낸 그래프이다.

도 7은 도출된 45개 단백질 정량 값으로 만든 서포트 벡터 회귀 모델이 예측한 방사선 피폭 선량 조건과 실제의 차이를 나타낸 그래프이다.

발명을 실시하기 위한 구체적인 내용

[0079] 이하 실시예를 통하여 보다 상세하게 설명한다. 그러나, 이들 실시예는 하나 이상의 구체예를 예시적으로 설명하기 위한 것으로 본 발명의 범위가 이들 실시예에 한정되는 것은 아니다.

[0080] **실시예 1. 방사선 피폭 바이오마커의 선별**

[0081] 방사선 피폭 선량 및/또는 시간을 평가하기 위한 바이오마커를 선별하기 위해 혈액세포주에 방사선을 17개의 조건으로 조사하여 단백질체 분석을 하였다.

[0082] 구체적으로, 혈액세포주(lymphoblastoid cell line)인 GM10832 및 GM10833을 Coriell Cell Repositories (NJ, USA)에서 분양받아, 2mM L-글루타민과 15% 열처리되지 않은 FBS(fetal bovine serum)이 함유된 RPMI 1640 배지에서 부유시켜 T75 플라스크에서 부유된 상태로 배양하였다.

[0083] 상기 T75 플라스크 둘레에 1cm 볼러스(bolus)를 두어 플라스크 가장자리 산란으로 기인하여 비 균질 방사선조사를 방지하였다. 그리고 나서, 의학선형 가속기 (Varian Clinac 21EX; Varian, Palo Alto, CA, USA) 장비로 방사선을 조사하였다. 먼저 갠트리를 0도에 놓고 소파를 source 표면거리가 100cm가 되도록 놓은 다음, 갠트리를 180도 회전하여 후사에 방사선 조사를 가함으로써 플라스크 상부에서 흩어지는 방사선을 방지하였다. 또한, 치료 계획 시스템 (Eclipse Version 13.6)을 사용하여 20×20 cm 필드를 사용하여 플라스크 전체에 균일 하게 방사선을 조사하였다.

[0084] 방사선 조사는 총 17개의 조건으로 조사하였으며, 구체적으로 방사선을 조사하지 않은 것과, 각 0.25, 0.5, 1.0, 0.2Gy의 선량으로 각 6, 12, 24, 36시간 동안 조사하였다.

[0085] 선량계 교정은 MicroStar In Light 판독기 (Landauer)를 사용하여 수행되었으며 오류는 0.25, 0.5, 1.0, 2.0Gy에서 PBMC(Peripheral blood monocyte cells)에 대한 계획된 값과 비교하여 1% 미만임을 확인하였다.

[0086] 상기 PBMC는 다음과 같이 분리하였다. 먼저 PBMC(Peripheral Blood Monocyte cell)는 채혈용 EDTA튜브에 30cc의 인간 혈액을 채취하였다. 50ml falcon tube에 채취한 혈액30ml + FBS가 없는 RPMI1640 세포배양 배지20ml로 총 50ml로 희석하였다. 그 다음, 새로운 50ml tube에 Ficoll 13ml을 넣고 그 위에 희석혈액 25ml을 넣고, No break상태로 설정 후 2000rpm 20분간 실온에서 원심분리를 하였다. 혈청부분을 suction해서 새로운 50ml tube에 옮기고 동량의 PBS를 섞어 1800 rpm 5분간 원심분리를 하였다. 상층액은 버리고 pellet에 PBS 30ml을 한번 더 넣고 1800rpm 5분간 원심분리를 하였다. pellet상태로 얻은 PBMC를 세포 배양배지 10% FBS가 포함된 RPMI1640로 세포를 풀고, 세포갯수를 동일하게 측정하여 총10ml의 T25 flask에 넣고 방사선 조사를 시행하였다.

[0087] 도 1은 혈액세포주에 조사된 방사선 피폭 선량 및 방사선 조사시간을 나타낸 그림이다.

[0088] 상기와 같이 방사선이 조사된 세포를 수집하여 단백질을 추출하여 변성시킨 뒤 분해시켜 LC-MS/MS방법을 이용하여 단백질체를 분석하였다. 그 결과 17개의 조건에서 모든 측정된 방사선 피폭 선량 및 시간에 따른 민감성 단백질체 1602개를 도출하였다 (도 2).

[0089] 혈액세포주에서 1% SDS와 protease/phosphatase inhibitor cocktail이 추가된 RIPA buffer (Lysis buffer)로 단백질을 추출한 후 BCA (Bicinchonic Acid) 정량 후, 각 300㎍씩 Filter-aided sample preparation(FASP)법

으로 펩티드를 제조하였다. 구체적인 실험 방법은 하기와 같다:

[0090] Lysis buffer에 들어있는 300㎍의 단백질에 10 mM이 되도록 2-카르보실에틸트리스포스파인 (Tris (2-carboxyethyl)-phosphine)을 첨가하고 37℃에서 1시간 동안 반응시켜 이황화결합을 환원시켰다. 그 후, 알킬화를 위해 15 mM이 되도록 아이오도아세트아미드 (iodoacetamide)를 가하여 암조건하에 실온에서 1시간 동안 반응시키고, 이를 30K-멤브레인 filter (Nanosep® Omega™)를 이용하여 lysis buffer 및 용액을 filter밖으로 내보내고 단백질만 filter안에 가둔 후 centrifuge를 이용하여 세척한 후 digestion buffer로 채운 후 시퀀싱이 가능한 수준의 트립신 (Promega)을 단백질과 트립신/라이스-씨의 질량 비율이 50:1 (6ug의 트립신/라이스-씨) 이 되도록 첨가하고 37℃에서 16시간 동안 반응시켰다. 펩티드가 된 시료를 elution으로 받은 후 동결건조하였다. 그 이후 건조된 시료에 100uL의 0.1% 포름산 (Formic acid) 녹인 후 5uL를 LC-MS/MS 분석에 사용하였다. 이를 위해 Nano LC-Q-Exactive plus 질량 분석(mass spectrometry)를 이용한 실험 방법은 하기와 같다:

[0091] - 50cm C18 capillary column(OD 360㎛, ID 75㎛)으로 200분 분획하고;

[0092] - 150분 gradient (5~45% acetonitrile and 0.1% formic acid solution)으로 분획하고;

[0093] - Top 20 intensity precursor에 대해 data dependent acquisition(DDA) mode로 data 수집한 후;

[0094] - 수집된 데이터는 Proteome discoverer 2.2 프로그램을 이용하여 human SWISSPROT sequence database와 비교하며 펩티드 및 단백질을 동정하고, 동정된 펩티드의 MS1 peak intensity를 이용하여 단백질의 LFQ (Lable-Free Quantification)값을 간결성 (parsimony: 최소 데이터를 이용한 최대 정보) 방법으로 정량한 결과로 방사선 피폭 바이오마커를 발굴하는 분석을 하였다.

표 1

[0095]

Uniprot ID	유전자 이름	단백질 이름
Q9C0C9	UBE2O	(E3-independent) E2 ubiquitin-conjugating enzyme
P61604	HSPE1	10 kDa heat shock protein, mitochondrial
Q15029	EFTUD2	116 kDa U5 small nuclear ribonucleoprotein component
P31946	YWHAB	14-3-3 protein beta/alpha
P62258	YWHAE	14-3-3 protein epsilon
P27348	YWHAQ	14-3-3 protein theta
P63104	YWHAZ	14-3-3 protein zeta/delta
Q9C0C2	TNKS1BP1	182 kDa tankyrase-1-binding protein
P16885	PLCG2	1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase gamma-2
Q16698	DECR1	2,4-dienoyl-CoA reductase, mitochondrial
Q99460	PSMD1	26S proteasome non-ATPase regulatory subunit 1
Q13200	PSMD2	26S proteasome non-ATPase regulatory subunit 2
O43242	PSMD3	26S proteasome non-ATPase regulatory subunit 3
P55036	PSMD4	26S proteasome non-ATPase regulatory subunit 4
P51665	PSMD7	26S proteasome non-ATPase regulatory subunit 7
O00233	PSMD9	26S proteasome non-ATPase regulatory subunit 9
P62333	PSMC6	26S proteasome regulatory subunit 10B
P62191	PSMC1	26S proteasome regulatory subunit 4
P17980	PSMC3	26S proteasome regulatory subunit 6A
P35998	PSMC2	26S proteasome regulatory subunit 7
Q13442	PDAP1	28 kDa heat- and acid-stable phosphoprotein
Q9Y3D5	MRPS18C	28S ribosomal protein S18c, mitochondrial
Q9Y3D9	MRPS23	28S ribosomal protein S23, mitochondrial
P82663	MRPS25	28S ribosomal protein S25, mitochondrial
Q92665	MRPS31	28S ribosomal protein S31, mitochondrial
P82909	MRPS36	28S ribosomal protein S36, mitochondrial
P82932	MRPS6	28S ribosomal protein S6, mitochondrial
Q9Y2R9	MRPS7	28S ribosomal protein S7, mitochondrial
O43598	DNPH1	2'-deoxynucleoside 5'-phosphate N-hydrolase 1
P52815	MRPL12	39S ribosomal protein L12, mitochondrial
Q9NRX2	MRPL17	39S ribosomal protein L17, mitochondrial
Q9BYC8	MRPL32	39S ribosomal protein L32, mitochondrial

Q9NQ50	MRPL40	39S ribosomal protein L40, mitochondrial
Q8IXM3	MRPL41	39S ribosomal protein L41, mitochondrial
Q9Y6G3	MRPL42	39S ribosomal protein L42, mitochondrial
Q8N983-4	MRPL43	39S ribosomal protein L43, mitochondrial
Q13405	MRPL49	39S ribosomal protein L49, mitochondrial
Q8N5N7	MRPL50	39S ribosomal protein L50, mitochondrial
Q96EL3	MRPL53	39S ribosomal protein L53, mitochondrial
P46783	RPS10	40S ribosomal protein S10
P25398	RPS12	40S ribosomal protein S12
P62263	RPS14	40S ribosomal protein S14
P62841	RPS15	40S ribosomal protein S15
P62249	RPS16	40S ribosomal protein S16
P08708	RPS17	40S ribosomal protein S17
P62269	RPS18	40S ribosomal protein S18
P39019	RPS19	40S ribosomal protein S19
P15880	RPS2	40S ribosomal protein S2
P60866-2	RPS20	40S ribosomal protein S20
P63220	RPS21	40S ribosomal protein S21
P62851	RPS25	40S ribosomal protein S25
P62854	RPS26	40S ribosomal protein S26
P62857	RPS28	40S ribosomal protein S28
P23396	RPS3	40S ribosomal protein S3
P62861	FAU	40S ribosomal protein S30
P61247	RPS3A	40S ribosomal protein S3a
P62701	RPS4X	40S ribosomal protein S4, X isoform
P46782	RPS5	40S ribosomal protein S5
P62753	RPS6	40S ribosomal protein S6
P62241	RPS8	40S ribosomal protein S8
P46781	RPS9	40S ribosomal protein S9
P08865	RPSA	40S ribosomal protein SA
Q9BRK5	SDF4	45 kDa calcium-binding protein
P08195	SLC3A2	4F2 cell-surface antigen heavy chain
P10809	HSPD1	60 kDa heat shock protein, mitochondrial
P05388	RPLP0	60S acidic ribosomal protein P0
P05386	RPLP1	60S acidic ribosomal protein P1
P05387	RPLP2	60S acidic ribosomal protein P2
P62906	RPL10A	60S ribosomal protein L10a
P30050	RPL12	60S ribosomal protein L12
P26373	RPL13	60S ribosomal protein L13
P18621-3	RPL17	60S ribosomal protein L17
P84098	RPL19	60S ribosomal protein L19
P35268	RPL22	60S ribosomal protein L22
P83731	RPL24	60S ribosomal protein L24
P46776	RPL27A	60S ribosomal protein L27a
P62910	RPL32	60S ribosomal protein L32
Q9Y3U8	RPL36	60S ribosomal protein L36
P36578	RPL4	60S ribosomal protein L4
P46777	RPL5	60S ribosomal protein L5
Q02878	RPL6	60S ribosomal protein L6
P18124	RPL7	60S ribosomal protein L7
P62424	RPL7A	60S ribosomal protein L7a
P32969	RPL9	60S ribosomal protein L9
Q9P2A4	ABI3	ABI gene family member 3
P24752	ACAT1	Acetyl-CoA acetyltransferase, mitochondrial
Q13510-2	ASAH1	Acid ceramidase
P39687	ANP32A	Acidic leucine-rich nuclear phosphoprotein 32 family member A
Q92688	ANP32B	Acidic leucine-rich nuclear phosphoprotein 32 family member B
Q9BTT0	ANP32E	Acidic leucine-rich nuclear phosphoprotein 32 family member E

Q99798	ACO2	Aconitate hydratase, mitochondrial
Q8N4X5-4	AFAP1L2	Actin filament-associated protein 1-like 2
P68133	ACTA1	Actin, alpha skeletal muscle
P61160	ACTR2	Actin-related protein 2
O15145	ARPC3	Actin-related protein 2/3 complex subunit 3
P59998-3	ARPC4	Actin-related protein 2/3 complex subunit 4
O15511	ARPC5	Actin-related protein 2/3 complex subunit 5
Q9BPX5	ARPC5L	Actin-related protein 2/3 complex subunit 5-like protein
P61158	ACTR3	Actin-related protein 3
P53999	SUB1	Activated RNA polymerase II transcriptional coactivator p15
Q9H1I8	ASCC2	Activating signal cointegrator 1 complex subunit 2
Q6VMQ6	ATF7IP	Activating transcription factor 7-interacting protein 1
O95433	AHSA1	Activator of 90 kDa heat shock protein ATPase homolog 1
Q86WX3	RPS19BP1	Active regulator of SIRT1
O14561	NDUFAB1	Acyl carrier protein, mitochondrial
Q5T8D3	ACBD5	Acyl-CoA-binding domain-containing protein 5
Q9BR61	ACBD6	Acyl-CoA-binding domain-containing protein 6
P07108-5	DBI	Acyl-CoA-binding protein
P25054	APC	Adenomatous polyposis coli protein
P23526	AHCY	Adenosylhomocysteinase
P54819	AK2	Adenylate kinase 2, mitochondrial
P27144	AK4	Adenylate kinase 4, mitochondrial
Q01518-2	CAP1	Adenylyl cyclase-associated protein 1
P05141	SLC25A5	ADP/ATP translocase 2
Q9BW91	NUDT9	ADP-ribose pyrophosphatase, mitochondrial
P61204	ARF3	ADP-ribosylation factor 3
Q9Y2Y0	ARL2BP	ADP-ribosylation factor-like protein 2-binding protein
P36405	ARL3	ADP-ribosylation factor-like protein 3
Q66PJ3	ARL6IP4	ADP-ribosylation factor-like protein 6-interacting protein 4
Q9UKK9	NUDT5	ADP-sugar pyrophosphatase
P55196-5	AFDN	Afadin
Q6ULP2	AFTPH	Aftiphilin
O00170	AIP	AH receptor-interacting protein
Q92667	AKAP1	A-kinase anchor protein 1, mitochondrial
Q9UKA4	AKAP11	A-kinase anchor protein 11
Q12802-2	AKAP13	A-kinase anchor protein 13
Q9Y2D5-4	AKAP2	A-kinase anchor protein 2
O43823	AKAP8	A-kinase anchor protein 8
Q9ULX6	AKAP8L	A-kinase anchor protein 8-like
Q99996	AKAP9	A-kinase anchor protein 9
P49588	AARS	Alanine--tRNA ligase, cytoplasmic
P11766	ADH5	Alcohol dehydrogenase class-3
Q3SZR3	ORM1	Alpha-1-acid glycoprotein
P01011	SERPINA3	Alpha-1-antichymotrypsin
P30533	LRPAP1	Alpha-2-macroglobulin receptor-associated protein
O43707	ACTN4	Alpha-actinin-4
O43768-4	ENSA	Alpha-endosulfine
P06733	ENO1	Alpha-enolase
P54920	NAPA	Alpha-soluble NSF attachment protein
P40222	TXLNA	Alpha-taxilin
Q12904-2	AIMP1	Aminoacyl tRNA synthase complex-interacting multifunctional protein 1
Q8WV99	ZFAND2B	AN1-type zinc finger protein 2B
Q6FI81	CIAPIN1	Anamorsin
Q8IWZ3-6	ANKHD1	Ankyrin repeat and KH domain-containing protein 1
Q86XL3	ANKLE2	Ankyrin repeat and LEM domain-containing protein 2
P04083	ANXA1	Annexin A1
P07355-2	ANXA2	Annexin A2
P08758	ANXA5	Annexin A5

P08133	ANXA6	Annexin A6
Q0VD83-4	APOBR	Apolipoprotein B receptor
Q9BZZ5	API5	Apoptosis inhibitor 5
Q07812-2	BAX	Apoptosis regulator BAX
Q9ULZ3	PYCARD	Apoptosis-associated speck-like protein containing a CARD
Q9UKV3-5	ACIN1	Apoptotic chromatin condensation inducer in the nucleus
P53367	ARFIP1	Arfaptin-1
P54136	RARS	Arginine--tRNA ligase, cytoplasmic
P00505	GOT2	Aspartate aminotransferase, mitochondrial
P14868	DARS	Aspartate--tRNA ligase, cytoplasmic
Q15121-2	PEA15	Astrocytic phosphoprotein PEA-15
Q9UBB4	ATXN10	Ataxin-10
Q99700	ATXN2	Ataxin-2
Q8WWM7	ATXN2L	Ataxin-2-like protein
P25705	ATP5F1A	ATP synthase subunit alpha, mitochondrial
P06576	ATP5F1B	ATP synthase subunit beta, mitochondrial
O75947	ATP5PD	ATP synthase subunit d, mitochondrial
P36542	ATP5F1C	ATP synthase subunit gamma, mitochondrial
P48047	ATP5PO	ATP synthase subunit O, mitochondrial
P18859-2	ATP5PF	ATP synthase-coupling factor 6, mitochondrial
Q01813	PFKP	ATP-dependent 6-phosphofructokinase, platelet type
O76031	CLPX	ATP-dependent Clp protease ATP-binding subunit clpX-like, mitochondrial
Q16740	CLPP	ATP-dependent Clp protease proteolytic subunit, mitochondrial
P46063	RECQL	ATP-dependent DNA helicase Q1
Q08211	DHX9	ATP-dependent RNA helicase A
O00571	DDX3X	ATP-dependent RNA helicase DDX3X
Q86XP3	DDX42	ATP-dependent RNA helicase DDX42
Q96TA2	YME1L1	ATP-dependent zinc metalloprotease YME1L1
O14497	ARID1A	AT-rich interactive domain-containing protein 1A
Q99856	ARID3A	AT-rich interactive domain-containing protein 3A
Q03989	ARID5A	AT-rich interactive domain-containing protein 5A
Q99933	BAG1	BAG family molecular chaperone regulator 1
O95816	BAG2	BAG family molecular chaperone regulator 2
O95429	BAG4	BAG family molecular chaperone regulator 4
O43491	EPB41L2	Band 4.1-like protein 2
O75531	BANF1	Barrier-to-autointegration factor
Q7L1Q6-3	BZW1	Basic leucine zipper and W2 domain-containing protein 1
P35613	BSG	Basigin
P11912	CD79A	B-cell antigen receptor complex-associated protein alpha chain
P40259-3	CD79B	B-cell antigen receptor complex-associated protein beta chain
Q4VC05-2	BCL7A	B-cell CLL/lymphoma 7 protein family member A
Q8WUZ0	BCL7C	B-cell CLL/lymphoma 7 protein family member C
O95999	BCL10	B-cell lymphoma/leukemia 10
P20273	CD22	B-cell receptor CD22
Q16611	BAK1	Bcl-2 homologous antagonist/killer
Q92934	BAD	Bcl2-associated agonist of cell death
Q9NYF8	BCLAF1	Bcl-2-associated transcription factor 1
Q9HB09	BCL2L12	Bcl-2-like protein 12
Q9BXK5	BCL2L13	Bcl-2-like protein 13
Q8WYA6	CTNNBL1	Beta-catenin-like protein 1
P07686	HEXB	Beta-hexosaminidase subunit beta
P55957	BID	BH3-interacting domain death agonist
P31939	ATIC	Bifunctional purine biosynthesis protein PURH
P78537	BLOC1S1	Biogenesis of lysosome-related organelles complex 1 subunit 1
Q6QNY1	BLOC1S2	Biogenesis of lysosome-related organelles complex 1 subunit 2
Q6QNY0	BLOC1S3	Biogenesis of lysosome-related organelles complex 1 subunit 3
Q8NFC6	BOD1L1	Biorientation of chromosomes in cell division protein 1-like 1
Q9Y6X5	ENPP4	Bis(5'-adenosyl)-triphosphatase ENPP4

Q969J3	BORCS5	BLOC-1-related complex subunit 5
Q96GS4	BORCS6	BLOC-1-related complex subunit 6
P15391	CD19	B-lymphocyte antigen CD19
P11836	MS4A1	B-lymphocyte antigen CD20
Q10589	BST2	Bone marrow stromal antigen 2
Q53HL2	CDCA8	Borealin
P80723	BASP1	Brain acid soluble protein 1
Q96RL1	UIMC1	BRCA1-A complex subunit RAP80
Q9P287	BCCIP	BRCA2 and CDKN1A-interacting protein
Q9UBW5	BIN2	Bridging integrator 2
P25440-2	BRD2	Bromodomain-containing protein 2
Q15059	BRD3	Bromodomain-containing protein 3
O60885	BRD4	Bromodomain-containing protein 4
Q9NPI1	BRD7	Bromodomain-containing protein 7
Q9H0E9-2	BRD8	Bromodomain-containing protein 8
Q9H8M2	BRD9	Bromodomain-containing protein 9
Q9NW68-3	BSDC1	BSD domain-containing protein 1
O43670-4	ZNF207	BUB3-interacting and GLEBS motif-containing protein ZNF207
Q9BRD0	BUD13	BUD13 homolog
P11586	MTHFD1	C-1-tetrahydrofolate synthase, cytoplasmic
Q99653	CHP1	Calcineurin B homologous protein 1
Q96BS2	TESC	Calcineurin B homologous protein 3
P63098	PPP3R1	Calcineurin subunit B type 1
Q99828-2	CIB1	Calcium and integrin-binding protein 1
Q8IWX8	CHERP	Calcium homeostasis endoplasmic reticulum protein
Q9Y376	CAB39	Calcium-binding protein 39
Q9HB71	CACYBP	Calcyclin-binding protein
P0DP23	CALM1	Calmodulin-1
P27824-2	CANX	Calnexin
P04632	CAPNS1	Calpain small subunit 1
P20810-5	CAST	Calpastatin
Q99439	CNN2	Calponin-2
P27797	CALR	Calreticulin
O43852-3	CALU	Calumenin
P56211	ARPP19	cAMP-regulated phosphoprotein 19
P30622	CLIP1	CAP-Gly domain-containing linker protein 1
Q9UDT6	CLIP2	CAP-Gly domain-containing linker protein 2
Q6F5E8	CARMIL2	Capping protein, Arp2/3 and myosin-I linker protein 2
Q14444	CAPRIN1	Caprin-1
Q6JBY9	RCSD1	CapZ-interacting protein
Q9H8G2	CAAP1	Caspase activity and apoptosis inhibitor 1
P04040	CAT	Catalase
P35221	CTNNA1	Catenin alpha-1
O60716	CTNND1	Catenin delta-1
P07339	CTSD	Cathepsin D
P20645	M6PR	Cation-dependent mannose-6-phosphate receptor
P11717	IGF2R	Cation-independent mannose-6-phosphate receptor
Q96Q11	TRNT1	CCA tRNA nucleotidyltransferase 1, mitochondrial
O75175	CNOT3	CCR4-NOT transcription complex subunit 3
Q13740	ALCAM	CD166 antigen
O95400	CD2BP2	CD2 antigen cytoplasmic tail-binding protein 2
Q15762	CD226	CD226 antigen
P26842	CD27	CD27 antigen
Q9Y5K6	CD2AP	CD2-associated protein
P16070	CD44	CD44 antigen
P09326	CD48	CD48 antigen
P32970	CD70	CD70 antigen
P60033	CD81	CD81 antigen

P27701	CD82	CD82 antigen
P48960	CD97	CD97 antigen
Q15642-2	TRIP10	Cdc42-interacting protein 4
Q8N5K1	CISD2	CDGSH iron-sulfur domain-containing protein 2
Q96JB5	CDK5RAP3	CDK5 regulatory subunit-associated protein 3
Q9NXV6	CDKN2AIP	CDKN2A-interacting protein
Q96HQ2	CDKN2AIPNL	CDKN2AIP N-terminal-like protein
Q9BY67-3	CADM1	Cell adhesion molecule 1
Q8N163	CCAR2	Cell cycle and apoptosis regulator protein 2
Q99459	CDC5L	Cell division cycle 5-like protein
Q69YH5	CDCA2	Cell division cycle-associated protein 2
Q99618	CDCA3	Cell division cycle-associated protein 3
Q9NX58	LYAR	Cell growth-regulating nucleolar protein
P62633	CNBP	Cellular nucleic acid-binding protein
P41208	CETN2	Centrin-2
Q7Z7A1	CNTRL	Centriolin
P49454	CENPF	Centromere protein F
Q7L2Z9	CENPQ	Centromere protein Q
Q6ZU80	CEP128	Centrosomal protein of 128 kDa
Q9UPN4	CEP131	Centrosomal protein of 131 kDa
Q5SW79	CEP170	Centrosomal protein of 170 kDa
Q53EZ4	CEP55	Centrosomal protein of 55 kDa
Q1MSJ5	CSPP1	Centrosome and spindle pole-associated protein 1
Q5VT06	CEP350	Centrosome-associated protein 350
Q9BV73	CEP250	Centrosome-associated protein CEP250
Q9UFW8	CGGBP1	CGG triplet repeat-binding protein 1
Q9BY43-2	CHMP4A	Charged multivesicular body protein 4a
Q9H444	CHMP4B	Charged multivesicular body protein 4b
Q9NZZ3	CHMP5	Charged multivesicular body protein 5
O00299	CLIC1	Chloride intracellular channel protein 1
Q9Y696	CLIC4	Chloride intracellular channel protein 4
Q96NY7	CLIC6	Chloride intracellular channel protein 6
P49585	PCYT1A	Choline-phosphate cytidylyltransferase A
Q13111	CHAF1A	Chromatin assembly factor 1 subunit A
Q8IXM2-3	BAP18	Chromatin complexes subunit BAP18
Q9Y3Y2-3	CHTOP	Chromatin target of PRMT1 protein
Q13185	CBX3	Chromobox protein homolog 3
P45973	CBX5	Chromobox protein homolog 5
Q14839-2	CHD4	Chromodomain-helicase-DNA-binding protein 4
Q96JM3	CHAMP1	Chromosome alignment-maintaining phosphoprotein 1
O95239	KIF4A	Chromosome-associated kinesin KIF4A
Q9HAW4	CLSPN	Claspin
Q00610	CLTC	Clathrin heavy chain 1
Q14677-3	CLINT1	Clathrin interactor 1
P09496-2	CLTA	Clathrin light chain A
Q16630-2	CPSF6	Cleavage and polyadenylation specificity factor subunit 6
P33240	CSTF2	Cleavage stimulation factor subunit 2
Q9H0L4	CSTF2T	Cleavage stimulation factor subunit 2 tau variant
Q7Z460	CLASP1	CLIP-associating protein 1
O75153	CLUH	Clustered mitochondria protein homolog
Q9UGN4	CD300A	CMRF35-like molecule 8
P53621-2	COPA	Coatomer subunit alpha
P53618	COPB1	Coatomer subunit beta
P35606	COPB2	Coatomer subunit beta'
P23528	CFL1	Cofilin-1
Q96NT0	CCDC115	Coiled-coil domain-containing protein 115
Q8WUD4	CCDC12	Coiled-coil domain-containing protein 12
Q96CT7	CCDC124	Coiled-coil domain-containing protein 124

Q9H6E4	CCDC134	Coiled-coil domain-containing protein 134
Q6PK04	CCDC137	Coiled-coil domain-containing protein 137
Q7Z3E2	CCDC186	Coiled-coil domain-containing protein 186
Q96MW1	CCDC43	Coiled-coil domain-containing protein 43
Q96A33	CCDC47	Coiled-coil domain-containing protein 47
Q8IVM0-2	CCDC50	Coiled-coil domain-containing protein 50
Q96ER9	CCDC51	Coiled-coil domain-containing protein 51
Q4VC31	CCDC58	Coiled-coil domain-containing protein 58
Q16204	CCDC6	Coiled-coil domain-containing protein 6
Q15834	CCDC85B	Coiled-coil domain-containing protein 85B
Q9H6F5	CCDC86	Coiled-coil domain-containing protein 86
Q96BP2	CHCHD1	Coiled-coil-helix-coiled-coil-helix domain-containing protein 1
Q9BSY4-2	CHCHD5	Coiled-coil-helix-coiled-coil-helix domain-containing protein 5
Q14011-2	CIRBP	Cold-inducible RNA-binding protein
Q9UBI1	COMMD3	COMM domain-containing protein 3
Q9NX08	COMMD8	COMM domain-containing protein 8
Q9P000	COMMD9	COMM domain-containing protein 9
Q07021	C1QBP	Complement component 1 Q subcomponent-binding protein, mitochondrial
Q9NPY3	CD93	Complement component C1q receptor
P20023-3	CR2	Complement receptor type 2
Q5U5X0	LYRM7	Complex III assembly factor LYRM7
Q15021	NCAPD2	Condensin complex subunit 1
Q15003	NCAPH	Condensin complex subunit 2
Q99627	COPS8	COP9 signalosome complex subunit 8
O00244	ATOX1	Copper transport protein ATOX1
Q86X95	CIR1	Corepressor interacting with RBPJ 1
P31146	CORO1A	Coronin-1A
P57737-3	CORO7	Coronin-7
Q96EY8	MMAB	Corrinoid adenosyltransferase
Q9P1F3	ABRACL	Costars family protein ABRACL
Q9UEE9	CFDP1	Craniofacial development protein 1
Q53ET0	CRTC2	CREB-regulated transcription coactivator 2
P46109	CRKL	Crk-like protein
Q9H467	CUEDC2	CUE domain-containing protein 2
Q86VP6	CAND1	Cullin-associated NEDD8-dissociated protein 1
Q9NWV4	CZIB	CXXC motif containing zinc binding protein
P15336	ATF2	Cyclic AMP-dependent transcription factor ATF-2
P16220	CREB1	Cyclic AMP-responsive element-binding protein 1
P21127	CDK11B	Cyclin-dependent kinase 11B
O14976	GAK	Cyclin-G-associated kinase
P21291	CSRP1	Cysteine and glycine-rich protein 1
P00167	CYB5A	Cytochrome b5
O43169	CYB5B	Cytochrome b5 type B
P31930	UQCRC1	Cytochrome b-c1 complex subunit 1, mitochondrial
P22695	UQCRC2	Cytochrome b-c1 complex subunit 2, mitochondrial
P14927	UQCRB	Cytochrome b-c1 complex subunit 7
P99999	CYCS	Cytochrome c
Q9Y2R0	COA3	Cytochrome c oxidase assembly factor 3 homolog, mitochondrial
Q5JTJ3-2	COA6	Cytochrome c oxidase assembly factor 6 homolog
P13073	COX4I1	Cytochrome c oxidase subunit 4 isoform 1, mitochondrial
P20674	COX5A	Cytochrome c oxidase subunit 5A, mitochondrial
P10606	COX5B	Cytochrome c oxidase subunit 5B, mitochondrial
P14854	COX6B1	Cytochrome c oxidase subunit 6B1
O00483	NDUFA4	Cytochrome c oxidase subunit NDUFA4
P08574	CYC1	Cytochrome c1, heme protein, mitochondrial
Q14204	DYNC1H1	Cytoplasmic dynein 1 heavy chain 1
Q9Y6G9	DYNC1LI1	Cytoplasmic dynein 1 light intermediate chain 1
Q8WWK9	CKAP2	Cytoskeleton-associated protein 2

Q07065	CKAP4	Cytoskeleton-associated protein 4
Q14008-3	CKAP5	Cytoskeleton-associated protein 5
P28838	LAP3	Cytosol aminopeptidase
Q9Y3D0	CIAO2B	Cytosolic iron-sulfur assembly component 2B
Q96KP4	CNDP2	Cytosolic non-specific dipeptidase
Q69YQ0	SPECC1L	Cytospin-A
Q5M775	SPECC1	Cytospin-B
O43175	PHGDH	D-3-phosphoglycerate dehydrogenase
Q9H773	DCTPP1	dCTP pyrophosphatase 1
Q96HY6	DDRGK1	DDRGK domain-containing protein 1
Q9UER7	DAXX	Death domain-associated protein 6
Q9BTC0	DIDO1	Death-inducer obliterator 1
O43583	DENR	Density-regulated protein
Q9BU89	DOHH	Deoxyhypusine hydroxylase
Q9H147	DNTTIP1	Deoxynucleotidyltransferase terminal-interacting protein 1
Q5QJE6	DNTTIP2	Deoxynucleotidyltransferase terminal-interacting protein 2
P33316	DUT	Deoxyuridine 5'-triphosphate nucleotidohydrolase, mitochondrial
Q02413	DSG1	Desmoglein-1
Q14126	DSG2	Desmoglein-2
P15924	DSP	Desmoplakin
P09622	DLD	Dihydrolipoyl dehydrogenase, mitochondrial
Q16555	DPYSL2	Dihydropyrimidinase-related protein 2
Q9P265	DIP2B	Disco-interacting protein 2 homolog B
Q9Y2H0	DLGAP4	Disks large-associated protein 4
Q15398-3	DLGAP5	Disks large-associated protein 5
P26358-2	DNMT1	DNA (cytosine-5)-methyltransferase 1
Q16531	DDB1	DNA damage-binding protein 1
O00273	DFFA	DNA fragmentation factor subunit alpha
P18858	LIG1	DNA ligase 1
P06746	POLB	DNA polymerase beta
Q9Y248	GINS2	DNA replication complex GINS protein PSF2
Q9BRX5-3	GINS3	DNA replication complex GINS protein PSF3
Q9BRT9	GINS4	DNA replication complex GINS protein SLD5
P49736	MCM2	DNA replication licensing factor MCM2
P25205-2	MCM3	DNA replication licensing factor MCM3
P33991	MCM4	DNA replication licensing factor MCM4
P33992	MCM5	DNA replication licensing factor MCM5
Q14566	MCM6	DNA replication licensing factor MCM6
P33993	MCM7	DNA replication licensing factor MCM7
P11387	TOP1	DNA topoisomerase 1
P11388-4	TOP2A	DNA topoisomerase 2-alpha
P48382	RFX5	DNA-binding protein RFX5
P78527	PRKDC	DNA-dependent protein kinase catalytic subunit
O15446-2	CD3EAP	DNA-directed RNA polymerase I subunit RPA34
P52435	POLR2J	DNA-directed RNA polymerase II subunit RPB11-a
O15514	POLR2D	DNA-directed RNA polymerase II subunit RPB4
O15318	POLR3G	DNA-directed RNA polymerase III subunit RPC7
P31689	DNAJA1	DnaJ homolog subfamily A member 1
Q9UBS4	DNAJB11	DnaJ homolog subfamily B member 11
Q9Y5T4	DNAJC15	DnaJ homolog subfamily C member 15
Q9NVM6	DNAJC17	DnaJ homolog subfamily C member 17
Q99543	DNAJC2	DnaJ homolog subfamily C member 2
Q5F1R6-2	DNAJC21	DnaJ homolog subfamily C member 21
Q99615	DNAJC7	DnaJ homolog subfamily C member 7
O75937	DNAJC8	DnaJ homolog subfamily C member 8
Q8WXX5	DNAJC9	DnaJ homolog subfamily C member 9
P04843	RPN1	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1
O60216	RAD21	Double-strand-break repair protein rad21 homolog

O95793	STAU1	Double-stranded RNA-binding protein Staufen homolog 1
P55265	ADAR	Double-stranded RNA-specific adenosine deaminase
Q14919-2	DRAP1	Dr1-associated corepressor
Q16643-3	DBN1	Drebrin
Q9UJU6-2	DBNL	Drebrin-like protein
Q14203	DCTN1	Dynactin subunit 1
Q13561	DCTN2	Dynactin subunit 2
O00429	DNM1L	Dynamin-1-like protein
Q96EV8	DTNBP1	Dysbindin
Q03001	DST	Dystonin
P49792	RANBP2	E3 SUMO-protein ligase RanBP2
Q9UNE7	STUB1	E3 ubiquitin-protein ligase CHIP
Q7Z6Z7	HUWE1	E3 ubiquitin-protein ligase HUWE1
Q7Z6E9	RBBP6	E3 ubiquitin-protein ligase RBBP6
O15541	RNF113A	E3 ubiquitin-protein ligase RNF113A
Q9Y508	RNF114	E3 ubiquitin-protein ligase RNF114
Q9BV68	RNF126	E3 ubiquitin-protein ligase RNF126
Q86UK7	ZNF598	E3 ubiquitin-protein ligase ZNF598
Q15075	EEA1	Early endosome antigen 1
P49961-6	ENTPD1	Ectonucleoside triphosphate diphosphohydrolase 1
O75071	EFCAB14	EF-hand calcium-binding domain-containing protein 14
Q96C19	EFHD2	EF-hand domain-containing protein D2
Q8N3D4	EHBP1L1	EH domain-binding protein 1-like protein 1
Q9H4M9	EHD1	EH domain-containing protein 1
Q9H223	EHD4	EH domain-containing protein 4
Q92616	GCN1	eIF-2-alpha kinase activator GCN1
P13804	ETFA	Electron transfer flavoprotein subunit alpha, mitochondrial
P38117-2	ETFB	Electron transfer flavoprotein subunit beta
Q8IUD2	ERC1	ELKS/Rab6-interacting/CAST family member 1
P68104	EEF1A1	Elongation factor 1-alpha 1
P24534	EEF1B2	Elongation factor 1-beta
P29692-2	EEF1D	Elongation factor 1-delta
P26641-2	EEF1G	Elongation factor 1-gamma
P13639	EEF2	Elongation factor 2
P49411	TUFM	Elongation factor Tu, mitochondrial
Q15370	ELOB	Elongin-B
P50402	EMD	Emerin
Q9UI08-2	EVL	Ena/VASP-like protein
Q99961	SH3GL1	Endophilin-A2
Q9Y371-2	SH3GLB1	Endophilin-B1
Q9NR46	SH3GLB2	Endophilin-B2
P11021	HSPA5	Endoplasmic reticulum chaperone BiP
P30040	ERP29	Endoplasmic reticulum resident protein 29
Q9BS26	ERP44	Endoplasmic reticulum resident protein 44
P14625	HSP90B1	Endoplasmin
Q53H82	LACTB2	Endoribonuclease LACTB2
Q6P2E9	EDC4	Enhancer of mRNA-decapping protein 4
P84090	ERH	Enhancer of rudimentary homolog
P42566	EPS15	Epidermal growth factor receptor substrate 15
Q9UBC2-3	EPS15L1	Epidermal growth factor receptor substrate 15-like 1
Q9Y6I3	EPN1	Epsin-1
Q5UCC4	EMC10	ER membrane protein complex subunit 10
Q96HE7	ERO1A	ERO1-like protein alpha
Q9H501	ESF1	ESF1 homolog
P32519	ELF1	ETS-related transcription factor Elf-1
P60842	EIF4A1	Eukaryotic initiation factor 4A-I
P15170-3	GSPT1	Eukaryotic peptide chain release factor GTP-binding subunit ERF3A
P41567	EIF1	Eukaryotic translation initiation factor 1

O14602	EIF1AY	Eukaryotic translation initiation factor 1A, Y-chromosomal
P20042	EIF2S2	Eukaryotic translation initiation factor 2 subunit 2
Q14152	EIF3A	Eukaryotic translation initiation factor 3 subunit A
P55884-2	EIF3B	Eukaryotic translation initiation factor 3 subunit B
Q99613	EIF3C	Eukaryotic translation initiation factor 3 subunit C
P60228	EIF3E	Eukaryotic translation initiation factor 3 subunit E
O00303	EIF3F	Eukaryotic translation initiation factor 3 subunit F
O75822-3	EIF3J	Eukaryotic translation initiation factor 3 subunit J
Q9UBQ5	EIF3K	Eukaryotic translation initiation factor 3 subunit K
Q04637-9	EIF4G1	Eukaryotic translation initiation factor 4 gamma 1
P78344	EIF4G2	Eukaryotic translation initiation factor 4 gamma 2
O43432-3	EIF4G3	Eukaryotic translation initiation factor 4 gamma 3
P23588	EIF4B	Eukaryotic translation initiation factor 4B
Q9NRA8-3	EIF4ENIF1	Eukaryotic translation initiation factor 4E transporter
Q15056	EIF4H	Eukaryotic translation initiation factor 4H
P55010	EIF5	Eukaryotic translation initiation factor 5
P63241-2	EIF5A	Eukaryotic translation initiation factor 5A-1
O60841	EIF5B	Eukaryotic translation initiation factor 5B
O14980	XPO1	Exportin-1
P55060	CSE1L	Exportin-2
Q9BSJ8-2	ESYT1	Extended synaptotagmin-1
P15311	EZR	Ezrin
Q08945	SSRP1	FACT complex subunit SSRP1
P52907	CAPZA1	F-actin-capping protein subunit alpha-1
P47756	CAPZB	F-actin-capping protein subunit beta
Q5VZK9	CARMIL1	F-actin-uncapping protein LRRC16A
Q96AE4	FUBP1	Far upstream element-binding protein 1
Q92945	KHSRP	Far upstream element-binding protein 2
Q96I24	FUBP3	Far upstream element-binding protein 3
Q13158	FADD	FAS-associated death domain protein
Q99689	FEZ1	Fasciculation and elongation protein zeta-1
Q16658	FSCN1	Fascin
P49327	FASN	Fatty acid synthase
Q01469	FABP5	Fatty acid-binding protein 5
Q7L513-10	FCRLA	Fc receptor-like A
Q86UX7	FERMT3	Fermitin family homolog 3
O95684	FGFR1OP	FGFR1 oncogene partner
Q9NVK5	FGFR1OP2	FGFR1 oncogene partner 2
P21333	FLNA	Filamin-A
O75369-8	FLNB	Filamin-B
Q5T1M5	FKBP15	FK506-binding protein 15
P39748	FEN1	Flap endonuclease 1
Q12778	FOXO1	Forkhead box protein O1
Q96RU3-2	FNBP1	Formin-binding protein 1
Q8N3X1-2	FNBP4	Formin-binding protein 4
O95466-2	FMNL1	Formin-like protein 1
Q16595	FXN	Frataxin, mitochondrial
Q01543	FLI1	Friend leukemia integration 1 transcription factor
P04075-2	ALDOA	Fructose-bisphosphate aldolase A
P09972	ALDOC	Fructose-bisphosphate aldolase C
P07954	FH	Fumarate hydratase, mitochondrial
Q9BRR8	GPATCH1	G patch domain-containing protein 1
Q8N954	GPATCH11	G patch domain-containing protein 11
Q5T3I0-3	GPATCH4	G patch domain-containing protein 4
Q9NYZ3	GTSE1	G2 and S phase-expressed protein 1
Q06546	GABPA	GA-binding protein alpha chain
P09382	LGALS1	Galectin-1
P17931	LGALS3	Galectin-3

Q92820	GGH	Gamma-glutamyl hydrolase
Q99747	NAPG	Gamma-soluble NSF attachment protein
Q9NUQ3	TXLNG	Gamma-taxilin
O14893	GEMIN2	Gem-associated protein 2
O75496	GMNN	Geminin
P29083	GTF2E1	General transcription factor IIE subunit 1
P35269	GTF2F1	General transcription factor IIF subunit 1
P13984	GTF2F2	General transcription factor IIF subunit 2
P78347	GTF2I	General transcription factor II-I
O60763	USO1	General vesicular transport factor p115
Q9NQX3-2	GPHN	Gephyrin
Q8N6F7-2	GCSAM	Germinal center-associated signaling and motility protein
P60983	GMFB	Glia maturation factor beta
Q9Y692	GMEB1	Glucocorticoid modulatory element-binding protein 1
Q9UKD1	GMEB2	Glucocorticoid modulatory element-binding protein 2
Q86VQ1	GLCCI1	Glucocorticoid-induced transcript 1 protein
P06744	GPI	Glucose-6-phosphate isomerase
Q9NWU2	GID8	Glucose-induced degradation protein 8 homolog
P14314	PRKCSH	Glucosidase 2 subunit beta
O94925-3	GLS	Glutaminase kidney isoform, mitochondrial
Q06210	GFPT1	Glutamine--fructose-6-phosphate aminotransferase
O43716	GATC	Glutamyl-tRNA
P35754	GLRX	Glutaredoxin-1
O76003	GLRX3	Glutaredoxin-3
Q86SX6	GLRX5	Glutaredoxin-related protein 5, mitochondrial
P19440	GGT1	Glutathione hydrolase 1 proenzyme
P00390	GSR	Glutathione reductase, mitochondrial
Q9Y2Q3	GSTK1	Glutathione S-transferase kappa 1
P78417	GSTO1	Glutathione S-transferase omega-1
P09211	GSTP1	Glutathione S-transferase P
P04406	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
P23434	GCSH	Glycine cleavage system H protein, mitochondrial
P46976-2	GYG1	Glycogenin-1
Q9HC38	GLOD4	Glyoxalase domain-containing protein 4
Q92896-2	GLG1	Golgi apparatus protein 1
O00461	GOLIM4	Golgi integral membrane protein 4
Q8NBJ4	GOLM1	Golgi membrane protein 1
O95249	GOSR1	Golgi SNAP receptor complex member 1
O14653-2	GOSR2	Golgi SNAP receptor complex member 2
Q08379	GOLGA2	Golgin subfamily A member 2
Q08378	GOLGA3	Golgin subfamily A member 3
Q13439	GOLGA4	Golgin subfamily A member 4
Q8TBA6	GOLGA5	Golgin subfamily A member 5
Q14789-2	GOLGB1	Golgin subfamily B member 1
Q8IXQ4	GPALPP1	GPALPP motifs-containing protein 1
P28676	GCA	Grancalcin
Q6Y7W6	GIGYF2	GRB10-interacting GYF protein 2
Q12849	GRSF1	G-rich sequence factor 1
Q8IWJ2	GCC2	GRIP and coiled-coil domain-containing protein 2
Q4V328	GRIPAP1	GRIP1-associated protein 1
Q8TAE8	GADD45GIP1	Growth arrest and DNA damage-inducible proteins-interacting protein 1
P62993	GRB2	Growth factor receptor-bound protein 2
Q9HAV7	GRPEL1	GrpE protein homolog 1, mitochondrial
P62826	RAN	GTP-binding nuclear protein Ran
P59768	GNG2	Guanine nucleotide-binding protein G
O60262	GNG7	Guanine nucleotide-binding protein G
P32455	GBP1	Guanylate-binding protein 1
Q9NY12	GAR1	H/ACA ribonucleoprotein complex subunit 1

Q9NX24	NHP2	H/ACA ribonucleoprotein complex subunit 2
Q96CS2	HAUS1	HAUS augmin-like complex subunit 1
Q99871-2	HAUS7	HAUS augmin-like complex subunit 7
Q9Y450-2	HBS1L	HBS1-like protein
Q7Z4H3	HDDC2	HD domain-containing protein 2
P0DMV9	HSPA1B	Heat shock 70 kDa protein 1B
P34932	HSPA4	Heat shock 70 kDa protein 4
O95757	HSPA4L	Heat shock 70 kDa protein 4L
P11142	HSPA8	Heat shock cognate 71 kDa protein
Q00613	HSF1	Heat shock factor protein 1
O75506	HSBP1	Heat shock factor-binding protein 1
Q92598	HSPH1	Heat shock protein 105 kDa
P04792	HSPB1	Heat shock protein beta-1
P07900-2	HSP90AA1	Heat shock protein HSP 90-alpha
P08238	HSP90AB1	Heat shock protein HSP 90-beta
P14317	HCLS1	Hematopoietic lineage cell-specific protein
P30519	HMOX2	Heme oxygenase 2
P68871	HBB	Hemoglobin subunit beta
O14964	HGS	Hepatocyte growth factor-regulated tyrosine kinase substrate
P51858	HDGF	Hepatoma-derived growth factor
Q9Y3E1	HDGFL3	Hepatoma-derived growth factor-related protein 3
Q99729-3	HNRNPAB	Heterogeneous nuclear ribonucleoprotein A/B
P09651	HNRNPA1	Heterogeneous nuclear ribonucleoprotein A1
P51991	HNRNPA3	Heterogeneous nuclear ribonucleoprotein A3
Q14103	HNRNPD	Heterogeneous nuclear ribonucleoprotein D0
O14979-2	HNRNPDL	Heterogeneous nuclear ribonucleoprotein D-like
O14979	HNRNPDL	Heterogeneous nuclear ribonucleoprotein D-like
P52597	HNRNPF	Heterogeneous nuclear ribonucleoprotein F
P31943	HNRNPH1	Heterogeneous nuclear ribonucleoprotein H
P61978-2	HNRNPK	Heterogeneous nuclear ribonucleoprotein K
P14866	HNRNPL	Heterogeneous nuclear ribonucleoprotein L
P52272	HNRNPM	Heterogeneous nuclear ribonucleoprotein M
O60506	SYNCRIP	Heterogeneous nuclear ribonucleoprotein Q
O43390	HNRNPR	Heterogeneous nuclear ribonucleoprotein R
Q00839	HNRNPU	Heterogeneous nuclear ribonucleoprotein U
Q9BUJ2	HNRNPUL1	Heterogeneous nuclear ribonucleoprotein U-like protein 1
P22626	HNRNPA2B1	Heterogeneous nuclear ribonucleoproteins A2/B1
P07910-2	HNRNPC	Heterogeneous nuclear ribonucleoproteins C1/C2
P82970	HMGN5	High mobility group nucleosome-binding domain-containing protein 5
Q9NP66	HMG20A	High mobility group protein 20A
P09429	HMGB1	High mobility group protein B1
P26583	HMGB2	High mobility group protein B2
O15347	HMGB3	High mobility group protein B3
P17096	HMGA1	High mobility group protein HMG-I/HMG-Y
P37235	HPCAL1	Hippocalcin-like protein 1
Q9BW71	HIRIP3	HIRA-interacting protein 3
P49773	HINT1	Histidine triad nucleotide-binding protein 1
P10412	HIST1H1E	Histone H1.4
P16401	HIST1H1B	Histone H1.5
Q6FI13	HIST2H2AA3	Histone H2A type 2-A
P0C0S5	H2AFZ	Histone H2A.Z
Q5QNW6-2	HIST2H2BF	Histone H2B type 2-F
P62805	HIST1H4A	Histone H4
Q14493	SLBP	Histone RNA hairpin-binding protein
Q16576	RBBP7	Histone-binding protein RBBP7
Q03164-3	KMT2A	Histone-lysine N-methyltransferase 2A
O14686-3	KMT2D	Histone-lysine N-methyltransferase 2D
P01892	HLA-A	HLA class I histocompatibility antigen, A-2 alpha chain

P04439	HLA-A	HLA class I histocompatibility antigen, A-3 alpha chain
P13747	HLA-E	HLA class I histocompatibility antigen, alpha chain E
P30511-3	HLA-F	HLA class I histocompatibility antigen, alpha chain F
P30461	HLA-B	HLA class I histocompatibility antigen, B-13 alpha chain
P30481	HLA-B	HLA class I histocompatibility antigen, B-44 alpha chain
P30460	HLA-B	HLA class I histocompatibility antigen, B-8 alpha chain
P30505	HLA-C	HLA class I histocompatibility antigen, Cw-8 alpha chain
P04233-2	CD74	HLA class II histocompatibility antigen gamma chain
P04233	CD74	HLA class II histocompatibility antigen gamma chain
P06340	HLA-DOA	HLA class II histocompatibility antigen, DO alpha chain
P20036	HLA-DPA1	HLA class II histocompatibility antigen, DP alpha 1 chain
P04440	HLA-DPB1	HLA class II histocompatibility antigen, DP beta 1 chain
P01909	HLA-DQA1	HLA class II histocompatibility antigen, DQ alpha 1 chain
P01920	HLA-DQB1	HLA class II histocompatibility antigen, DQ beta 1 chain
P01903	HLA-DRA	HLA class II histocompatibility antigen, DR alpha chain
P20039	HLA-DRB1	HLA class II histocompatibility antigen, DRB1-11 beta chain
P13760	HLA-DRB1	HLA class II histocompatibility antigen, DRB1-4 beta chain
P13761	HLA-DRB1	HLA class II histocompatibility antigen, DRB1-7 beta chain
P39880-3	CUX1	Homeobox protein cut-like 1
P51610-4	HCFC1	Host cell factor 1
P50502	ST13	Hsc70-interacting protein
Q16543	CDC37	Hsp90 co-chaperone Cdc37
P42858	HTT	Huntingtin
Q9NX55	HYPK	Huntingtin-interacting protein K
O75330-3	HMMR	Hyaluronan mediated motility receptor
P00492	HPRT1	Hypoxanthine-guanine phosphoribosyltransferase
Q9Y4L1	HYOU1	Hypoxia up-regulated protein 1
Q8WZA9	IRGQ	Immunity-related GTPase family Q protein
P01871	IGHM	Immunoglobulin heavy constant mu
P01834	IGKC	Immunoglobulin kappa constant
P78318	IGBP1	Immunoglobulin-binding protein 1
P52292	KPNA2	Importin subunit alpha-1
Q14974	KPNB1	Importin subunit beta-1
O00410-3	IPO5	Importin-5
Q8NBJ7	SUMF2	Inactive C-alpha-formylglycine-generating enzyme 2
Q70UQ0-4	IKBIP	Inhibitor of nuclear factor kappa-B kinase-interacting protein
Q70UQ0	IKBIP	Inhibitor of nuclear factor kappa-B kinase-interacting protein
Q9NQS7	INCENP	Inner centromere protein
Q9Y2U8	LEMD3	Inner nuclear membrane protein Man1
Q15181	PPA1	Inorganic pyrophosphatase
P13612	ITGA4	Integrin alpha-4
P20701-2	ITGAL	Integrin alpha-L
P05556	ITGB1	Integrin beta-1
P05107	ITGB2	Integrin beta-2
P26010	ITGB7	Integrin beta-7
P05362	ICAM1	Intercellular adhesion molecule 1
P32942	ICAM3	Intercellular adhesion molecule 3
Q7Z5L9	IRF2BP2	Interferon regulatory factor 2-binding protein 2
Q15306	IRF4	Interferon regulatory factor 4
P20591	MX1	Interferon-induced GTP-binding protein Mx1
O14879	IFIT3	Interferon-induced protein with tetratricopeptide repeats 3
Q01629	IFITM2	Interferon-induced transmembrane protein 2
Q12905	ILF2	Interleukin enhancer-binding factor 2
Q12906-7	ILF3	Interleukin enhancer-binding factor 3
Q08334	IL10RB	Interleukin-10 receptor subunit beta
P07476	IVL	Involucrin
Q8IWL3	HSCB	Iron-sulfur cluster co-chaperone protein HscB
P48735	IDH2	Isocitrate dehydrogenase

P50213	IDH3A	Isocitrate dehydrogenase
P14923	JUP	Junction plakoglobin
Q9UK76	JPT1	Jupiter microtubule associated homolog 1
Q9H910-3	JPT2	Jupiter microtubule associated homolog 2
P13645	KRT10	Keratin, type I cytoskeletal 10
P02533	KRT14	Keratin, type I cytoskeletal 14
P08779	KRT16	Keratin, type I cytoskeletal 16
P35527	KRT9	Keratin, type I cytoskeletal 9
P04264	KRT1	Keratin, type II cytoskeletal 1
P35908	KRT2	Keratin, type II cytoskeletal 2 epidermal
P13647	KRT5	Keratin, type II cytoskeletal 5
P02538	KRT6A	Keratin, type II cytoskeletal 6A
Q8N1N4	KRT78	Keratin, type II cytoskeletal 78
Q5T749	KPRP	Keratinocyte proline-rich protein
Q07666	KHDRBS1	KH domain-containing, RNA-binding, signal transduction-associated protein 1
Q86UP2	KTN1	Kinectin
Q07866-9	KLC1	Kinesin light chain 1
P33176	KIF5B	Kinesin-1 heavy chain
P52732	KIF11	Kinesin-like protein KIF11
O14777	NDC80	Kinetochore protein NDC80 homolog
Q9HBM1	SPC25	Kinetochore protein Spc25
Q9H410	DSN1	Kinetochore-associated protein DSN1 homolog
Q96IY1	NSL1	Kinetochore-associated protein NSL1 homolog
Q9BQD3	KXD1	KxDL motif-containing protein 1
Q04760	GLO1	Lactoylglutathione lyase
O00515	LAD1	Ladinin-1
P42166	TMPO	Lamina-associated polypeptide 2, isoform alpha
P42167	TMPO	Lamina-associated polypeptide 2, isoforms beta/gamma
P20700	LMNB1	Lamin-B1
Q03252	LMNB2	Lamin-B2
Q96RQ9-2	IL4I1	L-amino-acid oxidase
Q6PKG0	LARP1	La-related protein 1
Q71RC2-4	LARP4	La-related protein 4
Q92615	LARP4B	La-related protein 4B
P46379-3	BAG6	Large proline-rich protein BAG6
Q9H400	LIME1	Lck-interacting transmembrane adapter 1
Q8NC56	LEMD2	LEM domain-containing protein 2
Q86V48	LUZP1	Leucine zipper protein 1
P42704	LRPPRC	Leucine-rich PPR motif-containing protein, mitochondrial
Q32MZ4-2	LRRFIP1	Leucine-rich repeat flightless-interacting protein 1
Q9Y608	LRRFIP2	Leucine-rich repeat flightless-interacting protein 2
Q8TCA0	LRRC20	Leucine-rich repeat-containing protein 20
Q96AG4	LRRC59	Leucine-rich repeat-containing protein 59
Q9UIQ6	LNPEP	Leucyl-cystinyl aminopeptidase
Q8NHL6-3	LILRB1	Leukocyte immunoglobulin-like receptor subfamily B member 1
O60711	LPXN	Leupaxin
Q14847	LASP1	LIM and SH3 domain protein 1
Q9UHB6-4	LIMA1	LIM domain and actin-binding protein 1
Q8WWI1-3	LMO7	LIM domain only protein 7
Q9GZY6	LAT2	Linker for activation of T-cells family member 2
Q13136	PPFIA1	Liprin-alpha-1
Q86W92	PPFIBP1	Liprin-beta-1
Q8ND30	PPFIBP2	Liprin-beta-2
P00338-3	LDHA	L-lactate dehydrogenase A chain
P07195	LDHB	L-lactate dehydrogenase B chain
P36776	LONP1	Lon protease homolog, mitochondrial
P06734	FCER2	Low affinity immunoglobulin epsilon Fc receptor

P31994	FCGR2B	Low affinity immunoglobulin gamma Fc region receptor II-b
P24666	ACP1	Low molecular weight phosphotyrosine protein phosphatase
P14151-2	SELL	L-selectin
O95232	LUC7L3	Luc7-like protein 3
P05455	SSB	Lupus La protein
O60449	LY75	Lymphocyte antigen 75
P19256	CD58	Lymphocyte function-associated antigen 3
P33241	LSP1	Lymphocyte-specific protein 1
Q12912	LRMP	Lymphoid-restricted membrane protein
Q1ED39	KNOP1	Lysine-rich nucleolar protein 1
Q15046-2	KARS	Lysine--tRNA ligase
O00754	MAN2B1	Lysosomal alpha-mannosidase
Q14108	SCARB2	Lysosome membrane protein 2
P11279	LAMP1	Lysosome-associated membrane glycoprotein 1
P13473-3	LAMP2	Lysosome-associated membrane glycoprotein 2
P14174	MIF	Macrophage migration inhibitory factor
Q14764	MVP	Major vault protein
P40925-3	MDH1	Malate dehydrogenase, cytoplasmic
P40926	MDH2	Malate dehydrogenase, mitochondrial
Q16626	MEA1	Male-enhanced antigen 1
Q3KQU3	MAP7D1	MAP7 domain-containing protein 1
Q8IWC1	MAP7D3	MAP7 domain-containing protein 3
Q9BUT9	MCRIP2	MAPK regulated corepressor interacting protein 2
Q8WU39	MZB1	Marginal zone B- and B1-cell-specific protein
P43243	MATR3	Matrin-3
Q14676	MDC1	Mediator of DNA damage checkpoint protein 1
Q15648	MED1	Mediator of RNA polymerase II transcription subunit 1
Q9BTT4	MED10	Mediator of RNA polymerase II transcription subunit 10
Q96RN5	MED15	Mediator of RNA polymerase II transcription subunit 15
O95402	MED26	Mediator of RNA polymerase II transcription subunit 26
Q9H204	MED28	Mediator of RNA polymerase II transcription subunit 28
Q96HR3	MED30	Mediator of RNA polymerase II transcription subunit 30
Q9NPJ6	MED4	Mediator of RNA polymerase II transcription subunit 4
Q96G25-2	MED8	Mediator of RNA polymerase II transcription subunit 8
P11310-2	ACADM	Medium-chain specific acyl-CoA dehydrogenase, mitochondrial
Q9BWT6	MND1	Meiotic nuclear division protein 1 homolog
O15320	MIA2	Melanoma inhibitory activity protein 2
O00264	PGRMC1	Membrane-associated progesterone receptor component 1
O15173-2	PGRMC2	Membrane-associated progesterone receptor component 2
P55145	MANF	Mesencephalic astrocyte-derived neurotrophic factor
Q8N108-12	MIER1	Mesoderm induction early response protein 1
P50579	METAP2	Methionine aminopeptidase 2
P16455	MGMT	Methylated-DNA--protein-cysteine methyltransferase
Q9UBB5	MBD2	Methyl-CpG-binding domain protein 2
O95983	MBD3	Methyl-CpG-binding domain protein 3
P54105	CLNS1A	Methylosome subunit pICln
Q96GX9	APIP	Methylthioribulose-1-phosphate dehydratase
Q9NX63	CHCHD3	MICOS complex subunit MIC19
Q9BUR5	APOO	MICOS complex subunit MIC26
Q16891-2	IMMT	MICOS complex subunit MIC60
P55081	MFAP1	Microfibrillar-associated protein 1
Q7Z591	AKNA	Microtubule organization protein AKNA
Q9UPN3	MACF1	Microtubule-actin cross-linking factor 1, isoforms 1/2/3/5
P46821	MAP1B	Microtubule-associated protein 1B
P27816	MAP4	Microtubule-associated protein 4
Q15691	MAPRE1	Microtubule-associated protein RP/EB family member 1
Q7Z434	MAVS	Mitochondrial antiviral-signaling protein
Q9GZY8	MFF	Mitochondrial fission factor

Q9Y5J6	TIMM10B	Mitochondrial import inner membrane translocase subunit Tim10 B
Q9Y5L4	TIMM13	Mitochondrial import inner membrane translocase subunit Tim13
O43615	TIMM44	Mitochondrial import inner membrane translocase subunit TIM44
O60220	TIMM8A	Mitochondrial import inner membrane translocase subunit Tim8 A
Q9Y5J7	TIMM9	Mitochondrial import inner membrane translocase subunit Tim9
Q9NS69	TOMM22	Mitochondrial import receptor subunit TOM22 homolog
Q15785	TOMM34	Mitochondrial import receptor subunit TOM34
O94826	TOMM70	Mitochondrial import receptor subunit TOM70
Q8N4Q1-2	CHCHD4	Mitochondrial intermembrane space import and assembly protein 40
O95202	LETM1	Mitochondrial proton/calcium exchanger protein
P26038	MSN	Moesin
Q96HT8	MRFAP1L1	MORF4 family-associated protein 1-like 1
Q15014	MORF4L2	Mortality factor 4-like protein 2
Q9NPI6	DCP1A	mRNA-decapping enzyme 1A
Q96T58	SPEN	Msx2-interacting protein
Q9H3R2	MUC13	Mucin-13
Q9UI30	TRMT112	Multifunctional methyltransferase subunit TRM112-like protein
P22234	PAICS	Multifunctional protein ADE2
Q9BU76	MMTAG2	Multiple myeloma tumor-associated protein 2
Q9BQG0-2	MYBBP1A	Myb-binding protein 1A
P10244	MYBL2	Myb-related protein B
O00499	BIN1	Myc box-dependent-interacting protein 1
Q5VU43-2	PDE4DIP	Myomegalin
P14649	MYL6B	Myosin light chain 6B
P60660-2	MYL6	Myosin light polypeptide 6
Q6WCQ1-2	MPRIP	Myosin phosphatase Rho-interacting protein
O14950	MYL12B	Myosin regulatory light chain 12B
P35580-4	MYH10	Myosin-10
P35579	MYH9	Myosin-9
P58546	MTPN	Myotrophin
P29966	MARCKS	Myristoylated alanine-rich C-kinase substrate
O14745	SLC9A3R1	Na(+)/H(+) exchange regulatory cofactor NHE-RF1
P15586	GNS	N-acetylglucosamine-6-sulfatase
P23368	ME2	NAD-dependent malic enzyme, mitochondrial
O43678	NDUFA2	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2
Q16718	NDUFA5	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5
O95182	NDUFA7	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7
P51970	NDUFA8	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8
Q8N183	NDUFAF2	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex assembly factor 2
Q9P032	NDUFAF4	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex assembly factor 4
O96000	NDUFB10	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10
Q9NX14-2	NDUFB11	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial
O95168	NDUFB4	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4
P17568	NDUFB7	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7
O95169	NDUFB8	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial
O43181	NDUFS4	NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial
O43920	NDUFS5	NADH dehydrogenase [ubiquinone] iron-sulfur protein 5
O00217	NDUFS8	NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial
P19404	NDUFV2	NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial
P56181-2	NDUFV3	NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial
E9PAV3	NACA	Nascent polypeptide-associated complex subunit alpha, muscle-specific form
Q15843	NEDD8	NEDD8
Q9H3P2	NELFA	Negative elongation factor A
P18615	NELFE	Negative elongation factor E
Q8NF91	SYNE1	Nesprin-1
Q8WXH0-2	SYNE2	Nesprin-2

Q96SB3	PPP1R9B	Neurabin-2
Q09666	AHNAK	Neuroblast differentiation-associated protein AHNAK
P61601	NCALD	Neurocalcin-delta
P46531	NOTCH1	Neurogenic locus notch homolog protein 1
Q15758	SLC1A5	Neutral amino acid transporter B
Q8NCF5	NFATC2IP	NFATC2-interacting protein
Q9Y6K9-2	IKBKG	NF-kappa-B essential modulator
Q8N5F7	NKAP	NF-kappa-B-activating protein
Q9UMS0	NFU1	NFU1 iron-sulfur cluster scaffold homolog, mitochondrial
P55769	SNU13	NHP2-like protein 1
O60934	NBN	Nibrin
Q92542	NCSTN	Nicastrin
P43490	NAMPT	Nicotinamide phosphoribosyltransferase
Q8N4C6-7	NIN	Ninein
Q6KC79	NIPBL	Nipped-B-like protein
P22307	SCP2	Non-specific lipid-transfer protein
Q96MG7	NSMCE3	Non-structural maintenance of chromosomes element 3 homolog
Q9UNZ2-5	NSFL1C	NSFL1 cofactor p47
P23497	SP100	Nuclear autoantigen Sp-100
P49321	NASP	Nuclear autoantigenic sperm protein
Q13342	SP140	Nuclear body protein SP140
Q9NXR1	NDE1	Nuclear distribution protein nudE homolog 1
Q6P4R8	NFRKB	Nuclear factor related to kappa-B-binding protein
Q9UHK0	NUFIP1	Nuclear fragile X mental retardation-interacting protein 1
Q7Z417	NUFIP2	Nuclear fragile X mental retardation-interacting protein 2
Q9Y266	NUDC	Nuclear migration protein nudC
Q14980	NUMA1	Nuclear mitotic apparatus protein 1
P57740	NUP107	Nuclear pore complex protein Nup107
P49790	NUP153	Nuclear pore complex protein Nup153
P35658-3	NUP214	Nuclear pore complex protein Nup214
Q9UKX7	NUP50	Nuclear pore complex protein Nup50
Q8N1F7	NUP93	Nuclear pore complex protein Nup93
P52948	NUP98	Nuclear pore complex protein Nup98-Nup96
P37198	NUP62	Nuclear pore glycoprotein p62
Q9Y6Q9	NCOA3	Nuclear receptor coactivator 3
O75376	NCOR1	Nuclear receptor corepressor 1
Q9Y618	NCOR2	Nuclear receptor corepressor 2
Q16656-4	NRF1	Nuclear respiratory factor 1
Q9H0G5	NSRP1	Nuclear speckle splicing regulatory protein 1
Q13952	NFYC	Nuclear transcription factor Y subunit gamma
Q9H1E3	NUCKS1	Nuclear ubiquitous casein and cyclin-dependent kinase substrate 1
P67809	YBX1	Nuclease-sensitive element-binding protein 1
Q02818	NUCB1	Nucleobindin-1
P80303	NUCB2	Nucleobindin-2
Q14978-2	NOLC1	Nucleolar and coiled-body phosphoprotein 1
Q9BXS6	NUSAP1	Nucleolar and spindle-associated protein 1
Q9BZE4	GTPBP4	Nucleolar GTP-binding protein 1
Q9UGY1	NOL12	Nucleolar protein 12
Q9Y3C1	NOP16	Nucleolar protein 16
O00567	NOP56	Nucleolar protein 56
Q9Y2X3	NOP58	Nucleolar protein 58
Q9UMY1	NOL7	Nucleolar protein 7
Q76FK4	NOL8	Nucleolar protein 8
Q9NR30	DDX21	Nucleolar RNA helicase 2
P17480	UBTF	Nucleolar transcription factor 1
P19338	NCL	Nucleolin
P06748	NPM1	Nucleophosmin
Q8NFH5	NUP35	Nucleoporin NUP35

O15504	NUP42	Nucleoporin NUP42
Q9BVL2	NUP58	Nucleoporin p58/p45
P12270	TPR	Nucleoprotein TPR
P22392-2	NME2	Nucleoside diphosphate kinase B
P55209	NAP1L1	Nucleosome assembly protein 1-like 1
P55209-3	NAP1L1	Nucleosome assembly protein 1-like 1
Q99733-2	NAP1L4	Nucleosome assembly protein 1-like 4
Q96RE7	NACC1	Nucleus accumbens-associated protein 1
Q9NX40	OCIAD1	OCIA domain-containing protein 1
Q96CV9	OPTN	Optineurin
Q92882	OSTF1	Osteoclast-stimulating factor 1
Q01804	OTUD4	OTU domain-containing protein 4
P36551	CPOX	Oxygen-dependent coproporphyrinogen-III oxidase, mitochondrial
Q9BZF1	OSBPL8	Oxysterol-binding protein-related protein 8
Q96ST3	SIN3A	Paired amphipathic helix protein Sin3a
Q8WXF1	PSPC1	Paraspeckle component 1
Q9BRP8	PYM1	Partner of Y14 and mago
O75475	PSIP1	PC4 and SFRS1-interacting protein
O00151	PDLIM1	PDZ and LIM domain protein 1
Q96HC4	PDLIM5	PDZ and LIM domain protein 5
P62937	PPIA	Peptidyl-prolyl cis-trans isomerase A
P23284	PPIB	Peptidyl-prolyl cis-trans isomerase B
Q08752	PPID	Peptidyl-prolyl cis-trans isomerase D
Q9UNP9-3	PPIE	Peptidyl-prolyl cis-trans isomerase E
Q9NYL4	FKBP11	Peptidyl-prolyl cis-trans isomerase FKBP11
Q00688	FKBP3	Peptidyl-prolyl cis-trans isomerase FKBP3
Q02790	FKBP4	Peptidyl-prolyl cis-trans isomerase FKBP4
Q13427	PPIG	Peptidyl-prolyl cis-trans isomerase G
Q13526	PIN1	Peptidyl-prolyl cis-trans isomerase NIMA-interacting 1
Q9Y237-2	PIN4	Peptidyl-prolyl cis-trans isomerase NIMA-interacting 4
Q14197	MRPL58	Peptidyl-tRNA hydrolase ICT1, mitochondrial
O95613	PCNT	Pericentrin
Q15154	PCM1	Pericentriolar material 1 protein
O60664-3	PLIN3	Perilipin-3
Q8NEY8-3	PPHLN1	Periphilin-1
Q06830	PRDX1	Peroxiredoxin-1
P32119	PRDX2	Peroxiredoxin-2
Q13162	PRDX4	Peroxiredoxin-4
P30044	PRDX5	Peroxiredoxin-5, mitochondrial
P30041	PRDX6	Peroxiredoxin-6
P40855	PEX19	Peroxisomal biogenesis factor 19
O75381	PEX14	Peroxisomal membrane protein PEX14
P50542-4	PEX5	Peroxisomal targeting signal 1 receptor
Q9P1Y6	PHRF1	PHD and RING finger domain-containing protein 1
Q9BUL5	PHF23	PHD finger protein 23
Q92576	PHF3	PHD finger protein 3
Q9H2J4	PDCL3	Phosducin-like protein 3
Q8IZ21-2	PHACTR4	Phosphatase and actin regulator 4
Q00325-2	SLC25A3	Phosphate carrier protein, mitochondrial
P30086	PEBP1	Phosphatidylethanolamine-binding protein 1
Q16822	PCK2	Phosphoenolpyruvate carboxykinase
P36871-2	PGM1	Phosphoglucomutase-1
P00558	PGK1	Phosphoglycerate kinase 1
P18669	PGAM1	Phosphoglycerate mutase 1
Q9Y263	PLAA	Phospholipase A-2-activating protein
O15305	PMM2	Phosphomannomutase 2
Q9NWQ8	PAG1	Phosphoprotein associated with glycosphingolipid-enriched microdomains 1
Q9H814	PHAX	Phosphorylated adapter RNA export protein

Q6NYC8	PPP1R18	Phostensin
Q96BK5	PINX1	PIN2/TERF1-interacting telomerase inhibitor 1
Q9H307	PNN	Pinin
Q8NC51	SERBP1	Plasminogen activator inhibitor 1 RNA-binding protein
P13796	LCP1	Plastin-2
P68402	PAFAH1B2	Platelet-activating factor acetylhydrolase IB subunit beta
Q53GL0	PLEKHO1	Pleckstrin homology domain-containing family O member 1
Q8TD55	PLEKHO2	Pleckstrin homology domain-containing family O member 2
Q15149	PLEC	Plectin
Q15365	PCBP1	Poly(rC)-binding protein 1
Q15366-3	PCBP2	Poly(rC)-binding protein 2
Q9UHX1-2	PUF60	Poly(U)-binding-splicing factor PUF60
P09874	PARP1	Poly [ADP-ribose] polymerase 1
P11940	PABPC1	Polyadenylate-binding protein 1
Q9H074	PAIP1	Polyadenylate-binding protein-interacting protein 1
Q6P1K2	PMF1	Polyamine-modulated factor 1
O60828	PQBP1	Polyglutamine-binding protein 1
P26599-3	PTBP1	Polypyrimidine tract-binding protein 1
P14859-6	POU2F1	POU domain, class 2, transcription factor 1
Q96AQ6	PBXIP1	Pre-B-cell leukemia transcription factor-interacting protein 1
O60925	PFDN1	Prefoldin subunit 1
Q9UHV9	PFDN2	Prefoldin subunit 2
P61758	VBP1	Prefoldin subunit 3
Q9NQP4	PFDN4	Prefoldin subunit 4
Q99471	PFDN5	Prefoldin subunit 5
O15212	PFDN6	Prefoldin subunit 6
P02545	LMNA	Prelamin-A/C
Q6UN15	FIP1L1	Pre-mRNA 3'-end-processing factor FIP1
O94913	PCF11	Pre-mRNA cleavage complex 2 protein Pcf11
O75400	PRPF40A	Pre-mRNA-processing factor 40 homolog A
O94906	PRPF6	Pre-mRNA-processing factor 6
Q99633	PRPF18	Pre-mRNA-splicing factor 18
Q9NXE8	CWC25	Pre-mRNA-splicing factor CWC25 homolog
Q9ULR0-1	ISY1	Pre-mRNA-splicing factor ISY1 homolog
O75934	BCAS2	Pre-mRNA-splicing factor SPF27
O95926	SYF2	Pre-mRNA-splicing factor SYF2
Q15007	WTAP	Pre-mRNA-splicing regulator WTAP
P46087-4	NOP2	Probable 28S rRNA
Q92841	DDX17	Probable ATP-dependent RNA helicase DDX17
P17844	DDX5	Probable ATP-dependent RNA helicase DDX5
P26196	DDX6	Probable ATP-dependent RNA helicase DDX6
Q9H1B7	IRF2BPL	Probable E3 ubiquitin-protein ligase IRF2BPL
Q8N9N8	EIF1AD	Probable RNA-binding protein EIF1AD
Q99848	EBNA1BP2	Probable rRNA-processing protein EBP2
P07737	PFN1	Profilin-1
Q8WUM4	PDCD6IP	Programmed cell death 6-interacting protein
Q9BUL8	PDCD10	Programmed cell death protein 10
Q53EL6	PDCD4	Programmed cell death protein 4
O14737	PDCD5	Programmed cell death protein 5
P35232	PHB	Prohibitin
Q99623	PHB2	Prohibitin-2
Q14005	IL16	Pro-interleukin-16
P12004	PCNA	Proliferating cell nuclear antigen
P46013	MKI67	Proliferation marker protein Ki-67
Q9UQ80	PA2G4	Proliferation-associated protein 2G4
Q9ULL5-3	PRR12	Proline-rich protein 12
Q92733	PRCC	Proline-rich protein PRCC
P13674	P4HA1	Prolyl 4-hydroxylase subunit alpha-1

P07602-3	PSAP	Prosaposin
Q15185	PTGES3	Prostaglandin E synthase 3
Q06323	PSME1	Proteasome activator complex subunit 1
Q9UL46	PSME2	Proteasome activator complex subunit 2
P61289-2	PSME3	Proteasome activator complex subunit 3
P25786-2	PSMA1	Proteasome subunit alpha type-1
P25789	PSMA4	Proteasome subunit alpha type-4
P28066	PSMA5	Proteasome subunit alpha type-5
P60900	PSMA6	Proteasome subunit alpha type-6
O14818	PSMA7	Proteasome subunit alpha type-7
P20618	PSMB1	Proteasome subunit beta type-1
P28070	PSMB4	Proteasome subunit beta type-4
P28062	PSMB8	Proteasome subunit beta type-8
Q9NY61	AATF	Protein AATF
Q99873	PRMT1	Protein arginine N-methyltransferase 1
Q8TD16-2	BICD2	Protein bicaudal D homolog 2
Q8WUW1-2	BRK1	Protein BRICK1
Q99622	C12orf57	Protein C10
Q9Y2B0	CNPY2	Protein canopy homolog 2
Q9BT09	CNPY3	Protein canopy homolog 3
O15234	CASC3	Protein CASC3
Q6P4E1-4	CASC4	Protein CASC4
Q9UKY7	CDV3	Protein CDV3 homolog
P14921	ETS1	Protein C-ets-1
Q96C57	CUSTOS	Protein CUSTOS
O60888-2	CUTA	Protein CutA
P35659	DEK	Protein DEK
O60610	DIAPH1	Protein diaphanous homolog 1
P07237	P4HB	Protein disulfide-isomerase
P30101	PDIA3	Protein disulfide-isomerase A3
P13667	PDIA4	Protein disulfide-isomerase A4
Q15084-2	PDIA6	Protein disulfide-isomerase A6
Q01658	DR1	Protein Dr1
Q8WYP5-2	AHCTF1	Protein ELYS
P34910-2	EVI2B	Protein EVI2B
Q9NRY5	FAM114A2	Protein FAM114A2
Q96C01	FAM136A	Protein FAM136A
Q96A26	FAM162A	Protein FAM162A
Q9NSI2	FAM207A	Protein FAM207A
Q92520	FAM3C	Protein FAM3C
Q9NUQ9	FAM49B	Protein FAM49B
Q14320	FAM50A	Protein FAM50A
O94992	HEXIM1	Protein HEXIM1
Q9BTY7	HGH1	Protein HGH1 homolog
Q86VS8	HOOK3	Protein Hook homolog 3
Q96ST2	IWS1	Protein IWS1 homolog
Q9UNF0-2	PACSIN2	Protein kinase C and casein kinase substrate in neurons protein 2
Q9ULU4-19	ZMYND8	Protein kinase C-binding protein 1
Q8N9T8	KRI1	Protein KRI1 homolog
Q9BRT6	LLPH	Protein LLP homolog
Q8ND56	LSM14A	Protein LSM14 homolog A
Q9BX40	LSM14B	Protein LSM14 homolog B
Q96GA3	LTV1	Protein LTV1 homolog
Q86UE4	MTDH	Protein LYRIC
Q8WZA0-2	LZIC	Protein LZIC
Q9H081	MIS12	Protein MIS12 homolog
Q9UGV2	NDRG3	Protein NDRG3
Q9BZQ8	NIBAN1	Protein Niban 1

Q14207	NPAT	Protein NPAT
Q13438	OS9	Protein OS-9
Q9BUH6	PAXX	Protein PAXX
Q9BVG4	PBDC1	Protein PBDC1
O14974	PPP1R12A	Protein phosphatase 1 regulatory subunit 12A
Q9BZL4-3	PPP1R12C	Protein phosphatase 1 regulatory subunit 12C
Q96C90	PPP1R14B	Protein phosphatase 1 regulatory subunit 14B
P35813-3	PPM1A	Protein phosphatase 1A
O15355	PPM1G	Protein phosphatase 1G
P29590-3	PML	Protein PML
Q9Y2S0	POLR1D	Protein POLR1D, isoform 2
P48634	PRRC2A	Protein PRRC2A
Q5JSZ5	PRRC2B	Protein PRRC2B
Q9Y520-4	PRRC2C	Protein PRRC2C
Q96PU8	QKI	Protein quaking
Q13123	IK	Protein Red
P31949	S100A11	Protein S100-A11
Q99590	SCAF11	Protein SCAF11
Q01105	SET	Protein SET
P18583-5	SON	Protein SON
O15027	SEC16A	Protein transport protein Sec16A
O94979	SEC31A	Protein transport protein Sec31A
P60059	SEC61G	Protein transport protein Sec61 subunit gamma
O60232	ZNRD2	Protein ZNRD2
Q99497	PARK7	Protein/nucleic acid deglycase DJ-1
P22061-2	PCMT1	Protein-L-isoaspartate
Q14289-2	PTK2B	Protein-tyrosine kinase 2-beta
P06454	PTMA	Prothymosin alpha
Q9GZU8	FAM192A	PSME3-interacting protein
P61457	PCBD1	Pterin-4-alpha-carbinolamine dehydratase
Q14671-3	PUM1	Pumilio homolog 1
P00491	PNP	Purine nucleoside phosphorylase
Q8N806	UBR7	Putative E3 ubiquitin-protein ligase UBR7
Q9NQ29	LUC7L	Putative RNA-binding protein Luc7-like 1
Q9Y383	LUC7L2	Putative RNA-binding protein Luc7-like 2
Q8NHM4	PRSS3P2	Putative trypsin-6
O94903	PLPBP	Pyridoxal phosphate homeostasis protein
Q9NVS9	PNPO	Pyridoxine-5'-phosphate oxidase
P14618	PKM	Pyruvate kinase PKM
Q15032-2	R3HDM1	R3H domain-containing protein 1
P50395	GDI2	Rab GDP dissociation inhibitor beta
Q15276	RABEP1	Rab GTPase-binding effector protein 1
Q9H5N1	RABEP2	Rab GTPase-binding effector protein 2
Q6WKZ4	RAB11FIP1	Rab11 family-interacting protein 1
Q9UJ41	RABGEF1	Rab5 GDP/GTP exchange factor
Q5T7V8	GORAB	RAB6-interacting golgin
Q9H0H5	RACGAP1	Rac GTPase-activating protein 1
Q14699	RFTN1	Raftlin
Q6IAA8	LAMTOR1	Ragulator complex protein LAMTOR1
P46060	RANGAP1	Ran GTPase-activating protein 1
P43487	RANBP1	Ran-specific GTPase-activating protein
Q13905-3	RAPGEF1	Rap guanine nucleotide exchange factor 1
P52306	RAP1GDS1	Rap1 GTPase-GDP dissociation stimulator 1
Q13283	G3BP1	Ras GTPase-activating protein-binding protein 1
P46940	IQGAP1	Ras GTPase-activating-like protein IQGAP1
Q86YV0	RASAL3	RAS protein activator like-3
P15153	RAC2	Ras-related C3 botulinum toxin substrate 2
P61026	RAB10	Ras-related protein Rab-10

P62820	RAB1A	Ras-related protein Rab-1A
P51149	RAB7A	Ras-related protein Rab-7a
P63244	RACK1	Receptor of activated protein C kinase 1
O00559-2	EBAG9	Receptor-binding cancer antigen expressed on SiSo cells
P08575	PTPRC	Receptor-type tyrosine-protein phosphatase C
Q96P16	RPRD1A	Regulation of nuclear pre-mRNA domain-containing protein 1A
Q9NQG5	RPRD1B	Regulation of nuclear pre-mRNA domain-containing protein 1B
Q5VT52	RPRD2	Regulation of nuclear pre-mRNA domain-containing protein 2
P18754-2	RCC1	Regulator of chromosome condensation
O43665-3	RGS10	Regulator of G-protein signaling 10
Q92900	UPF1	Regulator of nonsense transcripts 1
Q9BZI7	UPF3B	Regulator of nonsense transcripts 3B
Q96T23	RSF1	Remodeling and spacing factor 1
P35251	RFC1	Replication factor C subunit 1
P35249	RFC4	Replication factor C subunit 4
Q9NUL5	RYDEN	Repressor of yield of DENV protein
Q9P2K3-3	RCOR3	REST corepressor 3
Q15293	RCN1	Reticulocalbin-1
Q14257-2	RCN2	Reticulocalbin-2
Q9NQC3	RTN4	Reticulon-4
Q7Z5J4	RAI1	Retinoic acid-induced protein 1
Q9HB40	SCPEP1	Retinoid-inducible serine carboxypeptidase
P52565	ARHGDIA	Rho GDP-dissociation inhibitor 1
P52566	ARHGDIB	Rho GDP-dissociation inhibitor 2
Q7Z6I6	ARHGAP30	Rho GTPase-activating protein 30
Q92888-3	ARHGEF1	Rho guanine nucleotide exchange factor 1
P08134	RHOC	Rho-related GTP-binding protein RhoC
P13489	RNH1	Ribonuclease inhibitor
O00584	RNASET2	Ribonuclease T2
Q8IY67-2	RAVER1	Ribonucleoprotein PTB-binding 1
P31350-2	RRM2	Ribonucleoside-diphosphate reductase subunit M2
P49247	RPIA	Ribose-5-phosphate isomerase
P56182	RRP1	Ribosomal RNA processing protein 1 homolog A
Q14684	RRP1B	Ribosomal RNA processing protein 1 homolog B
Q96EU6	RRP36	Ribosomal RNA processing protein 36 homolog
Q14137	BOP1	Ribosome biogenesis protein BOP1
Q15050	RRS1	Ribosome biogenesis regulatory protein homolog
Q9P2E9	RRBP1	Ribosome-binding protein 1
Q96E11	MRRF	Ribosome-recycling factor, mitochondrial
Q9C0B0	UNK	RING finger protein unkempt homolog
Q9BTL3	RAMAC	RNA guanine-N7 methyltransferase activating subunit
Q8N7H5	PAF1	RNA polymerase II-associated factor 1 homolog
Q9H6T3	RPAP3	RNA polymerase II-associated protein 3
Q8WVC0	LEO1	RNA polymerase-associated protein LEO1
Q9Y224	RTRAF	RNA transcription, translation and transport factor protein
P38159	RBMX	RNA-binding motif protein, X chromosome
P98175	RBM10	RNA-binding protein 10
P49756	RBM25	RNA-binding protein 25
Q5T8P6	RBM26	RNA-binding protein 26
Q9P2N5	RBM27	RNA-binding protein 27
P98179	RBM3	RNA-binding protein 3
Q96EV2	RBM33	RNA-binding protein 33
Q14498	RBM39	RNA-binding protein 39
Q9BWF3	RBM4	RNA-binding protein 4
Q9BTD8	RBM42	RNA-binding protein 42
P52756	RBM5	RNA-binding protein 5
Q9Y5S9	RBM8A	RNA-binding protein 8A
Q01844-5	EWSR1	RNA-binding protein EWS

P35637	FUS	RNA-binding protein FUS
Q15287	RNPS1	RNA-binding protein with serine-rich domain 1
Q9Y3B9	RRP15	RRP15-like protein
Q9Y265	RUVBL1	RuvB-like 1
Q9H446	RWDD1	RWD domain-containing protein 1
Q6NW29	RWDD4	RWD domain-containing protein 4
Q96BU1	S100PBP	S100P-binding protein
P31153	MAT2A	S-adenosylmethionine synthase isoform type-2
Q96ES7	SGF29	SAGA-associated factor 29
O75995	SASH3	SAM and SH3 domain-containing protein 3
Q9NSI8-3	SAMSN1	SAM domain-containing protein SAMSN-1
P82979	SARNP	SAP domain-containing ribonucleoprotein
Q9UHR5	SAP30BP	SAP30-binding protein
Q15424-3	SAFB	Scaffold attachment factor B1
Q14151	SAFB2	Scaffold attachment factor B2
Q8WTV0-2	SCARB1	Scavenger receptor class B member 1
O95997	PTTG1	Securin
Q8IZQ5	SELENOH	Selenoprotein H
Q8WYJ6	SEPTIN1	Septin-1
Q14141	SEPTIN6	Septin-6
Q9UHD8	SEPTIN9	Septin-9
Q13501	SQSTM1	Sequestosome-1
P10124	SRGN	Serglycin
P34897	SHMT2	Serine hydroxymethyltransferase, mitochondrial
Q8IYB3	SRRM1	Serine/arginine repetitive matrix protein 1
Q9UQ35	SRRM2	Serine/arginine repetitive matrix protein 2
Q96IZ7	RSRC1	Serine/Arginine-related protein 53
Q07955	SRSF1	Serine/arginine-rich splicing factor 1
O75494	SRSF10	Serine/arginine-rich splicing factor 10
Q05519	SRSF11	Serine/arginine-rich splicing factor 11
Q01130	SRSF2	Serine/arginine-rich splicing factor 2
P84103	SRSF3	Serine/arginine-rich splicing factor 3
Q13243	SRSF5	Serine/arginine-rich splicing factor 5
Q16629	SRSF7	Serine/arginine-rich splicing factor 7
Q13242	SRSF9	Serine/arginine-rich splicing factor 9
Q9P289	STK26	Serine/threonine-protein kinase 26
Q13043	STK4	Serine/threonine-protein kinase 4
O95747	OXSR1	Serine/threonine-protein kinase OSR1
Q13153	PAK1	Serine/threonine-protein kinase PAK 1
Q13177	PAK2	Serine/threonine-protein kinase PAK 2
Q99986	VRK1	Serine/threonine-protein kinase VRK1
Q9H4A3-7	WNK1	Serine/threonine-protein kinase WNK1
Q96QC0	PPP1R10	Serine/threonine-protein phosphatase 1 regulatory subunit 10
P30153	PPP2R1A	Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform
Q9NY27	PPP4R2	Serine/threonine-protein phosphatase 4 regulatory subunit 2
Q9UPN7	PPP6R1	Serine/threonine-protein phosphatase 6 regulatory subunit 1
Q5H9R7-5	PPP6R3	Serine/threonine-protein phosphatase 6 regulatory subunit 3
Q9BXP5	SRRT	Serrate RNA effector molecule homolog
P02768	ALB	Serum albumin
O75368	SH3BGRL	SH3 domain-binding glutamic acid-rich-like protein
Q9Y3L3	SH3BP1	SH3 domain-binding protein 1
Q96B97	SH3KBP1	SH3 domain-containing kinase-binding protein 1
A0MZ66-3	SHTN1	Shootin-1
Q562F6	SGO2	Shugoshin 2
P37108	SRP14	Signal recognition particle 14 kDa protein
P61011	SRP54	Signal recognition particle 54 kDa protein
P49458	SRP9	Signal recognition particle 9 kDa protein

P42224	STAT1	Signal transducer and activator of transcription 1-alpha/beta
P40763	STAT3	Signal transducer and activator of transcription 3
P42226	STAT6	Signal transducer and activator of transcription 6
Q92783	STAM	Signal transducing adapter molecule 1
O75886	STAM2	Signal transducing adapter molecule 2
O43166	SIPA1L1	Signal-induced proliferation-associated 1-like protein 1
Q13291	SLAMF1	Signaling lymphocytic activation molecule
Q9Y3P8	SIT1	Signaling threshold-regulating transmembrane adapter 1
Q9P270	SLAIN2	SLAIN motif-containing protein 2
Q96DU3	SLAMF6	SLAM family member 6
Q9NQ25	SLAMF7	SLAM family member 7
Q6UWF3	SCIMP	SLP adapter and CSK-interacting membrane protein
O00193	SMAP	Small acidic protein
O43765	SGTA	Small glutamine-rich tetratricopeptide repeat-containing protein alpha
Q96EQ0	SGTB	Small glutamine-rich tetratricopeptide repeat-containing protein beta
Q9Y448	KNSTRN	Small kinetochore-associated protein
O95295	SNAPIN	SNARE-associated protein Snapin
Q13573	SNW1	SNW domain-containing protein 1
P05023	ATP1A1	Sodium/potassium-transporting ATPase subunit alpha-1
P05026	ATP1B1	Sodium/potassium-transporting ATPase subunit beta-1
P54709	ATP1B3	Sodium/potassium-transporting ATPase subunit beta-3
P30626	SRI	Sorcin
Q96FF9	CDCA5	Sororin
Q13596	SNX1	Sorting nexin-1
O60493	SNX3	Sorting nexin-3
Q9Y5X3	SNX5	Sorting nexin-5
P09486	SPARC	SPARC
Q13813-2	SPTAN1	Spectrin alpha chain, non-erythrocytic 1
Q01082	SPTBN1	Spectrin beta chain, non-erythrocytic 1
Q96R06	SPAG5	Sperm-associated antigen 5
O75391	SPAG7	Sperm-associated antigen 7
P63208	SKP1	S-phase kinase-associated protein 1
Q8N0Z3	SPICE1	Spindle and centriole-associated protein 1
Q8IX90	SKA3	Spindle and kinetochore-associated protein 3
Q9BUA3	SPINDOC	Spindlin interactor and repressor of chromatin-binding protein
Q13838-2	DDX39B	Spliceosome RNA helicase DDX39B
Q9P013	CWC15	Spliceosome-associated protein CWC15 homolog
Q6UX04	CWC27	Spliceosome-associated protein CWC27 homolog
Q15637-6	SF1	Splicing factor 1
Q15459	SF3A1	Splicing factor 3A subunit 1
Q12874	SF3A3	Splicing factor 3A subunit 3
O75533	SF3B1	Splicing factor 3B subunit 1
Q13435	SF3B2	Splicing factor 3B subunit 2
Q15393	SF3B3	Splicing factor 3B subunit 3
Q15427	SF3B4	Splicing factor 3B subunit 4
Q96DF8	ESS2	Splicing factor ESS-2 homolog
Q01081	U2AF1	Splicing factor U2AF 35 kDa subunit
Q9H7N4	SCAF1	Splicing factor, arginine/serine-rich 19
P23246	SFPQ	Splicing factor, proline- and glutamine-rich
Q9GZT3	SLIRP	SRA stem-loop-interacting RNA-binding protein, mitochondrial
Q14247	CTTN	Src substrate cortactin
O94864	SUPT7L	STAGA complex 65 subunit gamma
Q7KZF4	SND1	Staphylococcal nuclease domain-containing protein 1
P16949-2	STMN1	Stathmin
Q9HD15	SRA1	Steroid receptor RNA activator 1
P38646	HSPA9	Stress-70 protein, mitochondrial
P31948	STIP1	Stress-induced-phosphoprotein 1
Q13586	STIM1	Stromal interaction molecule 1

Q14683	SMC1A	Structural maintenance of chromosomes protein 1A
P21912	SDHB	Succinate dehydrogenase
Q9UBE0	SAE1	SUMO-activating enzyme subunit 1
Q9UBT2	UBA2	SUMO-activating enzyme subunit 2
P63279	UBE2I	SUMO-conjugating enzyme UBC9
P00441	SOD1	Superoxide dismutase
P04179	SOD2	Superoxide dismutase
Q8IWZ8	SUGP1	SURP and G-patch domain-containing protein 1
O75940	SMNDC1	Survival of motor neuron-related-splicing factor 30
Q8TAQ2	SMARCC2	SWI/SNF complex subunit SMARCC2
Q969G3	SMARCE1	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily E member 1
Q9UH65	SWAP70	Switch-associated protein 70
Q96A49	SYAP1	Synapse-associated protein 1
P57105	SYNJ2BP	Synaptojanin-2-binding protein
O00161	SNAP23	Synaptosomal-associated protein 23
O95721	SNAP29	Synaptosomal-associated protein 29
Q9UMZ2-7	SYNRG	Synergin gamma
O60499	STX10	Syntaxin-10
Q86Y82	STX12	Syntaxin-12
O14662	STX16	Syntaxin-16
P56962	STX17	Syntaxin-17
Q12846	STX4	Syntaxin-4
O43752	STX6	Syntaxin-6
O15400	STX7	Syntaxin-7
Q9UNK0	STX8	Syntaxin-8
Q9Y490	TLN1	Talin-1
O60784	TOM1	Target of Myb protein 1
Q9ULW0	TPX2	Targeting protein for Xklp2
P82094-2	TMF1	TATA element modulatory factor
Q92804	TAF15	TATA-binding protein-associated factor 2N
P17987	TCP1	T-complex protein 1 subunit alpha
P78371	CCT2	T-complex protein 1 subunit beta
P50991	CCT4	T-complex protein 1 subunit delta
P48643	CCT5	T-complex protein 1 subunit epsilon
Q99832	CCT7	T-complex protein 1 subunit eta
P49368	CCT3	T-complex protein 1 subunit gamma
P50990	CCT8	T-complex protein 1 subunit theta
P40227	CCT6A	T-complex protein 1 subunit zeta
Q9NZ63	C9orf78	Telomere length and silencing protein 1 homolog
Q5UIP0	RIF1	Telomere-associated protein RIF1
Q9NYB0	TERF2IP	Telomeric repeat-binding factor 2-interacting protein 1
Q99614	TTC1	Tetratricopeptide repeat protein 1
Q7Z6K1	THAP5	THAP domain-containing protein 5
P10599	TXN	Thioredoxin
O95881	TXNDC12	Thioredoxin domain-containing protein 12
Q9BRA2	TXNDC17	Thioredoxin domain-containing protein 17
Q8NBS9	TXNDC5	Thioredoxin domain-containing protein 5
P30048	PRDX3	Thioredoxin-dependent peroxide reductase, mitochondrial
Q9H3N1	TMX1	Thioredoxin-related transmembrane protein 1
Q86V81	ALYREF	THO complex subunit 4
Q6I9Y2	THOC7	THO complex subunit 7 homolog
P26639	TARS	Threonine--tRNA ligase, cytoplasmic
Q9NXG2	THUMPD1	THUMP domain-containing protein 1
P23919	DTYMK	Thymidylate kinase
Q9P016	THYN1	Thymocyte nuclear protein 1
Q9Y2W1	THRAP3	Thyroid hormone receptor-associated protein 3
Q15643	TRIP11	Thyroid receptor-interacting protein 11

Q5JTD0	TJAP1	Tight junction-associated protein 1
Q15025	TNIP1	TNFAIP3-interacting protein 1
Q5JTV8	TOR1AIP1	Torsin-1A-interacting protein 1
O94842	TOX4	TOX high mobility group box family member 4
Q12888-2	TP53BP1	TP53-binding protein 1
Q9Y228	TRAF3IP3	TRAF3-interacting JNK-activating modulator
O43617	TRAPPC3	Trafficking protein particle complex subunit 3
O14545	TRAFD1	TRAF-type zinc finger domain-containing protein 1
P37837	TALDO1	Transaldolase
Q9NPA8	ENY2	Transcription and mRNA export factor ENY2
P60002	ELOF1	Transcription elongation factor 1 homolog
P23193	TCEA1	Transcription elongation factor A protein 1
Q9H3H9	TCEAL2	Transcription elongation factor A protein-like 2
O14776	TCERG1	Transcription elongation regulator 1
Q00059	TFAM	Transcription factor A, mitochondrial
Q01664	TFAP4	Transcription factor AP-4
P20290	BTF3	Transcription factor BTF3
Q96K17	BTF3L4	Transcription factor BTF3 homolog 4
P15923-2	TCF3	Transcription factor E2-alpha
Q16254	E2F4	Transcription factor E2F4
P19484	TFEB	Transcription factor EB
P41212	ETV6	Transcription factor ETV6
P17275	JUNB	Transcription factor jun-B
P17535	JUND	Transcription factor jun-D
P29084	GTF2E2	Transcription initiation factor IIE subunit beta
O00268	TAF4	Transcription initiation factor TFIID subunit 4
Q15545	TAF7	Transcription initiation factor TFIID subunit 7
Q16594	TAF9	Transcription initiation factor TFIID subunit 9
Q13263	TRIM28	Transcription intermediary factor 1-beta
O75528	TADA3	Transcriptional adapter 3
P46100	ATRX	Transcriptional regulator ATRX
Q8WXI9	GATAD2B	Transcriptional repressor p66-beta
P02786	TFRC	Transferrin receptor protein 1
O75410-2	TACC1	Transforming acidic coiled-coil-containing protein 1
Q9Y6A5	TACC3	Transforming acidic coiled-coil-containing protein 3
P61586	RHOA	Transforming protein RhoA
P37802-2	TAGLN2	Transgelin-2
P55072	VCP	Transitional endoplasmic reticulum ATPase
P29401-2	TKT	Transketolase
Q96EY4	TMA16	Translation machinery-associated protein 16
P13693	TPT1	Translationally-controlled tumor protein
Q9UGP8	SEC63	Translocation protein SEC63 homolog
P43307	SSR1	Translocon-associated protein subunit alpha
Q9ULS5	TMCC3	Transmembrane and coiled-coil domain protein 3
O94876	TMCC1	Transmembrane and coiled-coil domains protein 1
Q9BVK6	TMED9	Transmembrane emp24 domain-containing protein 9
Q9BVC6	TMEM109	Transmembrane protein 109
Q7Z7N9	TMEM179B	Transmembrane protein 179B
Q5JRA6	MIA3	Transport and Golgi organization protein 1 homolog
Q92973-2	TNPO1	Transportin-1
Q13428-4	TCOF1	Treacle protein
P40939	HADHA	Trifunctional enzyme subunit alpha, mitochondrial
P22102	GART	Trifunctional purine biosynthetic protein adenosine-3
Q9UPQ9	TNRC6B	Trinucleotide repeat-containing gene 6B protein
Q3LXA3	TKFC	Triokinase/FMN cyclase
P60174	TPI1	Triosephosphate isomerase
O14773	TPP1	Tripeptidyl-peptidase 1
Q08J23	NSUN2	tRNA

Q7L0Y3	TRMT10C	tRNA methyltransferase 10 homolog C
P28289	TMOD1	Tropomodulin-1
Q9NYL9	TMOD3	Tropomodulin-3
P06753-2	TPM3	Tropomyosin alpha-3 chain
P06753	TPM3	Tropomyosin alpha-3 chain
P67936	TPM4	Tropomyosin alpha-4 chain
P23381	WARS	Tryptophan--tRNA ligase, cytoplasmic
Q9Y3Q8	TSC22D4	TSC22 domain family protein 4
Q71U36	TUBA1A	Tubulin alpha-1A chain
P68366	TUBA4A	Tubulin alpha-4A chain
P07437	TUBB	Tubulin beta chain
Q13885	TUBB2A	Tubulin beta-2A chain
P68371	TUBB4B	Tubulin beta-4B chain
O75347	TBCA	Tubulin-specific chaperone A
O95379	TNFAIP8	Tumor necrosis factor alpha-induced protein 8
O14836	TNFRSF13B	Tumor necrosis factor receptor superfamily member 13B
Q02223	TNFRSF17	Tumor necrosis factor receptor superfamily member 17
P25445	FAS	Tumor necrosis factor receptor superfamily member 6
P28908	TNFRSF8	Tumor necrosis factor receptor superfamily member 8
P55327-3	TPD52	Tumor protein D52
O43399-7	TPD52L2	Tumor protein D54
P54577	YARS	Tyrosine--tRNA ligase, cytoplasmic
P08621	SNRNP70	U1 small nuclear ribonucleoprotein 70 kDa
P09234	SNRPC	U1 small nuclear ribonucleoprotein C
P09661	SNRPA1	U2 small nuclear ribonucleoprotein A'
O15042	U2SURP	U2 snRNP-associated SURP motif-containing protein
O00566	MPHOSPH10	U3 small nucleolar ribonucleoprotein protein MPP10
Q9BVJ6	UTP14A	U3 small nucleolar RNA-associated protein 14 homolog A
O43395	PRPF3	U4/U6 small nuclear ribonucleoprotein Prp3
Q8WVK2	SNRNP27	U4/U6.U5 small nuclear ribonucleoprotein 27 kDa protein
O43290	SART1	U4/U6.U5 tri-snRNP-associated protein 1
O75643	SNRNP200	U5 small nuclear ribonucleoprotein 200 kDa helicase
O15116	LSM1	U6 snRNA-associated Sm-like protein LSm1
P62310	LSM3	U6 snRNA-associated Sm-like protein LSm3
Q9Y4Z0	LSM4	U6 snRNA-associated Sm-like protein LSm4
Q9UMX0	UBQLN1	Ubiquilin-1
Q9UHD9	UBQLN2	Ubiquilin-2
Q9NRR5	UBQLN4	Ubiquilin-4
Q9BRT2	UQCC2	Ubiquinol-cytochrome-c reductase complex assembly factor 2
Q14694-2	USP10	Ubiquitin carboxyl-terminal hydrolase 10
P54578	USP14	Ubiquitin carboxyl-terminal hydrolase 14
Q9P275-2	USP36	Ubiquitin carboxyl-terminal hydrolase 36
P45974	USP5	Ubiquitin carboxyl-terminal hydrolase 5
P09936	UCHL1	Ubiquitin carboxyl-terminal hydrolase isozyme L1
P15374	UCHL3	Ubiquitin carboxyl-terminal hydrolase isozyme L3
Q9Y5K5	UCHL5	Ubiquitin carboxyl-terminal hydrolase isozyme L5
P62979	RPS27A	Ubiquitin-40S ribosomal protein S27a
Q9BSL1	UBAC1	Ubiquitin-associated domain-containing protein 1
Q9NZ09-4	UBAP1	Ubiquitin-associated protein 1
Q5T6F2	UBAP2	Ubiquitin-associated protein 2
Q14157-1	UBAP2L	Ubiquitin-associated protein 2-like
O00762	UBE2C	Ubiquitin-conjugating enzyme E2 C
P61077-3	UBE2D3	Ubiquitin-conjugating enzyme E2 D3
P62256	UBE2H	Ubiquitin-conjugating enzyme E2 H
P61086	UBE2K	Ubiquitin-conjugating enzyme E2 K
P61088	UBE2N	Ubiquitin-conjugating enzyme E2 N
Q9NPD8	UBE2T	Ubiquitin-conjugating enzyme E2 T
Q15819	UBE2V2	Ubiquitin-conjugating enzyme E2 variant 2

P22314	UBA1	Ubiquitin-like modifier-activating enzyme 1
P11441	UBL4A	Ubiquitin-like protein 4A
Q9NT62	ATG3	Ubiquitin-like-conjugating enzyme ATG3
Q04323	UBXN1	UBX domain-containing protein 1
O94888	UBXN7	UBX domain-containing protein 7
P30085	CMPK1	UMP-CMP kinase
Q8NDD1	C1orf131	Uncharacterized protein C1orf131
Q9BV19	C1orf50	Uncharacterized protein C1orf50
Q9BRJ6	C7orf50	Uncharacterized protein C7orf50
B0I1T2	MYO1G	Unconventional myosin-Ig
Q92614	MYO18A	Unconventional myosin-XVIIIa
O94763	URI1	Unconventional prefoldin RPB5 interactor 1
Q9H7E9-2	C8orf33	UPF0488 protein C8orf33
P54725-3	RAD23A	UV excision repair protein RAD23 homolog A
P54727	RAD23B	UV excision repair protein RAD23 homolog B
Q3ZAQ7	VMA21	Vacuolar ATPase assembly integral membrane protein VMA21
Q8NEZ2	VPS37A	Vacuolar protein sorting-associated protein 37A
Q9UN37	VPS4A	Vacuolar protein sorting-associated protein 4A
O75351	VPS4B	Vacuolar protein sorting-associated protein 4B
Q15906	VPS72	Vacuolar protein sorting-associated protein 72 homolog
Q9BRG1	VPS25	Vacuolar protein-sorting-associated protein 25
P50552	VASP	Vasodilator-stimulated phosphoprotein
Q9UEU0	VTI1B	Vesicle transport through interaction with t-SNAREs homolog 1B
P63027	VAMP2	Vesicle-associated membrane protein 2
Q9P0L0	VAPA	Vesicle-associated membrane protein-associated protein A
O95292	VAPB	Vesicle-associated membrane protein-associated protein B/C
Q00341	HDLBP	Vigilin
P08670	VIM	Vimentin
P18206	VCL	Vinculin
P21796	VDAC1	Voltage-dependent anion-selective channel protein 1
P45880-1	VDAC2	Voltage-dependent anion-selective channel protein 2
P36543	ATP6V1E1	V-type proton ATPase subunit E 1
Q16864-2	ATP6V1F	V-type proton ATPase subunit F
O75348	ATP6V1G1	V-type proton ATPase subunit G 1
Q6VEQ5	WASH2P	WAS protein family homolog 2
O43516	WIPF1	WAS/WASL-interacting protein family member 1
Q641Q2	WASHC2A	WASH complex subunit 2A
Q9Y4E1-4	WASHC2C	WASH complex subunit 2C
O75083	WDR1	WD repeat-containing protein 1
Q9Y6W5	WASF2	Wiskott-Aldrich syndrome protein family member 2
Q9Y2W2	WBP11	WW domain-binding protein 11
O75554	WBP4	WW domain-binding protein 4
P13010	XRCC5	X-ray repair cross-complementing protein 5
P12956	XRCC6	X-ray repair cross-complementing protein 6
P16989	YBX3	Y-box-binding protein 3
P49750-4	YLPM1	YLP motif-containing protein 1
O75152	ZC3H11A	Zinc finger CCCH domain-containing protein 11A
Q6PJT7	ZC3H14	Zinc finger CCCH domain-containing protein 14
Q8WU90	ZC3H15	Zinc finger CCCH domain-containing protein 15
Q86VM9	ZC3H18	Zinc finger CCCH domain-containing protein 18
Q9UPT8	ZC3H4	Zinc finger CCCH domain-containing protein 4
Q8N5A5	ZGPAT	Zinc finger CCCH-type with G patch domain-containing protein
Q6NZY4	ZCCHC8	Zinc finger CCHC domain-containing protein 8
Q8N567	ZCCHC9	Zinc finger CCHC domain-containing protein 9
P37275-2	ZEB1	Zinc finger E-box-binding homeobox 1
P52747	ZNF143	Zinc finger protein 143
Q9UQR1	ZNF148	Zinc finger protein 148
Q5VUA4	ZNF318	Zinc finger protein 318

O15014	ZNF609	Zinc finger protein 609
Q14966	ZNF638	Zinc finger protein 638
Q96NB3	ZNF830	Zinc finger protein 830
Q9UKS7	IKZF2	Zinc finger protein Helios
Q92785	DPF2	Zinc finger protein ubi-d4
P17029	ZKSCAN1	Zinc finger protein with KRAB and SCAN domains 1
O75312	ZPR1	Zinc finger protein ZPR1
O95218	ZRANB2	Zinc finger Ran-binding domain-containing protein 2
Q15942	ZYX	Zyxin

[0096] 도 2는 방사선 피폭 선량 및 조사시간에 따라 추출된 1602개 단백질체를 분석한 그래프로 2개 혈액세포주 시료와 17개 조건에서 모두 정량되었고 이 값을 feature로 사용하여 도 3과 같이 방사선 선량과 노출시간에 따른 17개 조건을 나타낸 데이터 테이블에 나눈 수치형 정수값으로 정의된 결과 값을 예측하여 바이오마커를 도출하였다. 도 4 및 도 5에 나타낸 바와 같이 머신러닝 중에 한 방법인 서포트 벡터 회귀를 이용하여 1602개의 단백질체 중에 방사선 피폭 선량과 노출시간을 예측할 수 있는 바이오마커 후보군을 발굴을 계획하였다. 도 6에서 나타낸 바와 같은 방법으로 선택된 단백질 수에 따른 SVM 모델들의 평균 제곱 오차(Mean square error, MSE)를 산출하고 1 이하를 값을 보이는 최적의 45개 바이오마커를 도출하였다.

[0097] 도 2는 방사선 피폭 선량 및 조사시간에 따라 추출된 1602개 단백질체를 분석한 그래프로 2개 혈액세포주 시료와 17개 조건에서 모두 정량되었고 이 값을 feature로 사용하여 도 3과 같이 방사선 선량과 노출시간에 따른 17개 조건을 정수형 수치로 치환하여 상대적 방사선 피폭 세기를 정의한 후 이를 서포트 벡터 회귀를 이용하여 방사선에 민감한 바이오마커를 발굴하였다. 각 부류를 잘 나눌 수 있는 초평면을 비선형 방법 (선형 방법으로도 정의 가능)으로 정의하였다.

[0098] 서포트 벡터 회귀는 학습을 기반으로 형성될 수 있으며 손실 함수를 정의하고 이를 최소화하도록 feature값을 이용하여 모델의 파라미터 값을 최적화하는 과정을 거친다. 손실 함수를 구하는 문제는 하기 수학식 1과 같은 최적화 문제로 나타낼 수 있다. SVM 회귀에서 훈련 데이터 세트는 예측 변수와 관측된 응답 변수 값을 포함한다. 각 훈련 점 x에 대해 ε 보다 크지 않은 값만큼 y_n에서 벗어나며, 이와 동시에 최대로 평탄한 함수 f(x)를 구하는 것이 목적이다.

[0099] *수학식 1*

[0100] $$\{w,b\} = argmin_{w,b}\left(\frac{1}{2}\|w\|^2 + C\sum_{m=1}^{M}\varepsilon^{(m)}\right)$$

[0101] $$Constraints:\ y_i - wx_i - b \le \varepsilon + \xi_i$$

[0102] $$wx_i + b - y_i \le \varepsilon + \xi_i$$

[0103] $$\xi_i, \xi_i^* \ge 0$$

[0104] 상기 w, b는 회귀 함수의 파라미터이고, C는 상기 수학식 1의 최적화 함수의 두 항간의 비중을 결정하는 매개변수이고, M은 분류 대상으로 주어진 특징 벡터 샘플들의 총 수이고, m은 특징 단백질의 인덱스이고, e은 회귀 분석의 허용한계를 설정하는 변수이고, x는 회귀 값의 오류 정도를 나타내는 슬랙 변수이고, y는 17개의 연속형 부류 값이고, x는 특징 벡터로 선정된 단백질 정량 값이다. 참고로 상기 (m)은 자승을 나타내는 것이 아닌 특징 벡터의 인덱스 순번을 나타내는 표시이다.

[0105] 커널을 이용하여 연산양을 줄일 수 있으며 선형 커널은 물론 가우스 커널, 다항식 커널을 이용하여 고차원 공간으로 수학식 2처럼 변환하여 선형 차원으로 매핑이 가능하다 (도 5).

[0106] *수학식 2*

[0107] $$y = \sum_{i=1}^{N}(\alpha_i - \alpha_i^*)\cdot K(x_i, x) + b$$

[0108] 상기 x는 분류 대상이 되는 특징 벡터이고, N은 서포트 벡터의 총 수이다.

[0109] 가우시안 방사형 기저함수 커널은 하기 수학식 3과 같으며, 이를 이용하여 분석을 수행하였다. 여기에 사용되는 파라미터는 회귀식에 사용되는 입실론, 비용 값이 있고 커널의 파라미터는 시그마가 있으며 이는 최적화 과정을 통해 계산하였다.

[0110] *수학식 3*

[0111] $$K(x_i, x_j) = exp\left[-\frac{\|x_i - x_j\|^2}{2\sigma^2}\right]$$

[0112] 우선 얼마나 많은 수의 단백질을 사용하여 서포트 벡터 회귀가 가능한지를 알아보기 위해서 임의의 단백질을 5개, 10개, 15개, 20개, 25개, 30개, 35개, 40개, 45개, 50개, 100개, 1000개 뽑은 후 500번 반복하여 서포트 벡터 회귀를 수행하였다. 에러 값은 예측 값과 실제 값을 차이를 알 수 있는 평균 제곱 오차(Mean square error, MSE)를 이용하였고, 그 결과 표 2 및 도 6에서 나타낸 바와 같이 그 분포를 알 수 있었고 45개 단백질을 활용하면 MSE값이 1보다 작아져 방사선 피폭 선량과 노출시간의 조건 간의 서로 겹치지 않고 예측할 수 있다고 판단하였다. 전체 1602개의 단백질이 서포트 벡터 회귀식에 얼마만큼 중요하게 관여하는지를 랜덤포레스트 알고리즘을 통해서 중요도 수치를 계산하였고 상위 45개의 단백체를 뽑았고 이를 활용하여 최종 서포트 벡터 회귀 모델을 생성하였다 (표 2). 회귀 파라미터인 입실론 값은 0.1, 비용 값은 2이고, 모델의 파라미터 시그마는 0.1이고, 서포트 벡터 머신은 63개 사용하였다. 도 7은 도출된 45개 단백질 정량 값으로 방사선 피폭 선량 17개 조건을 예측했을 때 회귀계수(R^2)가 0.994로 높은 예측력을 보였다.

[0113] 도 2는 방사선 피폭 선량 및 조사시간에 따라 추출된 1602개 단백질체를 분석한 그래프이다.

[0114] 도 3은 방사선 피폭 선량 및 조사시간을 17개의 조건으로 나타낸 표이다.

[0115] 도 4는 서포트 벡터 회귀 (Support vector regression, SVR)을 이용하여 단백질 정량 feature를 이용하여 손실함수의 최소값을 보이는 회귀초평면을 만드는 것을 나타낸 그림이다.

[0116] 도 5는 서포트 벡터 회귀를 이용한 비선형적 방법인 가우시안 방사형 기저함수 커널 함수는 선형 분리를 수행할 수 있도록 데이터를 더 높은 차원의 feature 공간으로 변환한 것을 나타낸 그림이다.

[0117] 도 6은 오차 범위가 작고 방사선 피폭 선량 및 조사시간을 도출할 수 있는 45개 단백질을 나타낸 그래프이다.

[0118] 도 7은 도출된 45개 단백질 정량 값으로 만든 서포트 벡터 회귀 모델이 예측한 방사선 피폭 선량 조건과 실제의 차이를 나타낸 그래프이다.

표 2

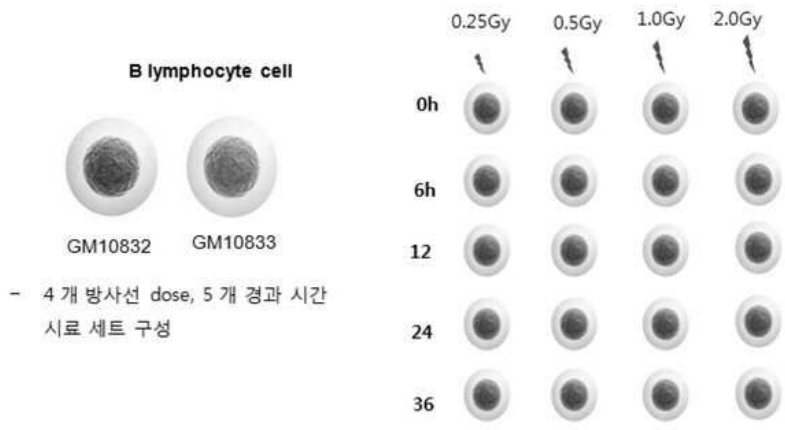
[0119]

No.	Entry	Protein names	Importance (%)
1	P68366	Tubulin alpha-4A chain	3.5
2	O15212	Prefoldin subunit 6	1.9
3	Q9NQ50	39S ribosomal protein L40, mitochondrial	2.4
4	P04233	HLA class II histocompatibility antigen gamma chain	1.4
5	P18669	Phosphoglycerate mutase 1	2.7
6	Q9Y2R9	28S ribosomal protein S7, mitochondrial	3.3
7	Q96Q11	CCA tRNA nucleotidyltransferase 1, mitochondrial	4.5
8	Q01629	Interferon-induced transmembrane protein 2	0.9
9	Q9BRX5	DNA replication complex GINS protein PSF3	3.6
10	P16455	Methylated-DNA--protein-cysteine methyltransferase	1.7
11	Q99871	HAUS augmin-like complex subunit 7	2.6
12	Q15785	Mitochondrial import receptor subunit TOM34	2.5
13	P36578	60S ribosomal protein L4	2.4
14	Q9NQ29	Putative RNA-binding protein Luc7-like 1	2.0
15	Q92900	Regulator of nonsense transcripts 1	2.0

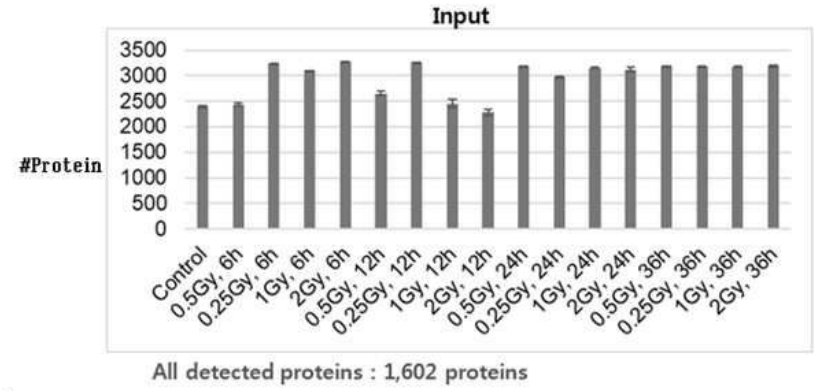
16	Q71U36	Tubulin alpha-1A chain	2.2
17	P63244	Receptor of activated protein C kinase 1	2.5
18	Q96TA2	ATP-dependent zinc metalloprotease YME1L1	1.4
19	Q99623	Prohibitin-2	2.6
20	P46782	40S ribosomal protein S5	1.9
21	Q9BZF1	Oxysterol-binding protein-related protein 8	1.8
22	P68133	Actin, alpha skeletal muscle	3.5
23	P14174	Macrophage migration inhibitory factor	5.1
24	Q03164	Histone-lysine N-methyltransferase 2A	2.2
25	Q5VT06	Centrosome-associated protein 350	1.1
26	Q12778	Forkhead box protein O1	1.7
27	Q9Y5J7	Mitochondrial import inner membrane translocase subunit Tim9	2.0
28	Q14839	Chromodomain-helicase-DNA-binding protein 4	1.5
29	O15027	Protein transport protein Sec16A	1.7
30	Q3SZR3	Alpha-1-acid glycoprotein	1.4
31	P62841	40S ribosomal protein S15	2.7
32	Q13885	Tubulin beta-2A chain	1.9
33	Q7Z7A1	Centriolin	1.6
34	O15145	Actin-related protein 2/3 complex subunit 3	4.0
35	O94903	Pyridoxal phosphate homeostasis protein	2.3
36	Q9UKS7	Zinc finger protein Helios	1.8
37	Q15046	Lysine--tRNA ligase	1.7
38	O95202	Mitochondrial proton/calcium exchanger protein	1.3
39	P60842	Eukaryotic initiation factor 4A-I	1.2
40	Q8IX90	Spindle and kinetochore-associated protein 3	1.5
41	Q8N1N4	Keratin, type II cytoskeletal 78	1.3
42	Q86XL3	Ankyrin repeat and LEM domain-containing protein 2	2.1
43	Q99798	Aconitate hydratase, mitochondrial	2.2
44	Q9UPQ9	Trinucleotide repeat-containing gene 6B protein	2.4
45	A0MZ66	Shootin-1	2.1

도면

도면1



도면2

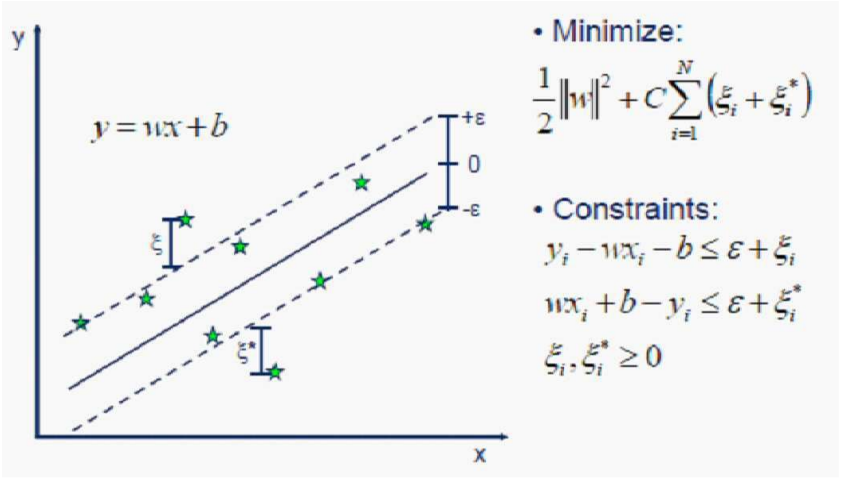


도면3

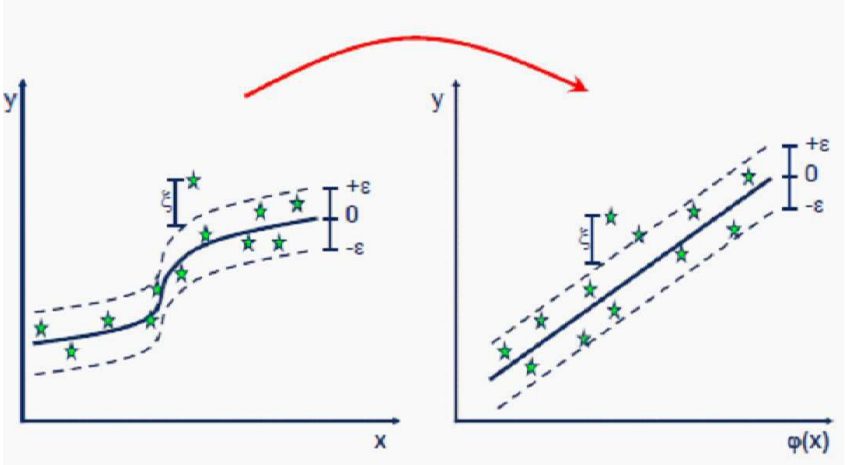
Output (Dose x exposed time)

Gy / Time	Control	0.25 Gy	0.5 Gy	1 Gy	2 Gy
	1				
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12h		3	7	11	15
24h		4	8	12	16
36h		5	9	13	17

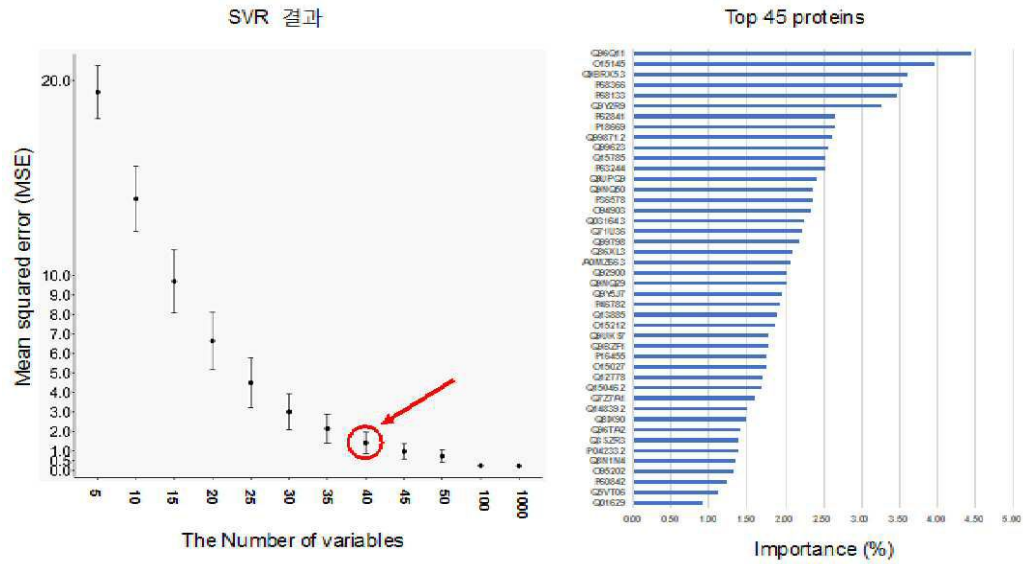
도면4



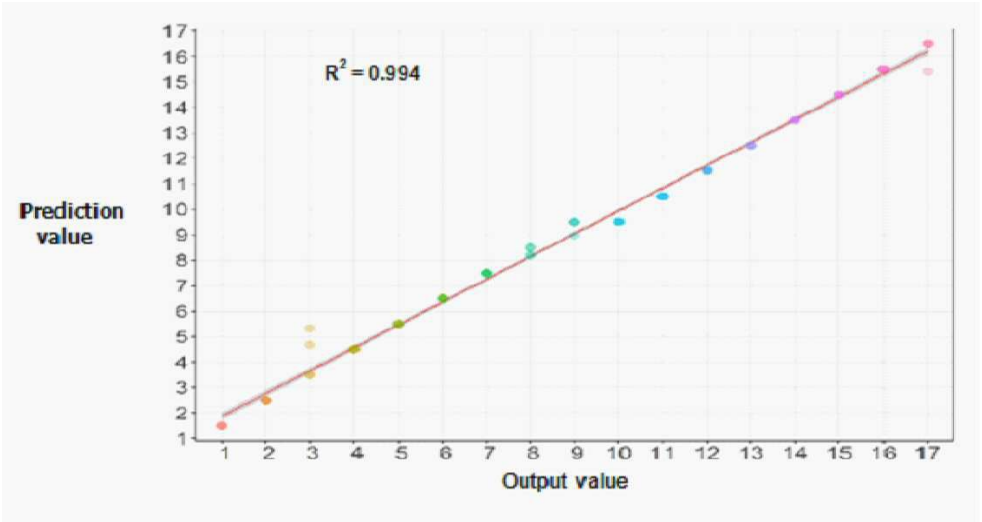
도면5


y
+ε
0
-ε
x
y
+ε
0
-ε
φ(x)

도면6


SVR 결과
Mean squared error (MSE)
The Number of variables
Top 45 proteins
Importance (%)

도면7


R² = 0.994
Prediction value
Output value

서 열 목 록

<110> University of Ulsan Foundation For Industry Cooperation

<120> Methods, recording media and apparatus for radiation dose assessment

<130> PN128598

<160> 194

<170> KoPatentIn 3.0

<210> 1

<211> 448

<212> PRT

<213> Homo sapiens

<400> 1

Met Arg Glu Cys Ile Ser Val His Val Gly Gln Ala Gly Val Gln Met
1 5 10 15

Gly Asn Ala Cys Trp Glu Leu Tyr Cys Leu Glu His Gly Ile Gln Pro
20 25 30

Asp Gly Gln Met Pro Ser Asp Lys Thr Ile Gly Gly Gly Asp Asp Ser
35 40 45

Phe Thr Thr Phe Phe Cys Glu Thr Gly Ala Gly Lys His Val Pro Arg
50 55 60

Ala Val Phe Val Asp Leu Glu Pro Thr Val Ile Asp Glu Ile Arg Asn
65 70 75 80

Gly Pro Tyr Arg Gln Leu Phe His Pro Glu Gln Leu Ile Thr Gly Lys
85 90 95

Glu Asp Ala Ala Asn Asn Tyr Ala Arg Gly His Tyr Thr Ile Gly Lys

100 105 110

Glu Ile Ile Asp Pro Val Leu Asp Arg Ile Arg Lys Leu Ser Asp Gln
115 120 125

Cys Thr Gly Leu Gln Gly Phe Leu Val Phe His Ser Phe Gly Gly Gly
130 135 140

Thr Gly Ser Gly Phe Thr Ser Leu Leu Met Glu Arg Leu Ser Val Asp
145 150 155 160

Tyr Gly Lys Lys Ser Lys Leu Glu Phe Ser Ile Tyr Pro Ala Pro Gln

165 170 175

Val Ser Thr Ala Val Val Glu Pro Tyr Asn Ser Ile Leu Thr Thr His
180 185 190
Thr Thr Leu Glu His Ser Asp Cys Ala Phe Met Val Asp Asn Glu Ala
195 200 205
Ile Tyr Asp Ile Cys Arg Arg Asn Leu Asp Ile Glu Arg Pro Thr Tyr
210 215 220
Thr Asn Leu Asn Arg Leu Ile Ser Gln Ile Val Ser Ser Ile Thr Ala
225 230 235 240
Ser Leu Arg Phe Asp Gly Ala Leu Asn Val Asp Leu Thr Glu Phe Gln

245 250 255
Thr Asn Leu Val Pro Tyr Pro Arg Ile His Phe Pro Leu Ala Thr Tyr
260 265 270
Ala Pro Val Ile Ser Ala Glu Lys Ala Tyr His Glu Gln Leu Ser Val
275 280 285
Ala Glu Ile Thr Asn Ala Cys Phe Glu Pro Ala Asn Gln Met Val Lys
290 295 300
Cys Asp Pro Arg His Gly Lys Tyr Met Ala Cys Cys Leu Leu Tyr Arg
305 310 315 320

Gly Asp Val Val Pro Lys Asp Val Asn Ala Ala Ile Ala Ala Ile Lys
325 330 335
Thr Lys Arg Ser Ile Gln Phe Val Asp Trp Cys Pro Thr Gly Phe Lys
340 345 350
Val Gly Ile Asn Tyr Gln Pro Pro Thr Val Val Pro Gly Gly Asp Leu
355 360 365
Ala Lys Val Gln Arg Ala Val Cys Met Leu Ser Asn Thr Thr Ala Ile
370 375 380
Ala Glu Ala Trp Ala Arg Leu Asp His Lys Phe Asp Leu Met Tyr Ala

385 390 395 400
Lys Arg Ala Phe Val His Trp Tyr Val Gly Glu Gly Met Glu Glu Gly
405 410 415

Glu Phe Ser Glu Ala Arg Glu Asp Met Ala Ala Leu Glu Lys Asp Tyr
420 425 430

Glu Glu Val Gly Ile Asp Ser Tyr Glu Asp Glu Asp Glu Gly Glu Glu
435 440 445

<210> 2

<211> 433

<212> PRT

<213> Homo sapiens

<400> 2

Met Gly Asn Ala Cys Trp Glu Leu Tyr Cys Leu Glu His Gly Ile Gln
1 5 10 15

Pro Asp Gly Gln Met Pro Ser Asp Lys Thr Ile Gly Gly Gly Asp Asp
20 25 30

Ser Phe Thr Thr Phe Phe Cys Glu Thr Gly Ala Gly Lys His Val Pro
35 40 45

Arg Ala Val Phe Val Asp Leu Glu Pro Thr Val Ile Asp Glu Ile Arg
50 55 60

Asn Gly Pro Tyr Arg Gln Leu Phe His Pro Glu Gln Leu Ile Thr Gly

65 70 75 80

Lys Glu Asp Ala Ala Asn Asn Tyr Ala Arg Gly His Tyr Thr Ile Gly
85 90 95

Lys Glu Ile Ile Asp Pro Val Leu Asp Arg Ile Arg Lys Leu Ser Asp
100 105 110

Gln Cys Thr Gly Leu Gln Gly Phe Leu Val Phe His Ser Phe Gly Gly
115 120 125

Gly Thr Gly Ser Gly Phe Thr Ser Leu Leu Met Glu Arg Leu Ser Val
130 135 140

Asp Tyr Gly Lys Lys Ser Lys Leu Glu Phe Ser Ile Tyr Pro Ala Pro
145 150 155 160

Gln Val Ser Thr Ala Val Val Glu Pro Tyr Asn Ser Ile Leu Thr Thr
165 170 175

His Thr Thr Leu Glu His Ser Asp Cys Ala Phe Met Val Asp Asn Glu

180 185 190

Ala Ile Tyr Asp Ile Cys Arg Arg Asn Leu Asp Ile Glu Arg Pro Thr

195 200 205

Tyr Thr Asn Leu Asn Arg Leu Ile Ser Gln Ile Val Ser Ser Ile Thr

210 215 220

Ala Ser Leu Arg Phe Asp Gly Ala Leu Asn Val Asp Leu Thr Glu Phe

225 230 235 240

Gln Thr Asn Leu Val Pro Tyr Pro Arg Ile His Phe Pro Leu Ala Thr

245 250 255

Tyr Ala Pro Val Ile Ser Ala Glu Lys Ala Tyr His Glu Gln Leu Ser

260 265 270

Val Ala Glu Ile Thr Asn Ala Cys Phe Glu Pro Ala Asn Gln Met Val

275 280 285

Lys Cys Asp Pro Arg His Gly Lys Tyr Met Ala Cys Cys Leu Leu Tyr

290 295 300

Arg Gly Asp Val Val Pro Lys Asp Val Asn Ala Ala Ile Ala Ala Ile

305 310 315 320

Lys Thr Lys Arg Ser Ile Gln Phe Val Asp Trp Cys Pro Thr Gly Phe

325 330 335

Lys Val Gly Ile Asn Tyr Gln Pro Pro Thr Val Val Pro Gly Gly Asp

340 345 350

Leu Ala Lys Val Gln Arg Ala Val Cys Met Leu Ser Asn Thr Thr Ala

355 360 365

Ile Ala Glu Ala Trp Ala Arg Leu Asp His Lys Phe Asp Leu Met Tyr

370 375 380

Ala Lys Arg Ala Phe Val His Trp Tyr Val Gly Glu Gly Met Glu Glu

385 390 395 400

Gly Glu Phe Ser Glu Ala Arg Glu Asp Met Ala Ala Leu Glu Lys Asp

405 410 415

Tyr Glu Glu Val Gly Ile Asp Ser Tyr Glu Asp Glu Asp Glu Gly Glu

420 425 430

Glu

<210> 3

<211> 295

<212> PRT

<213> Homo sapiens

<400> 3

Met Glu Arg Leu Ser Val Asp Tyr Gly Lys Lys Ser Lys Leu Glu Phe
1 5 10 15

Ser Ile Tyr Pro Ala Pro Gln Val Ser Thr Ala Val Val Glu Pro Tyr
20 25 30

Asn Ser Ile Leu Thr Thr His Thr Thr Leu Glu His Ser Asp Cys Ala
35 40 45

Phe Met Val Asp Asn Glu Ala Ile Tyr Asp Ile Cys Arg Arg Asn Leu
50 55 60

Asp Ile Glu Arg Pro Thr Tyr Thr Asn Leu Asn Arg Leu Ile Ser Gln
65 70 75 80

Ile Val Ser Ser Ile Thr Ala Ser Leu Arg Phe Asp Gly Ala Leu Asn
85 90 95

Val Asp Leu Thr Glu Phe Gln Thr Asn Leu Val Pro Tyr Pro Arg Ile
100 105 110

His Phe Pro Leu Ala Thr Tyr Ala Pro Val Ile Ser Ala Glu Lys Ala
115 120 125

Tyr His Glu Gln Leu Ser Val Ala Glu Ile Thr Asn Ala Cys Phe Glu
130 135 140

Pro Ala Asn Gln Met Val Lys Cys Asp Pro Arg His Gly Lys Tyr Met
145 150 155 160

Ala Cys Cys Leu Leu Tyr Arg Gly Asp Val Val Pro Lys Asp Val Asn
165 170 175

Ala Ala Ile Ala Ala Ile Lys Thr Lys Arg Ser Ile Gln Phe Val Asp
180 185 190

Trp Cys Pro Thr Gly Phe Lys Val Gly Ile Asn Tyr Gln Pro Pro Thr

195 200 205

Val Val Pro Gly Gly Asp Leu Ala Lys Val Gln Arg Ala Val Cys Met

210 215 220

Leu Ser Asn Thr Thr Ala Ile Ala Glu Ala Trp Ala Arg Leu Asp His

225 230 235 240

Lys Phe Asp Leu Met Tyr Ala Lys Arg Ala Phe Val His Trp Tyr Val

245 250 255

Gly Glu Gly Met Glu Glu Gly Glu Phe Ser Glu Ala Arg Glu Asp Met

260 265 270

Ala Ala Leu Glu Lys Asp Tyr Glu Glu Val Gly Ile Asp Ser Tyr Glu

275 280 285

Asp Glu Asp Glu Gly Glu Glu

290 295

<210> 4

<211> 489

<212> PRT

<213> Homo sapiens

<400> 4

Met Arg Arg Gly Ala Ala Asp Arg Glu Thr Glu Gly Pro Cys Ser Ala

1 5 10 15

Val Ser Ala Ala Ser Ser Thr Leu Ala Ala Ala Ala Ala Pro Arg Ala

20 25 30

Arg Ala Thr Ala Ala Ala Ser Thr Leu Ser Ala Thr Ala Met Arg Glu

35 40 45

Ile Val His Leu Gln Ala Gly Gln Cys Gly Asn Gln Ile Gly Ala Lys

50 55 60

Phe Trp Glu Val Ile Ser Asp Glu His Gly Ile Asp Pro Thr Gly Thr

65 70 75 80

Tyr His Gly Asp Ser Asp Leu Gln Leu Glu Arg Ile Asn Val Tyr Tyr

85 90 95

Asn Glu Ala Thr Gly Gly Asn Tyr Val Pro Arg Ala Val Leu Val Asp

100 105 110

Leu Glu Pro Gly Thr Met Asp Ser Val Arg Ser Gly Pro Phe Gly Gln
115 120 125
Ile Phe Arg Pro Asp Asn Phe Val Phe Gly Gln Ser Gly Ala Gly Asn
130 135 140
Asn Trp Ala Lys Gly His Tyr Thr Glu Gly Ala Glu Leu Val Asp Ala
145 150 155 160
Val Leu Asp Val Val Arg Lys Glu Ala Glu Ser Cys Asp Cys Leu Gln
165 170 175
Gly Phe Gln Leu Thr His Ser Leu Gly Gly Gly Thr Gly Ser Gly Met

180 185 190
Gly Thr Leu Leu Ile Ser Lys Ile Arg Glu Glu Phe Pro Asp Arg Ile
195 200 205
Met Asn Thr Phe Ser Val Val Pro Ser Pro Lys Val Ser Asp Thr Val
210 215 220
Val Glu Pro Tyr Asn Ala Thr Leu Ser Val His Gln Leu Val Glu Asn
225 230 235 240
Thr Asp Glu Thr Tyr Cys Ile Asp Asn Glu Ala Leu Tyr Asp Ile Cys
245 250 255

Phe Arg Thr Leu Lys Leu Thr Thr Pro Thr Tyr Gly Asp Leu Asn His
260 265 270
Leu Val Ser Ala Thr Met Ser Gly Val Thr Thr Cys Leu Arg Phe Pro
275 280 285
Gly Gln Leu Asn Ala Asp Leu Arg Lys Leu Ala Val Asn Met Val Pro
290 295 300
Phe Pro Arg Leu His Phe Phe Met Pro Gly Phe Ala Pro Leu Thr Ser
305 310 315 320
Arg Gly Ser Gln Gln Tyr Arg Ala Leu Thr Val Pro Glu Leu Thr Gln

325 330 335
Gln Met Phe Asp Ala Lys Asn Met Met Ala Ala Cys Asp Pro Arg His
340 345 350
Gly Arg Tyr Leu Thr Val Ala Ala Val Phe Arg Gly Arg Met Ser Met
355 360 365

Lys Glu Val Asp Glu Gln Met Leu Ser Val Gln Ser Lys Asn Ser Ser
370 375 380
Tyr Phe Val Glu Trp Ile Pro Asn Asn Val Lys Thr Ala Val Cys Asp
385 390 395 400

Ile Pro Pro Arg Gly Leu Lys Met Ala Ala Thr Phe Ile Gly Asn Ser
405 410 415
Thr Ala Ile Gln Glu Leu Phe Lys Arg Ile Ser Glu Gln Phe Thr Ala
420 425 430
Met Phe Arg Arg Lys Ala Phe Leu His Trp Tyr Thr Gly Glu Gly Met
435 440 445
Asp Glu Met Glu Phe Thr Glu Ala Glu Ser Asn Met Asn Asp Leu Val
450 455 460
Ser Glu Tyr Gln Gln Tyr Gln Asp Ala Thr Ala Glu Glu Gly Glu Phe

465 470 475 480
Glu Glu Glu Ala Glu Glu Glu Val Ala
485

<210> 5
<211> 495
<212> PRT
<213> Homo sapiens
<400> 5
Met Arg Arg Gly Ala Ala Asp Arg Glu Thr Glu Arg Leu Pro Gly Ala
1 5 10 15
Gln Gly Pro Cys Ser Ala Val Ser Ala Ala Ser Ser Thr Leu Ala Ala
20 25 30
Ala Ala Ala Pro Arg Ala Arg Ala Thr Ala Ala Ala Ser Thr Leu Ser

35 40 45
Ala Thr Ala Met Arg Glu Ile Val His Leu Gln Ala Gly Gln Cys Gly
50 55 60
Asn Gln Ile Gly Ala Lys Phe Trp Glu Val Ile Ser Asp Glu His Gly
65 70 75 80
Ile Asp Pro Thr Gly Thr Tyr His Gly Asp Ser Asp Leu Gln Leu Glu

85 90 95

Arg Ile Asn Val Tyr Tyr Asn Glu Ala Thr Gly Gly Asn Tyr Val Pro

100 105 110

Arg Ala Val Leu Val Asp Leu Glu Pro Gly Thr Met Asp Ser Val Arg

115 120 125

Ser Gly Pro Phe Gly Gln Ile Phe Arg Pro Asp Asn Phe Val Phe Gly

130 135 140

Gln Ser Gly Ala Gly Asn Asn Trp Ala Lys Gly His Tyr Thr Glu Gly

145 150 155 160

Ala Glu Leu Val Asp Ala Val Leu Asp Val Val Arg Lys Glu Ala Glu

165 170 175

Ser Cys Asp Cys Leu Gln Gly Phe Gln Leu Thr His Ser Leu Gly Gly

180 185 190

Gly Thr Gly Ser Gly Met Gly Thr Leu Leu Ile Ser Lys Ile Arg Glu

195 200 205

Glu Phe Pro Asp Arg Ile Met Asn Thr Phe Ser Val Val Pro Ser Pro

210 215 220

Lys Val Ser Asp Thr Val Val Glu Pro Tyr Asn Ala Thr Leu Ser Val

225 230 235 240

His Gln Leu Val Glu Asn Thr Asp Glu Thr Tyr Cys Ile Asp Asn Glu

245 250 255

Ala Leu Tyr Asp Ile Cys Phe Arg Thr Leu Lys Leu Thr Thr Pro Thr

260 265 270

Tyr Gly Asp Leu Asn His Leu Val Ser Ala Thr Met Ser Gly Val Thr

275 280 285

Thr Cys Leu Arg Phe Pro Gly Gln Leu Asn Ala Asp Leu Arg Lys Leu

290 295 300

Ala Val Asn Met Val Pro Phe Pro Arg Leu His Phe Phe Met Pro Gly

305 310 315 320

Phe Ala Pro Leu Thr Ser Arg Gly Ser Gln Gln Tyr Arg Ala Leu Thr

325 330 335

Val Pro Glu Leu Thr Gln Gln Met Phe Asp Ala Lys Asn Met Met Ala
340 345 350

Ala Cys Asp Pro Arg His Gly Arg Tyr Leu Thr Val Ala Ala Val Phe
355 360 365

Arg Gly Arg Met Ser Met Lys Glu Val Asp Glu Gln Met Leu Ser Val
370 375 380

Gln Ser Lys Asn Ser Ser Tyr Phe Val Glu Trp Ile Pro Asn Asn Val
385 390 395 400

Lys Thr Ala Val Cys Asp Ile Pro Pro Arg Gly Leu Lys Met Ala Ala
405 410 415

Thr Phe Ile Gly Asn Ser Thr Ala Ile Gln Glu Leu Phe Lys Arg Ile
420 425 430

Ser Glu Gln Phe Thr Ala Met Phe Arg Arg Lys Ala Phe Leu His Trp
435 440 445

Tyr Thr Gly Glu Gly Met Asp Glu Met Glu Phe Thr Glu Ala Glu Ser
450 455 460

Asn Met Asn Asp Leu Val Ser Glu Tyr Gln Gln Tyr Gln Asp Ala Thr

465 470 475 480

Ala Glu Glu Gly Glu Phe Glu Glu Glu Ala Glu Glu Glu Val Ala
485 490 495

<210> 6

<211> 444

<212> PRT

<213> Homo sapiens

<400> 6

Met Arg Glu Ile Val His Leu Gln Ala Gly Gln Cys Gly Asn Gln Ile
1 5 10 15

Gly Ala Lys Phe Trp Glu Val Ile Ser Asp Glu His Gly Ile Asp Pro
20 25 30

Thr Gly Thr Tyr His Gly Asp Ser Asp Leu Gln Leu Glu Arg Ile Asn
35 40 45

Val Tyr Tyr Asn Glu Ala Thr Gly Gly Asn Tyr Val Pro Arg Ala Val

```
     50                  55                  60
Leu Val Asp Leu Glu Pro Gly Thr Met Asp Ser Val Arg Ser Gly Pro
 65                  70                  75                  80
Phe Gly Gln Ile Phe Arg Pro Asp Asn Phe Val Phe Gly Gln Ser Gly
                 85                  90                  95
Ala Gly Asn Asn Trp Ala Lys Gly His Tyr Thr Glu Gly Ala Glu Leu

            100                 105                 110
Val Asp Ala Val Leu Asp Val Val Arg Lys Glu Ala Glu Ser Cys Asp
        115                 120                 125
Cys Leu Gln Gly Phe Gln Leu Thr His Ser Leu Gly Gly Gly Thr Gly
    130                 135                 140
Ser Gly Met Gly Thr Leu Leu Ile Ser Lys Ile Arg Glu Glu Phe Pro
145                 150                 155                 160
Asp Arg Ile Met Asn Thr Phe Ser Val Val Pro Ser Pro Lys Val Ser
                165                 170                 175

Asp Thr Val Val Glu Pro Tyr Asn Ala Thr Leu Ser Val His Gln Leu
            180                 185                 190
Val Glu Asn Thr Asp Glu Thr Tyr Cys Ile Asp Asn Glu Ala Leu Tyr
        195                 200                 205
Asp Ile Cys Phe Arg Thr Leu Lys Leu Thr Thr Pro Thr Tyr Gly Asp
    210                 215                 220
Leu Asn His Leu Val Ser Ala Thr Met Ser Gly Val Thr Thr Cys Leu
225                 230                 235                 240
Arg Phe Pro Gly Gln Leu Asn Ala Asp Leu Arg Lys Leu Ala Val Asn

                245                 250                 255
Met Val Pro Phe Pro Arg Leu His Phe Phe Met Pro Gly Phe Ala Pro
            260                 265                 270
Leu Thr Ser Arg Gly Ser Gln Gln Tyr Arg Ala Leu Thr Val Pro Glu
        275                 280                 285
Leu Thr Gln Gln Met Phe Asp Ala Lys Asn Met Met Ala Ala Cys Asp
    290                 295                 300
Pro Arg His Gly Arg Tyr Leu Thr Val Ala Ala Val Phe Arg Gly Arg
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305 310 315 320

Met Ser Met Lys Glu Val Asp Glu Gln Met Leu Ser Val Gln Ser Lys
325 330 335
Asn Ser Ser Tyr Phe Val Glu Trp Ile Pro Asn Asn Val Lys Thr Ala
340 345 350
Val Cys Asp Ile Pro Pro Arg Gly Leu Lys Met Ala Ala Thr Phe Ile
355 360 365
Gly Asn Ser Thr Ala Ile Gln Glu Leu Phe Lys Arg Ile Ser Glu Gln
370 375 380
Phe Thr Ala Met Phe Arg Arg Lys Ala Phe Leu His Trp Tyr Thr Gly

385 390 395 400
Glu Gly Met Asp Glu Met Glu Phe Thr Glu Ala Glu Ser Asn Met Asn
405 410 415
Asp Leu Val Ser Glu Tyr Gln Gln Tyr Gln Asp Ala Thr Ala Glu Glu
420 425 430
Gly Glu Phe Glu Glu Glu Ala Glu Glu Glu Val Ala
435 440

<210> 7
<211> 372
<212> PRT
<213> Homo sapiens
<400> 7

Met Asp Ser Val Arg Ser Gly Pro Phe Gly Gln Ile Phe Arg Pro Asp

1 5 10 15
Asn Phe Val Phe Gly Gln Ser Gly Ala Gly Asn Asn Trp Ala Lys Gly
20 25 30
His Tyr Thr Glu Gly Ala Glu Leu Val Asp Ala Val Leu Asp Val Val
35 40 45
Arg Lys Glu Ala Glu Ser Cys Asp Cys Leu Gln Gly Phe Gln Leu Thr
50 55 60
His Ser Leu Gly Gly Gly Thr Gly Ser Gly Met Gly Thr Leu Leu Ile

65 70 75 80

Ser Lys Ile Arg Glu Glu Phe Pro Asp Arg Ile Met Asn Thr Phe Ser
85 90 95

Val Val Pro Ser Pro Lys Val Ser Asp Thr Val Val Glu Pro Tyr Asn
100 105 110

Ala Thr Leu Ser Val His Gln Leu Val Glu Asn Thr Asp Glu Thr Tyr
115 120 125

Cys Ile Asp Asn Glu Ala Leu Tyr Asp Ile Cys Phe Arg Thr Leu Lys
130 135 140

Leu Thr Thr Pro Thr Tyr Gly Asp Leu Asn His Leu Val Ser Ala Thr

145 150 155 160

Met Ser Gly Val Thr Thr Cys Leu Arg Phe Pro Gly Gln Leu Asn Ala
165 170 175

Asp Leu Arg Lys Leu Ala Val Asn Met Val Pro Phe Pro Arg Leu His
180 185 190

Phe Phe Met Pro Gly Phe Ala Pro Leu Thr Ser Arg Gly Ser Gln Gln
195 200 205

Tyr Arg Ala Leu Thr Val Pro Glu Leu Thr Gln Gln Met Phe Asp Ala
210 215 220

Lys Asn Met Met Ala Ala Cys Asp Pro Arg His Gly Arg Tyr Leu Thr
225 230 235 240

Val Ala Ala Val Phe Arg Gly Arg Met Ser Met Lys Glu Val Asp Glu
245 250 255

Gln Met Leu Ser Val Gln Ser Lys Asn Ser Ser Tyr Phe Val Glu Trp
260 265 270

Ile Pro Asn Asn Val Lys Thr Ala Val Cys Asp Ile Pro Pro Arg Gly
275 280 285

Leu Lys Met Ala Ala Thr Phe Ile Gly Asn Ser Thr Ala Ile Gln Glu

290 295 300

Leu Phe Lys Arg Ile Ser Glu Gln Phe Thr Ala Met Phe Arg Arg Lys
305 310 315 320

Ala Phe Leu His Trp Tyr Thr Gly Glu Gly Met Asp Glu Met Glu Phe
325 330 335
Thr Glu Ala Glu Ser Asn Met Asn Asp Leu Val Ser Glu Tyr Gln Gln
340 345 350
Tyr Gln Asp Ala Thr Ala Glu Glu Gly Glu Phe Glu Glu Glu Ala Glu
355 360 365

Glu Glu Val Ala
370

<210> 8
<211> 129
<212> PRT
<213> Homo sapiens
<400> 8
Met Ala Glu Leu Ile Gln Lys Lys Leu Gln Gly Glu Val Glu Lys Tyr
1 5 10 15
Gln Gln Leu Gln Lys Asp Leu Ser Lys Ser Met Ser Gly Arg Gln Lys
20 25 30
Leu Glu Ala Gln Leu Thr Glu Asn Asn Ile Val Lys Glu Glu Leu Ala
35 40 45
Leu Leu Asp Gly Ser Asn Val Val Phe Lys Leu Leu Gly Pro Val Leu

50 55 60
Val Lys Gln Glu Leu Gly Glu Ala Arg Ala Thr Val Gly Lys Arg Leu
65 70 75 80
Asp Tyr Ile Thr Ala Glu Ile Lys Arg Tyr Glu Ser Gln Leu Arg Asp
85 90 95
Leu Glu Arg Gln Ser Glu Gln Gln Arg Glu Thr Leu Ala Gln Leu Gln
100 105 110
Gln Glu Phe Gln Arg Ala Gln Ala Ala Lys Ala Gly Ala Pro Gly Lys
115 120 125

Ala

<210> 9

<211> 162

<212> PRT

<213> Homo sapiens

<400> 9

Met Arg Ser Glu Pro Leu Arg Lys Lys Lys Lys Val Asp Pro Lys Lys
1 5 10 15

Asp Gln Glu Ala Lys Glu Arg Leu Lys Arg Lys Ile Arg Lys Leu Glu
20 25 30

Lys Ala Thr Gln Glu Leu Ile Pro Ile Glu Asp Phe Ile Thr Pro Leu
35 40 45

Lys Phe Leu Asp Lys Ala Arg Glu Arg Pro Gln Val Glu Leu Thr Phe

50 55 60

Glu Glu Thr Glu Arg Arg Ala Leu Leu Leu Lys Lys Trp Ser Leu Tyr
65 70 75 80

Lys Gln Gln Glu Arg Lys Met Glu Arg Asp Thr Ile Arg Ala Met Leu
85 90 95

Glu Ala Gln Gln Glu Ala Leu Glu Glu Leu Gln Leu Glu Ser Pro Lys
100 105 110

Leu His Ala Glu Ala Ile Lys Arg Asp Pro Asn Leu Phe Pro Phe Glu
115 120 125

Lys Glu Gly Pro His Tyr Thr Pro Pro Ile Pro Asn Tyr Gln Pro Pro
130 135 140

Glu Gly Arg Tyr Asn Asp Ile Thr Lys Val Tyr Thr Gln Val Glu Phe
145 150 155 160

Lys Arg

<210> 10

<211> 206

<212> PRT

<213> Homo sapiens

<400> 10

Met Thr Ala Ser Val Leu Arg Ser Ile Ser Leu Ala Leu Arg Pro Thr
1 5 10 15

Ser Gly Leu Leu Gly Thr Trp Gln Thr Gln Leu Arg Glu Thr His Gln

20 25 30

Arg Ala Ser Leu Leu Ser Phe Trp Glu Leu Ile Pro Met Arg Ser Glu

35 40 45

Pro Leu Arg Lys Lys Lys Lys Val Asp Pro Lys Lys Asp Gln Glu Ala

50 55 60

Lys Glu Arg Leu Lys Arg Lys Ile Arg Lys Leu Glu Lys Ala Thr Gln

65 70 75 80

Glu Leu Ile Pro Ile Glu Asp Phe Ile Thr Pro Leu Lys Phe Leu Asp

85 90 95

Lys Ala Arg Glu Arg Pro Gln Val Glu Leu Thr Phe Glu Glu Thr Glu

100 105 110

Arg Arg Ala Leu Leu Leu Lys Lys Trp Ser Leu Tyr Lys Gln Gln Glu

115 120 125

Arg Lys Met Glu Arg Asp Thr Ile Arg Ala Met Leu Glu Ala Gln Gln

130 135 140

Glu Ala Leu Glu Glu Leu Gln Leu Glu Ser Pro Lys Leu His Ala Glu

145 150 155 160

Ala Ile Lys Arg Asp Pro Asn Leu Phe Pro Phe Glu Lys Glu Gly Pro

165 170 175

His Tyr Thr Pro Pro Ile Pro Asn Tyr Gln Pro Pro Glu Gly Arg Tyr

180 185 190

Asn Asp Ile Thr Lys Val Tyr Thr Gln Val Glu Phe Lys Arg

195 200 205

<210> 11

<211> 296

<212> PRT

<213> Homo sapiens

<400> 11

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val

1 5 10 15

Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met

20 25 30

Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala

35 40 45

Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln

50 55 60

Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys

65 70 75 80

Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys

85 90 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro

100 105 110

Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met

115 120 125

Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His

130 135 140

Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly

145 150 155 160

Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile

165 170 175

Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu

180 185 190

Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys

195 200 205

Val Leu Thr Lys Cys Gln Glu Glu Val Ser His Ile Pro Ala Val His

210 215 220

Pro Gly Ser Phe Arg Pro Lys Cys Asp Glu Asn Gly Asn Tyr Leu Pro

225 230 235 240

Leu Gln Cys Tyr Gly Ser Ile Gly Tyr Cys Trp Cys Val Phe Pro Asn

245 250 255

Gly Thr Glu Val Pro Asn Thr Arg Ser Arg Gly His His Asn Cys Ser

260 265 270

Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys

275 280 285

Gln Asp Leu Gly Pro Val Pro Met

290 295

<210> 12

<211> 232

<212> PRT

<213> Homo sapiens

<400>

12

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val

1 5 10 15

Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met

20 25 30

Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala

35 40 45

Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln

50 55 60

Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys

65 70 75 80

Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys

85 90 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro

100 105 110

Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met

115 120 125

Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His

130 135 140

Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly

145 150 155 160

Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile

165 170 175

Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu
180 185 190

Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys
195 200 205

Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys

210 215 220

Gln Asp Leu Gly Pro Val Pro Met
225 230

<210> 13
<211> 160
<212> PRT
<213> Homo sapiens
<400> 13

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val
1 5 10 15

Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met
20 25 30

Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala

35 40 45

Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln
50 55 60

Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys
65 70 75 80

Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys
85 90 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro
100 105 110

Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met
115 120 125

Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His
130 135 140

Leu Leu Gln Ser His Trp Asn Trp Arg Thr Arg Leu Leu Gly Trp Val

145 150 155 160

<210> 14

<211> 211

<212> PRT

<213> Homo sapiens

<400> 14

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val

1 5 10 15

Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met

20 25 30

Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala

35 40 45

Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln

50 55 60

Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys

65 70 75 80

Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys

85 90 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro

100 105 110

Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Asn Ala

115 120 125

Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly Ser Phe Pro Glu Asn

130 135 140

Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile Asp Trp Lys Val Phe

145 150 155 160

Glu Ser Trp Met His His Trp Leu Leu Phe Glu Met Ser Arg His Ser

165 170 175

Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys Glu Ser Leu Glu Leu

180 185 190

Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys Gln Asp Leu Gly Pro

195 200 205

Val Pro Met

210

<210> 15

<211> 192

<212> PRT

<213

> Homo sapiens

<400> 15

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val

1 5 10 15

Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met

20 25 30

Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala

35 40 45

Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln

50 55 60

Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys

65 70 75 80

Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys

85 90 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro

100 105 110

Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met

115 120 125

Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His

130 135 140

Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly

145 150 155 160

Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile

165 170 175

Asp Trp Lys Ser His Trp Asn Trp Arg Thr Arg Leu Leu Gly Trp Val

180 185 190

<210> 16

<211> 321

<212> PRT

<213> Homo sapiens

<400> 16

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val
1 5 10 15

Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met
20 25 30

Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala
35 40 45

Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln
50 55 60

Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys

65 70 75 80

Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys
85 90 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro
100 105 110

Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met
115 120 125

Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His
130 135 140

Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly
145 150 155 160

Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile
165 170 175

Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu
180 185 190

Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys
195 200 205

Val Leu Thr Lys Cys Gln Glu Glu Val Ser His Ile Pro Ala Val His

210 215 220

Pro Gly Ser Phe Arg Pro Lys Cys Asp Glu Asn Gly Asn Tyr Leu Pro
225 230 235 240

Leu Gln Cys Tyr Gly Ser Ile Gly Tyr Cys Trp Cys Val Phe Pro Asn
245 250 255

Gly Thr Glu Val Pro Asn Thr Arg Ser Arg Gly His His Asn Cys Ser
260 265 270

Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys
275 280 285

Gln Asp Leu Gly Pro Gly Lys Gly Leu Ala Glu Gly His Leu Val Thr
290 295 300

Ser Ser Ser Ser Pro Ala Gly Pro Ala Pro Leu Trp Ala Gly Glu Gly
305 310 315 320

Val

<210> 17

<211> 257

<212> PRT

<213> Homo sapiens

<400> 17

Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val
1 5 10 15

Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met

20 25 30

Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala
35 40 45

Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln
50 55 60

Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys
65 70 75 80

Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys
85 90 95

Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro
100 105 110
Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met
115 120 125
Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His
130 135 140
Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly
145 150 155 160
Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile

165 170 175
Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu
180 185 190
Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys
195 200 205
Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys
210 215 220
Gln Asp Leu Gly Pro Gly Lys Gly Leu Ala Glu Gly His Leu Val Thr
225 230 235 240

Ser Ser Ser Ser Pro Ala Gly Pro Ala Pro Leu Trp Ala Gly Glu Gly
245 250 255
Val

<210> 18
<211> 239
<212> PRT
<213> Homo sapiens
<400> 18
Met Arg His Arg Tyr Leu Ala Ser Asp Cys Ser Pro Ser Phe Leu Pro
1 5 10 15
Ser Leu Tyr His Pro Ser Gln Met Lys Gln Asn Ala Gly Gln Ser Asp
20 25 30
Ala Gly Tyr Glu Phe Asp Ile Cys Phe Thr Ser Val Gln Lys Arg Ala

35 40 45

Ile Arg Thr Leu Trp Thr Val Leu Asp Ala Ile Asp Gln Met Trp Leu

50 55 60

Pro Val Val Arg Thr Trp Arg Leu Asn Glu Arg His Tyr Gly Gly Leu

65 70 75 80

Thr Gly Leu Asn Lys Ala Glu Thr Ala Ala Lys His Gly Glu Ala Gln

85 90 95

Val Lys Ile Trp Arg Arg Ser Tyr Asp Val Pro Pro Pro Pro Met Glu

100 105 110

Pro Asp His Pro Phe Tyr Ser Asn Ile Ser Lys Asp Arg Arg Tyr Ala

115 120 125

Asp Leu Thr Glu Asp Gln Leu Pro Ser Cys Glu Ser Leu Lys Asp Thr

130 135 140

Ile Ala Arg Ala Leu Pro Phe Trp Asn Glu Glu Ile Val Pro Gln Ile

145 150 155 160

Lys Glu Gly Lys Arg Val Leu Ile Ala Ala His Gly Asn Ser Leu Arg

165 170 175

Gly Ile Val Lys His Leu Glu Gly Leu Ser Glu Glu Ala Ile Met Glu

180 185 190

Leu Asn Leu Pro Thr Gly Ile Pro Ile Val Tyr Glu Leu Asp Lys Asn

195 200 205

Leu Lys Pro Ile Lys Pro Met Gln Phe Leu Gly Asp Glu Glu Thr Val

210 215 220

Arg Lys Ala Met Glu Ala Val Ala Ala Gln Gly Lys Ala Lys Lys

225 230 235

<210> 19

<211> 254

<212> PRT

<213> Homo sapiens

<400> 19

Met Ala Ala Tyr Lys Leu Val Leu Ile Arg His Gly Glu Ser Ala Trp

1 5 10 15

Asn Leu Glu Asn Arg Phe Ser Gly Trp Tyr Asp Ala Asp Leu Ser Pro
20 25 30
Ala Gly His Glu Glu Ala Lys Arg Gly Gly Gln Ala Leu Arg Asp Ala
35 40 45
Gly Tyr Glu Phe Asp Ile Cys Phe Thr Ser Val Gln Lys Arg Ala Ile
50 55 60
Arg Thr Leu Trp Thr Val Leu Asp Ala Ile Asp Gln Met Trp Leu Pro
65 70 75 80

Val Val Arg Thr Trp Arg Leu Asn Glu Arg His Tyr Gly Gly Leu Thr
85 90 95
Gly Leu Asn Lys Ala Glu Thr Ala Ala Lys His Gly Glu Ala Gln Val
100 105 110
Lys Ile Trp Arg Arg Ser Tyr Asp Val Pro Pro Pro Pro Met Glu Pro
115 120 125
Asp His Pro Phe Tyr Ser Asn Ile Ser Lys Asp Arg Arg Tyr Ala Asp
130 135 140
Leu Thr Glu Asp Gln Leu Pro Ser Cys Glu Ser Leu Lys Asp Thr Ile

145 150 155 160
Ala Arg Ala Leu Pro Phe Trp Asn Glu Glu Ile Val Pro Gln Ile Lys
165 170 175
Glu Gly Lys Arg Val Leu Ile Ala Ala His Gly Asn Ser Leu Arg Gly
180 185 190
Ile Val Lys His Leu Glu Gly Leu Ser Glu Glu Ala Ile Met Glu Leu
195 200 205
Asn Leu Pro Thr Gly Ile Pro Ile Val Tyr Glu Leu Asp Lys Asn Leu
210 215 220

Lys Pro Ile Lys Pro Met Gln Phe Leu Gly Asp Glu Glu Thr Val Arg
225 230 235 240
Lys Ala Met Glu Ala Val Ala Ala Gln Gly Lys Ala Lys Lys
245 250
<210> 20
<211> 242

<212> PRT

<213> Homo sapiens

<400> 20

Met Ala Ala Pro Ala Val Lys Val Ala Arg Gly Trp Ser Gly Leu Ala
1 5 10 15

Leu Gly Val Arg Arg Ala Val Leu Gln Leu Pro Gly Leu Thr Gln Val
20 25 30

Arg Trp Ser Arg Tyr Ser Pro Glu Phe Lys Asp Pro Leu Ile Asp Lys
35 40 45

Glu Tyr Tyr Arg Lys Pro Val Glu Glu Leu Thr Glu Glu Glu Lys Tyr
50 55 60

Val Arg Glu Leu Lys Lys Thr Gln Leu Ile Lys Ala Ala Pro Ala Gly
65 70 75 80

Lys Thr Ser Ser Val Phe Glu Asp Pro Val Ile Ser Lys Phe Thr Asn
85 90 95

Met Met Met Ile Gly Gly Asn Lys Val Leu Ala Arg Ser Leu Met Ile
100 105 110

Gln Thr Leu Glu Ala Val Lys Arg Lys Gln Phe Glu Lys Tyr His Ala
115 120 125

Ala Ser Ala Glu Glu Gln Ala Thr Ile Glu Arg Asn Pro Tyr Thr Ile
130 135 140

Phe His Gln Ala Leu Lys Asn Cys Glu Pro Met Ile Gly Leu Val Pro
145 150 155 160

Ile Leu Lys Gly Gly Arg Phe Tyr Gln Val Pro Val Pro Leu Pro Asp
165 170 175

Arg Arg Arg Arg Phe Leu Ala Met Lys Trp Met Ile Thr Glu Cys Arg
180 185 190

Asp Lys Lys His Gln Arg Thr Leu Met Pro Glu Lys Leu Ser His Lys
195 200 205

Leu Leu Glu Ala Phe His Asn Gln Gly Pro Val Ile Lys Arg Lys His
210 215 220

Asp Leu His Lys Met Ala Glu Ala Asn Arg Ala Leu Ala His Tyr Arg

225 230 235 240

Trp Trp

<210> 21

<211> 434

<212> PRT

<213> Homo sapiens

<400> 21

Met Leu Arg Cys Leu Tyr His Trp His Arg Pro Val Leu Asn Arg Arg
1 5 10 15

Trp Ser Arg Leu Cys Leu Pro Lys Gln Tyr Leu Phe Thr Met Lys Leu
20 25 30

Gln Ser Pro Glu Phe Gln Ser Leu Phe Thr Glu Gly Leu Lys Ser Leu
35 40 45

Thr Glu Leu Phe Val Lys Glu Asn His Glu Leu Arg Ile Ala Gly Gly

50 55 60

Ala Val Arg Asp Leu Leu Asn Gly Val Lys Pro Gln Asp Ile Asp Phe
65 70 75 80

Ala Thr Thr Ala Thr Pro Thr Gln Met Lys Glu Met Phe Gln Ser Ala
85 90 95

Gly Ile Arg Met Ile Asn Asn Arg Gly Glu Lys His Gly Thr Ile Thr
100 105 110

Ala Arg Leu His Glu Glu Asn Phe Glu Ile Thr Thr Leu Arg Ile Asp
115 120 125

Val Thr Thr Asp Gly Arg His Ala Glu Val Glu Phe Thr Thr Asp Trp
130 135 140

Gln Lys Asp Ala Glu Arg Arg Asp Leu Thr Ile Asn Ser Met Phe Leu
145 150 155 160

Gly Phe Asp Gly Thr Leu Phe Asp Tyr Phe Asn Gly Tyr Glu Asp Leu
165 170 175

Lys Asn Lys Lys Val Arg Phe Val Gly His Ala Lys Gln Arg Ile Gln
180 185 190

Glu Asp Tyr Leu Arg Ile Leu Arg Tyr Phe Arg Phe Tyr Gly Arg Ile

195 200 205

Val Asp Lys Pro Gly Asp His Asp Pro Glu Thr Leu Glu Ala Ile Ala

210 215 220

Glu Asn Ala Lys Gly Leu Ala Gly Ile Ser Gly Glu Arg Ile Trp Val

225 230 235 240

Glu Leu Lys Lys Ile Leu Val Gly Asn His Val Asn His Leu Ile His

245 250 255

Leu Ile Tyr Asp Leu Asp Val Ala Pro Tyr Ile Gly Leu Pro Ala Asn

260 265 270

Ala Ser Leu Glu Glu Phe Asp Lys Val Ser Lys Asn Val Asp Gly Phe

275 280 285

Ser Pro Lys Pro Val Thr Leu Leu Ala Ser Leu Phe Lys Val Gln Asp

290 295 300

Asp Val Thr Lys Leu Asp Leu Arg Leu Lys Ile Ala Lys Glu Glu Lys

305 310 315 320

Asn Leu Gly Leu Phe Ile Val Lys Asn Arg Lys Asp Leu Ile Lys Ala

325 330 335

Thr Asp Ser Ser Asp Pro Leu Lys Pro Tyr Gln Asp Phe Ile Ile Asp

340 345 350

Ser Arg Glu Pro Asp Ala Thr Thr Arg Val Cys Glu Leu Leu Lys Tyr

355 360 365

Gln Gly Glu His Cys Leu Leu Lys Glu Met Gln Gln Trp Ser Ile Pro

370 375 380

Pro Phe Pro Val Ser Gly His Asp Ile Arg Lys Val Gly Ile Ser Ser

385 390 395 400

Gly Lys Glu Ile Gly Ala Leu Leu Gln Gln Leu Arg Glu Gln Trp Lys

405 410 415

Lys Ser Gly Tyr Gln Met Glu Lys Asp Glu Leu Leu Ser Tyr Ile Lys

420 425 430

Lys Thr

<210> 22

<211> 414

<212> PRT

<213> Homo sapiens

<400> 22

Met Leu Arg Cys Leu Tyr His Trp His Arg Pro Val Leu Asn Arg Arg
1 5 10 15

Trp Ser Arg Leu Cys Leu Pro Lys Gln Tyr Leu Phe Thr Met Lys Leu
20 25 30

Gln Ser Pro Glu Phe Gln Ser Leu Phe Thr Glu Gly Leu Lys Ser Leu
35 40 45

Thr Glu Leu Phe Val Lys Glu Asn His Glu Leu Arg Ile Ala Gly Gly
50 55 60

Ala Val Arg Asp Leu Leu Asn Gly Val Lys Pro Gln Asp Ile Asp Phe
65 70 75 80

Ala Thr Thr Ala Thr Pro Thr Gln Met Lys Glu Met Phe Gln Ser Ala
85 90 95

Gly Ile Arg Met Ile Asn Asn Arg Gly Glu Lys His Gly Thr Ile Thr
100 105 110

Ala Arg Leu His Glu Glu Asn Phe Glu Ile Thr Thr Leu Arg Ile Asp
115 120 125

Val Thr Thr Asp Gly Arg His Ala Glu Val Glu Phe Thr Thr Asp Trp
130 135 140

Gln Lys Asp Ala Glu Arg Arg Asp Leu Thr Ile Asn Ser Met Phe Leu
145 150 155 160

Gly Phe Asp Gly Thr Leu Phe Asp Tyr Phe Asn Gly Tyr Glu Asp Leu
165 170 175

Lys Asn Lys Lys Val Arg Phe Val Gly His Ala Lys Gln Arg Ile Gln
180 185 190

Glu Asp Tyr Leu Arg Ile Leu Arg Tyr Phe Arg Phe Tyr Gly Arg Ile
195 200 205

Val Asp Lys Pro Gly Asp His Asp Pro Glu Thr Leu Glu Ala Ile Ala
210 215 220
Glu Asn Ala Lys Gly Leu Ala Gly Ile Ser Gly Glu Arg Ile Trp Val
225 230 235 240
Glu Leu Lys Lys Ile Leu Val Gly Leu Pro Ala Asn Ala Ser Leu Glu
245 250 255

Glu Phe Asp Lys Val Ser Lys Asn Val Asp Gly Phe Ser Pro Lys Pro
260 265 270
Val Thr Leu Leu Ala Ser Leu Phe Lys Val Gln Asp Asp Val Thr Lys
275 280 285
Leu Asp Leu Arg Leu Lys Ile Ala Lys Glu Glu Lys Asn Leu Gly Leu
290 295 300
Phe Ile Val Lys Asn Arg Lys Asp Leu Ile Lys Ala Thr Asp Ser Ser
305 310 315 320
Asp Pro Leu Lys Pro Tyr Gln Asp Phe Ile Ile Asp Ser Arg Glu Pro

325 330 335
Asp Ala Thr Thr Arg Val Cys Glu Leu Leu Lys Tyr Gln Gly Glu His
340 345 350
Cys Leu Leu Lys Glu Met Gln Gln Trp Ser Ile Pro Pro Phe Pro Val
355 360 365
Ser Gly His Asp Ile Arg Lys Val Gly Ile Ser Ser Gly Lys Glu Ile
370 375 380
Gly Ala Leu Leu Gln Gln Leu Arg Glu Gln Trp Lys Lys Ser Gly Tyr
385 390 395 400

Gln Met Glu Lys Asp Glu Leu Leu Ser Tyr Ile Lys Lys Thr
405 410

<210> 23
<211> 132
<212> PRT
<213> Homo sapiens
<400> 23
Met Asn His Ile Val Gln Thr Phe Ser Pro Val Asn Ser Gly Gln Pro

1 5 10 15

Pro Asn Tyr Glu Met Leu Lys Glu Glu Gln Glu Val Ala Met Leu Gly

20 25 30

Val Pro His Asn Pro Ala Pro Pro Met Ser Thr Val Ile His Ile Arg

35 40 45

Ser Glu Thr Ser Val Pro Asp His Val Val Trp Ser Leu Phe Asn Thr

50 55 60

Leu Phe Met Asn Thr Cys Cys Leu Gly Phe Ile Ala Phe Ala Tyr Ser

65 70 75 80

Val Lys Ser Arg Asp Arg Lys Met Val Gly Asp Val Thr Gly Ala Gln

85 90 95

Ala Tyr Ala Ser Thr Ala Lys Cys Leu Asn Ile Trp Ala Leu Ile Leu

100 105 110

Gly Ile Phe Met Thr Ile Leu Leu Ile Ile Ile Pro Val Leu Val Val

115 120 125

Gln Ala Gln Arg

130

<210> 24

<211> 138

<212> PRT

<213> Homo sapiens

<400> 24

Met Ser Glu Ala Tyr Phe Arg Val Glu Ser Gly Ala Leu Gly Pro Glu

1 5 10 15

Glu Asn Phe Leu Ser Leu Asp Asp Ile Leu Met Ser His Glu Lys Leu

20 25 30

Pro Val Arg Thr Glu Thr Ala Met Pro Arg Leu Gly Ala Phe Phe Leu

35 40 45

Glu Arg Ser Ala Gly Ala Glu Thr Asp Asn Ala Val Pro Gln Thr Phe

50 55 60

Ile Gly Arg Phe Arg Arg Ile Met Asp Ser Ser Gln Asn Ala Tyr Asn

65 70 75 80

Glu Asp Thr Ser Ala Leu Val Ala Arg Leu Asp Glu Met Glu Arg Gly
85 90 95
Leu Phe Gln Thr Gly Gln Lys Gly Leu Asn Asp Phe Gln Cys Trp Glu
100 105 110

Lys Gly Gln Ala Ser Gln Ile Thr Ala Ser Asn Leu Val Gln Asn Tyr
115 120 125
Lys Lys Arg Lys Phe Thr Asp Met Glu Asp
130 135

<210> 25
<211> 216
<212> PRT
<213> Homo sapiens
<400> 25

Met Ser Glu Ala Tyr Phe Arg Val Glu Ser Gly Ala Leu Gly Pro Glu
1 5 10 15
Glu Asn Phe Leu Ser Leu Asp Asp Ile Leu Met Ser His Glu Lys Leu
20 25 30

Pro Val Arg Thr Glu Thr Ala Met Pro Arg Leu Gly Ala Phe Phe Leu
35 40 45
Glu Arg Ser Ala Gly Ala Glu Thr Asp Asn Ala Val Pro Gln Gly Ser
50 55 60
Lys Leu Glu Leu Pro Leu Trp Leu Ala Lys Gly Leu Phe Asp Asn Lys
65 70 75 80
Arg Arg Ile Leu Ser Val Glu Leu Pro Lys Ile Tyr Gln Glu Gly Trp
85 90 95
Arg Thr Val Phe Ser Ala Asp Pro Asn Val Val Asp Leu His Lys Met

100 105 110
Gly Pro His Phe Tyr Gly Phe Gly Ser Gln Leu Leu His Phe Asp Ser
115 120 125
Pro Glu Asn Ala Asp Ile Ser Gln Ser Leu Leu Gln Thr Phe Ile Gly
130 135 140
Arg Phe Arg Arg Ile Met Asp Ser Ser Gln Asn Ala Tyr Asn Glu Asp

145 150 155 160

Thr Ser Ala Leu Val Ala Arg Leu Asp Glu Met Glu Arg Gly Leu Phe

165 170 175

Gln Thr Gly Gln Lys Gly Leu Asn Asp Phe Gln Cys Trp Glu Lys Gly

180 185 190

Gln Ala Ser Gln Ile Thr Ala Ser Asn Leu Val Gln Asn Tyr Lys Lys

195 200 205

Arg Lys Phe Thr Asp Met Glu Asp

210 215

<210> 26

<211> 255

<212> PRT

<213> Homo sapiens

<400> 26

Met Ser Glu Ala Tyr Phe Arg Val Glu Ser Gly Ala Leu Gly Pro Glu

1 5 10 15

Glu Asn Phe Leu Ser Leu Asp Asp Ile Leu Met Ser His Glu Lys Leu

20 25 30

Pro Val Arg Thr Glu Thr Ala Met Pro Arg Leu Gly Ala Phe Phe Leu

35 40 45

Glu Arg Ser Ala Gly Ala Glu Thr Asp Asn Ala Val Pro Gln Gly Phe

50 55 60

Ala Leu Leu Pro Arg Leu Glu Cys Ser Gly Val Ile Trp Leu Thr Ala

65 70 75 80

Ala Leu Thr Ser Gln Ala Pro Glu Ile Leu Pro Pro Gln Pro Pro Met

85 90 95

Trp Leu Val Leu Gln Gly Ser Lys Leu Glu Leu Pro Leu Trp Leu Ala

100 105 110

Lys Gly Leu Phe Asp Asn Lys Arg Arg Ile Leu Ser Val Glu Leu Pro

115 120 125

Lys Ile Tyr Gln Glu Gly Trp Arg Thr Val Phe Ser Ala Asp Pro Asn

130 135 140

Val Val Asp Leu His Lys Met Gly Pro His Phe Tyr Gly Phe Gly Ser
145 150 155 160

Gln Leu Leu His Phe Asp Ser Pro Glu Asn Ala Asp Ile Ser Gln Ser
165 170 175

Leu Leu Gln Thr Phe Ile Gly Arg Phe Arg Arg Ile Met Asp Ser Ser
180 185 190

Gln Asn Ala Tyr Asn Glu Asp Thr Ser Ala Leu Val Ala Arg Leu Asp
195 200 205

Glu Met Glu Arg Gly Leu Phe Gln Thr Gly Gln Lys Gly Leu Asn Asp
210 215 220

Phe Gln Cys Trp Glu Lys Gly Gln Ala Ser Gln Ile Thr Ala Ser Asn

225 230 235 240

Leu Val Gln Asn Tyr Lys Lys Arg Lys Phe Thr Asp Met Glu Asp
245 250 255

<210> 27

<211> 207

<212> PRT

<213> Homo sapiens

<400> 27

Met Asp Lys Asp Cys Glu Met Lys Arg Thr Thr Leu Asp Ser Pro Leu
1 5 10 15

Gly Lys Leu Glu Leu Ser Gly Cys Glu Gln Gly Leu His Glu Ile Lys
20 25 30

Leu Leu Gly Lys Gly Thr Ser Ala Ala Asp Ala Val Glu Val Pro Ala
35 40 45

Pro Ala Ala Val Leu Gly Gly Pro Glu Pro Leu Met Gln Cys Thr Ala
50 55 60

Trp Leu Asn Ala Tyr Phe His Gln Pro Glu Ala Ile Glu Glu Phe Pro
65 70 75 80

Val Pro Ala Leu His His Pro Val Phe Gln Gln Glu Ser Phe Thr Arg
85 90 95

Gln Val Leu Trp Lys Leu Leu Lys Val Val Lys Phe Gly Glu Val Ile

100 105 110

Ser Tyr Gln Gln Leu Ala Ala Leu Ala Gly Asn Pro Lys Ala Ala Arg

115 120 125

Ala Val Gly Gly Ala Met Arg Gly Asn Pro Val Pro Ile Leu Ile Pro

130 135 140

Cys His Arg Val Val Cys Ser Ser Gly Ala Val Gly Asn Tyr Ser Gly

145 150 155 160

Gly Leu Ala Val Lys Glu Trp Leu Leu Ala His Glu Gly His Arg Leu

165 170 175

Gly Lys Pro Gly Leu Gly Gly Ser Ser Gly Leu Ala Gly Ala Trp Leu

180 185 190

Lys Gly Ala Gly Ala Thr Ser Gly Ser Pro Pro Ala Gly Arg Asn

195 200 205

<210> 28

<211> 148

<212> PRT

<213> Homo sapiens

<400> 28

Met Gln Cys Thr Ala Trp Leu Asn Ala Tyr Phe His Gln Pro Glu Ala

1 5 10 15

Ile Glu Glu Phe Pro Val Pro Ala Leu His His Pro Val Phe Gln Gln

20 25 30

Glu Ser Phe Thr Arg Gln Val Leu Trp Lys Leu Leu Lys Val Val Lys

35 40 45

Phe Gly Glu Val Ile Ser Tyr Gln Gln Leu Ala Ala Leu Ala Gly Asn

50 55 60

Pro Lys Ala Ala Arg Ala Val Gly Gly Ala Met Arg Gly Asn Pro Val

65 70 75 80

Pro Ile Leu Ile Pro Cys His Arg Val Val Cys Ser Ser Gly Ala Val

85 90 95

Gly Asn Tyr Ser Gly Gly Leu Ala Val Lys Glu Trp Leu Leu Ala His
100 105 110
Glu Gly His Arg Leu Gly Lys Pro Gly Leu Gly Gly Ser Ser Gly Leu
115 120 125
Ala Gly Ala Trp Leu Lys Gly Ala Gly Ala Thr Ser Gly Ser Pro Pro
130 135 140
Ala Gly Arg Asn
145

<210> 29
<211> 368
<212> PRT
<213> Homo sapiens
<400> 29

Met Gly Gly Ala Arg Leu Gly Ala Arg Asn Met Ala Gly Gln Asp Ala
1 5 10 15
Gly Cys Gly Arg Gly Gly Asp Asp Tyr Ser Glu Asp Glu Gly Asp Ser
20 25 30
Ser Val Ser Arg Ala Ala Val Glu Val Phe Gly Lys Leu Lys Asp Leu
35 40 45
Asn Cys Pro Phe Leu Glu Gly Leu Tyr Ile Thr Glu Pro Lys Thr Ile
50 55 60
Gln Glu Leu Leu Cys Ser Pro Ser Glu Tyr Arg Leu Glu Ile Leu Glu
65 70 75 80

Trp Met Cys Thr Arg Val Trp Pro Ser Leu Gln Asp Arg Phe Ser Ser
85 90 95
Leu Lys Gly Val Pro Thr Glu Val Lys Ile Gln Glu Met Thr Lys Leu
100 105 110
Gly His Glu Leu Met Leu Cys Ala Pro Asp Asp Gln Glu Leu Leu Lys
115 120 125
Gly Cys Ala Cys Ala Gln Lys Gln Leu His Phe Met Asp Gln Leu Leu
130 135 140
Asp Thr Ile Arg Ser Leu Thr Ile Gly Cys Ser Ser Cys Ser Ser Leu

145 150 155 160

Met Glu His Phe Glu Asp Thr Arg Glu Lys Asn Glu Ala Leu Leu Gly

165 170 175

Glu Leu Phe Ser Ser Pro His Leu Gln Met Leu Leu Asn Pro Glu Cys

180 185 190

Asp Pro Trp Pro Leu Asp Met Gln Pro Leu Leu Asn Lys Gln Ser Asp

195 200 205

Asp Trp Gln Trp Ala Ser Ala Ser Ala Lys Ser Glu Glu Glu Glu Lys

210 215 220

Leu Ala Glu Leu Ala Arg Gln Leu Gln Glu Ser Ala Ala Lys Leu His

225 230 235 240

Ala Leu Arg Thr Glu Tyr Phe Ala Gln His Glu Gln Gly Ala Ala Ala

245 250 255

Gly Ala Ala Asp Ile Ser Thr Leu Asp Gln Lys Leu Arg Leu Val Thr

260 265 270

Ser Asp Phe His Gln Leu Ile Leu Ala Phe Leu Gln Val Tyr Asp Asp

275 280 285

Glu Leu Gly Glu Cys Cys Gln Arg Pro Gly Pro Asp Leu His Pro Cys

290 295 300

Gly Pro Ile Ile Gln Ala Thr His Gln Asn Leu Thr Ser Tyr Ser Gln

305 310 315 320

Leu Leu Gln Val Val Met Ala Val Ala Asp Thr Ser Ala Lys Ala Val

325 330 335

Glu Thr Val Lys Lys Gln Gln Gly Glu Gln Ile Cys Trp Gly Gly Ser

340 345 350

Ser Ser Val Met Ser Leu Ala Thr Lys Met Asn Glu Leu Met Glu Lys

355 360 365

<210> 30

<211> 275

<212> PRT

<213> Homo sapiens

<400> 30

Met Gly Gly Ala Arg Leu Gly Ala Arg Asn Met Ala Gly Gln Asp Ala
1 5 10 15
Gly Cys Gly Arg Gly Gly Asp Asp Tyr Ser Glu Asp Glu Gly Asp Ser
20 25 30
Ser Val Ser Arg Ala Ala Val Glu Val Phe Gly Lys Leu Lys Asp Leu
35 40 45
Asn Cys Pro Phe Leu Glu Gly Leu Tyr Ile Thr Glu Pro Lys Thr Ile

50 55 60
Gln Glu Leu Leu Cys Ser Pro Ser Glu Tyr Arg Leu Glu Ile Leu Glu
65 70 75 80
Trp Met Cys Thr Arg Val Trp Pro Ser Leu Gln Asp Arg Phe Ser Ser
85 90 95
Leu Lys Gly Val Pro Thr Glu Val Lys Ile Gln Glu Met Thr Lys Leu
100 105 110
Gly His Glu Leu Met Leu Cys Ala Pro Asp Asp Gln Glu Leu Leu Lys
115 120 125

Gly Cys Ala Cys Ala Gln Lys Gln Leu His Phe Met Asp Gln Leu Leu
130 135 140
Asp Thr Ile Arg Ser Leu Thr Ile Gly Cys Ser Ser Cys Ser Ser Leu
145 150 155 160
Met Glu His Phe Glu Asp Thr Arg Glu Lys Asn Glu Ala Leu Leu Gly
165 170 175
Glu Leu Phe Ser Ser Pro His Leu Gln Met Leu Leu Asn Pro Glu Cys
180 185 190
Asp Pro Trp Pro Leu Asp Met Gln Pro Leu Leu Asn Lys Gln Ser Asp

195 200 205
Asp Trp Gln Trp Ala Ser Ala Ser Ala Lys Ser Glu Glu Glu Glu Lys
210 215 220
Leu Ala Glu Leu Ala Arg Gln Leu Gln Glu Ser Ala Ala Lys Leu His
225 230 235 240
Ala Leu Arg Thr Glu Ser Thr Thr Thr Ser Trp Ala Ser Ala Ala Ser
245 250 255

Ala Gln Ala Leu Thr Ser Thr Arg Ala Ala Pro Ser Ser Arg Pro Arg
260 265 270

Thr Arg Ile
275

<210> 31

<211> 309

<212> PRT

<213> Homo sapiens

<400> 31

Met Ala Pro Lys Phe Pro Asp Ser Val Glu Glu Leu Arg Ala Ala Gly
1 5 10 15

Asn Glu Ser Phe Arg Asn Gly Gln Tyr Ala Glu Ala Ser Ala Leu Tyr
20 25 30

Gly Arg Ala Leu Arg Val Leu Gln Ala Gln Gly Ser Ser Asp Pro Glu
35 40 45

Glu Glu Ser Val Leu Tyr Ser Asn Arg Ala Ala Cys His Leu Lys Asp

50 55 60

Gly Asn Cys Arg Asp Cys Ile Lys Asp Cys Thr Ser Ala Leu Ala Leu
65 70 75 80

Val Pro Phe Ser Ile Lys Pro Leu Leu Arg Arg Ala Ser Ala Tyr Glu
85 90 95

Ala Leu Glu Lys Tyr Pro Met Ala Tyr Val Asp Tyr Lys Thr Val Leu
100 105 110

Gln Ile Asp Asp Asn Val Thr Ser Ala Val Glu Gly Ile Asn Arg Met
115 120 125

Thr Arg Ala Leu Met Asp Ser Leu Gly Pro Glu Trp Arg Leu Lys Leu
130 135 140

Pro Ser Ile Pro Leu Val Pro Val Ser Ala Gln Lys Arg Trp Asn Ser
145 150 155 160

Leu Pro Ser Glu Asn His Lys Glu Met Ala Lys Ser Lys Ser Lys Glu
165 170 175

Thr Thr Ala Thr Lys Asn Arg Val Pro Ser Ala Gly Asp Val Glu Lys

180 185 190

Ala Arg Val Leu Lys Glu Glu Gly Asn Glu Leu Val Lys Lys Gly Asn

195 200 205

His Lys Lys Ala Ile Glu Lys Tyr Ser Glu Ser Leu Leu Cys Ser Asn

210 215 220

Leu Glu Ser Ala Thr Tyr Ser Asn Arg Ala Leu Cys Tyr Leu Val Leu

225 230 235 240

Lys Gln Tyr Thr Glu Ala Val Lys Asp Cys Thr Glu Ala Leu Lys Leu

245 250 255

Asp Gly Lys Asn Val Lys Ala Phe Tyr Arg Arg Ala Gln Ala His Lys

260 265 270

Ala Leu Lys Asp Tyr Lys Ser Ser Phe Ala Asp Ile Ser Asn Leu Leu

275 280 285

Gln Ile Glu Pro Arg Asn Gly Pro Ala Gln Lys Leu Arg Gln Glu Val

290 295 300

Lys Gln Asn Leu His

305

<210> 32

<211> 207

<212> PRT

<213> Homo sapiens

<400> 32

Met Ala Tyr Val Asp Tyr Lys Thr Val Leu Gln Ile Asp Asp Asn Val

1 5 10 15

Thr Ser Ala Val Glu Gly Ile Asn Arg Met Thr Arg Ala Leu Met Asp

20 25 30

Ser Leu Gly Pro Glu Trp Arg Leu Lys Leu Pro Ser Ile Pro Leu Val

35 40 45

Pro Val Ser Ala Gln Lys Arg Trp Asn Ser Leu Pro Ser Glu Asn His

50 55 60

Lys Glu Met Ala Lys Ser Lys Ser Lys Glu Thr Thr Ala Thr Lys Asn

65 70 75 80

Arg Val Pro Ser Ala Gly Asp Val Glu Lys Ala Arg Val Leu Lys Glu
85 90 95

Glu Gly Asn Glu Leu Val Lys Lys Gly Asn His Lys Lys Ala Ile Glu
100 105 110

Lys Tyr Ser Glu Ser Leu Leu Cys Ser Asn Leu Glu Ser Ala Thr Tyr
115 120 125

Ser Asn Arg Ala Leu Cys Tyr Leu Val Leu Lys Gln Tyr Thr Glu Ala
130 135 140

Val Lys Asp Cys Thr Glu Ala Leu Lys Leu Asp Gly Lys Asn Val Lys
145 150 155 160

Ala Phe Tyr Arg Arg Ala Gln Ala His Lys Ala Leu Lys Asp Tyr Lys
165 170 175

Ser Ser Phe Ala Asp Ile Ser Asn Leu Leu Gln Ile Glu Pro Arg Asn
180 185 190

Gly Pro Ala Gln Lys Leu Arg Gln Glu Val Lys Gln Asn Leu His
195 200 205

<210> 33

<211> 283

<212> PRT

<213> Homo sapiens

<400> 33

Met Lys Asp Ile Lys Tyr Gln His Gly Asn Arg Ile Leu Ser Glu Lys
1 5 10 15

Ser Ser Ser Asp Pro Glu Glu Glu Ser Val Leu Tyr Ser Asn Arg Ala
20 25 30

Ala Cys His Leu Lys Asp Gly Asn Cys Arg Asp Cys Ile Lys Asp Cys
35 40 45

Thr Ser Ala Leu Ala Leu Val Pro Phe Ser Ile Lys Pro Leu Leu Arg
50 55 60

Arg Ala Ser Ala Tyr Glu Ala Leu Glu Lys Tyr Pro Met Ala Tyr Val
65 70 75 80

Asp Tyr Lys Thr Val Leu Gln Ile Asp Asp Asn Val Thr Ser Ala Val

85 90 95

Glu Gly Ile Asn Arg Met Thr Arg Ala Leu Met Asp Ser Leu Gly Pro
100 105 110
Glu Trp Arg Leu Lys Leu Pro Ser Ile Pro Leu Val Pro Val Ser Ala
115 120 125
Gln Lys Arg Trp Asn Ser Leu Pro Ser Glu Asn His Lys Glu Met Ala
130 135 140
Lys Ser Lys Ser Lys Glu Thr Thr Ala Thr Lys Asn Arg Val Pro Ser
145 150 155 160
Ala Gly Asp Val Glu Lys Ala Arg Val Leu Lys Glu Glu Gly Asn Glu

165 170 175
Leu Val Lys Lys Gly Asn His Lys Lys Ala Ile Glu Lys Tyr Ser Glu
180 185 190
Ser Leu Leu Cys Ser Asn Leu Glu Ser Ala Thr Tyr Ser Asn Arg Ala
195 200 205
Leu Cys Tyr Leu Val Leu Lys Gln Tyr Thr Glu Ala Val Lys Asp Cys
210 215 220
Thr Glu Ala Leu Lys Leu Asp Gly Lys Asn Val Lys Ala Phe Tyr Arg
225 230 235 240

Arg Ala Gln Ala His Lys Ala Leu Lys Asp Tyr Lys Ser Ser Phe Ala
245 250 255
Asp Ile Ser Asn Leu Leu Gln Ile Glu Pro Arg Asn Gly Pro Ala Gln
260 265 270
Lys Leu Arg Gln Glu Val Lys Gln Asn Leu His
275 280

<210> 34
<211> 190
<212> PRT
<213> Homo sapiens
<400> 34
Met Ala Pro Lys Phe Pro Asp Ser Val Glu Glu Leu Arg Ala Ala Gly

1 5 10 15

Asn Glu Ser Phe Arg Asn Gly Gln Tyr Ala Glu Ala Ser Ala Leu Tyr
20 25 30
Gly Arg Ala Leu Arg Val Leu Gln Ala Gln Gly Ser Ser Asp Pro Glu
35 40 45
Glu Glu Ser Val Leu Tyr Ser Asn Arg Ala Ala Cys His Leu Lys Asp
50 55 60
Gly Asn Cys Arg Asp Cys Ile Lys Asp Cys Thr Ser Ala Leu Ala Leu
65 70 75 80
Val Pro Phe Ser Ile Lys Pro Leu Leu Arg Arg Ala Ser Ala Tyr Glu

85 90 95
Ala Leu Glu Lys Tyr Pro Met Ala Tyr Val Asp Tyr Lys Thr Val Leu
100 105 110
Gln Ile Asp Asp Asn Val Thr Ser Ala Val Glu Gly Ile Asn Arg Met
115 120 125
Thr Arg Ala Leu Met Asp Ser Leu Gly Pro Glu Trp Arg Leu Lys Leu
130 135 140
Pro Ser Ile Pro Leu Val Pro Val Ser Ala Gln Lys Arg Trp Asn Ser
145 150 155 160

Leu Pro Ser Glu Asn His Lys Glu Met Ala Lys Ser Lys Ser Lys Glu
165 170 175
Thr Thr Ala Thr Lys Asn Arg Glu His Ser Ala Ile Trp Ser
180 185 190

<210> 35
<211> 427
<212> PRT
<213> Homo sapiens
<400> 35

Met Ala Cys Ala Arg Pro Leu Ile Ser Val Tyr Ser Glu Lys Gly Glu
1 5 10 15
Ser Ser Gly Lys Asn Val Thr Leu Pro Ala Val Phe Lys Ala Pro Ile

```
             20                  25                  30
Arg Pro Asp Ile Val Asn Phe Val His Thr Asn Leu Arg Lys Asn Asn
         35                  40                  45
Arg Gln Pro Tyr Ala Val Ser Glu Leu Ala Gly His Gln Thr Ser Ala
     50                  55                  60
Glu Ser Trp Gly Thr Gly Arg Ala Val Ala Arg Ile Pro Arg Val Arg
 65                  70                  75                  80
Gly Gly Gly Thr His Arg Ser Gly Gln Gly Ala Phe Gly Asn Met Cys
                 85                  90                  95

Arg Gly Gly Arg Met Phe Ala Pro Thr Lys Thr Trp Arg Arg Trp His
            100                 105                 110
Arg Arg Val Asn Thr Thr Gln Lys Arg Tyr Ala Ile Cys Ser Ala Leu
        115                 120                 125
Ala Ala Ser Ala Leu Pro Ala Leu Val Met Ser Lys Gly His Arg Ile
    130                 135                 140
Glu Glu Val Pro Glu Leu Pro Leu Val Val Glu Asp Lys Val Glu Gly
145                 150                 155                 160
Tyr Lys Lys Thr Lys Glu Ala Val Leu Leu Leu Lys Lys Leu Lys Ala

                165                 170                 175
Trp Asn Asp Ile Lys Lys Val Tyr Ala Ser Gln Arg Met Arg Ala Gly
            180                 185                 190
Lys Gly Lys Met Arg Asn Arg Arg Arg Ile Gln Arg Arg Gly Pro Cys
        195                 200                 205
Ile Ile Tyr Asn Glu Asp Asn Gly Ile Ile Lys Ala Phe Arg Asn Ile
    210                 215                 220
Pro Gly Ile Thr Leu Leu Asn Val Ser Lys Leu Asn Ile Leu Lys Leu
225                 230                 235                 240

Ala Pro Gly Gly His Val Gly Arg Phe Cys Ile Trp Thr Glu Ser Ala
                245                 250                 255
Phe Arg Lys Leu Asp Glu Leu Tyr Gly Thr Trp Arg Lys Ala Ala Ser
            260                 265                 270
Leu Lys Ser Asn Tyr Asn Leu Pro Met His Lys Met Ile Asn Thr Asp
```

275 280 285

Leu Ser Arg Ile Leu Lys Ser Pro Glu Ile Gln Arg Ala Leu Arg Ala

290 295 300

Pro Arg Lys Lys Ile His Arg Arg Val Leu Lys Lys Asn Pro Leu Lys

305 310 315 320

Asn Leu Arg Ile Met Leu Lys Leu Asn Pro Tyr Ala Lys Thr Met Arg

325 330 335

Arg Asn Thr Ile Leu Arg Gln Ala Arg Asn His Lys Leu Arg Val Asp

340 345 350

Lys Ala Ala Ala Ala Ala Ala Ala Leu Gln Ala Lys Ser Asp Glu Lys

355 360 365

Ala Ala Val Ala Gly Lys Lys Pro Val Val Gly Lys Lys Gly Lys Lys

370 375 380

Ala Ala Val Gly Val Lys Lys Gln Lys Lys Pro Leu Val Gly Lys Lys

385 390 395 400

Ala Ala Ala Thr Lys Lys Pro Ala Pro Glu Lys Lys Pro Ala Glu Lys

405 410 415

Lys Pro Thr Thr Glu Glu Lys Lys Pro Ala Ala

420 425

<210> 36

<211> 272

<212> PRT

<213> Homo sapiens

<400> 36

Met Asp Leu Gly Glu Cys Thr Lys Ile His Asp Leu Ala Leu Arg Ala

1 5 10 15

Asp Tyr Glu Ile Ala Ser Lys Glu Arg Asp Leu Phe Phe Glu Leu Asp

20 25 30

Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys Asp Arg Arg Thr

35 40 45

Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu Glu Ile Ser Ala

50 55 60

Glu Val Ser Ala Lys Ala Glu Lys Val His Glu Leu Asn Glu Glu Ile
65 70 75 80
Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala Glu Gly Asn Val

85 90 95
Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys Val Arg Ala Lys
100 105 110
Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met Pro Ala Ser Ser
115 120 125
Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys Ser Ala Tyr Leu
130 135 140
Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp His Phe Gly Gly Lys
145 150 155 160

Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu Asp Gln Leu Arg
165 170 175
Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln Asp Arg Leu Arg
180 185 190
Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser Arg Arg Ser Gly
195 200 205
Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg Asp Arg Arg Arg
210 215 220
Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys Leu Ser Arg Ser

225 230 235 240
Arg Ser Arg Asp Arg His Arg Arg His Arg Ser Arg Ser Arg Ser His
245 250 255
Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser Ala Lys Tyr Lys
260 265 270

<210> 37
<211> 371
<212> PRT
<213> Homo sapiens
<400> 37
Met Ser Ala Gln Ala Gln Met Arg Ala Leu Leu Asp Gln Leu Met Gly

1 5 10 15

Thr Ala Arg Asp Gly Asp Glu Thr Arg Gln Arg Val Lys Phe Thr Asp
20 25 30
Asp Arg Val Cys Lys Ser His Leu Leu Asp Cys Cys Pro His Asp Ile
35 40 45
Leu Ala Gly Thr Arg Met Asp Leu Gly Glu Cys Thr Lys Ile His Asp
50 55 60
Leu Ala Leu Arg Ala Asp Tyr Glu Ile Ala Ser Lys Glu Arg Asp Leu
65 70 75 80
Phe Phe Glu Leu Asp Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu

85 90 95
Cys Asp Arg Arg Thr Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln
100 105 110
Glu Glu Ile Ser Ala Glu Val Ser Ala Lys Ala Glu Lys Val His Glu
115 120 125
Leu Asn Glu Glu Ile Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly
130 135 140
Ala Glu Gly Asn Val Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu
145 150 155 160

Lys Val Arg Ala Lys Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser
165 170 175
Met Pro Ala Ser Ser Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val
180 185 190
Cys Ser Ala Tyr Leu Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp
195 200 205
His Phe Gly Gly Lys Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys
210 215 220
Leu Asp Gln Leu Arg Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn

225 230 235 240
Gln Asp Arg Leu Arg Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu
245 250 255

Ser Arg Arg Ser Gly Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser
260 265 270
Arg Asp Arg Arg Arg Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg
275 280 285
Lys Leu Ser Arg Ser Arg Ser Arg Asp Arg His Arg Arg His Arg Ser
290 295 300

Arg Ser Arg Ser His Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg
305 310 315 320
Ser Ala Lys Tyr Lys Phe Ser Arg Glu Arg Ala Ser Arg Glu Glu Ser
325 330 335
Trp Glu Ser Gly Arg Ser Glu Arg Gly Pro Pro Asp Trp Arg Leu Glu
340 345 350
Ser Ser Asn Gly Lys Met Ala Ser Arg Arg Ser Glu Glu Lys Glu Ala
355 360 365
Gly Glu Ile

370

<210> 38
<211> 325
<212> PRT
<213> Homo sapiens
<400> 38
Met Ser Ala Gln Ala Gln Met Arg Ala Leu Leu Asp Gln Leu Met Gly
1 5 10 15
Thr Ala Arg Asp Gly Asp Glu Thr Arg Gln Arg Val Lys Phe Thr Asp
20 25 30
Asp Arg Val Cys Lys Ser His Leu Leu Asp Cys Cys Pro His Asp Ile
35 40 45
Leu Ala Gly Thr Arg Met Asp Leu Gly Glu Cys Thr Lys Ile His Asp

50 55 60
Leu Ala Leu Arg Ala Asp Tyr Glu Ile Ala Ser Lys Glu Arg Asp Leu
65 70 75 80
Phe Phe Glu Leu Asp Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu

85 90 95

Cys Asp Arg Arg Thr Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln

100 105 110

Glu Glu Ile Ser Ala Glu Val Ser Ala Lys Ala Glu Lys Val His Glu

115 120 125

Leu Asn Glu Glu Ile Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly

130 135 140

Ala Glu Gly Asn Val Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu

145 150 155 160

Lys Val Arg Ala Lys Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser

165 170 175

Met Pro Ala Ser Ser Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val

180 185 190

Cys Ser Ala Tyr Leu Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp

195 200 205

His Phe Gly Gly Lys Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys

210 215 220

Leu Asp Gln Leu Arg Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn

225 230 235 240

Gln Asp Arg Leu Arg Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu

245 250 255

Ser Arg Arg Ser Gly Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser

260 265 270

Arg Asp Arg Arg Arg Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg

275 280 285

Lys Leu Ser Arg Ser Arg Ser Arg Asp Arg His Arg Arg His Arg Ser

290 295 300

Arg Ser Arg Ser His Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg

305 310 315 320

Ser Ala Lys Tyr Lys

325

<210> 39

<211> 325

<212> PRT

<213> Homo sapiens

<400> 39

Met Ser Ala Gln Ala Gln Met Arg Ala Leu Leu Asp Gln Leu Met Gly

1 5 10 15

Thr Ala Arg Asp Gly Asp Glu Thr Arg Gln Arg Val Lys Phe Thr Asp

20 25 30

Asp Arg Val Cys Lys Ser His Leu Leu Asp Cys Cys Pro His Asp Ile

35 40 45

Leu Ala Gly Thr Arg Met Asp Leu Gly Glu Cys Thr Lys Ile His Asp

50 55 60

Leu Ala Leu Arg Ala Asp Tyr Glu Ile Ala Ser Lys Glu Arg Asp Leu

65 70 75 80

Phe Phe Glu Leu Asp Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu

85 90 95

Cys Asp Arg Arg Thr Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln

100 105 110

Glu Glu Ile Ser Ala Glu Val Ser Ala Lys Ala Glu Lys Val His Glu

115 120 125

Leu Asn Glu Glu Ile Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly

130 135 140

Ala Glu Gly Asn Val Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu

145 150 155 160

Lys Val Arg Ala Lys Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser

165 170 175

Met Pro Ala Ser Ser Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val

180 185 190

Cys Ser Ala Tyr Leu Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp

195 200 205

His Phe Gly Gly Lys Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys

210 215 220

Leu Asp Gln Leu Arg Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn
225 230 235 240
Gln Asp Arg Leu Arg Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu
245 250 255
Ser Arg Arg Ser Gly Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser
260 265 270
Arg Asp Arg Arg Arg Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg
275 280 285
Lys Leu Ser Arg Ser Arg Ser Arg Asp Arg His Arg Arg His Arg Ser

290 295 300
Arg Ser Arg Ser His Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg
305 310 315 320
Ser Ala Lys Tyr Lys
325

<210> 40
<211> 318
<212> PRT
<213> Homo sapiens
<400> 40
Met Asp Leu Gly Glu Cys Thr Lys Ile His Asp Leu Ala Leu Arg Ala
1 5 10 15
Asp Tyr Glu Ile Ala Ser Lys Glu Arg Asp Leu Phe Phe Glu Leu Asp
20 25 30

Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys Asp Arg Arg Thr
35 40 45
Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu Glu Ile Ser Ala
50 55 60
Glu Val Ser Ala Lys Ala Glu Lys Val His Glu Leu Asn Glu Glu Ile
65 70 75 80
Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala Glu Gly Asn Val
85 90 95

Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys Val Arg Ala Lys

100 105 110

Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met Pro Ala Ser Ser

115 120 125

Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys Ser Ala Tyr Leu

130 135 140

Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp His Phe Gly Gly Lys

145 150 155 160

Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu Asp Gln Leu Arg

165 170 175

Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln Asp Arg Leu Arg

180 185 190

Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser Arg Arg Ser Gly

195 200 205

Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg Asp Arg Arg Arg

210 215 220

Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys Leu Ser Arg Ser

225 230 235 240

Arg Ser Arg Asp Arg His Arg Arg His Arg Ser Arg Ser Arg Ser His

245 250 255

Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser Ala Lys Tyr Lys

260 265 270

Phe Ser Arg Glu Arg Ala Ser Arg Glu Glu Ser Trp Glu Ser Gly Arg

275 280 285

Ser Glu Arg Gly Pro Pro Asp Trp Arg Leu Glu Ser Ser Asn Gly Lys

290 295 300

Met Ala Ser Arg Arg Ser Glu Glu Lys Glu Ala Gly Glu Ile

305 310 315

<210> 41

<211> 285

<212> PRT

<213> Homo sapiens

<400> 41

Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys Asp Arg Arg Thr Glu
1 5 10 15

Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu Glu Ile Ser Ala Glu
20 25 30

Val Ser Ala Lys Ala Glu Lys Val His Glu Leu Asn Glu Glu Ile Gly
35 40 45

Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala Glu Gly Asn Val Asp

50 55 60

Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys Val Arg Ala Lys Lys
65 70 75 80

Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met Pro Ala Ser Ser Phe
85 90 95

Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys Ser Ala Tyr Leu Gly
100 105 110

Leu His Asp Asn Asp Arg Arg Leu Ala Asp His Phe Gly Gly Lys Leu
115 120 125

His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu Asp Gln Leu Arg Lys
130 135 140

Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln Asp Arg Leu Arg Arg
145 150 155 160

Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser Arg Arg Ser Gly Ser
165 170 175

Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg Asp Arg Arg Arg Arg
180 185 190

Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys Leu Ser Arg Ser Arg

195 200 205

Ser Arg Asp Arg His Arg Arg His Arg Ser Arg Ser Arg Ser His Ser
210 215 220

Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser Ala Lys Tyr Lys Phe
225 230 235 240

Ser Arg Glu Arg Ala Ser Arg Glu Glu Ser Trp Glu Ser Gly Arg Ser
245 250 255
Glu Arg Gly Pro Pro Asp Trp Arg Leu Glu Ser Ser Asn Gly Lys Met
260 265 270

Ala Ser Arg Arg Ser Glu Glu Lys Glu Ala Gly Glu Ile
275 280 285

<210> 42
<211> 338
<212> PRT
<213> Homo sapiens
<400> 42

Met Ser Ala Gln Ala Gln Met Arg Ala Leu Leu Asp Gln Leu Met Gly
1 5 10 15
Thr Ala Arg Asp Gly Asp Glu Thr Arg Gln Arg Val Lys Phe Thr Asp
20 25 30
Asp Arg Val Cys Lys Ser His Leu Leu Asp Cys Cys Pro His Asp Ile
35 40 45

Leu Ala Gly Thr Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys
50 55 60
Asp Arg Arg Thr Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu
65 70 75 80
Glu Ile Ser Ala Glu Val Ser Ala Lys Ala Glu Lys Val His Glu Leu
85 90 95
Asn Glu Glu Ile Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala
100 105 110
Glu Gly Asn Val Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys

115 120 125
Val Arg Ala Lys Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met
130 135 140
Pro Ala Ser Ser Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys
145 150 155 160
Ser Ala Tyr Leu Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp His

165 170 175

Phe Gly Gly Lys Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu

180 185 190

Asp Gln Leu Arg Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln

195 200 205

Asp Arg Leu Arg Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser

210 215 220

Arg Arg Ser Gly Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg

225 230 235 240

Asp Arg Arg Arg Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys

245 250 255

Leu Ser Arg Ser Arg Ser Arg Asp Arg His Arg Arg His Arg Ser Arg

260 265 270

Ser Arg Ser His Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser

275 280 285

Ala Lys Tyr Lys Phe Ser Arg Glu Arg Ala Ser Arg Glu Glu Ser Trp

290 295 300

Glu Ser Gly Arg Ser Glu Arg Gly Pro Pro Asp Trp Arg Leu Glu Ser

305 310 315 320

Ser Asn Gly Lys Met Ala Ser Arg Arg Ser Glu Glu Lys Glu Ala Gly

325 330 335

Glu Ile

<210> 43

<211> 318

<212> PRT

<213> Homo sapiens

<400> 43

Met Asp Leu Gly Glu Cys Thr Lys Ile His Asp Leu Ala Leu Arg Ala

1 5 10 15

Asp Tyr Glu Ile Ala Ser Lys Glu Arg Asp Leu Phe Phe Glu Leu Asp

20 25 30

Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys Asp Arg Arg Thr
35 40 45
Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu Glu Ile Ser Ala

50 55 60
Glu Val Ser Ala Lys Ala Glu Lys Val His Glu Leu Asn Glu Glu Ile
65 70 75 80
Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala Glu Gly Asn Val
85 90 95
Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys Val Arg Ala Lys
100 105 110
Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met Pro Ala Ser Ser
115 120 125

Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys Ser Ala Tyr Leu
130 135 140
Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp His Phe Gly Gly Lys
145 150 155 160
Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu Asp Gln Leu Arg
165 170 175
Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln Asp Arg Leu Arg
180 185 190
Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser Arg Arg Ser Gly

195 200 205
Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg Asp Arg Arg Arg
210 215 220
Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys Leu Ser Arg Ser
225 230 235 240
Arg Ser Arg Asp Arg His Arg Arg His Arg Ser Arg Ser Arg Ser His
245 250 255
Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser Ala Lys Tyr Lys
260 265 270

Phe Ser Arg Glu Arg Ala Ser Arg Glu Glu Ser Trp Glu Ser Gly Arg

275 280 285

Ser Glu Arg Gly Pro Pro Asp Trp Arg Leu Glu Ser Ser Asn Gly Lys

290 295 300

Met Ala Ser Arg Arg Ser Glu Glu Lys Glu Ala Gly Glu Ile

305 310 315

<210> 44

<211> 285

<212> PRT

<213> Homo sapiens

<400> 44

Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys Asp Arg Arg Thr Glu

1 5 10 15

Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu Glu Ile Ser Ala Glu

20 25 30

Val Ser Ala Lys Ala Glu Lys Val His Glu Leu Asn Glu Glu Ile Gly

35 40 45

Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala Glu Gly Asn Val Asp

50 55 60

Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys Val Arg Ala Lys Lys

65 70 75 80

Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met Pro Ala Ser Ser Phe

85 90 95

Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys Ser Ala Tyr Leu Gly

100 105 110

Leu His Asp Asn Asp Arg Arg Leu Ala Asp His Phe Gly Gly Lys Leu

115 120 125

His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu Asp Gln Leu Arg Lys

130 135 140

Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln Asp Arg Leu Arg Arg

145 150 155 160

Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser Arg Arg Ser Gly Ser

165 170 175

Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg Asp Arg Arg Arg Arg

180 185 190

Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys Leu Ser Arg Ser Arg

195 200 205

Ser Arg Asp Arg His Arg Arg His Arg Ser Arg Ser Arg Ser His Ser

210 215 220

Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser Ala Lys Tyr Lys Phe

225 230 235 240

Ser Arg Glu Arg Ala Ser Arg Glu Glu Ser Trp Glu Ser Gly Arg Ser

245 250 255

Glu Arg Gly Pro Pro Asp Trp Arg Leu Glu Ser Ser Asn Gly Lys Met

260 265 270

Ala Ser Arg Arg Ser Glu Glu Lys Glu Ala Gly Glu Ile

275 280 285

<210> 45

<211> 239

<212> PRT

<213> Homo sapiens

<400> 45

Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys Asp Arg Arg Thr Glu

1 5 10 15

Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu Glu Ile Ser Ala Glu

20 25 30

Val Ser Ala Lys Ala Glu Lys Val His Glu Leu Asn Glu Glu Ile Gly

35 40 45

Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala Glu Gly Asn Val Asp

50 55 60

Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys Val Arg Ala Lys Lys

65 70 75 80

Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met Pro Ala Ser Ser Phe

85 90 95

Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys Ser Ala Tyr Leu Gly

100 105 110

Leu His Asp Asn Asp Arg Arg Leu Ala Asp His Phe Gly Gly Lys Leu

115 120 125

His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu Asp Gln Leu Arg Lys

130 135 140

Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln Asp Arg Leu Arg Arg

145 150 155 160

Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser Arg Arg Ser Gly Ser

165 170 175

Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg Asp Arg Arg Arg Arg

180 185 190

Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys Leu Ser Arg Ser Arg

195 200 205

Ser Arg Asp Arg His Arg Arg His Arg Ser Arg Ser Arg Ser His Ser

210 215 220

Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser Ala Lys Tyr Lys

225 230 235

<210> 46

<211> 292

<212> PRT

<213> Homo sapiens

<400> 46

Met Ser Ala Gln Ala Gln Met Arg Ala Leu Leu Asp Gln Leu Met Gly

1 5 10 15

Thr Ala Arg Asp Gly Asp Glu Thr Arg Gln Arg Val Lys Phe Thr Asp

20 25 30

Asp Arg Val Cys Lys Ser His Leu Leu Asp Cys Cys Pro His Asp Ile

35 40 45

Leu Ala Gly Thr Ala Met Asp His Leu Glu Ser Phe Ile Ala Glu Cys

50 55 60

Asp Arg Arg Thr Glu Leu Ala Lys Lys Arg Leu Ala Glu Thr Gln Glu

65 70 75 80

Glu Ile Ser Ala Glu Val Ser Ala Lys Ala Glu Lys Val His Glu Leu
85 90 95
Asn Glu Glu Ile Gly Lys Leu Leu Ala Lys Ala Glu Gln Leu Gly Ala
100 105 110

Glu Gly Asn Val Asp Glu Ser Gln Lys Ile Leu Met Glu Val Glu Lys
115 120 125
Val Arg Ala Lys Lys Lys Glu Ala Glu Glu Glu Tyr Arg Asn Ser Met
130 135 140
Pro Ala Ser Ser Phe Gln Gln Gln Lys Leu Arg Val Cys Glu Val Cys
145 150 155 160
Ser Ala Tyr Leu Gly Leu His Asp Asn Asp Arg Arg Leu Ala Asp His
165 170 175
Phe Gly Gly Lys Leu His Leu Gly Phe Ile Gln Ile Arg Glu Lys Leu

180 185 190
Asp Gln Leu Arg Lys Thr Val Ala Glu Lys Gln Glu Lys Arg Asn Gln
195 200 205
Asp Arg Leu Arg Arg Arg Glu Glu Arg Glu Arg Glu Glu Arg Leu Ser
210 215 220
Arg Arg Ser Gly Ser Arg Thr Arg Asp Arg Arg Arg Ser Arg Ser Arg
225 230 235 240
Asp Arg Arg Arg Arg Arg Ser Arg Ser Thr Ser Arg Glu Arg Arg Lys
245 250 255

Leu Ser Arg Ser Arg Ser Arg Asp Arg His Arg Arg His Arg Ser Arg
260 265 270
Ser Arg Ser His Ser Arg Gly His Arg Arg Ala Ser Arg Asp Arg Ser
275 280 285
Ala Lys Tyr Lys
290

<210> 47
<211> 1129
<212> PRT
<213> Homo sapiens

<400> 47

Met Ser Val Glu Ala Tyr Gly Pro Ser Ser Gln Thr Leu Thr Phe Leu
1 5 10 15

Asp Thr Glu Glu Ala Glu Leu Leu Gly Ala Asp Thr Gln Gly Ser Glu
20 25 30

Phe Glu Phe Thr Asp Phe Thr Leu Pro Ser Gln Thr Gln Thr Pro Pro
35 40 45

Gly Gly Pro Gly Gly Pro Gly Gly Gly Gly Ala Gly Gly Pro Gly Gly
50 55 60

Ala Gly Ala Gly Ala Ala Ala Gly Gln Leu Asp Ala Gln Val Gly Pro
65 70 75 80

Glu Gly Ile Leu Gln Asn Gly Ala Val Asp Asp Ser Val Ala Lys Thr
85 90 95

Ser Gln Leu Leu Ala Glu Leu Asn Phe Glu Glu Asp Glu Glu Asp Thr
100 105 110

Tyr Tyr Thr Lys Asp Leu Pro Ile His Ala Cys Ser Tyr Cys Gly Ile
115 120 125

His Asp Pro Ala Cys Val Val Tyr Cys Asn Thr Ser Lys Lys Trp Phe
130 135 140

Cys Asn Gly Arg Gly Asn Thr Ser Gly Ser His Ile Val Asn His Leu
145 150 155 160

Val Arg Ala Lys Cys Lys Glu Val Thr Leu His Lys Asp Gly Pro Leu
165 170 175

Gly Glu Thr Val Leu Glu Cys Tyr Asn Cys Gly Cys Arg Asn Val Phe
180 185 190

Leu Leu Gly Phe Ile Pro Ala Lys Ala Asp Ser Val Val Val Leu Leu
195 200 205

Cys Arg Gln Pro Cys Ala Ser Gln Ser Ser Leu Lys Asp Ile Asn Trp
210 215 220

Asp Ser Ser Gln Trp Gln Pro Leu Ile Gln Asp Arg Cys Phe Leu Ser
225 230 235 240

Trp Leu Val Lys Ile Pro Ser Glu Gln Glu Gln Leu Arg Ala Arg Gln
245 250 255
Ile Thr Ala Gln Gln Ile Asn Lys Leu Glu Glu Leu Trp Lys Glu Asn
260 265 270
Pro Ser Ala Thr Leu Glu Asp Leu Glu Lys Pro Gly Val Asp Glu Glu
275 280 285
Pro Gln His Val Leu Leu Arg Tyr Glu Asp Ala Tyr Gln Tyr Gln Asn
290 295 300
Ile Phe Gly Pro Leu Val Lys Leu Glu Ala Asp Tyr Asp Lys Lys Leu

305 310 315 320
Lys Glu Ser Gln Thr Gln Asp Asn Ile Thr Val Arg Trp Asp Leu Gly
325 330 335
Leu Asn Lys Lys Arg Ile Ala Tyr Phe Thr Leu Pro Lys Thr Asp Ser
340 345 350
Gly Asn Glu Asp Leu Val Ile Ile Trp Leu Arg Asp Met Arg Leu Met
355 360 365
Gln Gly Asp Glu Ile Cys Leu Arg Tyr Lys Gly Asp Leu Ala Pro Leu
370 375 380

Trp Lys Gly Ile Gly His Val Ile Lys Val Pro Asp Asn Tyr Gly Asp
385 390 395 400
Glu Ile Ala Ile Glu Leu Arg Ser Ser Val Gly Ala Pro Val Glu Val
405 410 415
Thr His Asn Phe Gln Val Asp Phe Val Trp Lys Ser Thr Ser Phe Asp
420 425 430
Arg Met Gln Ser Ala Leu Lys Thr Phe Ala Val Asp Glu Thr Ser Val
435 440 445
Ser Gly Tyr Ile Tyr His Lys Leu Leu Gly His Glu Val Glu Asp Val

450 455 460
Ile Ile Lys Cys Gln Leu Pro Lys Arg Phe Thr Ala Gln Gly Leu Pro
465 470 475 480
Asp Leu Asn His Ser Gln Val Tyr Ala Val Lys Thr Val Leu Gln Arg
485 490 495

Pro Leu Ser Leu Ile Gln Gly Pro Pro Gly Thr Gly Lys Thr Val Thr
500 505 510
Ser Ala Thr Ile Val Tyr His Leu Ala Arg Gln Gly Asn Gly Pro Val
515 520 525

Leu Val Cys Ala Pro Ser Asn Ile Ala Val Asp Gln Leu Thr Glu Lys
530 535 540
Ile His Gln Thr Gly Leu Lys Val Val Arg Leu Cys Ala Lys Ser Arg
545 550 555 560
Glu Ala Ile Asp Ser Pro Val Ser Phe Leu Ala Leu His Asn Gln Ile
565 570 575
Arg Asn Met Asp Ser Met Pro Glu Leu Gln Lys Leu Gln Gln Leu Lys
580 585 590
Asp Glu Thr Gly Glu Leu Ser Ser Ala Asp Glu Lys Arg Tyr Arg Ala

595 600 605
Leu Lys Arg Thr Ala Glu Arg Glu Leu Leu Met Asn Ala Asp Val Ile
610 615 620
Cys Cys Thr Cys Val Gly Ala Gly Asp Pro Arg Leu Ala Lys Met Gln
625 630 635 640
Phe Arg Ser Ile Leu Ile Asp Glu Ser Thr Gln Ala Thr Glu Pro Glu
645 650 655
Cys Met Val Pro Val Val Leu Gly Ala Lys Gln Leu Ile Leu Val Gly
660 665 670

Asp His Cys Gln Leu Gly Pro Val Val Met Cys Lys Lys Ala Ala Lys
675 680 685
Ala Gly Leu Ser Gln Ser Leu Phe Glu Arg Leu Val Val Leu Gly Ile
690 695 700
Arg Pro Ile Arg Leu Gln Val Gln Tyr Arg Met His Pro Ala Leu Ser
705 710 715 720
Ala Phe Pro Ser Asn Ile Phe Tyr Glu Gly Ser Leu Gln Asn Gly Val
725 730 735
Thr Ala Ala Asp Arg Val Lys Lys Gly Phe Asp Phe Gln Trp Pro Gln

740 745 750

Pro Asp Lys Pro Met Phe Phe Tyr Val Thr Gln Gly Gln Glu Glu Ile

755 760 765

Ala Ser Ser Gly Thr Ser Tyr Leu Asn Arg Thr Glu Ala Ala Asn Val

770 775 780

Glu Lys Ile Thr Thr Lys Leu Leu Lys Ala Gly Ala Lys Pro Asp Gln

785 790 795 800

Ile Gly Ile Ile Thr Pro Tyr Glu Gly Gln Arg Ser Tyr Leu Val Gln

805 810 815

Tyr Met Gln Phe Ser Gly Ser Leu His Thr Lys Leu Tyr Gln Glu Val

820 825 830

Glu Ile Ala Ser Val Asp Ala Phe Gln Gly Arg Glu Lys Asp Phe Ile

835 840 845

Ile Leu Ser Cys Val Arg Ala Asn Glu His Gln Gly Ile Gly Phe Leu

850 855 860

Asn Asp Pro Arg Arg Leu Asn Val Ala Leu Thr Arg Ala Arg Tyr Gly

865 870 875 880

Val Ile Ile Val Gly Asn Pro Lys Ala Leu Ser Lys Gln Pro Leu Trp

885 890 895

Asn His Leu Leu Asn Tyr Tyr Lys Glu Gln Lys Val Leu Val Glu Gly

900 905 910

Pro Leu Asn Asn Leu Arg Glu Ser Leu Met Gln Phe Ser Lys Pro Arg

915 920 925

Lys Leu Val Asn Thr Ile Asn Pro Gly Ala Arg Phe Met Thr Thr Ala

930 935 940

Met Tyr Asp Ala Arg Glu Ala Ile Ile Pro Gly Ser Val Tyr Asp Arg

945 950 955 960

Ser Ser Gln Gly Arg Pro Ser Ser Met Tyr Phe Gln Thr His Asp Gln

965 970 975

Ile Gly Met Ile Ser Ala Gly Pro Ser His Val Ala Ala Met Asn Ile

980 985 990

Pro Ile Pro Phe Asn Leu Val Met Pro Pro Met Pro Pro Pro Gly Tyr

995 1000 1005

Phe Gly Gln Ala Asn Gly Pro Ala Ala Gly Arg Gly Thr Pro Lys Gly

1010 1015 1020

Lys Thr Gly Arg Gly Gly Arg Gln Lys Asn Arg Phe Gly Leu Pro Gly

1025 1030 1035 1040

Pro Ser Gln Thr Asn Leu Pro Asn Ser Gln Ala Ser Gln Asp Val Ala

1045 1050 1055

Ser Gln Pro Phe Ser Gln Gly Ala Leu Thr Gln Gly Tyr Ile Ser Met

1060 1065 1070

Ser Gln Pro Ser Gln Met Ser Gln Pro Gly Leu Ser Gln Pro Glu Leu

1075 1080 1085

Ser Gln Asp Ser Tyr Leu Gly Asp Glu Phe Lys Ser Gln Ile Asp Val

1090 1095 1100

Ala Leu Ser Gln Asp Ser Thr Tyr Gln Gly Glu Arg Ala Tyr Gln His

1105 1110 1115 1120

Gly Gly Val Thr Gly Leu Ser Gln Tyr

1125

<210> 48

<211> 1118

<212> PRT

<213> Homo sapiens

<400> 48

Met Ser Val Glu Ala Tyr Gly Pro Ser Ser Gln Thr Leu Thr Phe Leu

1 5 10 15

Asp Thr Glu Glu Ala Glu Leu Leu Gly Ala Asp Thr Gln Gly Ser Glu

20 25 30

Phe Glu Phe Thr Asp Phe Thr Leu Pro Ser Gln Thr Gln Thr Pro Pro

35 40 45

Gly Gly Pro Gly Gly Pro Gly Gly Gly Gly Ala Gly Gly Pro Gly Gly

50 55 60

Ala Gly Ala Gly Ala Ala Ala Gly Gln Leu Asp Ala Gln Val Gly Pro

65 70 75 80

Glu Gly Ile Leu Gln Asn Gly Ala Val Asp Asp Ser Val Ala Lys Thr
85 90 95
Ser Gln Leu Leu Ala Glu Leu Asn Phe Glu Glu Asp Glu Glu Asp Thr

100 105 110
Tyr Tyr Thr Lys Asp Leu Pro Ile His Ala Cys Ser Tyr Cys Gly Ile
115 120 125
His Asp Pro Ala Cys Val Val Tyr Cys Asn Thr Ser Lys Lys Trp Phe
130 135 140
Cys Asn Gly Arg Gly Asn Thr Ser Gly Ser His Ile Val Asn His Leu
145 150 155 160
Val Arg Ala Lys Cys Lys Glu Val Thr Leu His Lys Asp Gly Pro Leu
165 170 175

Gly Glu Thr Val Leu Glu Cys Tyr Asn Cys Gly Cys Arg Asn Val Phe
180 185 190
Leu Leu Gly Phe Ile Pro Ala Lys Ala Asp Ser Val Val Val Leu Leu
195 200 205
Cys Arg Gln Pro Cys Ala Ser Gln Ser Ser Leu Lys Asp Ile Asn Trp
210 215 220
Asp Ser Ser Gln Trp Gln Pro Leu Ile Gln Asp Arg Cys Phe Leu Ser
225 230 235 240
Trp Leu Val Lys Ile Pro Ser Glu Gln Glu Gln Leu Arg Ala Arg Gln

245 250 255
Ile Thr Ala Gln Gln Ile Asn Lys Leu Glu Glu Leu Trp Lys Glu Asn
260 265 270
Pro Ser Ala Thr Leu Glu Asp Leu Glu Lys Pro Gly Val Asp Glu Glu
275 280 285
Pro Gln His Val Leu Leu Arg Tyr Glu Asp Ala Tyr Gln Tyr Gln Asn
290 295 300
Ile Phe Gly Pro Leu Val Lys Leu Glu Ala Asp Tyr Asp Lys Lys Leu
305 310 315 320

Lys Glu Ser Gln Thr Gln Asp Asn Ile Thr Val Arg Trp Asp Leu Gly

325 330 335

Leu Asn Lys Lys Arg Ile Ala Tyr Phe Thr Leu Pro Lys Thr Asp Ser

340 345 350

Asp Met Arg Leu Met Gln Gly Asp Glu Ile Cys Leu Arg Tyr Lys Gly

355 360 365

Asp Leu Ala Pro Leu Trp Lys Gly Ile Gly His Val Ile Lys Val Pro

370 375 380

Asp Asn Tyr Gly Asp Glu Ile Ala Ile Glu Leu Arg Ser Ser Val Gly

385 390 395 400

Ala Pro Val Glu Val Thr His Asn Phe Gln Val Asp Phe Val Trp Lys

405 410 415

Ser Thr Ser Phe Asp Arg Met Gln Ser Ala Leu Lys Thr Phe Ala Val

420 425 430

Asp Glu Thr Ser Val Ser Gly Tyr Ile Tyr His Lys Leu Leu Gly His

435 440 445

Glu Val Glu Asp Val Ile Ile Lys Cys Gln Leu Pro Lys Arg Phe Thr

450 455 460

Ala Gln Gly Leu Pro Asp Leu Asn His Ser Gln Val Tyr Ala Val Lys

465 470 475 480

Thr Val Leu Gln Arg Pro Leu Ser Leu Ile Gln Gly Pro Pro Gly Thr

485 490 495

Gly Lys Thr Val Thr Ser Ala Thr Ile Val Tyr His Leu Ala Arg Gln

500 505 510

Gly Asn Gly Pro Val Leu Val Cys Ala Pro Ser Asn Ile Ala Val Asp

515 520 525

Gln Leu Thr Glu Lys Ile His Gln Thr Gly Leu Lys Val Val Arg Leu

530 535 540

Cys Ala Lys Ser Arg Glu Ala Ile Asp Ser Pro Val Ser Phe Leu Ala

545 550 555 560

Leu His Asn Gln Ile Arg Asn Met Asp Ser Met Pro Glu Leu Gln Lys

565 570 575

Leu Gln Gln Leu Lys Asp Glu Thr Gly Glu Leu Ser Ser Ala Asp Glu

580 585 590

Lys Arg Tyr Arg Ala Leu Lys Arg Thr Ala Glu Arg Glu Leu Leu Met

595 600 605

Asn Ala Asp Val Ile Cys Cys Thr Cys Val Gly Ala Gly Asp Pro Arg

610 615 620

Leu Ala Lys Met Gln Phe Arg Ser Ile Leu Ile Asp Glu Ser Thr Gln

625 630 635 640

Ala Thr Glu Pro Glu Cys Met Val Pro Val Val Leu Gly Ala Lys Gln

645 650 655

Leu Ile Leu Val Gly Asp His Cys Gln Leu Gly Pro Val Val Met Cys

660 665 670

Lys Lys Ala Ala Lys Ala Gly Leu Ser Gln Ser Leu Phe Glu Arg Leu

675 680 685

Val Val Leu Gly Ile Arg Pro Ile Arg Leu Gln Val Gln Tyr Arg Met

690 695 700

His Pro Ala Leu Ser Ala Phe Pro Ser Asn Ile Phe Tyr Glu Gly Ser

705 710 715 720

Leu Gln Asn Gly Val Thr Ala Ala Asp Arg Val Lys Lys Gly Phe Asp

725 730 735

Phe Gln Trp Pro Gln Pro Asp Lys Pro Met Phe Phe Tyr Val Thr Gln

740 745 750

Gly Gln Glu Glu Ile Ala Ser Ser Gly Thr Ser Tyr Leu Asn Arg Thr

755 760 765

Glu Ala Ala Asn Val Glu Lys Ile Thr Thr Lys Leu Leu Lys Ala Gly

770 775 780

Ala Lys Pro Asp Gln Ile Gly Ile Ile Thr Pro Tyr Glu Gly Gln Arg

785 790 795 800

Ser Tyr Leu Val Gln Tyr Met Gln Phe Ser Gly Ser Leu His Thr Lys

805 810 815

Leu Tyr Gln Glu Val Glu Ile Ala Ser Val Asp Ala Phe Gln Gly Arg

820 825 830

Glu Lys Asp Phe Ile Ile Leu Ser Cys Val Arg Ala Asn Glu His Gln
835 840 845

Gly Ile Gly Phe Leu Asn Asp Pro Arg Arg Leu Asn Val Ala Leu Thr
850 855 860

Arg Ala Arg Tyr Gly Val Ile Ile Val Gly Asn Pro Lys Ala Leu Ser
865 870 875 880

Lys Gln Pro Leu Trp Asn His Leu Leu Asn Tyr Tyr Lys Glu Gln Lys
885 890 895

Val Leu Val Glu Gly Pro Leu Asn Asn Leu Arg Glu Ser Leu Met Gln
900 905 910

Phe Ser Lys Pro Arg Lys Leu Val Asn Thr Ile Asn Pro Gly Ala Arg
915 920 925

Phe Met Thr Thr Ala Met Tyr Asp Ala Arg Glu Ala Ile Ile Pro Gly
930 935 940

Ser Val Tyr Asp Arg Ser Ser Gln Gly Arg Pro Ser Ser Met Tyr Phe
945 950 955 960

Gln Thr His Asp Gln Ile Gly Met Ile Ser Ala Gly Pro Ser His Val
965 970 975

Ala Ala Met Asn Ile Pro Ile Pro Phe Asn Leu Val Met Pro Pro Met
980 985 990

Pro Pro Pro Gly Tyr Phe Gly Gln Ala Asn Gly Pro Ala Ala Gly Arg
995 1000 1005

Gly Thr Pro Lys Gly Lys Thr Gly Arg Gly Gly Arg Gln Lys Asn Arg
1010 1015 1020

Phe Gly Leu Pro Gly Pro Ser Gln Thr Asn Leu Pro Asn Ser Gln Ala
1025 1030 1035 1040

Ser Gln Asp Val Ala Ser Gln Pro Phe Ser Gln Gly Ala Leu Thr Gln
1045 1050 1055

Gly Tyr Ile Ser Met Ser Gln Pro Ser Gln Met Ser Gln Pro Gly Leu
1060 1065 1070

Ser Gln Pro Glu Leu Ser Gln Asp Ser Tyr Leu Gly Asp Glu Phe Lys
1075 1080 1085

Ser Gln Ile Asp Val Ala Leu Ser Gln Asp Ser Thr Tyr Gln Gly Glu

1090 1095 1100

Arg Ala Tyr Gln His Gly Gly Val Thr Gly Leu Ser Gln Tyr

1105 1110 1115

<210> 49

<211> 1137

<212> PRT

<213> Homo sapiens

<400> 49

Met Ser Val Glu Ala Tyr Gly Pro Ser Ser Gln Thr Leu Thr Phe Leu

1 5 10 15

Asp Thr Glu Glu Ala Glu Leu Leu Gly Ala Asp Thr Gln Gly Ser Glu

20 25 30

Phe Glu Phe Thr Asp Phe Thr Leu Pro Ser Gln Thr Gln Thr Pro Pro

35 40 45

Gly Gly Pro Gly Gly Pro Gly Gly Gly Gly Ala Gly Gly Pro Gly Gly

50 55 60

Ala Gly Ala Gly Ala Ala Ala Gly Gln Leu Asp Ala Gln Val Gly Pro

65 70 75 80

Glu Gly Ile Leu Gln Asn Gly Ala Val Asp Asp Ser Val Ala Lys Thr

85 90 95

Ser Gln Leu Leu Ala Glu Leu Asn Phe Glu Glu Asp Glu Glu Asp Thr

100 105 110

Tyr Tyr Thr Lys Asp Leu Pro Ile His Ala Cys Ser Tyr Cys Gly Ile

115 120 125

His Asp Pro Ala Cys Val Val Tyr Cys Asn Thr Ser Lys Lys Trp Phe

130 135 140

Cys Asn Gly Arg Gly Asn Thr Ser Gly Ser His Ile Val Asn His Leu

145 150 155 160

Val Arg Ala Lys Cys Lys Glu Val Thr Leu His Lys Asp Gly Pro Leu

165 170 175

Gly Glu Thr Val Leu Glu Cys Tyr Asn Cys Gly Cys Arg Asn Val Phe

180 185 190

Leu Leu Gly Phe Ile Pro Ala Lys Ala Asp Ser Val Val Val Leu Leu
195 200 205
Cys Arg Gln Pro Cys Ala Ser Gln Ser Ser Leu Lys Asp Ile Asn Trp
210 215 220
Asp Ser Ser Gln Trp Gln Pro Leu Ile Gln Asp Arg Cys Phe Leu Ser
225 230 235 240
Trp Leu Val Lys Ile Pro Ser Glu Gln Glu Gln Leu Arg Ala Arg Gln
245 250 255
Ile Thr Ala Gln Gln Ile Asn Lys Leu Glu Glu Leu Trp Lys Glu Asn

260 265 270
Pro Ser Ala Thr Leu Glu Asp Leu Glu Lys Pro Gly Val Asp Glu Glu
275 280 285
Pro Gln His Val Leu Leu Arg Tyr Glu Asp Ala Tyr Gln Tyr Gln Asn
290 295 300
Ile Phe Gly Pro Leu Val Lys Leu Glu Ala Asp Tyr Asp Lys Lys Leu
305 310 315 320
Lys Glu Ser Gln Thr Gln Asp Asn Ile Thr Val Arg Trp Asp Leu Gly
325 330 335

Leu Asn Lys Lys Arg Ile Ala Tyr Phe Thr Leu Pro Lys Thr Asp Ser
340 345 350
Gly Asn Glu Asp Leu Val Ile Ile Trp Leu Arg Asp Met Arg Leu Met
355 360 365
Gln Gly Asp Glu Ile Cys Leu Arg Tyr Lys Gly Asp Leu Ala Pro Leu
370 375 380
Trp Lys Gly Ile Gly His Val Ile Lys Val Pro Asp Asn Ala Asn Leu
385 390 395 400
Thr Gln His Thr Asp Tyr Gly Asp Glu Ile Ala Ile Glu Leu Arg Ser

405 410 415
Ser Val Gly Ala Pro Val Glu Val Thr His Asn Phe Gln Val Asp Phe
420 425 430

Val Trp Lys Ser Thr Ser Phe Asp Arg Met Gln Ser Ala Leu Lys Thr
435 440 445
Phe Ala Val Asp Glu Thr Ser Val Ser Gly Tyr Ile Tyr His Lys Leu
450 455 460
Leu Gly His Glu Val Glu Asp Val Ile Ile Lys Cys Gln Leu Pro Lys
465 470 475 480

Arg Phe Thr Ala Gln Gly Leu Pro Asp Leu Asn His Ser Gln Val Tyr
485 490 495
Ala Val Lys Thr Val Leu Gln Arg Pro Leu Ser Leu Ile Gln Gly Pro
500 505 510
Pro Gly Thr Gly Lys Thr Val Thr Ser Ala Thr Ile Val Tyr His Leu
515 520 525
Ala Arg Gln Gly Asn Gly Pro Val Leu Val Cys Ala Pro Ser Asn Ile
530 535 540
Ala Val Asp Gln Leu Thr Glu Lys Ile His Gln Thr Gly Leu Lys Val

545 550 555 560
Val Arg Leu Cys Ala Lys Ser Arg Glu Ala Ile Asp Ser Pro Val Ser
565 570 575
Phe Leu Ala Leu His Asn Gln Ile Arg Asn Met Asp Ser Met Pro Glu
580 585 590
Leu Gln Lys Leu Gln Gln Leu Lys Asp Glu Thr Gly Glu Leu Ser Ser
595 600 605
Ala Asp Glu Lys Arg Tyr Arg Ala Leu Lys Arg Thr Ala Glu Arg Glu
610 615 620

Leu Leu Met Asn Ala Asp Val Ile Cys Cys Thr Cys Val Gly Ala Gly
625 630 635 640
Asp Pro Arg Leu Ala Lys Met Gln Phe Arg Ser Ile Leu Ile Asp Glu
645 650 655
Ser Thr Gln Ala Thr Glu Pro Glu Cys Met Val Pro Val Val Leu Gly
660 665 670
Ala Lys Gln Leu Ile Leu Val Gly Asp His Cys Gln Leu Gly Pro Val
675 680 685

Val Met Cys Lys Lys Ala Ala Lys Ala Gly Leu Ser Gln Ser Leu Phe

690 695 700

Glu Arg Leu Val Val Leu Gly Ile Arg Pro Ile Arg Leu Gln Val Gln
705 710 715 720
Tyr Arg Met His Pro Ala Leu Ser Ala Phe Pro Ser Asn Ile Phe Tyr
725 730 735
Glu Gly Ser Leu Gln Asn Gly Val Thr Ala Ala Asp Arg Val Lys Lys
740 745 750
Gly Phe Asp Phe Gln Trp Pro Gln Pro Asp Lys Pro Met Phe Phe Tyr
755 760 765

Val Thr Gln Gly Gln Glu Glu Ile Ala Ser Ser Gly Thr Ser Tyr Leu
770 775 780
Asn Arg Thr Glu Ala Ala Asn Val Glu Lys Ile Thr Thr Lys Leu Leu
785 790 795 800
Lys Ala Gly Ala Lys Pro Asp Gln Ile Gly Ile Ile Thr Pro Tyr Glu
805 810 815
Gly Gln Arg Ser Tyr Leu Val Gln Tyr Met Gln Phe Ser Gly Ser Leu
820 825 830
His Thr Lys Leu Tyr Gln Glu Val Glu Ile Ala Ser Val Asp Ala Phe

835 840 845

Gln Gly Arg Glu Lys Asp Phe Ile Ile Leu Ser Cys Val Arg Ala Asn
850 855 860
Glu His Gln Gly Ile Gly Phe Leu Asn Asp Pro Arg Arg Leu Asn Val
865 870 875 880
Ala Leu Thr Arg Ala Arg Tyr Gly Val Ile Ile Val Gly Asn Pro Lys
885 890 895
Ala Leu Ser Lys Gln Pro Leu Trp Asn His Leu Leu Asn Tyr Tyr Lys
900 905 910

Glu Gln Lys Val Leu Val Glu Gly Pro Leu Asn Asn Leu Arg Glu Ser
915 920 925
Leu Met Gln Phe Ser Lys Pro Arg Lys Leu Val Asn Thr Ile Asn Pro

930 935 940

Gly Ala Arg Phe Met Thr Thr Ala Met Tyr Asp Ala Arg Glu Ala Ile

945 950 955 960

Ile Pro Gly Ser Val Tyr Asp Arg Ser Ser Gln Gly Arg Pro Ser Ser

965 970 975

Met Tyr Phe Gln Thr His Asp Gln Ile Gly Met Ile Ser Ala Gly Pro

980 985 990

Ser His Val Ala Ala Met Asn Ile Pro Ile Pro Phe Asn Leu Val Met

995 1000 1005

Pro Pro Met Pro Pro Pro Gly Tyr Phe Gly Gln Ala Asn Gly Pro Ala

1010 1015 1020

Ala Gly Arg Gly Thr Pro Lys Gly Lys Thr Gly Arg Gly Gly Arg Gln

1025 1030 1035 1040

Lys Asn Arg Phe Gly Leu Pro Gly Pro Ser Gln Thr Asn Leu Pro Asn

1045 1050 1055

Ser Gln Ala Ser Gln Asp Val Ala Ser Gln Pro Phe Ser Gln Gly Ala

1060 1065 1070

Leu Thr Gln Gly Tyr Ile Ser Met Ser Gln Pro Ser Gln Met Ser Gln

1075 1080 1085

Pro Gly Leu Ser Gln Pro Glu Leu Ser Gln Asp Ser Tyr Leu Gly Asp

1090 1095 1100

Glu Phe Lys Ser Gln Ile Asp Val Ala Leu Ser Gln Asp Ser Thr Tyr

1105 1110 1115 1120

Gln Gly Glu Arg Ala Tyr Gln His Gly Gly Val Thr Gly Leu Ser Gln

1125 1130 1135

Tyr

<210> 50

<211> 1126

<212> PRT

<213> Homo sapiens

<400> 50

Met Ser Val Glu Ala Tyr Gly Pro Ser Ser Gln Thr Leu Thr Phe Leu
1 5 10 15
Asp Thr Glu Glu Ala Glu Leu Leu Gly Ala Asp Thr Gln Gly Ser Glu
20 25 30
Phe Glu Phe Thr Asp Phe Thr Leu Pro Ser Gln Thr Gln Thr Pro Pro
35 40 45

Gly Gly Pro Gly Gly Pro Gly Gly Gly Gly Ala Gly Gly Pro Gly Gly
50 55 60
Ala Gly Ala Gly Ala Ala Ala Gly Gln Leu Asp Ala Gln Val Gly Pro
65 70 75 80
Glu Gly Ile Leu Gln Asn Gly Ala Val Asp Asp Ser Val Ala Lys Thr
85 90 95
Ser Gln Leu Leu Ala Glu Leu Asn Phe Glu Glu Asp Glu Glu Asp Thr
100 105 110
Tyr Tyr Thr Lys Asp Leu Pro Ile His Ala Cys Ser Tyr Cys Gly Ile

115 120 125
His Asp Pro Ala Cys Val Val Tyr Cys Asn Thr Ser Lys Lys Trp Phe
130 135 140
Cys Asn Gly Arg Gly Asn Thr Ser Gly Ser His Ile Val Asn His Leu
145 150 155 160
Val Arg Ala Lys Cys Lys Glu Val Thr Leu His Lys Asp Gly Pro Leu
165 170 175
Gly Glu Thr Val Leu Glu Cys Tyr Asn Cys Gly Cys Arg Asn Val Phe
180 185 190

Leu Leu Gly Phe Ile Pro Ala Lys Ala Asp Ser Val Val Val Leu Leu
195 200 205
Cys Arg Gln Pro Cys Ala Ser Gln Ser Ser Leu Lys Asp Ile Asn Trp
210 215 220
Asp Ser Ser Gln Trp Gln Pro Leu Ile Gln Asp Arg Cys Phe Leu Ser
225 230 235 240
Trp Leu Val Lys Ile Pro Ser Glu Gln Glu Gln Leu Arg Ala Arg Gln
245 250 255

Ile Thr Ala Gln Gln Ile Asn Lys Leu Glu Glu Leu Trp Lys Glu Asn

260 265 270

Pro Ser Ala Thr Leu Glu Asp Leu Glu Lys Pro Gly Val Asp Glu Glu

275 280 285

Pro Gln His Val Leu Leu Arg Tyr Glu Asp Ala Tyr Gln Tyr Gln Asn

290 295 300

Ile Phe Gly Pro Leu Val Lys Leu Glu Ala Asp Tyr Asp Lys Lys Leu

305 310 315 320

Lys Glu Ser Gln Thr Gln Asp Asn Ile Thr Val Arg Trp Asp Leu Gly

325 330 335

Leu Asn Lys Lys Arg Ile Ala Tyr Phe Thr Leu Pro Lys Thr Asp Ser

340 345 350

Asp Met Arg Leu Met Gln Gly Asp Glu Ile Cys Leu Arg Tyr Lys Gly

355 360 365

Asp Leu Ala Pro Leu Trp Lys Gly Ile Gly His Val Ile Lys Val Pro

370 375 380

Asp Asn Ala Asn Leu Thr Gln His Thr Asp Tyr Gly Asp Glu Ile Ala

385 390 395 400

Ile Glu Leu Arg Ser Ser Val Gly Ala Pro Val Glu Val Thr His Asn

405 410 415

Phe Gln Val Asp Phe Val Trp Lys Ser Thr Ser Phe Asp Arg Met Gln

420 425 430

Ser Ala Leu Lys Thr Phe Ala Val Asp Glu Thr Ser Val Ser Gly Tyr

435 440 445

Ile Tyr His Lys Leu Leu Gly His Glu Val Glu Asp Val Ile Ile Lys

450 455 460

Cys Gln Leu Pro Lys Arg Phe Thr Ala Gln Gly Leu Pro Asp Leu Asn

465 470 475 480

His Ser Gln Val Tyr Ala Val Lys Thr Val Leu Gln Arg Pro Leu Ser

485 490 495

Leu Ile Gln Gly Pro Pro Gly Thr Gly Lys Thr Val Thr Ser Ala Thr

500 505 510

Ile Val Tyr His Leu Ala Arg Gln Gly Asn Gly Pro Val Leu Val Cys

515 520 525

Ala Pro Ser Asn Ile Ala Val Asp Gln Leu Thr Glu Lys Ile His Gln

530 535 540

Thr Gly Leu Lys Val Val Arg Leu Cys Ala Lys Ser Arg Glu Ala Ile

545 550 555 560

Asp Ser Pro Val Ser Phe Leu Ala Leu His Asn Gln Ile Arg Asn Met

565 570 575

Asp Ser Met Pro Glu Leu Gln Lys Leu Gln Gln Leu Lys Asp Glu Thr

580 585 590

Gly Glu Leu Ser Ser Ala Asp Glu Lys Arg Tyr Arg Ala Leu Lys Arg

595 600 605

Thr Ala Glu Arg Glu Leu Leu Met Asn Ala Asp Val Ile Cys Cys Thr

610 615 620

Cys Val Gly Ala Gly Asp Pro Arg Leu Ala Lys Met Gln Phe Arg Ser

625 630 635 640

Ile Leu Ile Asp Glu Ser Thr Gln Ala Thr Glu Pro Glu Cys Met Val

645 650 655

Pro Val Val Leu Gly Ala Lys Gln Leu Ile Leu Val Gly Asp His Cys

660 665 670

Gln Leu Gly Pro Val Val Met Cys Lys Lys Ala Ala Lys Ala Gly Leu

675 680 685

Ser Gln Ser Leu Phe Glu Arg Leu Val Val Leu Gly Ile Arg Pro Ile

690 695 700

Arg Leu Gln Val Gln Tyr Arg Met His Pro Ala Leu Ser Ala Phe Pro

705 710 715 720

Ser Asn Ile Phe Tyr Glu Gly Ser Leu Gln Asn Gly Val Thr Ala Ala

725 730 735

Asp Arg Val Lys Lys Gly Phe Asp Phe Gln Trp Pro Gln Pro Asp Lys

740 745 750

Pro Met Phe Phe Tyr Val Thr Gln Gly Gln Glu Glu Ile Ala Ser Ser

755 760 765

Gly Thr Ser Tyr Leu Asn Arg Thr Glu Ala Ala Asn Val Glu Lys Ile
770 775 780
Thr Thr Lys Leu Leu Lys Ala Gly Ala Lys Pro Asp Gln Ile Gly Ile
785 790 795 800
Ile Thr Pro Tyr Glu Gly Gln Arg Ser Tyr Leu Val Gln Tyr Met Gln
805 810 815
Phe Ser Gly Ser Leu His Thr Lys Leu Tyr Gln Glu Val Glu Ile Ala
820 825 830
Ser Val Asp Ala Phe Gln Gly Arg Glu Lys Asp Phe Ile Ile Leu Ser

835 840 845
Cys Val Arg Ala Asn Glu His Gln Gly Ile Gly Phe Leu Asn Asp Pro
850 855 860
Arg Arg Leu Asn Val Ala Leu Thr Arg Ala Arg Tyr Gly Val Ile Ile
865 870 875 880
Val Gly Asn Pro Lys Ala Leu Ser Lys Gln Pro Leu Trp Asn His Leu
885 890 895
Leu Asn Tyr Tyr Lys Glu Gln Lys Val Leu Val Glu Gly Pro Leu Asn
900 905 910

Asn Leu Arg Glu Ser Leu Met Gln Phe Ser Lys Pro Arg Lys Leu Val
915 920 925
Asn Thr Ile Asn Pro Gly Ala Arg Phe Met Thr Thr Ala Met Tyr Asp
930 935 940
Ala Arg Glu Ala Ile Ile Pro Gly Ser Val Tyr Asp Arg Ser Ser Gln
945 950 955 960
Gly Arg Pro Ser Ser Met Tyr Phe Gln Thr His Asp Gln Ile Gly Met
965 970 975
Ile Ser Ala Gly Pro Ser His Val Ala Ala Met Asn Ile Pro Ile Pro

980 985 990
Phe Asn Leu Val Met Pro Pro Met Pro Pro Pro Gly Tyr Phe Gly Gln
995 1000 1005

Ala Asn Gly Pro Ala Ala Gly Arg Gly Thr Pro Lys Gly Lys Thr Gly
1010 1015 1020
Arg Gly Gly Arg Gln Lys Asn Arg Phe Gly Leu Pro Gly Pro Ser Gln
1025 1030 1035 1040
Thr Asn Leu Pro Asn Ser Gln Ala Ser Gln Asp Val Ala Ser Gln Pro
1045 1050 1055

Phe Ser Gln Gly Ala Leu Thr Gln Gly Tyr Ile Ser Met Ser Gln Pro
1060 1065 1070
Ser Gln Met Ser Gln Pro Gly Leu Ser Gln Pro Glu Leu Ser Gln Asp
1075 1080 1085
Ser Tyr Leu Gly Asp Glu Phe Lys Ser Gln Ile Asp Val Ala Leu Ser
1090 1095 1100
Gln Asp Ser Thr Tyr Gln Gly Glu Arg Ala Tyr Gln His Gly Gly Val
1105 1110 1115 1120
Thr Gly Leu Ser Gln Tyr

1125

<210> 51
<211> 451
<212> PRT
<213> Homo sapiens
<400> 51
Met Arg Glu Cys Ile Ser Ile His Val Gly Gln Ala Gly Val Gln Ile
1 5 10 15
Gly Asn Ala Cys Trp Glu Leu Tyr Cys Leu Glu His Gly Ile Gln Pro
20 25 30
Asp Gly Gln Met Pro Ser Asp Lys Thr Ile Gly Gly Gly Asp Asp Ser
35 40 45
Phe Asn Thr Phe Phe Ser Glu Thr Gly Ala Gly Lys His Val Pro Arg

50 55 60
Ala Val Phe Val Asp Leu Glu Pro Thr Val Ile Asp Glu Val Arg Thr
65 70 75 80
Gly Thr Tyr Arg Gln Leu Phe His Pro Glu Gln Leu Ile Thr Gly Lys

85 90 95

Glu Asp Ala Ala Asn Asn Tyr Ala Arg Gly His Tyr Thr Ile Gly Lys

100 105 110

Glu Ile Ile Asp Leu Val Leu Asp Arg Ile Arg Lys Leu Ala Asp Gln

115 120 125

Cys Thr Gly Leu Gln Gly Phe Leu Val Phe His Ser Phe Gly Gly Gly

130 135 140

Thr Gly Ser Gly Phe Thr Ser Leu Leu Met Glu Arg Leu Ser Val Asp

145 150 155 160

Tyr Gly Lys Lys Ser Lys Leu Glu Phe Ser Ile Tyr Pro Ala Pro Gln

165 170 175

Val Ser Thr Ala Val Val Glu Pro Tyr Asn Ser Ile Leu Thr Thr His

180 185 190

Thr Thr Leu Glu His Ser Asp Cys Ala Phe Met Val Asp Asn Glu Ala

195 200 205

Ile Tyr Asp Ile Cys Arg Arg Asn Leu Asp Ile Glu Arg Pro Thr Tyr

210 215 220

Thr Asn Leu Asn Arg Leu Ile Gly Gln Ile Val Ser Ser Ile Thr Ala

225 230 235 240

Ser Leu Arg Phe Asp Gly Ala Leu Asn Val Asp Leu Thr Glu Phe Gln

245 250 255

Thr Asn Leu Val Pro Tyr Pro Arg Ile His Phe Pro Leu Ala Thr Tyr

260 265 270

Ala Pro Val Ile Ser Ala Glu Lys Ala Tyr His Glu Gln Leu Ser Val

275 280 285

Ala Glu Ile Thr Asn Ala Cys Phe Glu Pro Ala Asn Gln Met Val Lys

290 295 300

Cys Asp Pro Arg His Gly Lys Tyr Met Ala Cys Cys Leu Leu Tyr Arg

305 310 315 320

Gly Asp Val Val Pro Lys Asp Val Asn Ala Ala Ile Ala Thr Ile Lys

325 330 335

Thr Lys Arg Thr Ile Gln Phe Val Asp Trp Cys Pro Thr Gly Phe Lys

340 345 350

Val Gly Ile Asn Tyr Gln Pro Pro Thr Val Val Pro Gly Gly Asp Leu

355 360 365

Ala Lys Val Gln Arg Ala Val Cys Met Leu Ser Asn Thr Thr Ala Ile

370 375 380

Ala Glu Ala Trp Ala Arg Leu Asp His Lys Phe Asp Leu Met Tyr Ala

385 390 395 400

Lys Arg Ala Phe Val His Trp Tyr Val Gly Glu Gly Met Glu Glu Gly

405 410 415

Glu Phe Ser Glu Ala Arg Glu Asp Met Ala Ala Leu Glu Lys Asp Tyr

420 425 430

Glu Glu Val Gly Val Asp Ser Val Glu Gly Glu Gly Glu Glu Glu Gly

435 440 445

Glu Glu Tyr

450

<210> 52

<211> 416

<212> PRT

<213> Homo sapiens

<400> 52

Met Pro Ser Asp Lys Thr Ile Gly Gly Gly Asp Asp Ser Phe Asn Thr

1 5 10 15

Phe Phe Ser Glu Thr Gly Ala Gly Lys His Val Pro Arg Ala Val Phe

20 25 30

Val Asp Leu Glu Pro Thr Val Ile Asp Glu Val Arg Thr Gly Thr Tyr

35 40 45

Arg Gln Leu Phe His Pro Glu Gln Leu Ile Thr Gly Lys Glu Asp Ala

50 55 60

Ala Asn Asn Tyr Ala Arg Gly His Tyr Thr Ile Gly Lys Glu Ile Ile

65 70 75 80

Asp Leu Val Leu Asp Arg Ile Arg Lys Leu Ala Asp Gln Cys Thr Gly

85 90 95

Leu Gln Gly Phe Leu Val Phe His Ser Phe Gly Gly Gly Thr Gly Ser
100 105 110
Gly Phe Thr Ser Leu Leu Met Glu Arg Leu Ser Val Asp Tyr Gly Lys
115 120 125
Lys Ser Lys Leu Glu Phe Ser Ile Tyr Pro Ala Pro Gln Val Ser Thr
130 135 140
Ala Val Val Glu Pro Tyr Asn Ser Ile Leu Thr Thr His Thr Thr Leu
145 150 155 160
Glu His Ser Asp Cys Ala Phe Met Val Asp Asn Glu Ala Ile Tyr Asp

165 170 175
Ile Cys Arg Arg Asn Leu Asp Ile Glu Arg Pro Thr Tyr Thr Asn Leu
180 185 190
Asn Arg Leu Ile Gly Gln Ile Val Ser Ser Ile Thr Ala Ser Leu Arg
195 200 205
Phe Asp Gly Ala Leu Asn Val Asp Leu Thr Glu Phe Gln Thr Asn Leu
210 215 220
Val Pro Tyr Pro Arg Ile His Phe Pro Leu Ala Thr Tyr Ala Pro Val
225 230 235 240

Ile Ser Ala Glu Lys Ala Tyr His Glu Gln Leu Ser Val Ala Glu Ile
245 250 255
Thr Asn Ala Cys Phe Glu Pro Ala Asn Gln Met Val Lys Cys Asp Pro
260 265 270
Arg His Gly Lys Tyr Met Ala Cys Cys Leu Leu Tyr Arg Gly Asp Val
275 280 285
Val Pro Lys Asp Val Asn Ala Ala Ile Ala Thr Ile Lys Thr Lys Arg
290 295 300
Thr Ile Gln Phe Val Asp Trp Cys Pro Thr Gly Phe Lys Val Gly Ile

305 310 315 320
Asn Tyr Gln Pro Pro Thr Val Val Pro Gly Gly Asp Leu Ala Lys Val
325 330 335

Gln Arg Ala Val Cys Met Leu Ser Asn Thr Thr Ala Ile Ala Glu Ala
340 345 350
Trp Ala Arg Leu Asp His Lys Phe Asp Leu Met Tyr Ala Lys Arg Ala
355 360 365
Phe Val His Trp Tyr Val Gly Glu Gly Met Glu Glu Gly Glu Phe Ser
370 375 380

Glu Ala Arg Glu Asp Met Ala Ala Leu Glu Lys Asp Tyr Glu Glu Val
385 390 395 400
Gly Val Asp Ser Val Glu Gly Glu Gly Glu Glu Glu Gly Glu Glu Tyr
405 410 415

<210> 53
<211> 317
<212> PRT
<213> Homo sapiens
<400> 53

Met Thr Glu Gln Met Thr Leu Arg Gly Thr Leu Lys Gly His Asn Gly
1 5 10 15
Trp Val Thr Gln Ile Ala Thr Thr Pro Gln Phe Pro Asp Met Ile Leu
20 25 30
Ser Ala Ser Arg Asp Lys Thr Ile Ile Met Trp Lys Leu Thr Arg Asp
35 40 45
Glu Thr Asn Tyr Gly Ile Pro Gln Arg Ala Leu Arg Gly His Ser His
50 55 60
Phe Val Ser Asp Val Val Ile Ser Ser Asp Gly Gln Phe Ala Leu Ser
65 70 75 80
Gly Ser Trp Asp Gly Thr Leu Arg Leu Trp Asp Leu Thr Thr Gly Thr
85 90 95

Thr Thr Arg Arg Phe Val Gly His Thr Lys Asp Val Leu Ser Val Ala
100 105 110
Phe Ser Ser Asp Asn Arg Gln Ile Val Ser Gly Ser Arg Asp Lys Thr
115 120 125
Ile Lys Leu Trp Asn Thr Leu Gly Val Cys Lys Tyr Thr Val Gln Asp

130 135 140

Glu Ser His Ser Glu Trp Val Ser Cys Val Arg Phe Ser Pro Asn Ser

145 150 155 160

Ser Asn Pro Ile Ile Val Ser Cys Gly Trp Asp Lys Leu Val Lys Val

165 170 175

Trp Asn Leu Ala Asn Cys Lys Leu Lys Thr Asn His Ile Gly His Thr

180 185 190

Gly Tyr Leu Asn Thr Val Thr Val Ser Pro Asp Gly Ser Leu Cys Ala

195 200 205

Ser Gly Gly Lys Asp Gly Gln Ala Met Leu Trp Asp Leu Asn Glu Gly

210 215 220

Lys His Leu Tyr Thr Leu Asp Gly Gly Asp Ile Ile Asn Ala Leu Cys

225 230 235 240

Phe Ser Pro Asn Arg Tyr Trp Leu Cys Ala Ala Thr Gly Pro Ser Ile

245 250 255

Lys Ile Trp Asp Leu Glu Gly Lys Ile Ile Val Asp Glu Leu Lys Gln

260 265 270

Glu Val Ile Ser Thr Ser Ser Lys Ala Glu Pro Pro Gln Cys Thr Ser

275 280 285

Leu Ala Trp Ser Ala Asp Gly Gln Thr Leu Phe Ala Gly Tyr Thr Asp

290 295 300

Asn Leu Val Arg Val Trp Gln Val Thr Ile Gly Thr Arg

305 310 315

<210> 54

<211> 683

<212> PRT

<213> Homo sapiens

<400> 54

Met Phe Ser Leu Ser Ser Thr Val Gln Pro Gln Val Thr Val Pro Leu

1 5 10 15

Ser His Leu Ile Asn Ala Phe His Thr Pro Lys Asn Thr Ser Val Ser

20 25 30

Leu Ser Gly Val Ser Val Ser Gln Asn Gln His Arg Asp Val Val Pro
35 40 45
Glu His Glu Ala Pro Ser Ser Glu Pro Ser Leu Asn Leu Arg Asp Leu

50 55 60
Gly Leu Ser Glu Leu Lys Ile Gly Gln Ile Asp Gln Leu Val Glu Asn
65 70 75 80
Leu Leu Pro Gly Phe Cys Lys Gly Lys Asn Ile Ser Ser His Trp His
85 90 95
Thr Ser His Val Ser Ala Gln Ser Phe Phe Glu Asn Lys Tyr Val Phe
100 105 110
Ile Gln Ser Arg Gly Phe Lys Thr Leu Lys Ser Arg Thr Arg Arg Leu
115 120 125

Gln Ser Thr Ser Glu Arg Leu Ala Glu Thr Gln Asn Ile Ala Pro Ser
130 135 140
Phe Val Lys Gly Phe Leu Leu Arg Asp Arg Gly Ser Asp Val Glu Ser
145 150 155 160
Leu Asp Lys Leu Met Lys Thr Lys Asn Ile Pro Glu Ala His Gln Asp
165 170 175
Ala Phe Lys Thr Gly Phe Ala Glu Gly Phe Leu Lys Ala Gln Ala Leu
180 185 190
Thr Gln Lys Thr Asn Asp Ser Leu Arg Arg Thr Arg Leu Ile Leu Phe

195 200 205
Val Leu Leu Leu Phe Gly Ile Tyr Gly Leu Leu Lys Asn Pro Phe Leu
210 215 220
Ser Val Arg Phe Arg Thr Thr Thr Gly Leu Asp Ser Ala Val Asp Pro
225 230 235 240
Val Gln Met Lys Asn Val Thr Phe Glu His Val Lys Gly Val Glu Glu
245 250 255
Ala Lys Gln Glu Leu Gln Glu Val Val Glu Phe Leu Lys Asn Pro Gln
260 265 270

Lys Phe Thr Ile Leu Gly Gly Lys Leu Pro Lys Gly Ile Leu Leu Val

275 280 285

Gly Pro Pro Gly Thr Gly Lys Thr Leu Leu Ala Arg Ala Val Ala Gly

290 295 300

Glu Ala Asp Val Pro Phe Tyr Tyr Ala Ser Gly Ser Glu Phe Asp Glu

305 310 315 320

Met Phe Val Gly Val Gly Ala Ser Arg Ile Arg Asn Leu Phe Arg Glu

325 330 335

Ala Lys Ala Asn Ala Pro Cys Val Ile Phe Ile Asp Glu Leu Asp Ser

340 345 350

Val Gly Gly Lys Arg Ile Glu Ser Pro Met His Pro Tyr Ser Arg Gln

355 360 365

Thr Ile Asn Gln Leu Leu Ala Glu Met Asp Gly Phe Lys Pro Asn Glu

370 375 380

Gly Val Ile Ile Ile Gly Ala Thr Asn Phe Pro Glu Ala Leu Asp Asn

385 390 395 400

Ala Leu Ile Arg Pro Gly Arg Phe Asp Met Gln Val Thr Val Pro Arg

405 410 415

Pro Asp Val Lys Gly Arg Thr Glu Ile Leu Lys Trp Tyr Leu Asn Lys

420 425 430

Ile Lys Phe Asp Gln Ser Val Asp Pro Glu Ile Ile Ala Arg Gly Thr

435 440 445

Val Gly Phe Ser Gly Ala Glu Leu Glu Asn Leu Val Asn Gln Ala Ala

450 455 460

Leu Lys Ala Ala Val Asp Gly Lys Glu Met Val Thr Met Lys Glu Leu

465 470 475 480

Glu Phe Ser Lys Asp Lys Ile Leu Met Gly Pro Glu Arg Arg Ser Val

485 490 495

Glu Ile Asp Asn Lys Asn Lys Thr Ile Thr Ala Tyr His Glu Ser Gly

500 505 510

His Ala Ile Ile Ala Tyr Tyr Thr Lys Asp Ala Met Pro Ile Asn Lys

515 520 525

Ala Thr Ile Met Pro Arg Gly Pro Thr Leu Gly His Val Ser Leu Leu

530 535 540

Pro Glu Asn Asp Arg Trp Asn Glu Thr Arg Ala Gln Leu Leu Ala Gln

545 550 555 560

Met Asp Val Ser Met Gly Gly Arg Val Ala Glu Glu Leu Ile Phe Gly

565 570 575

Thr Asp His Ile Thr Thr Gly Ala Ser Ser Asp Phe Asp Asn Ala Thr

580 585 590

Lys Ile Ala Lys Arg Met Val Thr Lys Phe Gly Met Ser Glu Lys Leu

595 600 605

Gly Val Met Thr Tyr Ser Asp Thr Gly Lys Leu Ser Pro Glu Thr Gln

610 615 620

Ser Ala Ile Glu Gln Glu Ile Arg Ile Leu Leu Arg Asp Ser Tyr Glu

625 630 635 640

Arg Ala Lys His Ile Leu Lys Thr His Ala Lys Glu His Lys Asn Leu

645 650 655

Ala Glu Ala Leu Leu Thr Tyr Glu Thr Leu Asp Ala Lys Glu Ile Gln

660 665 670

Ile Val Leu Glu Gly Lys Lys Leu Glu Val Arg

675 680

<210> 55

<211> 716

<212> PRT

<213> Homo sapiens

<400> 55

Met Phe Ser Leu Ser Ser Thr Val Gln Pro Gln Val Thr Val Pro Leu

1 5 10 15

Ser His Leu Ile Asn Ala Phe His Thr Pro Lys Asn Thr Ser Val Ser

20 25 30

Leu Ser Gly Val Ser Val Ser Gln Asn Gln His Arg Asp Val Val Pro

35 40 45

Glu His Glu Ala Pro Ser Ser Glu Pro Ser Leu Asn Leu Arg Asp Leu

50 55 60

Gly Leu Ser Glu Leu Lys Ile Gly Gln Ile Asp Gln Leu Val Glu Asn
65 70 75 80

Leu Leu Pro Gly Phe Cys Lys Gly Lys Asn Ile Ser Ser His Trp His
85 90 95
Thr Ser His Val Ser Ala Gln Ser Phe Phe Glu Asn Lys Tyr Gly Asn
100 105 110
Leu Asp Ile Phe Ser Thr Leu Arg Ser Ser Cys Leu Tyr Arg His His
115 120 125
Ser Arg Ala Leu Gln Ser Ile Cys Ser Asp Leu Gln Tyr Trp Pro Val
130 135 140
Phe Ile Gln Ser Arg Gly Phe Lys Thr Leu Lys Ser Arg Thr Arg Arg

145 150 155 160
Leu Gln Ser Thr Ser Glu Arg Leu Ala Glu Thr Gln Asn Ile Ala Pro
165 170 175
Ser Phe Val Lys Gly Phe Leu Leu Arg Asp Arg Gly Ser Asp Val Glu
180 185 190
Ser Leu Asp Lys Leu Met Lys Thr Lys Asn Ile Pro Glu Ala His Gln
195 200 205
Asp Ala Phe Lys Thr Gly Phe Ala Glu Gly Phe Leu Lys Ala Gln Ala
210 215 220

Leu Thr Gln Lys Thr Asn Asp Ser Leu Arg Arg Thr Arg Leu Ile Leu
225 230 235 240
Phe Val Leu Leu Leu Phe Gly Ile Tyr Gly Leu Leu Lys Asn Pro Phe
245 250 255
Leu Ser Val Arg Phe Arg Thr Thr Thr Gly Leu Asp Ser Ala Val Asp
260 265 270
Pro Val Gln Met Lys Asn Val Thr Phe Glu His Val Lys Gly Val Glu
275 280 285
Glu Ala Lys Gln Glu Leu Gln Glu Val Val Glu Phe Leu Lys Asn Pro

290 295 300
Gln Lys Phe Thr Ile Leu Gly Gly Lys Leu Pro Lys Gly Ile Leu Leu

305 310 315 320

Val Gly Pro Pro Gly Thr Gly Lys Thr Leu Leu Ala Arg Ala Val Ala

325 330 335

Gly Glu Ala Asp Val Pro Phe Tyr Tyr Ala Ser Gly Ser Glu Phe Asp

340 345 350

Glu Met Phe Val Gly Val Gly Ala Ser Arg Ile Arg Asn Leu Phe Arg

355 360 365

Glu Ala Lys Ala Asn Ala Pro Cys Val Ile Phe Ile Asp Glu Leu Asp

370 375 380

Ser Val Gly Gly Lys Arg Ile Glu Ser Pro Met His Pro Tyr Ser Arg

385 390 395 400

Gln Thr Ile Asn Gln Leu Leu Ala Glu Met Asp Gly Phe Lys Pro Asn

405 410 415

Glu Gly Val Ile Ile Ile Gly Ala Thr Asn Phe Pro Glu Ala Leu Asp

420 425 430

Asn Ala Leu Ile Arg Pro Gly Arg Phe Asp Met Gln Val Thr Val Pro

435 440 445

Arg Pro Asp Val Lys Gly Arg Thr Glu Ile Leu Lys Trp Tyr Leu Asn

450 455 460

Lys Ile Lys Phe Asp Gln Ser Val Asp Pro Glu Ile Ile Ala Arg Gly

465 470 475 480

Thr Val Gly Phe Ser Gly Ala Glu Leu Glu Asn Leu Val Asn Gln Ala

485 490 495

Ala Leu Lys Ala Ala Val Asp Gly Lys Glu Met Val Thr Met Lys Glu

500 505 510

Leu Glu Phe Ser Lys Asp Lys Ile Leu Met Gly Pro Glu Arg Arg Ser

515 520 525

Val Glu Ile Asp Asn Lys Asn Lys Thr Ile Thr Ala Tyr His Glu Ser

530 535 540

Gly His Ala Ile Ile Ala Tyr Tyr Thr Lys Asp Ala Met Pro Ile Asn

545 550 555 560

Lys Ala Thr Ile Met Pro Arg Gly Pro Thr Leu Gly His Val Ser Leu

565 570 575

Leu Pro Glu Asn Asp Arg Trp Asn Glu Thr Arg Ala Gln Leu Leu Ala

580 585 590

Gln Met Asp Val Ser Met Gly Gly Arg Val Ala Glu Glu Leu Ile Phe

595 600 605

Gly Thr Asp His Ile Thr Thr Gly Ala Ser Ser Asp Phe Asp Asn Ala

610 615 620

Thr Lys Ile Ala Lys Arg Met Val Thr Lys Phe Gly Met Ser Glu Lys

625 630 635 640

Leu Gly Val Met Thr Tyr Ser Asp Thr Gly Lys Leu Ser Pro Glu Thr

645 650 655

Gln Ser Ala Ile Glu Gln Glu Ile Arg Ile Leu Leu Arg Asp Ser Tyr

660 665 670

Glu Arg Ala Lys His Ile Leu Lys Thr His Ala Lys Glu His Lys Asn

675 680 685

Leu Ala Glu Ala Leu Leu Thr Tyr Glu Thr Leu Asp Ala Lys Glu Ile

690 695 700

Gln Ile Val Leu Glu Gly Lys Lys Leu Glu Val Arg

705 710 715

<210> 56

<211> 773

<212> PRT

<213> Homo sapiens

<400> 56

Met Phe Ser Leu Ser Ser Thr Val Gln Pro Gln Val Thr Val Pro Leu

1 5 10 15

Ser His Leu Ile Asn Ala Phe His Thr Pro Lys Asn Thr Ser Val Ser

20 25 30

Leu Ser Gly Val Ser Val Ser Gln Asn Gln His Arg Asp Val Val Pro

35 40 45

Glu His Glu Ala Pro Ser Ser Glu Cys Met Phe Ser Asp Phe Leu Thr

50 55 60

Lys Leu Asn Ile Val Ser Ile Gly Lys Gly Lys Ile Phe Glu Gly Tyr

65 70 75 80

Arg Ser Met Phe Met Glu Pro Ala Lys Arg Met Lys Lys Ser Leu Asp

85 90 95

Thr Thr Asp Asn Trp His Ile Arg Pro Glu Pro Phe Ser Leu Ser Ile

100 105 110

Pro Pro Ser Leu Asn Leu Arg Asp Leu Gly Leu Ser Glu Leu Lys Ile

115 120 125

Gly Gln Ile Asp Gln Leu Val Glu Asn Leu Leu Pro Gly Phe Cys Lys

130 135 140

Gly Lys Asn Ile Ser Ser His Trp His Thr Ser His Val Ser Ala Gln

145 150 155 160

Ser Phe Phe Glu Asn Lys Tyr Gly Asn Leu Asp Ile Phe Ser Thr Leu

165 170 175

Arg Ser Ser Cys Leu Tyr Arg His His Ser Arg Ala Leu Gln Ser Ile

180 185 190

Cys Ser Asp Leu Gln Tyr Trp Pro Val Phe Ile Gln Ser Arg Gly Phe

195 200 205

Lys Thr Leu Lys Ser Arg Thr Arg Arg Leu Gln Ser Thr Ser Glu Arg

210 215 220

Leu Ala Glu Thr Gln Asn Ile Ala Pro Ser Phe Val Lys Gly Phe Leu

225 230 235 240

Leu Arg Asp Arg Gly Ser Asp Val Glu Ser Leu Asp Lys Leu Met Lys

245 250 255

Thr Lys Asn Ile Pro Glu Ala His Gln Asp Ala Phe Lys Thr Gly Phe

260 265 270

Ala Glu Gly Phe Leu Lys Ala Gln Ala Leu Thr Gln Lys Thr Asn Asp

275 280 285

Ser Leu Arg Arg Thr Arg Leu Ile Leu Phe Val Leu Leu Leu Phe Gly

290 295 300

Ile Tyr Gly Leu Leu Lys Asn Pro Phe Leu Ser Val Arg Phe Arg Thr

305 310 315 320

Thr Thr Gly Leu Asp Ser Ala Val Asp Pro Val Gln Met Lys Asn Val

325 330 335

Thr Phe Glu His Val Lys Gly Val Glu Glu Ala Lys Gln Glu Leu Gln

340 345 350

Glu Val Val Glu Phe Leu Lys Asn Pro Gln Lys Phe Thr Ile Leu Gly

355 360 365

Gly Lys Leu Pro Lys Gly Ile Leu Leu Val Gly Pro Pro Gly Thr Gly

370 375 380

Lys Thr Leu Leu Ala Arg Ala Val Ala Gly Glu Ala Asp Val Pro Phe

385 390 395 400

Tyr Tyr Ala Ser Gly Ser Glu Phe Asp Glu Met Phe Val Gly Val Gly

405 410 415

Ala Ser Arg Ile Arg Asn Leu Phe Arg Glu Ala Lys Ala Asn Ala Pro

420 425 430

Cys Val Ile Phe Ile Asp Glu Leu Asp Ser Val Gly Gly Lys Arg Ile

435 440 445

Glu Ser Pro Met His Pro Tyr Ser Arg Gln Thr Ile Asn Gln Leu Leu

450 455 460

Ala Glu Met Asp Gly Phe Lys Pro Asn Glu Gly Val Ile Ile Ile Gly

465 470 475 480

Ala Thr Asn Phe Pro Glu Ala Leu Asp Asn Ala Leu Ile Arg Pro Gly

485 490 495

Arg Phe Asp Met Gln Val Thr Val Pro Arg Pro Asp Val Lys Gly Arg

500 505 510

Thr Glu Ile Leu Lys Trp Tyr Leu Asn Lys Ile Lys Phe Asp Gln Ser

515 520 525

Val Asp Pro Glu Ile Ile Ala Arg Gly Thr Val Gly Phe Ser Gly Ala

530 535 540

Glu Leu Glu Asn Leu Val Asn Gln Ala Ala Leu Lys Ala Ala Val Asp

545 550 555 560

Gly Lys Glu Met Val Thr Met Lys Glu Leu Glu Phe Ser Lys Asp Lys

565 570 575

Ile Leu Met Gly Pro Glu Arg Arg Ser Val Glu Ile Asp Asn Lys Asn
580 585 590
Lys Thr Ile Thr Ala Tyr His Glu Ser Gly His Ala Ile Ile Ala Tyr
595 600 605
Tyr Thr Lys Asp Ala Met Pro Ile Asn Lys Ala Thr Ile Met Pro Arg
610 615 620
Gly Pro Thr Leu Gly His Val Ser Leu Leu Pro Glu Asn Asp Arg Trp
625 630 635 640
Asn Glu Thr Arg Ala Gln Leu Leu Ala Gln Met Asp Val Ser Met Gly

645 650 655
Gly Arg Val Ala Glu Glu Leu Ile Phe Gly Thr Asp His Ile Thr Thr
660 665 670
Gly Ala Ser Ser Asp Phe Asp Asn Ala Thr Lys Ile Ala Lys Arg Met
675 680 685
Val Thr Lys Phe Gly Met Ser Glu Lys Leu Gly Val Met Thr Tyr Ser
690 695 700
Asp Thr Gly Lys Leu Ser Pro Glu Thr Gln Ser Ala Ile Glu Gln Glu
705 710 715 720

Ile Arg Ile Leu Leu Arg Asp Ser Tyr Glu Arg Ala Lys His Ile Leu
725 730 735
Lys Thr His Ala Lys Glu His Lys Asn Leu Ala Glu Ala Leu Leu Thr
740 745 750
Tyr Glu Thr Leu Asp Ala Lys Glu Ile Gln Ile Val Leu Glu Gly Lys
755 760 765
Lys Leu Glu Val Arg
770

<210> 57
<211> 740
<212> PRT
<213> Homo sapiens
<400> 57

Met Phe Ser Leu Ser Ser Thr Val Gln Pro Gln Val Thr Val Pro Leu

1 5 10 15

Ser His Leu Ile Asn Ala Phe His Thr Pro Lys Asn Thr Ser Val Ser

20 25 30

Leu Ser Gly Val Ser Val Ser Gln Asn Gln His Arg Asp Val Val Pro

35 40 45

Glu His Glu Ala Pro Ser Ser Glu Cys Met Phe Ser Asp Phe Leu Thr

50 55 60

Lys Leu Asn Ile Val Ser Ile Gly Lys Gly Lys Ile Phe Glu Gly Tyr

65 70 75 80

Arg Ser Met Phe Met Glu Pro Ala Lys Arg Met Lys Lys Ser Leu Asp

85 90 95

Thr Thr Asp Asn Trp His Ile Arg Pro Glu Pro Phe Ser Leu Ser Ile

100 105 110

Pro Pro Ser Leu Asn Leu Arg Asp Leu Gly Leu Ser Glu Leu Lys Ile

115 120 125

Gly Gln Ile Asp Gln Leu Val Glu Asn Leu Leu Pro Gly Phe Cys Lys

130 135 140

Gly Lys Asn Ile Ser Ser His Trp His Thr Ser His Val Ser Ala Gln

145 150 155 160

Ser Phe Phe Glu Asn Lys Tyr Val Phe Ile Gln Ser Arg Gly Phe Lys

165 170 175

Thr Leu Lys Ser Arg Thr Arg Arg Leu Gln Ser Thr Ser Glu Arg Leu

180 185 190

Ala Glu Thr Gln Asn Ile Ala Pro Ser Phe Val Lys Gly Phe Leu Leu

195 200 205

Arg Asp Arg Gly Ser Asp Val Glu Ser Leu Asp Lys Leu Met Lys Thr

210 215 220

Lys Asn Ile Pro Glu Ala His Gln Asp Ala Phe Lys Thr Gly Phe Ala

225 230 235 240

Glu Gly Phe Leu Lys Ala Gln Ala Leu Thr Gln Lys Thr Asn Asp Ser

245 250 255

Leu Arg Arg Thr Arg Leu Ile Leu Phe Val Leu Leu Leu Phe Gly Ile

260 265 270

Tyr Gly Leu Leu Lys Asn Pro Phe Leu Ser Val Arg Phe Arg Thr Thr

275 280 285

Thr Gly Leu Asp Ser Ala Val Asp Pro Val Gln Met Lys Asn Val Thr

290 295 300

Phe Glu His Val Lys Gly Val Glu Glu Ala Lys Gln Glu Leu Gln Glu

305 310 315 320

Val Val Glu Phe Leu Lys Asn Pro Gln Lys Phe Thr Ile Leu Gly Gly

325 330 335

Lys Leu Pro Lys Gly Ile Leu Leu Val Gly Pro Pro Gly Thr Gly Lys

340 345 350

Thr Leu Leu Ala Arg Ala Val Ala Gly Glu Ala Asp Val Pro Phe Tyr

355 360 365

Tyr Ala Ser Gly Ser Glu Phe Asp Glu Met Phe Val Gly Val Gly Ala

370 375 380

Ser Arg Ile Arg Asn Leu Phe Arg Glu Ala Lys Ala Asn Ala Pro Cys

385 390 395 400

Val Ile Phe Ile Asp Glu Leu Asp Ser Val Gly Gly Lys Arg Ile Glu

405 410 415

Ser Pro Met His Pro Tyr Ser Arg Gln Thr Ile Asn Gln Leu Leu Ala

420 425 430

Glu Met Asp Gly Phe Lys Pro Asn Glu Gly Val Ile Ile Ile Gly Ala

435 440 445

Thr Asn Phe Pro Glu Ala Leu Asp Asn Ala Leu Ile Arg Pro Gly Arg

450 455 460

Phe Asp Met Gln Val Thr Val Pro Arg Pro Asp Val Lys Gly Arg Thr

465 470 475 480

Glu Ile Leu Lys Trp Tyr Leu Asn Lys Ile Lys Phe Asp Gln Ser Val

485 490 495

Asp Pro Glu Ile Ile Ala Arg Gly Thr Val Gly Phe Ser Gly Ala Glu

500 505 510

Leu Glu Asn Leu Val Asn Gln Ala Ala Leu Lys Ala Ala Val Asp Gly
515 520 525
Lys Glu Met Val Thr Met Lys Glu Leu Glu Phe Ser Lys Asp Lys Ile
530 535 540
Leu Met Gly Pro Glu Arg Arg Ser Val Glu Ile Asp Asn Lys Asn Lys
545 550 555 560
Thr Ile Thr Ala Tyr His Glu Ser Gly His Ala Ile Ile Ala Tyr Tyr
565 570 575
Thr Lys Asp Ala Met Pro Ile Asn Lys Ala Thr Ile Met Pro Arg Gly

580 585 590
Pro Thr Leu Gly His Val Ser Leu Leu Pro Glu Asn Asp Arg Trp Asn
595 600 605
Glu Thr Arg Ala Gln Leu Leu Ala Gln Met Asp Val Ser Met Gly Gly
610 615 620
Arg Val Ala Glu Glu Leu Ile Phe Gly Thr Asp His Ile Thr Thr Gly
625 630 635 640
Ala Ser Ser Asp Phe Asp Asn Ala Thr Lys Ile Ala Lys Arg Met Val
645 650 655

Thr Lys Phe Gly Met Ser Glu Lys Leu Gly Val Met Thr Tyr Ser Asp
660 665 670
Thr Gly Lys Leu Ser Pro Glu Thr Gln Ser Ala Ile Glu Gln Glu Ile
675 680 685
Arg Ile Leu Leu Arg Asp Ser Tyr Glu Arg Ala Lys His Ile Leu Lys
690 695 700
Thr His Ala Lys Glu His Lys Asn Leu Ala Glu Ala Leu Leu Thr Tyr
705 710 715 720
Glu Thr Leu Asp Ala Lys Glu Ile Gln Ile Val Leu Glu Gly Lys Lys

725 730 735
Leu Glu Val Arg
740

<210> 58

<211> 261

<212> PRT

<213> Homo sapiens

<400> 58

Met Ala Gln Asn Leu Lys Asp Leu Ala Gly Arg Leu Pro Ala Gly Pro
1 5 10 15

Arg Gly Met Gly Thr Ala Leu Lys Leu Leu Leu Gly Ala Gly Ala Val
20 25 30

Ala Tyr Gly Val Arg Glu Ser Val Phe Thr Val Glu Gly Gly His Arg
35 40 45

Ala Ile Phe Phe Asn Arg Ile Gly Gly Val Gln Gln Asp Thr Ile Leu
50 55 60

Ala Glu Gly Leu His Phe Arg Ile Pro Trp Phe Gln Tyr Pro Ile Ile
65 70 75 80

Tyr Asp Ile Arg Ala Arg Pro Arg Lys Ile Ser Ser Pro Thr Gly Ser
85 90 95

Lys Asp Leu Gln Met Val Asn Ile Ser Leu Arg Val Leu Ser Arg Pro
100 105 110

Asn Ala Gln Glu Leu Pro Ser Met Tyr Gln Arg Leu Gly Leu Asp Tyr

115 120 125

Glu Glu Arg Val Leu Pro Ser Ile Val Asn Glu Val Leu Lys Ser Val
130 135 140

Val Ala Lys Phe Asn Ala Ser Gln Leu Ile Thr Gln Arg Ala Gln Val
145 150 155 160

Ser Leu Leu Ile Arg Arg Glu Leu Thr Glu Arg Ala Lys Asp Phe Ser
165 170 175

Leu Ile Leu Asp Asp Val Ala Ile Thr Glu Leu Ser Phe Ser Arg Glu
180 185 190

Tyr Thr Ala Ala Val Glu Ala Lys Gln Val Ala Leu Ser Lys Asn Pro
195 200 205

Gly Tyr Ile Lys Leu Arg Lys Ile Arg Ala Ala Gln Asn Ile Ser Lys

210 215 220

Thr Ile Ala Thr Ser Gln Asn Arg Ile Tyr Leu Thr Ala Asp Asn Leu

225 230 235 240

Val Leu Asn Leu Gln Asp Glu Ser Phe Thr Arg Gly Ser Asp Ser Leu

245 250 255

Ile Lys Gly Lys Lys

260

<210> 59

<211> 299

<212> PRT

<213> Homo sapiens

<400> 59

Met Ala Gln Asn Leu Lys Asp Leu Ala Gly Arg Leu Pro Ala Gly Pro

1 5 10 15

Arg Gly Met Gly Thr Ala Leu Lys Leu Leu Leu Gly Ala Gly Ala Val

20 25 30

Ala Tyr Gly Val Arg Glu Ser Val Phe Thr Val Glu Gly Gly His Arg

35 40 45

Ala Ile Phe Phe Asn Arg Ile Gly Gly Val Gln Gln Asp Thr Ile Leu

50 55 60

Ala Glu Gly Leu His Phe Arg Ile Pro Trp Phe Gln Tyr Pro Ile Ile

65 70 75 80

Tyr Asp Ile Arg Ala Arg Pro Arg Lys Ile Ser Ser Pro Thr Gly Ser

85 90 95

Lys Asp Leu Gln Met Val Asn Ile Ser Leu Arg Val Leu Ser Arg Pro

100 105 110

Asn Ala Gln Glu Leu Pro Ser Met Tyr Gln Arg Leu Gly Leu Asp Tyr

115 120 125

Glu Glu Arg Val Leu Pro Ser Ile Val Asn Glu Val Leu Lys Ser Val

130 135 140

Val Ala Lys Phe Asn Ala Ser Gln Leu Ile Thr Gln Arg Ala Gln Val

145 150 155 160

Ser Leu Leu Ile Arg Arg Glu Leu Thr Glu Arg Ala Lys Asp Phe Ser
165 170 175
Leu Ile Leu Asp Asp Val Ala Ile Thr Glu Leu Ser Phe Ser Arg Glu
180 185 190
Tyr Thr Ala Ala Val Glu Ala Lys Gln Val Ala Gln Gln Glu Ala Gln

195 200 205
Arg Ala Gln Phe Leu Val Glu Lys Ala Lys Gln Glu Gln Arg Gln Lys
210 215 220
Ile Val Gln Ala Glu Gly Glu Ala Glu Ala Ala Lys Met Leu Gly Glu
225 230 235 240
Ala Leu Ser Lys Asn Pro Gly Tyr Ile Lys Leu Arg Lys Ile Arg Ala
245 250 255
Ala Gln Asn Ile Ser Lys Thr Ile Ala Thr Ser Gln Asn Arg Ile Tyr
260 265 270

Leu Thr Ala Asp Asn Leu Val Leu Asn Leu Gln Asp Glu Ser Phe Thr
275 280 285
Arg Gly Ser Asp Ser Leu Ile Lys Gly Lys Lys
290 295
<210> 60
<211> 204
<212> PRT
<213> Homo sapiens
<400> 60
Met Thr Glu Trp Glu Thr Ala Ala Pro Ala Val Ala Glu Thr Pro Asp
1 5 10 15
Ile Lys Leu Phe Gly Lys Trp Ser Thr Asp Asp Val Gln Ile Asn Asp
20 25 30

Ile Ser Leu Gln Asp Tyr Ile Ala Val Lys Glu Lys Tyr Ala Lys Tyr
35 40 45
Leu Pro His Ser Ala Gly Arg Tyr Ala Ala Lys Arg Phe Arg Lys Ala
50 55 60
Gln Cys Pro Ile Val Glu Arg Leu Thr Asn Ser Met Met Met His Gly

65 70 75 80

Arg Asn Asn Gly Lys Lys Leu Met Thr Val Arg Ile Val Lys His Ala

85 90 95

Phe Glu Ile Ile His Leu Leu Thr Gly Glu Asn Pro Leu Gln Val Leu

100 105 110

Val Asn Ala Ile Ile Asn Ser Gly Pro Arg Glu Asp Ser Thr Arg Ile

115 120 125

Gly Arg Ala Gly Thr Val Arg Arg Gln Ala Val Asp Val Ser Pro Leu

130 135 140

Arg Arg Val Asn Gln Ala Ile Trp Leu Leu Cys Thr Gly Ala Arg Glu

145 150 155 160

Ala Ala Phe Arg Asn Ile Lys Thr Ile Ala Glu Cys Leu Ala Asp Glu

165 170 175

Leu Ile Asn Ala Ala Lys Gly Ser Ser Asn Ser Tyr Ala Ile Lys Lys

180 185 190

Lys Asp Glu Leu Glu Arg Val Ala Lys Ser Asn Arg

195 200

<210> 61

<211> 847

<212> PRT

<213> Homo sapiens

<400> 61

Met Ser Gln Arg Gln Gly Lys Glu Ala Tyr Pro Thr Pro Thr Lys Asp

1 5 10 15

Leu His Gln Pro Ser Leu Ser Pro Ala Ser Pro His Ser Gln Gly Phe

20 25 30

Glu Arg Gly Lys Glu Asp Ile Ser Gln Asn Lys Asp Glu Ser Ser Leu

35 40 45

Ser Met Ser Lys Ser Lys Ser Glu Ser Lys Leu Tyr Asn Gly Ser Glu

50 55 60

Lys Asp Ser Ser Thr Ser Ser Lys Leu Thr Lys Lys Glu Ser Leu Lys

65 70 75 80

Val Gln Lys Lys Asn Tyr Arg Glu Glu Lys Lys Arg Ala Thr Lys Glu
85 90 95
Leu Leu Ser Thr Ile Thr Asp Pro Ser Val Ile Val Met Ala Asp Trp

100 105 110
Leu Lys Ile Arg Gly Thr Leu Lys Ser Trp Thr Lys Leu Trp Cys Val
115 120 125
Leu Lys Pro Gly Val Leu Leu Ile Tyr Lys Thr Gln Lys Asn Gly Gln
130 135 140
Trp Val Gly Thr Val Leu Leu Asn Ala Cys Glu Ile Ile Glu Arg Pro
145 150 155 160
Ser Lys Lys Asp Gly Phe Cys Phe Lys Leu Phe His Pro Leu Glu Gln
165 170 175

Ser Ile Trp Ala Val Lys Gly Pro Lys Gly Glu Ala Val Gly Ser Ile
180 185 190
Thr Gln Pro Leu Pro Ser Ser Tyr Leu Ile Ile Arg Ala Thr Ser Glu
195 200 205
Ser Asp Gly Arg Cys Trp Met Asp Ala Leu Glu Leu Ala Leu Lys Cys
210 215 220
Ser Ser Leu Leu Lys Arg Thr Met Ile Arg Glu Gly Lys Glu His Asp
225 230 235 240
Leu Ser Val Ser Ser Asp Ser Thr His Val Thr Phe Tyr Gly Leu Leu

245 250 255
Arg Ala Asn Asn Leu His Ser Gly Asp Asn Phe Gln Leu Asn Asp Ser
260 265 270
Glu Ile Glu Arg Gln His Phe Lys Asp Gln Asp Met Tyr Ser Asp Lys
275 280 285
Ser Asp Lys Glu Asn Asp Gln Glu His Asp Glu Ser Asp Asn Glu Val
290 295 300
Met Gly Lys Ser Glu Glu Ser Asp Thr Asp Thr Ser Glu Arg Gln Asp
305 310 315 320

Asp Ser Tyr Ile Glu Pro Glu Pro Val Glu Pro Leu Lys Glu Thr Thr

325 330 335

Tyr Thr Glu Gln Ser His Glu Glu Leu Gly Glu Ala Gly Glu Ala Ser

340 345 350

Gln Thr Glu Thr Val Ser Glu Glu Asn Lys Ser Leu Ile Trp Thr Leu

355 360 365

Leu Lys Gln Val Arg Pro Gly Met Asp Leu Ser Lys Val Val Leu Pro

370 375 380

Thr Phe Ile Leu Glu Pro Arg Ser Phe Leu Asp Lys Leu Ser Asp Tyr

385 390 395 400

Tyr Tyr His Ala Asp Phe Leu Ser Glu Ala Ala Leu Glu Glu Asn Pro

405 410 415

Tyr Phe Arg Leu Lys Lys Val Val Lys Trp Tyr Leu Ser Gly Phe Tyr

420 425 430

Lys Lys Pro Lys Gly Leu Lys Lys Pro Tyr Asn Pro Ile Leu Gly Glu

435 440 445

Thr Phe Arg Cys Leu Trp Ile His Pro Arg Thr Asn Ser Lys Thr Phe

450 455 460

Tyr Ile Ala Glu Gln Val Ser His His Pro Pro Ile Ser Ala Phe Tyr

465 470 475 480

Val Ser Asn Arg Lys Asp Gly Phe Cys Leu Ser Gly Ser Ile Leu Ala

485 490 495

Lys Ser Lys Phe Tyr Gly Asn Ser Leu Ser Ala Ile Leu Glu Gly Glu

500 505 510

Ala Arg Leu Thr Phe Leu Asn Arg Gly Glu Asp Tyr Val Met Thr Met

515 520 525

Pro Tyr Ala His Cys Lys Gly Ile Leu Tyr Gly Thr Met Thr Leu Glu

530 535 540

Leu Gly Gly Thr Val Asn Ile Thr Cys Gln Lys Thr Gly Tyr Ser Ala

545 550 555 560

Ile Leu Glu Phe Lys Leu Lys Pro Phe Leu Gly Ser Ser Asp Cys Val

565 570 575

Asn Gln Ile Ser Gly Lys Leu Lys Leu Gly Lys Glu Val Leu Ala Thr

580 585 590

Leu Glu Gly His Trp Asp Ser Glu Val Phe Ile Thr Asp Lys Lys Thr

595 600 605

Asp Asn Ser Glu Val Phe Trp Asn Pro Thr Pro Asp Ile Lys Gln Trp

610 615 620

Arg Leu Ile Arg His Thr Val Lys Phe Glu Glu Gln Gly Asp Phe Glu

625 630 635 640

Ser Glu Lys Leu Trp Gln Arg Val Thr Arg Ala Ile Asn Ala Lys Asp

645 650 655

Gln Thr Glu Ala Thr Gln Glu Lys Tyr Val Leu Glu Glu Ala Gln Arg

660 665 670

Gln Ala Ala Arg Asp Arg Lys Thr Lys Asn Glu Glu Trp Ser Cys Lys

675 680 685

Leu Phe Glu Leu Asp Pro Leu Thr Gly Glu Trp His Tyr Lys Phe Ala

690 695 700

Asp Thr Arg Pro Trp Asp Pro Leu Asn Asp Met Ile Gln Phe Glu Lys

705 710 715 720

Asp Gly Val Ile Gln Thr Lys Val Lys His Arg Thr Pro Met Val Ser

725 730 735

Val Pro Lys Met Lys His Lys Pro Thr Arg Gln Gln Lys Lys Val Ala

740 745 750

Lys Gly Tyr Ser Ser Pro Glu Pro Asp Ile Gln Asp Ser Ser Gly Ser

755 760 765

Glu Ala Gln Ser Val Lys Pro Ser Thr Arg Arg Lys Lys Gly Ile Glu

770 775 780

Leu Gly Asp Ile Gln Ser Ser Ile Glu Ser Ile Lys Gln Thr Gln Glu

785 790 795 800

Glu Ile Lys Arg Asn Ile Met Ala Leu Arg Asn His Leu Val Ser Ser

805 810 815

Thr Pro Ala Thr Asp Tyr Phe Leu Gln Gln Lys Asp Tyr Phe Ile Ile

820 825 830

Phe Leu Leu Ile Leu Leu Gln Val Ile Ile Asn Phe Met Phe Lys
835 840 845

<210> 62

<211> 889

<212> PRT

<213> Homo sapiens

<400> 62

Met Glu Gly Gly Leu Ala Asp Gly Glu Pro Asp Arg Thr Ser Leu Leu
1 5 10 15

Gly Asp Ser Lys Asp Val Leu Gly Pro Ser Thr Val Val Ala Asn Ser
20 25 30

Asp Glu Ser Gln Leu Leu Thr Pro Gly Lys Met Ser Gln Arg Gln Gly

35 40 45

Lys Glu Ala Tyr Pro Thr Pro Thr Lys Asp Leu His Gln Pro Ser Leu
50 55 60

Ser Pro Ala Ser Pro His Ser Gln Gly Phe Glu Arg Gly Lys Glu Asp
65 70 75 80

Ile Ser Gln Asn Lys Asp Glu Ser Ser Leu Ser Met Ser Lys Ser Lys
85 90 95

Ser Glu Ser Lys Leu Tyr Asn Gly Ser Glu Lys Asp Ser Ser Thr Ser
100 105 110

Ser Lys Leu Thr Lys Lys Glu Ser Leu Lys Val Gln Lys Lys Asn Tyr
115 120 125

Arg Glu Glu Lys Lys Arg Ala Thr Lys Glu Leu Leu Ser Thr Ile Thr
130 135 140

Asp Pro Ser Val Ile Val Met Ala Asp Trp Leu Lys Ile Arg Gly Thr
145 150 155 160

Leu Lys Ser Trp Thr Lys Leu Trp Cys Val Leu Lys Pro Gly Val Leu
165 170 175

Leu Ile Tyr Lys Thr Gln Lys Asn Gly Gln Trp Val Gly Thr Val Leu

180 185 190

Leu Asn Ala Cys Glu Ile Ile Glu Arg Pro Ser Lys Lys Asp Gly Phe

195 200 205

Cys Phe Lys Leu Phe His Pro Leu Glu Gln Ser Ile Trp Ala Val Lys

210 215 220

Gly Pro Lys Gly Glu Ala Val Gly Ser Ile Thr Gln Pro Leu Pro Ser

225 230 235 240

Ser Tyr Leu Ile Ile Arg Ala Thr Ser Glu Ser Asp Gly Arg Cys Trp

245 250 255

Met Asp Ala Leu Glu Leu Ala Leu Lys Cys Ser Ser Leu Leu Lys Arg

260 265 270

Thr Met Ile Arg Glu Gly Lys Glu His Asp Leu Ser Val Ser Ser Asp

275 280 285

Ser Thr His Val Thr Phe Tyr Gly Leu Leu Arg Ala Asn Asn Leu His

290 295 300

Ser Gly Asp Asn Phe Gln Leu Asn Asp Ser Glu Ile Glu Arg Gln His

305 310 315 320

Phe Lys Asp Gln Asp Met Tyr Ser Asp Lys Ser Asp Lys Glu Asn Asp

325 330 335

Gln Glu His Asp Glu Ser Asp Asn Glu Val Met Gly Lys Ser Glu Glu

340 345 350

Ser Asp Thr Asp Thr Ser Glu Arg Gln Asp Asp Ser Tyr Ile Glu Pro

355 360 365

Glu Pro Val Glu Pro Leu Lys Glu Thr Thr Tyr Thr Glu Gln Ser His

370 375 380

Glu Glu Leu Gly Glu Ala Gly Glu Ala Ser Gln Thr Glu Thr Val Ser

385 390 395 400

Glu Glu Asn Lys Ser Leu Ile Trp Thr Leu Leu Lys Gln Val Arg Pro

405 410 415

Gly Met Asp Leu Ser Lys Val Val Leu Pro Thr Phe Ile Leu Glu Pro

420 425 430

Arg Ser Phe Leu Asp Lys Leu Ser Asp Tyr Tyr Tyr His Ala Asp Phe

435 440 445

Leu Ser Glu Ala Ala Leu Glu Glu Asn Pro Tyr Phe Arg Leu Lys Lys

450 455 460

Val Val Lys Trp Tyr Leu Ser Gly Phe Tyr Lys Lys Pro Lys Gly Leu

465 470 475 480

Lys Lys Pro Tyr Asn Pro Ile Leu Gly Glu Thr Phe Arg Cys Leu Trp

485 490 495

Ile His Pro Arg Thr Asn Ser Lys Thr Phe Tyr Ile Ala Glu Gln Val

500 505 510

Ser His His Pro Pro Ile Ser Ala Phe Tyr Val Ser Asn Arg Lys Asp

515 520 525

Gly Phe Cys Leu Ser Gly Ser Ile Leu Ala Lys Ser Lys Phe Tyr Gly

530 535 540

Asn Ser Leu Ser Ala Ile Leu Glu Gly Glu Ala Arg Leu Thr Phe Leu

545 550 555 560

Asn Arg Gly Glu Asp Tyr Val Met Thr Met Pro Tyr Ala His Cys Lys

565 570 575

Gly Ile Leu Tyr Gly Thr Met Thr Leu Glu Leu Gly Gly Thr Val Asn

580 585 590

Ile Thr Cys Gln Lys Thr Gly Tyr Ser Ala Ile Leu Glu Phe Lys Leu

595 600 605

Lys Pro Phe Leu Gly Ser Ser Asp Cys Val Asn Gln Ile Ser Gly Lys

610 615 620

Leu Lys Leu Gly Lys Glu Val Leu Ala Thr Leu Glu Gly His Trp Asp

625 630 635 640

Ser Glu Val Phe Ile Thr Asp Lys Lys Thr Asp Asn Ser Glu Val Phe

645 650 655

Trp Asn Pro Thr Pro Asp Ile Lys Gln Trp Arg Leu Ile Arg His Thr

660 665 670

Val Lys Phe Glu Glu Gln Gly Asp Phe Glu Ser Glu Lys Leu Trp Gln

675 680 685

Arg Val Thr Arg Ala Ile Asn Ala Lys Asp Gln Thr Glu Ala Thr Gln

690 695 700

Glu Lys Tyr Val Leu Glu Glu Ala Gln Arg Gln Ala Ala Arg Asp Arg
705 710 715 720
Lys Thr Lys Asn Glu Glu Trp Ser Cys Lys Leu Phe Glu Leu Asp Pro
725 730 735
Leu Thr Gly Glu Trp His Tyr Lys Phe Ala Asp Thr Arg Pro Trp Asp
740 745 750
Pro Leu Asn Asp Met Ile Gln Phe Glu Lys Asp Gly Val Ile Gln Thr

755 760 765
Lys Val Lys His Arg Thr Pro Met Val Ser Val Pro Lys Met Lys His
770 775 780
Lys Pro Thr Arg Gln Gln Lys Lys Val Ala Lys Gly Tyr Ser Ser Pro
785 790 795 800
Glu Pro Asp Ile Gln Asp Ser Ser Gly Ser Glu Ala Gln Ser Val Lys
805 810 815
Pro Ser Thr Arg Arg Lys Lys Gly Ile Glu Leu Gly Asp Ile Gln Ser
820 825 830

Ser Ile Glu Ser Ile Lys Gln Thr Gln Glu Glu Ile Lys Arg Asn Ile
835 840 845
Met Ala Leu Arg Asn His Leu Val Ser Ser Thr Pro Ala Thr Asp Tyr
850 855 860
Phe Leu Gln Gln Lys Asp Tyr Phe Ile Ile Phe Leu Leu Ile Leu Leu
865 870 875 880
Gln Val Ile Ile Asn Phe Met Phe Lys
885

<210> 63
<211> 886
<212> PRT
<213> Homo sapiens
<
400> 63
Met Glu Gly Gly Leu Ala Asp Gly Glu Pro Asp Arg Thr Ser Leu Leu
1 5 10 15
Gly Asp Ser Lys Asp Val Leu Gly Pro Ser Thr Asn Ser Asp Glu Ser

20 25 30

Gln Leu Leu Thr Pro Gly Lys Met Ser Gln Arg Gln Gly Lys Glu Ala

35 40 45

Tyr Pro Thr Pro Thr Lys Asp Leu His Gln Pro Ser Leu Ser Pro Ala

50 55 60

Ser Pro His Ser Gln Gly Phe Glu Arg Gly Lys Glu Asp Ile Ser Gln

65 70 75 80

Asn Lys Asp Glu Ser Ser Leu Ser Met Ser Lys Ser Lys Ser Glu Ser

85 90 95

Lys Leu Tyr Asn Gly Ser Glu Lys Asp Ser Ser Thr Ser Ser Lys Leu

100 105 110

Thr Lys Lys Glu Ser Leu Lys Val Gln Lys Lys Asn Tyr Arg Glu Glu

115 120 125

Lys Lys Arg Ala Thr Lys Glu Leu Leu Ser Thr Ile Thr Asp Pro Ser

130 135 140

Val Ile Val Met Ala Asp Trp Leu Lys Ile Arg Gly Thr Leu Lys Ser

145 150 155 160

Trp Thr Lys Leu Trp Cys Val Leu Lys Pro Gly Val Leu Leu Ile Tyr

165 170 175

Lys Thr Gln Lys Asn Gly Gln Trp Val Gly Thr Val Leu Leu Asn Ala

180 185 190

Cys Glu Ile Ile Glu Arg Pro Ser Lys Lys Asp Gly Phe Cys Phe Lys

195 200 205

Leu Phe His Pro Leu Glu Gln Ser Ile Trp Ala Val Lys Gly Pro Lys

210 215 220

Gly Glu Ala Val Gly Ser Ile Thr Gln Pro Leu Pro Ser Ser Tyr Leu

225 230 235 240

Ile Ile Arg Ala Thr Ser Glu Ser Asp Gly Arg Cys Trp Met Asp Ala

245 250 255

Leu Glu Leu Ala Leu Lys Cys Ser Ser Leu Leu Lys Arg Thr Met Ile

260 265 270

Arg Glu Gly Lys Glu His Asp Leu Ser Val Ser Ser Asp Ser Thr His

275 280 285

Val Thr Phe Tyr Gly Leu Leu Arg Ala Asn Asn Leu His Ser Gly Asp
290 295 300
Asn Phe Gln Leu Asn Asp Ser Glu Ile Glu Arg Gln His Phe Lys Asp
305 310 315 320
Gln Asp Met Tyr Ser Asp Lys Ser Asp Lys Glu Asn Asp Gln Glu His
325 330 335
Asp Glu Ser Asp Asn Glu Val Met Gly Lys Ser Glu Glu Ser Asp Thr
340 345 350
Asp Thr Ser Glu Arg Gln Asp Asp Ser Tyr Ile Glu Pro Glu Pro Val

355 360 365
Glu Pro Leu Lys Glu Thr Thr Tyr Thr Glu Gln Ser His Glu Glu Leu
370 375 380
Gly Glu Ala Gly Glu Ala Ser Gln Thr Glu Thr Val Ser Glu Glu Asn
385 390 395 400
Lys Ser Leu Ile Trp Thr Leu Leu Lys Gln Val Arg Pro Gly Met Asp
405 410 415
Leu Ser Lys Val Val Leu Pro Thr Phe Ile Leu Glu Pro Arg Ser Phe
420 425 430

Leu Asp Lys Leu Ser Asp Tyr Tyr Tyr His Ala Asp Phe Leu Ser Glu
435 440 445
Ala Ala Leu Glu Glu Asn Pro Tyr Phe Arg Leu Lys Lys Val Val Lys
450 455 460
Trp Tyr Leu Ser Gly Phe Tyr Lys Lys Pro Lys Gly Leu Lys Lys Pro
465 470 475 480
Tyr Asn Pro Ile Leu Gly Glu Thr Phe Arg Cys Leu Trp Ile His Pro
485 490 495
Arg Thr Asn Ser Lys Thr Phe Tyr Ile Ala Glu Gln Val Ser His His

500 505 510
Pro Pro Ile Ser Ala Phe Tyr Val Ser Asn Arg Lys Asp Gly Phe Cys
515 520 525

Leu Ser Gly Ser Ile Leu Ala Lys Ser Lys Phe Tyr Gly Asn Ser Leu
530 535 540
Ser Ala Ile Leu Glu Gly Glu Ala Arg Leu Thr Phe Leu Asn Arg Gly
545 550 555 560
Glu Asp Tyr Val Met Thr Met Pro Tyr Ala His Cys Lys Gly Ile Leu
565 570 575

Tyr Gly Thr Met Thr Leu Glu Leu Gly Gly Thr Val Asn Ile Thr Cys
580 585 590
Gln Lys Thr Gly Tyr Ser Ala Ile Leu Glu Phe Lys Leu Lys Pro Phe
595 600 605
Leu Gly Ser Ser Asp Cys Val Asn Gln Ile Ser Gly Lys Leu Lys Leu
610 615 620
Gly Lys Glu Val Leu Ala Thr Leu Glu Gly His Trp Asp Ser Glu Val
625 630 635 640
Phe Ile Thr Asp Lys Lys Thr Asp Asn Ser Glu Val Phe Trp Asn Pro

645 650 655
Thr Pro Asp Ile Lys Gln Trp Arg Leu Ile Arg His Thr Val Lys Phe
660 665 670
Glu Glu Gln Gly Asp Phe Glu Ser Glu Lys Leu Trp Gln Arg Val Thr
675 680 685
Arg Ala Ile Asn Ala Lys Asp Gln Thr Glu Ala Thr Gln Glu Lys Tyr
690 695 700
Val Leu Glu Glu Ala Gln Arg Gln Ala Ala Arg Asp Arg Lys Thr Lys
705 710 715 720

Asn Glu Glu Trp Ser Cys Lys Leu Phe Glu Leu Asp Pro Leu Thr Gly
725 730 735
Glu Trp His Tyr Lys Phe Ala Asp Thr Arg Pro Trp Asp Pro Leu Asn
740 745 750
Asp Met Ile Gln Phe Glu Lys Asp Gly Val Ile Gln Thr Lys Val Lys
755 760 765
His Arg Thr Pro Met Val Ser Val Pro Lys Met Lys His Lys Pro Thr
770 775 780

Arg Gln Gln Lys Lys Val Ala Lys Gly Tyr Ser Ser Pro Glu Pro Asp

785 790 795 800

Ile Gln Asp Ser Ser Gly Ser Glu Ala Gln Ser Val Lys Pro Ser Thr

805 810 815

Arg Arg Lys Lys Gly Ile Glu Leu Gly Asp Ile Gln Ser Ser Ile Glu

820 825 830

Ser Ile Lys Gln Thr Gln Glu Glu Ile Lys Arg Asn Ile Met Ala Leu

835 840 845

Arg Asn His Leu Val Ser Ser Thr Pro Ala Thr Asp Tyr Phe Leu Gln

850 855 860

Gln Lys Asp Tyr Phe Ile Ile Phe Leu Leu Ile Leu Leu Gln Val Ile

865 870 875 880

Ile Asn Phe Met Phe Lys

885

<210> 64

<211> 864

<212> PRT

<213> Homo sapiens

<400> 64

Met Lys Glu Glu Ser Ser Gln Arg Arg Phe Ser Ser Cys Thr Gly Val

1 5 10 15

Leu Pro Val Leu Phe Pro Pro Arg Ile Asp Gly Arg Lys Leu Val Arg

20 25 30

Asn Ala Ser Phe Gly Gly Tyr Asn Glu Leu Ser Pro Ser Leu Pro Gly

35 40 45

Phe Glu Arg Gly Lys Glu Asp Ile Ser Gln Asn Lys Asp Glu Ser Ser

50 55 60

Leu Ser Met Ser Lys Ser Lys Ser Glu Ser Lys Leu Tyr Asn Gly Ser

65 70 75 80

Glu Lys Asp Ser Ser Thr Ser Ser Lys Leu Thr Lys Lys Glu Ser Leu

85 90 95

Lys Val Gln Lys Lys Asn Tyr Arg Glu Glu Lys Lys Arg Ala Thr Lys

100 105 110

Glu Leu Leu Ser Thr Ile Thr Asp Pro Ser Val Ile Val Met Ala Asp

115 120 125

Trp Leu Lys Ile Arg Gly Thr Leu Lys Ser Trp Thr Lys Leu Trp Cys

130 135 140

Val Leu Lys Pro Gly Val Leu Leu Ile Tyr Lys Thr Gln Lys Asn Gly

145 150 155 160

Gln Trp Val Gly Thr Val Leu Leu Asn Ala Cys Glu Ile Ile Glu Arg

165 170 175

Pro Ser Lys Lys Asp Gly Phe Cys Phe Lys Leu Phe His Pro Leu Glu

180 185 190

Gln Ser Ile Trp Ala Val Lys Gly Pro Lys Gly Glu Ala Val Gly Ser

195 200 205

Ile Thr Gln Pro Leu Pro Ser Ser Tyr Leu Ile Ile Arg Ala Thr Ser

210 215 220

Glu Ser Asp Gly Arg Cys Trp Met Asp Ala Leu Glu Leu Ala Leu Lys

225 230 235 240

Cys Ser Ser Leu Leu Lys Arg Thr Met Ile Arg Glu Gly Lys Glu His

245 250 255

Asp Leu Ser Val Ser Ser Asp Ser Thr His Val Thr Phe Tyr Gly Leu

260 265 270

Leu Arg Ala Asn Asn Leu His Ser Gly Asp Asn Phe Gln Leu Asn Asp

275 280 285

Ser Glu Ile Glu Arg Gln His Phe Lys Asp Gln Asp Met Tyr Ser Asp

290 295 300

Lys Ser Asp Lys Glu Asn Asp Gln Glu His Asp Glu Ser Asp Asn Glu

305 310 315 320

Val Met Gly Lys Ser Glu Glu Ser Asp Thr Asp Thr Ser Glu Arg Gln

325 330 335

Asp Asp Ser Tyr Ile Glu Pro Glu Pro Val Glu Pro Leu Lys Glu Thr

340 345 350

Thr Tyr Thr Glu Gln Ser His Glu Glu Leu Gly Glu Ala Gly Glu Ala

355 360 365

Ser Gln Thr Glu Thr Val Ser Glu Glu Asn Lys Ser Leu Ile Trp Thr

370 375 380

Leu Leu Lys Gln Val Arg Pro Gly Met Asp Leu Ser Lys Val Val Leu

385 390 395 400

Pro Thr Phe Ile Leu Glu Pro Arg Ser Phe Leu Asp Lys Leu Ser Asp

405 410 415

Tyr Tyr Tyr His Ala Asp Phe Leu Ser Glu Ala Ala Leu Glu Glu Asn

420 425 430

Pro Tyr Phe Arg Leu Lys Lys Val Val Lys Trp Tyr Leu Ser Gly Phe

435 440 445

Tyr Lys Lys Pro Lys Gly Leu Lys Lys Pro Tyr Asn Pro Ile Leu Gly

450 455 460

Glu Thr Phe Arg Cys Leu Trp Ile His Pro Arg Thr Asn Ser Lys Thr

465 470 475 480

Phe Tyr Ile Ala Glu Gln Val Ser His His Pro Pro Ile Ser Ala Phe

485 490 495

Tyr Val Ser Asn Arg Lys Asp Gly Phe Cys Leu Ser Gly Ser Ile Leu

500 505 510

Ala Lys Ser Lys Phe Tyr Gly Asn Ser Leu Ser Ala Ile Leu Glu Gly

515 520 525

Glu Ala Arg Leu Thr Phe Leu Asn Arg Gly Glu Asp Tyr Val Met Thr

530 535 540

Met Pro Tyr Ala His Cys Lys Gly Ile Leu Tyr Gly Thr Met Thr Leu

545 550 555 560

Glu Leu Gly Gly Thr Val Asn Ile Thr Cys Gln Lys Thr Gly Tyr Ser

565 570 575

Ala Ile Leu Glu Phe Lys Leu Lys Pro Phe Leu Gly Ser Ser Asp Cys

580 585 590

Val Asn Gln Ile Ser Gly Lys Leu Lys Leu Gly Lys Glu Val Leu Ala

595 600 605

Thr Leu Glu Gly His Trp Asp Ser Glu Val Phe Ile Thr Asp Lys Lys
610 615 620
Thr Asp Asn Ser Glu Val Phe Trp Asn Pro Thr Pro Asp Ile Lys Gln
625 630 635 640
Trp Arg Leu Ile Arg His Thr Val Lys Phe Glu Glu Gln Gly Asp Phe
645 650 655
Glu Ser Glu Lys Leu Trp Gln Arg Val Thr Arg Ala Ile Asn Ala Lys
660 665 670
Asp Gln Thr Glu Ala Thr Gln Glu Lys Tyr Val Leu Glu Glu Ala Gln

675 680 685
Arg Gln Ala Ala Arg Asp Arg Lys Thr Lys Asn Glu Glu Trp Ser Cys
690 695 700
Lys Leu Phe Glu Leu Asp Pro Leu Thr Gly Glu Trp His Tyr Lys Phe
705 710 715 720
Ala Asp Thr Arg Pro Trp Asp Pro Leu Asn Asp Met Ile Gln Phe Glu
725 730 735
Lys Asp Gly Val Ile Gln Thr Lys Val Lys His Arg Thr Pro Met Val
740 745 750

Ser Val Pro Lys Met Lys His Lys Pro Thr Arg Gln Gln Lys Lys Val
755 760 765
Ala Lys Gly Tyr Ser Ser Pro Glu Pro Asp Ile Gln Asp Ser Ser Gly
770 775 780
Ser Glu Ala Gln Ser Val Lys Pro Ser Thr Arg Arg Lys Lys Gly Ile
785 790 795 800
Glu Leu Gly Asp Ile Gln Ser Ser Ile Glu Ser Ile Lys Gln Thr Gln
805 810 815
Glu Glu Ile Lys Arg Asn Ile Met Ala Leu Arg Asn His Leu Val Ser

820 825 830
Ser Thr Pro Ala Thr Asp Tyr Phe Leu Gln Gln Lys Asp Tyr Phe Ile
835 840 845

Ile Phe Leu Leu Ile Leu Leu Gln Val Ile Ile Asn Phe Met Phe Lys
850 855 860

<210> 65

<211> 889

<212> PRT

<213> Homo sapiens

<400> 65

Met Glu Gly Gly Leu Ala Asp Gly Glu Pro Asp Arg Thr Ser Leu Leu
1 5 10 15

Gly Asp Ser Lys Asp Val Leu Gly Pro Ser Thr Val Val Ala Asn Ser
20 25 30

Asp Glu Ser Gln Leu Leu Thr Pro Gly Lys Met Ser Gln Arg Gln Gly
35 40 45

Lys Glu Ala Tyr Pro Thr Pro Thr Lys Asp Leu His Gln Pro Ser Leu
50 55 60

Ser Pro Ala Ser Pro His Ser Gln Gly Phe Glu Arg Gly Lys Glu Asp
65 70 75 80

Ile Ser Gln Asn Lys Asp Glu Ser Ser Leu Ser Met Ser Lys Ser Lys
85 90 95

Ser Glu Ser Lys Leu Tyr Asn Gly Ser Glu Lys Asp Ser Ser Thr Ser
100 105 110

Ser Lys Leu Thr Lys Lys Glu Ser Leu Lys Val Gln Lys Lys Asn Tyr
115 120 125

Arg Glu Glu Lys Lys Arg Ala Thr Lys Glu Leu Leu Ser Thr Ile Thr
130 135 140

Asp Pro Ser Val Ile Val Met Ala Asp Trp Leu Lys Ile Arg Gly Thr
145 150 155 160

Leu Lys Ser Trp Thr Lys Leu Trp Cys Val Leu Lys Pro Gly Val Leu
165 170 175

Leu Ile Tyr Lys Thr Gln Lys Asn Gly Gln Trp Val Gly Thr Val Leu
180 185 190

Leu Asn Ala Cys Glu Ile Ile Glu Arg Pro Ser Lys Lys Asp Gly Phe

195 200 205

Cys Phe Lys Leu Phe His Pro Leu Glu Gln Ser Ile Trp Ala Val Lys

210 215 220

Gly Pro Lys Gly Glu Ala Val Gly Ser Ile Thr Gln Pro Leu Pro Ser

225 230 235 240

Ser Tyr Leu Ile Ile Arg Ala Thr Ser Glu Ser Asp Gly Arg Cys Trp

245 250 255

Met Asp Ala Leu Glu Leu Ala Leu Lys Cys Ser Ser Leu Leu Lys Arg

260 265 270

Thr Met Ile Arg Glu Gly Lys Glu His Asp Leu Ser Val Ser Ser Asp

275 280 285

Ser Thr His Val Thr Phe Tyr Gly Leu Leu Arg Ala Asn Asn Leu His

290 295 300

Ser Gly Asp Asn Phe Gln Leu Asn Asp Ser Glu Ile Glu Arg Gln His

305 310 315 320

Phe Lys Asp Gln Asp Met Tyr Ser Asp Lys Ser Asp Lys Glu Asn Asp

325 330 335

Gln Glu His Asp Glu Ser Asp Asn Glu Val Met Gly Lys Ser Glu Glu

340 345 350

Ser Asp Thr Asp Thr Ser Glu Arg Gln Asp Asp Ser Tyr Ile Glu Pro

355 360 365

Glu Pro Val Glu Pro Leu Lys Glu Thr Thr Tyr Thr Glu Gln Ser His

370 375 380

Glu Glu Leu Gly Glu Ala Gly Glu Ala Ser Gln Thr Glu Thr Val Ser

385 390 395 400

Glu Glu Asn Lys Ser Leu Ile Trp Thr Leu Leu Lys Gln Val Arg Pro

405 410 415

Gly Met Asp Leu Ser Lys Val Val Leu Pro Thr Phe Ile Leu Glu Pro

420 425 430

Arg Ser Phe Leu Asp Lys Leu Ser Asp Tyr Tyr Tyr His Ala Asp Phe

435 440 445

Leu Ser Glu Ala Ala Leu Glu Glu Asn Pro Tyr Phe Arg Leu Lys Lys

450 455 460

Val Val Lys Trp Tyr Leu Ser Gly Phe Tyr Lys Lys Pro Lys Gly Leu
465 470 475 480
Lys Lys Pro Tyr Asn Pro Ile Leu Gly Glu Thr Phe Arg Cys Leu Trp
485 490 495
Ile His Pro Arg Thr Asn Ser Lys Thr Phe Tyr Ile Ala Glu Gln Val
500 505 510
Ser His His Pro Pro Ile Ser Ala Phe Tyr Val Ser Asn Arg Lys Asp
515 520 525

Gly Phe Cys Leu Ser Gly Ser Ile Leu Ala Lys Ser Lys Phe Tyr Gly
530 535 540
Asn Ser Leu Ser Ala Ile Leu Glu Gly Glu Ala Arg Leu Thr Phe Leu
545 550 555 560
Asn Arg Gly Glu Asp Tyr Val Met Thr Met Pro Tyr Ala His Cys Lys
565 570 575
Gly Ile Leu Tyr Gly Thr Met Thr Leu Glu Leu Gly Gly Thr Val Asn
580 585 590
Ile Thr Cys Gln Lys Thr Gly Tyr Ser Ala Ile Leu Glu Phe Lys Leu

595 600 605

Lys Pro Phe Leu Gly Ser Ser Asp Cys Val Asn Gln Ile Ser Gly Lys
610 615 620
Leu Lys Leu Gly Lys Glu Val Leu Ala Thr Leu Glu Gly His Trp Asp
625 630 635 640
Ser Glu Val Phe Ile Thr Asp Lys Lys Thr Asp Asn Ser Glu Val Phe
645 650 655
Trp Asn Pro Thr Pro Asp Ile Lys Gln Trp Arg Leu Ile Arg His Thr
660 665 670

Val Lys Phe Glu Glu Gln Gly Asp Phe Glu Ser Glu Lys Leu Trp Gln
675 680 685
Arg Val Thr Arg Ala Ile Asn Ala Lys Asp Gln Thr Glu Ala Thr Gln

690 695 700

Glu Lys Tyr Val Leu Glu Glu Ala Gln Arg Gln Ala Ala Arg Asp Arg

705 710 715 720

Lys Thr Lys Asn Glu Glu Trp Ser Cys Lys Leu Phe Glu Leu Asp Pro

725 730 735

Leu Thr Gly Glu Trp His Tyr Lys Phe Ala Asp Thr Arg Pro Trp Asp

740 745 750

Pro Leu Asn Asp Met Ile Gln Phe Glu Lys Asp Gly Val Ile Gln Thr

755 760 765

Lys Val Lys His Arg Thr Pro Met Val Ser Val Pro Lys Met Lys His

770 775 780

Lys Pro Thr Arg Gln Gln Lys Lys Val Ala Lys Gly Tyr Ser Ser Pro

785 790 795 800

Glu Pro Asp Ile Gln Asp Ser Ser Gly Ser Glu Ala Gln Ser Val Lys

805 810 815

Pro Ser Thr Arg Arg Lys Lys Gly Ile Glu Leu Gly Asp Ile Gln Ser

820 825 830

Ser Ile Glu Ser Ile Lys Gln Thr Gln Glu Glu Ile Lys Arg Asn Ile

835 840 845

Met Ala Leu Arg Asn His Leu Val Ser Ser Thr Pro Ala Thr Asp Tyr

850 855 860

Phe Leu Gln Gln Lys Asp Tyr Phe Ile Ile Phe Leu Leu Ile Leu Leu

865 870 875 880

Gln Val Ile Ile Asn Phe Met Phe Lys

885

<210> 66

<211> 899

<212> PRT

<213> Homo sapiens

<400> 66

Met Glu Gly Gly Leu Ala Asp Gly Glu Pro Asp Arg Thr Ser Ile Leu

1 5 10 15

Pro Tyr Ser Glu Val Ala Glu Val Gln Glu Thr Leu Leu Gly Asp Ser
20 25 30
Lys Asp Val Leu Gly Pro Ser Thr Asn Ser Asp Glu Ser Gln Leu Leu
35 40 45
Thr Pro Gly Lys Met Ser Gln Arg Gln Gly Lys Glu Ala Tyr Pro Thr

50 55 60
Pro Thr Lys Asp Leu His Gln Pro Ser Leu Ser Pro Ala Ser Pro His
65 70 75 80
Ser Gln Gly Phe Glu Arg Gly Lys Glu Asp Ile Ser Gln Asn Lys Asp
85 90 95
Glu Ser Ser Leu Ser Met Ser Lys Ser Lys Ser Glu Ser Lys Leu Tyr
100 105 110
Asn Gly Ser Glu Lys Asp Ser Ser Thr Ser Ser Lys Leu Thr Lys Lys
115 120 125

Glu Ser Leu Lys Val Gln Lys Lys Asn Tyr Arg Glu Glu Lys Lys Arg
130 135 140
Ala Thr Lys Glu Leu Leu Ser Thr Ile Thr Asp Pro Ser Val Ile Val
145 150 155 160
Met Ala Asp Trp Leu Lys Ile Arg Gly Thr Leu Lys Ser Trp Thr Lys
165 170 175
Leu Trp Cys Val Leu Lys Pro Gly Val Leu Leu Ile Tyr Lys Thr Gln
180 185 190
Lys Asn Gly Gln Trp Val Gly Thr Val Leu Leu Asn Ala Cys Glu Ile

195 200 205
Ile Glu Arg Pro Ser Lys Lys Asp Gly Phe Cys Phe Lys Leu Phe His
210 215 220
Pro Leu Glu Gln Ser Ile Trp Ala Val Lys Gly Pro Lys Gly Glu Ala
225 230 235 240
Val Gly Ser Ile Thr Gln Pro Leu Pro Ser Ser Tyr Leu Ile Ile Arg
245 250 255
Ala Thr Ser Glu Ser Asp Gly Arg Cys Trp Met Asp Ala Leu Glu Leu

260 265 270

Ala Leu Lys Cys Ser Ser Leu Leu Lys Arg Thr Met Ile Arg Glu Gly
275 280 285
Lys Glu His Asp Leu Ser Val Ser Ser Asp Ser Thr His Val Thr Phe
290 295 300
Tyr Gly Leu Leu Arg Ala Asn Asn Leu His Ser Gly Asp Asn Phe Gln
305 310 315 320
Leu Asn Asp Ser Glu Ile Glu Arg Gln His Phe Lys Asp Gln Asp Met
325 330 335
Tyr Ser Asp Lys Ser Asp Lys Glu Asn Asp Gln Glu His Asp Glu Ser

340 345 350
Asp Asn Glu Val Met Gly Lys Ser Glu Glu Ser Asp Thr Asp Thr Ser
355 360 365
Glu Arg Gln Asp Asp Ser Tyr Ile Glu Pro Glu Pro Val Glu Pro Leu
370 375 380
Lys Glu Thr Thr Tyr Thr Glu Gln Ser His Glu Glu Leu Gly Glu Ala
385 390 395 400
Gly Glu Ala Ser Gln Thr Glu Thr Val Ser Glu Glu Asn Lys Ser Leu
405 410 415

Ile Trp Thr Leu Leu Lys Gln Val Arg Pro Gly Met Asp Leu Ser Lys
420 425 430
Val Val Leu Pro Thr Phe Ile Leu Glu Pro Arg Ser Phe Leu Asp Lys
435 440 445
Leu Ser Asp Tyr Tyr Tyr His Ala Asp Phe Leu Ser Glu Ala Ala Leu
450 455 460
Glu Glu Asn Pro Tyr Phe Arg Leu Lys Lys Val Val Lys Trp Tyr Leu
465 470 475 480
Ser Gly Phe Tyr Lys Lys Pro Lys Gly Leu Lys Lys Pro Tyr Asn Pro

485 490 495
Ile Leu Gly Glu Thr Phe Arg Cys Leu Trp Ile His Pro Arg Thr Asn
500 505 510

Ser Lys Thr Phe Tyr Ile Ala Glu Gln Val Ser His His Pro Pro Ile
515 520 525
Ser Ala Phe Tyr Val Ser Asn Arg Lys Asp Gly Phe Cys Leu Ser Gly
530 535 540
Ser Ile Leu Ala Lys Ser Lys Phe Tyr Gly Asn Ser Leu Ser Ala Ile
545 550 555 560

Leu Glu Gly Glu Ala Arg Leu Thr Phe Leu Asn Arg Gly Glu Asp Tyr
565 570 575
Val Met Thr Met Pro Tyr Ala His Cys Lys Gly Ile Leu Tyr Gly Thr
580 585 590
Met Thr Leu Glu Leu Gly Gly Thr Val Asn Ile Thr Cys Gln Lys Thr
595 600 605
Gly Tyr Ser Ala Ile Leu Glu Phe Lys Leu Lys Pro Phe Leu Gly Ser
610 615 620
Ser Asp Cys Val Asn Gln Ile Ser Gly Lys Leu Lys Leu Gly Lys Glu

625 630 635 640
Val Leu Ala Thr Leu Glu Gly His Trp Asp Ser Glu Val Phe Ile Thr
645 650 655
Asp Lys Lys Thr Asp Asn Ser Glu Val Phe Trp Asn Pro Thr Pro Asp
660 665 670
Ile Lys Gln Trp Arg Leu Ile Arg His Thr Val Lys Phe Glu Glu Gln
675 680 685
Gly Asp Phe Glu Ser Glu Lys Leu Trp Gln Arg Val Thr Arg Ala Ile
690 695 700

Asn Ala Lys Asp Gln Thr Glu Ala Thr Gln Glu Lys Tyr Val Leu Glu
705 710 715 720
Glu Ala Gln Arg Gln Ala Ala Arg Asp Arg Lys Thr Lys Asn Glu Glu
725 730 735
Trp Ser Cys Lys Leu Phe Glu Leu Asp Pro Leu Thr Gly Glu Trp His
740 745 750
Tyr Lys Phe Ala Asp Thr Arg Pro Trp Asp Pro Leu Asn Asp Met Ile
755 760 765

Gln Phe Glu Lys Asp Gly Val Ile Gln Thr Lys Val Lys His Arg Thr

770 775 780

Pro Met Val Ser Val Pro Lys Met Lys His Lys Pro Thr Arg Gln Gln
785 790 795 800
Lys Lys Val Ala Lys Gly Tyr Ser Ser Pro Glu Pro Asp Ile Gln Asp
805 810 815
Ser Ser Gly Ser Glu Ala Gln Ser Val Lys Pro Ser Thr Arg Arg Lys
820 825 830
Lys Gly Ile Glu Leu Gly Asp Ile Gln Ser Ser Ile Glu Ser Ile Lys
835 840 845

Gln Thr Gln Glu Glu Ile Lys Arg Asn Ile Met Ala Leu Arg Asn His
850 855 860
Leu Val Ser Ser Thr Pro Ala Thr Asp Tyr Phe Leu Gln Gln Lys Asp
865 870 875 880
Tyr Phe Ile Ile Phe Leu Leu Ile Leu Leu Gln Val Ile Ile Asn Phe
885 890 895
Met Phe Lys

<210> 67
<211> 902
<212> PRT
<213> Homo sapiens
<400> 67
Met Glu Gly Gly Leu Ala Asp Gly Glu Pro Asp Arg Thr Ser Ile Leu

1 5 10 15
Pro Tyr Ser Glu Val Ala Glu Val Gln Glu Thr Leu Leu Gly Asp Ser
20 25 30
Lys Asp Val Leu Gly Pro Ser Thr Val Val Ala Asn Ser Asp Glu Ser
35 40 45
Gln Leu Leu Thr Pro Gly Lys Met Ser Gln Arg Gln Gly Lys Glu Ala
50 55 60
Tyr Pro Thr Pro Thr Lys Asp Leu His Gln Pro Ser Leu Ser Pro Ala

65 70 75 80

Ser Pro His Ser Gln Gly Phe Glu Arg Gly Lys Glu Asp Ile Ser Gln
85 90 95
Asn Lys Asp Glu Ser Ser Leu Ser Met Ser Lys Ser Lys Ser Glu Ser
100 105 110
Lys Leu Tyr Asn Gly Ser Glu Lys Asp Ser Ser Thr Ser Ser Lys Leu
115 120 125
Thr Lys Lys Glu Ser Leu Lys Val Gln Lys Lys Asn Tyr Arg Glu Glu
130 135 140
Lys Lys Arg Ala Thr Lys Glu Leu Leu Ser Thr Ile Thr Asp Pro Ser

145 150 155 160
Val Ile Val Met Ala Asp Trp Leu Lys Ile Arg Gly Thr Leu Lys Ser
165 170 175
Trp Thr Lys Leu Trp Cys Val Leu Lys Pro Gly Val Leu Leu Ile Tyr
180 185 190
Lys Thr Gln Lys Asn Gly Gln Trp Val Gly Thr Val Leu Leu Asn Ala
195 200 205
Cys Glu Ile Ile Glu Arg Pro Ser Lys Lys Asp Gly Phe Cys Phe Lys
210 215 220

Leu Phe His Pro Leu Glu Gln Ser Ile Trp Ala Val Lys Gly Pro Lys
225 230 235 240
Gly Glu Ala Val Gly Ser Ile Thr Gln Pro Leu Pro Ser Ser Tyr Leu
245 250 255
Ile Ile Arg Ala Thr Ser Glu Ser Asp Gly Arg Cys Trp Met Asp Ala
260 265 270
Leu Glu Leu Ala Leu Lys Cys Ser Ser Leu Leu Lys Arg Thr Met Ile
275 280 285
Arg Glu Gly Lys Glu His Asp Leu Ser Val Ser Ser Asp Ser Thr His

290 295 300
Val Thr Phe Tyr Gly Leu Leu Arg Ala Asn Asn Leu His Ser Gly Asp
305 310 315 320

Asn Phe Gln Leu Asn Asp Ser Glu Ile Glu Arg Gln His Phe Lys Asp
325 330 335
Gln Asp Met Tyr Ser Asp Lys Ser Asp Lys Glu Asn Asp Gln Glu His
340 345 350
Asp Glu Ser Asp Asn Glu Val Met Gly Lys Ser Glu Glu Ser Asp Thr
355 360 365

Asp Thr Ser Glu Arg Gln Asp Asp Ser Tyr Ile Glu Pro Glu Pro Val
370 375 380
Glu Pro Leu Lys Glu Thr Thr Tyr Thr Glu Gln Ser His Glu Glu Leu
385 390 395 400
Gly Glu Ala Gly Glu Ala Ser Gln Thr Glu Thr Val Ser Glu Glu Asn
405 410 415
Lys Ser Leu Ile Trp Thr Leu Leu Lys Gln Val Arg Pro Gly Met Asp
420 425 430
Leu Ser Lys Val Val Leu Pro Thr Phe Ile Leu Glu Pro Arg Ser Phe

435 440 445
Leu Asp Lys Leu Ser Asp Tyr Tyr Tyr His Ala Asp Phe Leu Ser Glu
450 455 460
Ala Ala Leu Glu Glu Asn Pro Tyr Phe Arg Leu Lys Lys Val Val Lys
465 470 475 480
Trp Tyr Leu Ser Gly Phe Tyr Lys Lys Pro Lys Gly Leu Lys Lys Pro
485 490 495
Tyr Asn Pro Ile Leu Gly Glu Thr Phe Arg Cys Leu Trp Ile His Pro
500 505 510

Arg Thr Asn Ser Lys Thr Phe Tyr Ile Ala Glu Gln Val Ser His His
515 520 525
Pro Pro Ile Ser Ala Phe Tyr Val Ser Asn Arg Lys Asp Gly Phe Cys
530 535 540
Leu Ser Gly Ser Ile Leu Ala Lys Ser Lys Phe Tyr Gly Asn Ser Leu
545 550 555 560
Ser Ala Ile Leu Glu Gly Glu Ala Arg Leu Thr Phe Leu Asn Arg Gly
565 570 575

Glu Asp Tyr Val Met Thr Met Pro Tyr Ala His Cys Lys Gly Ile Leu

580 585 590

Tyr Gly Thr Met Thr Leu Glu Leu Gly Gly Thr Val Asn Ile Thr Cys

595 600 605

Gln Lys Thr Gly Tyr Ser Ala Ile Leu Glu Phe Lys Leu Lys Pro Phe

610 615 620

Leu Gly Ser Ser Asp Cys Val Asn Gln Ile Ser Gly Lys Leu Lys Leu

625 630 635 640

Gly Lys Glu Val Leu Ala Thr Leu Glu Gly His Trp Asp Ser Glu Val

645 650 655

Phe Ile Thr Asp Lys Lys Thr Asp Asn Ser Glu Val Phe Trp Asn Pro

660 665 670

Thr Pro Asp Ile Lys Gln Trp Arg Leu Ile Arg His Thr Val Lys Phe

675 680 685

Glu Glu Gln Gly Asp Phe Glu Ser Glu Lys Leu Trp Gln Arg Val Thr

690 695 700

Arg Ala Ile Asn Ala Lys Asp Gln Thr Glu Ala Thr Gln Glu Lys Tyr

705 710 715 720

Val Leu Glu Glu Ala Gln Arg Gln Ala Ala Arg Asp Arg Lys Thr Lys

725 730 735

Asn Glu Glu Trp Ser Cys Lys Leu Phe Glu Leu Asp Pro Leu Thr Gly

740 745 750

Glu Trp His Tyr Lys Phe Ala Asp Thr Arg Pro Trp Asp Pro Leu Asn

755 760 765

Asp Met Ile Gln Phe Glu Lys Asp Gly Val Ile Gln Thr Lys Val Lys

770 775 780

His Arg Thr Pro Met Val Ser Val Pro Lys Met Lys His Lys Pro Thr

785 790 795 800

Arg Gln Gln Lys Lys Val Ala Lys Gly Tyr Ser Ser Pro Glu Pro Asp

805 810 815

Ile Gln Asp Ser Ser Gly Ser Glu Ala Gln Ser Val Lys Pro Ser Thr

820 825 830

Arg Arg Lys Lys Gly Ile Glu Leu Gly Asp Ile Gln Ser Ser Ile Glu

835 840 845

Ser Ile Lys Gln Thr Gln Glu Glu Ile Lys Arg Asn Ile Met Ala Leu

850 855 860

Arg Asn His Leu Val Ser Ser Thr Pro Ala Thr Asp Tyr Phe Leu Gln

865 870 875 880

Gln Lys Asp Tyr Phe Ile Ile Phe Leu Leu Ile Leu Leu Gln Val Ile

885 890 895

Ile Asn Phe Met Phe Lys

900

<210> 68

<211> 912

<212> PRT

<213> Homo sapiens

<400> 68

Met Ile Cys Arg Phe Thr Glu Trp Leu His Ile Asn Gly Lys Arg Ser

1 5 10 15

Ile Asn Leu Ser Ser Phe Ile Met Glu Gly Gly Leu Ala Asp Gly Glu

20 25 30

Pro Asp Arg Thr Ser Leu Leu Gly Asp Ser Lys Asp Val Leu Gly Pro

35 40 45

Ser Thr Val Val Ala Asn Ser Asp Glu Ser Gln Leu Leu Thr Pro Gly

50 55 60

Lys Met Ser Gln Arg Gln Gly Lys Glu Ala Tyr Pro Thr Pro Thr Lys

65 70 75 80

Asp Leu His Gln Pro Ser Leu Ser Pro Ala Ser Pro His Ser Gln Gly

85 90 95

Phe Glu Arg Gly Lys Glu Asp Ile Ser Gln Asn Lys Asp Glu Ser Ser

100 105 110

Leu Ser Met Ser Lys Ser Lys Ser Glu Ser Lys Leu Tyr Asn Gly Ser

115 120 125

Glu Lys Asp Ser Ser Thr Ser Ser Lys Leu Thr Lys Lys Glu Ser Leu
130 135 140
Lys Val Gln Lys Lys Asn Tyr Arg Glu Glu Lys Lys Arg Ala Thr Lys
145 150 155 160
Glu Leu Leu Ser Thr Ile Thr Asp Pro Ser Val Ile Val Met Ala Asp

165 170 175
Trp Leu Lys Ile Arg Gly Thr Leu Lys Ser Trp Thr Lys Leu Trp Cys
180 185 190
Val Leu Lys Pro Gly Val Leu Leu Ile Tyr Lys Thr Gln Lys Asn Gly
195 200 205
Gln Trp Val Gly Thr Val Leu Leu Asn Ala Cys Glu Ile Ile Glu Arg
210 215 220
Pro Ser Lys Lys Asp Gly Phe Cys Phe Lys Leu Phe His Pro Leu Glu
225 230 235 240

Gln Ser Ile Trp Ala Val Lys Gly Pro Lys Gly Glu Ala Val Gly Ser
245 250 255
Ile Thr Gln Pro Leu Pro Ser Ser Tyr Leu Ile Ile Arg Ala Thr Ser
260 265 270
Glu Ser Asp Gly Arg Cys Trp Met Asp Ala Leu Glu Leu Ala Leu Lys
275 280 285
Cys Ser Ser Leu Leu Lys Arg Thr Met Ile Arg Glu Gly Lys Glu His
290 295 300
Asp Leu Ser Val Ser Ser Asp Ser Thr His Val Thr Phe Tyr Gly Leu

305 310 315 320
Leu Arg Ala Asn Asn Leu His Ser Gly Asp Asn Phe Gln Leu Asn Asp
325 330 335
Ser Glu Ile Glu Arg Gln His Phe Lys Asp Gln Asp Met Tyr Ser Asp
340 345 350
Lys Ser Asp Lys Glu Asn Asp Gln Glu His Asp Glu Ser Asp Asn Glu
355 360 365
Val Met Gly Lys Ser Glu Glu Ser Asp Thr Asp Thr Ser Glu Arg Gln

370 375 380

Asp Asp Ser Tyr Ile Glu Pro Glu Pro Val Glu Pro Leu Lys Glu Thr
385 390 395 400
Thr Tyr Thr Glu Gln Ser His Glu Glu Leu Gly Glu Ala Gly Glu Ala
405 410 415
Ser Gln Thr Glu Thr Val Ser Glu Glu Asn Lys Ser Leu Ile Trp Thr
420 425 430
Leu Leu Lys Gln Val Arg Pro Gly Met Asp Leu Ser Lys Val Val Leu
435 440 445
Pro Thr Phe Ile Leu Glu Pro Arg Ser Phe Leu Asp Lys Leu Ser Asp

450 455 460
Tyr Tyr Tyr His Ala Asp Phe Leu Ser Glu Ala Ala Leu Glu Glu Asn
465 470 475 480
Pro Tyr Phe Arg Leu Lys Lys Val Val Lys Trp Tyr Leu Ser Gly Phe
485 490 495
Tyr Lys Lys Pro Lys Gly Leu Lys Lys Pro Tyr Asn Pro Ile Leu Gly
500 505 510
Glu Thr Phe Arg Cys Leu Trp Ile His Pro Arg Thr Asn Ser Lys Thr
515 520 525

Phe Tyr Ile Ala Glu Gln Val Ser His His Pro Pro Ile Ser Ala Phe
530 535 540
Tyr Val Ser Asn Arg Lys Asp Gly Phe Cys Leu Ser Gly Ser Ile Leu
545 550 555 560
Ala Lys Ser Lys Phe Tyr Gly Asn Ser Leu Ser Ala Ile Leu Glu Gly
565 570 575
Glu Ala Arg Leu Thr Phe Leu Asn Arg Gly Glu Asp Tyr Val Met Thr
580 585 590
Met Pro Tyr Ala His Cys Lys Gly Ile Leu Tyr Gly Thr Met Thr Leu

595 600 605
Glu Leu Gly Gly Thr Val Asn Ile Thr Cys Gln Lys Thr Gly Tyr Ser
610 615 620

Ala Ile Leu Glu Phe Lys Leu Lys Pro Phe Leu Gly Ser Ser Asp Cys
625 630 635 640
Val Asn Gln Ile Ser Gly Lys Leu Lys Leu Gly Lys Glu Val Leu Ala
645 650 655
Thr Leu Glu Gly His Trp Asp Ser Glu Val Phe Ile Thr Asp Lys Lys
660 665 670

Thr Asp Asn Ser Glu Val Phe Trp Asn Pro Thr Pro Asp Ile Lys Gln
675 680 685
Trp Arg Leu Ile Arg His Thr Val Lys Phe Glu Glu Gln Gly Asp Phe
690 695 700
Glu Ser Glu Lys Leu Trp Gln Arg Val Thr Arg Ala Ile Asn Ala Lys
705 710 715 720
Asp Gln Thr Glu Ala Thr Gln Glu Lys Tyr Val Leu Glu Glu Ala Gln
725 730 735
Arg Gln Ala Ala Arg Asp Arg Lys Thr Lys Asn Glu Glu Trp Ser Cys

740 745 750
Lys Leu Phe Glu Leu Asp Pro Leu Thr Gly Glu Trp His Tyr Lys Phe
755 760 765
Ala Asp Thr Arg Pro Trp Asp Pro Leu Asn Asp Met Ile Gln Phe Glu
770 775 780
Lys Asp Gly Val Ile Gln Thr Lys Val Lys His Arg Thr Pro Met Val
785 790 795 800
Ser Val Pro Lys Met Lys His Lys Pro Thr Arg Gln Gln Lys Lys Val
805 810 815

Ala Lys Gly Tyr Ser Ser Pro Glu Pro Asp Ile Gln Asp Ser Ser Gly
820 825 830
Ser Glu Ala Gln Ser Val Lys Pro Ser Thr Arg Arg Lys Lys Gly Ile
835 840 845
Glu Leu Gly Asp Ile Gln Ser Ser Ile Glu Ser Ile Lys Gln Thr Gln
850 855 860
Glu Glu Ile Lys Arg Asn Ile Met Ala Leu Arg Asn His Leu Val Ser
865 870 875 880

Ser Thr Pro Ala Thr Asp Tyr Phe Leu Gln Gln Lys Asp Tyr Phe Ile

885 890 895

Ile Phe Leu Leu Ile Leu Leu Gln Val Ile Ile Asn Phe Met Phe Lys

900 905 910

<210> 69

<211> 886

<212> PRT

<213> Homo sapiens

<400> 69

Met Glu Gly Gly Leu Ala Asp Gly Glu Pro Asp Arg Thr Ser Leu Leu

1 5 10 15

Gly Asp Ser Lys Asp Val Leu Gly Pro Ser Thr Asn Ser Asp Glu Ser

20 25 30

Gln Leu Leu Thr Pro Gly Lys Met Ser Gln Arg Gln Gly Lys Glu Ala

35 40 45

Tyr Pro Thr Pro Thr Lys Asp Leu His Gln Pro Ser Leu Ser Pro Ala

50 55 60

Ser Pro His Ser Gln Gly Phe Glu Arg Gly Lys Glu Asp Ile Ser Gln

65 70 75 80

Asn Lys Asp Glu Ser Ser Leu Ser Met Ser Lys Ser Lys Ser Glu Ser

85 90 95

Lys Leu Tyr Asn Gly Ser Glu Lys Asp Ser Ser Thr Ser Ser Lys Leu

100 105 110

Thr Lys Lys Glu Ser Leu Lys Val Gln Lys Lys Asn Tyr Arg Glu Glu

115 120 125

Lys Lys Arg Ala Thr Lys Glu Leu Leu Ser Thr Ile Thr Asp Pro Ser

130 135 140

Val Ile Val Met Ala Asp Trp Leu Lys Ile Arg Gly Thr Leu Lys Ser

145 150 155 160

Trp Thr Lys Leu Trp Cys Val Leu Lys Pro Gly Val Leu Leu Ile Tyr

165 170 175

Lys Thr Gln Lys Asn Gly Gln Trp Val Gly Thr Val Leu Leu Asn Ala
180 185 190
Cys Glu Ile Ile Glu Arg Pro Ser Lys Lys Asp Gly Phe Cys Phe Lys
195 200 205
Leu Phe His Pro Leu Glu Gln Ser Ile Trp Ala Val Lys Gly Pro Lys
210 215 220
Gly Glu Ala Val Gly Ser Ile Thr Gln Pro Leu Pro Ser Ser Tyr Leu
225 230 235 240
Ile Ile Arg Ala Thr Ser Glu Ser Asp Gly Arg Cys Trp Met Asp Ala

245 250 255
Leu Glu Leu Ala Leu Lys Cys Ser Ser Leu Leu Lys Arg Thr Met Ile
260 265 270
Arg Glu Gly Lys Glu His Asp Leu Ser Val Ser Ser Asp Ser Thr His
275 280 285
Val Thr Phe Tyr Gly Leu Leu Arg Ala Asn Asn Leu His Ser Gly Asp
290 295 300
Asn Phe Gln Leu Asn Asp Ser Glu Ile Glu Arg Gln His Phe Lys Asp
305 310 315 320

Gln Asp Met Tyr Ser Asp Lys Ser Asp Lys Glu Asn Asp Gln Glu His
325 330 335
Asp Glu Ser Asp Asn Glu Val Met Gly Lys Ser Glu Glu Ser Asp Thr
340 345 350
Asp Thr Ser Glu Arg Gln Asp Asp Ser Tyr Ile Glu Pro Glu Pro Val
355 360 365
Glu Pro Leu Lys Glu Thr Thr Tyr Thr Glu Gln Ser His Glu Glu Leu
370 375 380
Gly Glu Ala Gly Glu Ala Ser Gln Thr Glu Thr Val Ser Glu Glu Asn

385 390 395 400
Lys Ser Leu Ile Trp Thr Leu Leu Lys Gln Val Arg Pro Gly Met Asp
405 410 415
Leu Ser Lys Val Val Leu Pro Thr Phe Ile Leu Glu Pro Arg Ser Phe
420 425 430

Leu Asp Lys Leu Ser Asp Tyr Tyr Tyr His Ala Asp Phe Leu Ser Glu
435 440 445
Ala Ala Leu Glu Glu Asn Pro Tyr Phe Arg Leu Lys Lys Val Val Lys
450 455 460

Trp Tyr Leu Ser Gly Phe Tyr Lys Lys Pro Lys Gly Leu Lys Lys Pro
465 470 475 480
Tyr Asn Pro Ile Leu Gly Glu Thr Phe Arg Cys Leu Trp Ile His Pro
485 490 495
Arg Thr Asn Ser Lys Thr Phe Tyr Ile Ala Glu Gln Val Ser His His
500 505 510
Pro Pro Ile Ser Ala Phe Tyr Val Ser Asn Arg Lys Asp Gly Phe Cys
515 520 525
Leu Ser Gly Ser Ile Leu Ala Lys Ser Lys Phe Tyr Gly Asn Ser Leu

530 535 540
Ser Ala Ile Leu Glu Gly Glu Ala Arg Leu Thr Phe Leu Asn Arg Gly
545 550 555 560
Glu Asp Tyr Val Met Thr Met Pro Tyr Ala His Cys Lys Gly Ile Leu
565 570 575
Tyr Gly Thr Met Thr Leu Glu Leu Gly Gly Thr Val Asn Ile Thr Cys
580 585 590
Gln Lys Thr Gly Tyr Ser Ala Ile Leu Glu Phe Lys Leu Lys Pro Phe
595 600 605

Leu Gly Ser Ser Asp Cys Val Asn Gln Ile Ser Gly Lys Leu Lys Leu
610 615 620
Gly Lys Glu Val Leu Ala Thr Leu Glu Gly His Trp Asp Ser Glu Val
625 630 635 640
Phe Ile Thr Asp Lys Lys Thr Asp Asn Ser Glu Val Phe Trp Asn Pro
645 650 655
Thr Pro Asp Ile Lys Gln Trp Arg Leu Ile Arg His Thr Val Lys Phe
660 665 670
Glu Glu Gln Gly Asp Phe Glu Ser Glu Lys Leu Trp Gln Arg Val Thr

675 680 685

Arg Ala Ile Asn Ala Lys Asp Gln Thr Glu Ala Thr Gln Glu Lys Tyr

690 695 700

Val Leu Glu Glu Ala Gln Arg Gln Ala Ala Arg Asp Arg Lys Thr Lys

705 710 715 720

Asn Glu Glu Trp Ser Cys Lys Leu Phe Glu Leu Asp Pro Leu Thr Gly

725 730 735

Glu Trp His Tyr Lys Phe Ala Asp Thr Arg Pro Trp Asp Pro Leu Asn

740 745 750

Asp Met Ile Gln Phe Glu Lys Asp Gly Val Ile Gln Thr Lys Val Lys

755 760 765

His Arg Thr Pro Met Val Ser Val Pro Lys Met Lys His Lys Pro Thr

770 775 780

Arg Gln Gln Lys Lys Val Ala Lys Gly Tyr Ser Ser Pro Glu Pro Asp

785 790 795 800

Ile Gln Asp Ser Ser Gly Ser Glu Ala Gln Ser Val Lys Pro Ser Thr

805 810 815

Arg Arg Lys Lys Gly Ile Glu Leu Gly Asp Ile Gln Ser Ser Ile Glu

820 825 830

Ser Ile Lys Gln Thr Gln Glu Glu Ile Lys Arg Asn Ile Met Ala Leu

835 840 845

Arg Asn His Leu Val Ser Ser Thr Pro Ala Thr Asp Tyr Phe Leu Gln

850 855 860

Gln Lys Asp Tyr Phe Ile Ile Phe Leu Leu Ile Leu Leu Gln Val Ile

865 870 875 880

Ile Asn Phe Met Phe Lys

885

<210> 70

<211> 847

<212> PRT

<213> Homo sapiens

<400> 70

Met Ser Gln Arg Gln Gly Lys Glu Ala Tyr Pro Thr Pro Thr Lys Asp
1 5 10 15
Leu His Gln Pro Ser Leu Ser Pro Ala Ser Pro His Ser Gln Gly Phe
20 25 30
Glu Arg Gly Lys Glu Asp Ile Ser Gln Asn Lys Asp Glu Ser Ser Leu
35 40 45
Ser Met Ser Lys Ser Lys Ser Glu Ser Lys Leu Tyr Asn Gly Ser Glu
50 55 60

Lys Asp Ser Ser Thr Ser Ser Lys Leu Thr Lys Lys Glu Ser Leu Lys
65 70 75 80
Val Gln Lys Lys Asn Tyr Arg Glu Glu Lys Lys Arg Ala Thr Lys Glu
85 90 95
Leu Leu Ser Thr Ile Thr Asp Pro Ser Val Ile Val Met Ala Asp Trp
100 105 110
Leu Lys Ile Arg Gly Thr Leu Lys Ser Trp Thr Lys Leu Trp Cys Val
115 120 125
Leu Lys Pro Gly Val Leu Leu Ile Tyr Lys Thr Gln Lys Asn Gly Gln

130 135 140
Trp Val Gly Thr Val Leu Leu Asn Ala Cys Glu Ile Ile Glu Arg Pro
145 150 155 160
Ser Lys Lys Asp Gly Phe Cys Phe Lys Leu Phe His Pro Leu Glu Gln
165 170 175
Ser Ile Trp Ala Val Lys Gly Pro Lys Gly Glu Ala Val Gly Ser Ile
180 185 190
Thr Gln Pro Leu Pro Ser Ser Tyr Leu Ile Ile Arg Ala Thr Ser Glu
195 200 205

Ser Asp Gly Arg Cys Trp Met Asp Ala Leu Glu Leu Ala Leu Lys Cys
210 215 220
Ser Ser Leu Leu Lys Arg Thr Met Ile Arg Glu Gly Lys Glu His Asp
225 230 235 240
Leu Ser Val Ser Ser Asp Ser Thr His Val Thr Phe Tyr Gly Leu Leu
245 250 255

Arg Ala Asn Asn Leu His Ser Gly Asp Asn Phe Gln Leu Asn Asp Ser
260 265 270
Glu Ile Glu Arg Gln His Phe Lys Asp Gln Asp Met Tyr Ser Asp Lys

275 280 285
Ser Asp Lys Glu Asn Asp Gln Glu His Asp Glu Ser Asp Asn Glu Val
290 295 300
Met Gly Lys Ser Glu Glu Ser Asp Thr Asp Thr Ser Glu Arg Gln Asp
305 310 315 320
Asp Ser Tyr Ile Glu Pro Glu Pro Val Glu Pro Leu Lys Glu Thr Thr
325 330 335
Tyr Thr Glu Gln Ser His Glu Glu Leu Gly Glu Ala Gly Glu Ala Ser
340 345 350

Gln Thr Glu Thr Val Ser Glu Glu Asn Lys Ser Leu Ile Trp Thr Leu
355 360 365
Leu Lys Gln Val Arg Pro Gly Met Asp Leu Ser Lys Val Val Leu Pro
370 375 380
Thr Phe Ile Leu Glu Pro Arg Ser Phe Leu Asp Lys Leu Ser Asp Tyr
385 390 395 400
Tyr Tyr His Ala Asp Phe Leu Ser Glu Ala Ala Leu Glu Glu Asn Pro
405 410 415
Tyr Phe Arg Leu Lys Lys Val Val Lys Trp Tyr Leu Ser Gly Phe Tyr

420 425 430
Lys Lys Pro Lys Gly Leu Lys Lys Pro Tyr Asn Pro Ile Leu Gly Glu
435 440 445
Thr Phe Arg Cys Leu Trp Ile His Pro Arg Thr Asn Ser Lys Thr Phe
450 455 460
Tyr Ile Ala Glu Gln Val Ser His His Pro Pro Ile Ser Ala Phe Tyr
465 470 475 480
Val Ser Asn Arg Lys Asp Gly Phe Cys Leu Ser Gly Ser Ile Leu Ala
485 490 495

Lys Ser Lys Phe Tyr Gly Asn Ser Leu Ser Ala Ile Leu Glu Gly Glu

500 505 510

Ala Arg Leu Thr Phe Leu Asn Arg Gly Glu Asp Tyr Val Met Thr Met

515 520 525

Pro Tyr Ala His Cys Lys Gly Ile Leu Tyr Gly Thr Met Thr Leu Glu

530 535 540

Leu Gly Gly Thr Val Asn Ile Thr Cys Gln Lys Thr Gly Tyr Ser Ala

545 550 555 560

Ile Leu Glu Phe Lys Leu Lys Pro Phe Leu Gly Ser Ser Asp Cys Val

565 570 575

Asn Gln Ile Ser Gly Lys Leu Lys Leu Gly Lys Glu Val Leu Ala Thr

580 585 590

Leu Glu Gly His Trp Asp Ser Glu Val Phe Ile Thr Asp Lys Lys Thr

595 600 605

Asp Asn Ser Glu Val Phe Trp Asn Pro Thr Pro Asp Ile Lys Gln Trp

610 615 620

Arg Leu Ile Arg His Thr Val Lys Phe Glu Glu Gln Gly Asp Phe Glu

625 630 635 640

Ser Glu Lys Leu Trp Gln Arg Val Thr Arg Ala Ile Asn Ala Lys Asp

645 650 655

Gln Thr Glu Ala Thr Gln Glu Lys Tyr Val Leu Glu Glu Ala Gln Arg

660 665 670

Gln Ala Ala Arg Asp Arg Lys Thr Lys Asn Glu Glu Trp Ser Cys Lys

675 680 685

Leu Phe Glu Leu Asp Pro Leu Thr Gly Glu Trp His Tyr Lys Phe Ala

690 695 700

Asp Thr Arg Pro Trp Asp Pro Leu Asn Asp Met Ile Gln Phe Glu Lys

705 710 715 720

Asp Gly Val Ile Gln Thr Lys Val Lys His Arg Thr Pro Met Val Ser

725 730 735

Val Pro Lys Met Lys His Lys Pro Thr Arg Gln Gln Lys Lys Val Ala

740 745 750

Lys Gly Tyr Ser Ser Pro Glu Pro Asp Ile Gln Asp Ser Ser Gly Ser

755 760 765

Glu Ala Gln Ser Val Lys Pro Ser Thr Arg Arg Lys Lys Gly Ile Glu

770 775 780

Leu Gly Asp Ile Gln Ser Ser Ile Glu Ser Ile Lys Gln Thr Gln Glu

785 790 795 800

Glu Ile Lys Arg Asn Ile Met Ala Leu Arg Asn His Leu Val Ser Ser

805 810 815

Thr Pro Ala Thr Asp Tyr Phe Leu Gln Gln Lys Asp Tyr Phe Ile Ile

820 825 830

Phe Leu Leu Ile Leu Leu Gln Val Ile Ile Asn Phe Met Phe Lys

835 840 845

<210> 71

<211> 377

<212> PRT

<213> Homo sapiens

<400> 71

Met Cys Asp Glu Asp Glu Thr Thr Ala Leu Val Cys Asp Asn Gly Ser

1 5 10 15

Gly Leu Val Lys Ala Gly Phe Ala Gly Asp Asp Ala Pro Arg Ala Val

20 25 30

Phe Pro Ser Ile Val Gly Arg Pro Arg His Gln Gly Val Met Val Gly

35 40 45

Met Gly Gln Lys Asp Ser Tyr Val Gly Asp Glu Ala Gln Ser Lys Arg

50 55 60

Gly Ile Leu Thr Leu Lys Tyr Pro Ile Glu His Gly Ile Ile Thr Asn

65 70 75 80

Trp Asp Asp Met Glu Lys Ile Trp His His Thr Phe Tyr Asn Glu Leu

85 90 95

Arg Val Ala Pro Glu Glu His Pro Thr Leu Leu Thr Glu Ala Pro Leu

100 105 110

Asn Pro Lys Ala Asn Arg Glu Lys Met Thr Gln Ile Met Phe Glu Thr

115 120 125

Phe Asn Val Pro Ala Met Tyr Val Ala Ile Gln Ala Val Leu Ser Leu

130 135 140

Tyr Ala Ser Gly Arg Thr Thr Gly Ile Val Leu Asp Ser Gly Asp Gly
145 150 155 160
Val Thr His Asn Val Pro Ile Tyr Glu Gly Tyr Ala Leu Pro His Ala
165 170 175
Ile Met Arg Leu Asp Leu Ala Gly Arg Asp Leu Thr Asp Tyr Leu Met
180 185 190
Lys Ile Leu Thr Glu Arg Gly Tyr Ser Phe Val Thr Thr Ala Glu Arg
195 200 205

Glu Ile Val Arg Asp Ile Lys Glu Lys Leu Cys Tyr Val Ala Leu Asp
210 215 220
Phe Glu Asn Glu Met Ala Thr Ala Ala Ser Ser Ser Ser Leu Glu Lys
225 230 235 240
Ser Tyr Glu Leu Pro Asp Gly Gln Val Ile Thr Ile Gly Asn Glu Arg
245 250 255
Phe Arg Cys Pro Glu Thr Leu Phe Gln Pro Ser Phe Ile Gly Met Glu
260 265 270
Ser Ala Gly Ile His Glu Thr Thr Tyr Asn Ser Ile Met Lys Cys Asp

275 280 285

Ile Asp Ile Arg Lys Asp Leu Tyr Ala Asn Asn Val Met Ser Gly Gly
290 295 300
Thr Thr Met Tyr Pro Gly Ile Ala Asp Arg Met Gln Lys Glu Ile Thr
305 310 315 320
Ala Leu Ala Pro Ser Thr Met Lys Ile Lys Ile Ile Ala Pro Pro Glu
325 330 335
Arg Lys Tyr Ser Val Trp Ile Gly Gly Ser Ile Leu Ala Ser Leu Ser
340 345 350

Thr Phe Gln Gln Met Trp Ile Thr Lys Gln Glu Tyr Asp Glu Ala Gly
355 360 365
Pro Ser Ile Val His Arg Lys Cys Phe

370 375

<210> 72

<211> 115

<212> PRT

<213> Homo sapiens

<400> 72

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro
1 5 10 15

Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly
20 25 30

Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met
35 40 45

Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu
65 70 75 80

Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser

100 105 110

Thr Phe Ala

115

<210> 73

<211> 3969

<212> PRT

<213> Homo sapiens

<400> 73

Met Ala His Ser Cys Arg Trp Arg Phe Pro Ala Arg Pro Gly Thr Thr
1 5 10 15

Gly Gly Gly Gly Gly Gly Gly Arg Arg Gly Leu Gly Gly Ala Pro Arg
20 25 30

Gln Arg Val Pro Ala Leu Leu Leu Pro Pro Gly Pro Pro Val Gly Gly

35 40 45

Gly Gly Pro Gly Ala Pro Pro Ser Pro Pro Ala Val Ala Ala Ala Ala
50 55 60
Ala Ala Ala Gly Ser Ser Gly Ala Gly Val Pro Gly Gly Ala Ala Ala
65 70 75 80
Ala Ser Ala Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser
85 90 95
Ser Ser Ala Ser Ser Gly Pro Ala Leu Leu Arg Val Gly Pro Gly Phe
100 105 110
Asp Ala Ala Leu Gln Val Ser Ala Ala Ile Gly Thr Asn Leu Arg Arg

115 120 125
Phe Arg Ala Val Phe Gly Glu Ser Gly Gly Gly Gly Gly Ser Gly Glu
130 135 140
Asp Glu Gln Phe Leu Gly Phe Gly Ser Asp Glu Glu Val Arg Val Arg
145 150 155 160
Ser Pro Thr Arg Ser Pro Ser Val Lys Thr Ser Pro Arg Lys Pro Arg
165 170 175
Gly Arg Pro Arg Ser Gly Ser Asp Arg Asn Ser Ala Ile Leu Ser Asp
180 185 190

Pro Ser Val Phe Ser Pro Leu Asn Lys Ser Glu Thr Lys Ser Gly Asp
195 200 205
Lys Ile Lys Lys Lys Asp Ser Lys Ser Ile Glu Lys Lys Arg Gly Arg
210 215 220
Pro Pro Thr Phe Pro Gly Val Lys Ile Lys Ile Thr His Gly Lys Asp
225 230 235 240
Ile Ser Glu Leu Pro Lys Gly Asn Lys Glu Asp Ser Leu Lys Lys Ile
245 250 255
Lys Arg Thr Pro Ser Ala Thr Phe Gln Gln Ala Thr Lys Ile Lys Lys

260 265 270
Leu Arg Ala Gly Lys Leu Ser Pro Leu Lys Ser Lys Phe Lys Thr Gly
275 280 285

Lys Leu Gln Ile Gly Arg Lys Gly Val Gln Ile Val Arg Arg Arg Gly
290 295 300
Arg Pro Pro Ser Thr Glu Arg Ile Lys Thr Pro Ser Gly Leu Leu Ile
305 310 315 320
Asn Ser Glu Leu Glu Lys Pro Gln Lys Val Arg Lys Asp Lys Glu Gly
325 330 335

Thr Pro Pro Leu Thr Lys Glu Asp Lys Thr Val Val Arg Gln Ser Pro
340 345 350
Arg Arg Ile Lys Pro Val Arg Ile Ile Pro Ser Ser Lys Arg Thr Asp
355 360 365
Ala Thr Ile Ala Lys Gln Leu Leu Gln Arg Ala Lys Lys Gly Ala Gln
370 375 380
Lys Lys Ile Glu Lys Glu Ala Ala Gln Leu Gln Gly Arg Lys Val Lys
385 390 395 400
Thr Gln Val Lys Asn Ile Arg Gln Phe Ile Met Pro Val Val Ser Ala

405 410 415
Ile Ser Ser Arg Ile Ile Lys Thr Pro Arg Arg Phe Ile Glu Asp Glu
420 425 430
Asp Tyr Asp Pro Pro Ile Lys Ile Ala Arg Leu Glu Ser Thr Pro Asn
435 440 445
Ser Arg Phe Ser Ala Pro Ser Cys Gly Ser Ser Glu Lys Ser Ser Ala
450 455 460
Ala Ser Gln His Ser Ser Gln Met Ser Ser Asp Ser Ser Arg Ser Ser
465 470 475 480

Ser Pro Ser Val Asp Thr Ser Thr Asp Ser Gln Ala Ser Glu Glu Ile
485 490 495
Gln Val Leu Pro Glu Glu Arg Ser Asp Thr Pro Glu Val His Pro Pro
500 505 510
Leu Pro Ile Ser Gln Ser Pro Glu Asn Glu Ser Asn Asp Arg Arg Ser
515 520 525
Arg Arg Tyr Ser Val Ser Glu Arg Ser Phe Gly Ser Arg Thr Thr Lys
530 535 540

Lys Leu Ser Thr Leu Gln Ser Ala Pro Gln Gln Gln Thr Ser Ser Ser

545 550 555 560

Pro Pro Pro Pro Leu Leu Thr Pro Pro Pro Pro Leu Gln Pro Ala Ser

565 570 575

Ser Ile Ser Asp His Thr Pro Trp Leu Met Pro Pro Thr Ile Pro Leu

580 585 590

Ala Ser Pro Phe Leu Pro Ala Ser Thr Ala Pro Met Gln Gly Lys Arg

595 600 605

Lys Ser Ile Leu Arg Glu Pro Thr Phe Arg Trp Thr Ser Leu Lys His

610 615 620

Ser Arg Ser Glu Pro Gln Tyr Phe Ser Ser Ala Lys Tyr Ala Lys Glu

625 630 635 640

Gly Leu Ile Arg Lys Pro Ile Phe Asp Asn Phe Arg Pro Pro Pro Leu

645 650 655

Thr Pro Glu Asp Val Gly Phe Ala Ser Gly Phe Ser Ala Ser Gly Thr

660 665 670

Ala Ala Ser Ala Arg Leu Phe Ser Pro Leu His Ser Gly Thr Arg Phe

675 680 685

Asp Met His Lys Arg Ser Pro Leu Leu Arg Ala Pro Arg Phe Thr Pro

690 695 700

Ser Glu Ala His Ser Arg Ile Phe Glu Ser Val Thr Leu Pro Ser Asn

705 710 715 720

Arg Thr Ser Ala Gly Thr Ser Ser Ser Gly Val Ser Asn Arg Lys Arg

725 730 735

Lys Arg Lys Val Phe Ser Pro Ile Arg Ser Glu Pro Arg Ser Pro Ser

740 745 750

His Ser Met Arg Thr Arg Ser Gly Arg Leu Ser Ser Ser Glu Leu Ser

755 760 765

Pro Leu Thr Pro Pro Ser Ser Val Ser Ser Ser Leu Ser Ile Ser Val

770 775 780

Ser Pro Leu Ala Thr Ser Ala Leu Asn Pro Thr Phe Thr Phe Pro Ser

785 790 795 800

His Ser Leu Thr Gln Ser Gly Glu Ser Ala Glu Lys Asn Gln Arg Pro

805 810 815

Arg Lys Gln Thr Ser Ala Pro Ala Glu Pro Phe Ser Ser Ser Ser Pro

820 825 830

Thr Pro Leu Phe Pro Trp Phe Thr Pro Gly Ser Gln Thr Glu Arg Gly

835 840 845

Arg Asn Lys Asp Lys Ala Pro Glu Glu Leu Ser Lys Asp Arg Asp Ala

850 855 860

Asp Lys Ser Val Glu Lys Asp Lys Ser Arg Glu Arg Asp Arg Glu Arg

865 870 875 880

Glu Lys Glu Asn Lys Arg Glu Ser Arg Lys Glu Lys Arg Lys Lys Gly

885 890 895

Ser Glu Ile Gln Ser Ser Ser Ala Leu Tyr Pro Val Gly Arg Val Ser

900 905 910

Lys Glu Lys Val Val Gly Glu Asp Val Ala Thr Ser Ser Ser Ala Lys

915 920 925

Lys Ala Thr Gly Arg Lys Lys Ser Ser Ser His Asp Ser Gly Thr Asp

930 935 940

Ile Thr Ser Val Thr Leu Gly Asp Thr Thr Ala Val Lys Thr Lys Ile

945 950 955 960

Leu Ile Lys Lys Gly Arg Gly Asn Leu Glu Lys Thr Asn Leu Asp Leu

965 970 975

Gly Pro Thr Ala Pro Ser Leu Glu Lys Glu Lys Thr Leu Cys Leu Ser

980 985 990

Thr Pro Ser Ser Ser Thr Val Lys His Ser Thr Ser Ser Ile Gly Ser

995 1000 1005

Met Leu Ala Gln Ala Asp Lys Leu Pro Met Thr Asp Lys Arg Val Ala

1010 1015 1020

Ser Leu Leu Lys Lys Ala Lys Ala Gln Leu Cys Lys Ile Glu Lys Ser

1025 1030 1035 1040

Lys Ser Leu Lys Gln Thr Asp Gln Pro Lys Ala Gln Gly Gln Glu Ser

1045 1050 1055

Asp Ser Ser Glu Thr Ser Val Arg Gly Pro Arg Ile Lys His Val Cys

1060 1065 1070

Arg Arg Ala Ala Val Ala Leu Gly Arg Lys Arg Ala Val Phe Pro Asp

1075 1080 1085

Asp Met Pro Thr Leu Ser Ala Leu Pro Trp Glu Glu Arg Glu Lys Ile

1090 1095 1100

Leu Ser Ser Met Gly Asn Asp Asp Lys Ser Ser Ile Ala Gly Ser Glu

1105 1110 1115 1120

Asp Ala Glu Pro Leu Ala Pro Pro Ile Lys Pro Ile Lys Pro Val Thr

1125 1130 1135

Arg Asn Lys Ala Pro Gln Glu Pro Pro Val Lys Lys Gly Arg Arg Ser

1140 1145 1150

Arg Arg Cys Gly Gln Cys Pro Gly Cys Gln Val Pro Glu Asp Cys Gly

1155 1160 1165

Val Cys Thr Asn Cys Leu Asp Lys Pro Lys Phe Gly Gly Arg Asn Ile

1170 1175 1180

Lys Lys Gln Cys Cys Lys Met Arg Lys Cys Gln Asn Leu Gln Trp Met

1185 1190 1195 1200

Pro Ser Lys Ala Tyr Leu Gln Lys Gln Ala Lys Ala Val Lys Lys Lys

1205 1210 1215

Glu Lys Lys Ser Lys Thr Ser Glu Lys Lys Asp Ser Lys Glu Ser Ser

1220 1225 1230

Val Val Lys Asn Val Val Asp Ser Ser Gln Lys Pro Thr Pro Ser Ala

1235 1240 1245

Arg Glu Asp Pro Ala Pro Lys Lys Ser Ser Ser Glu Pro Pro Pro Arg

1250 1255 1260

Lys Pro Val Glu Glu Lys Ser Glu Glu Gly Asn Val Ser Ala Pro Gly

1265 1270 1275 1280

Pro Glu Ser Lys Gln Ala Thr Thr Pro Ala Ser Arg Lys Ser Ser Lys

1285 1290 1295

Gln Val Ser Gln Pro Ala Leu Val Ile Pro Pro Gln Pro Pro Thr Thr
1300 1305 1310
Gly Pro Pro Arg Lys Glu Val Pro Lys Thr Thr Pro Ser Glu Pro Lys
1315 1320 1325
Lys Lys Gln Pro Pro Pro Pro Glu Ser Gly Pro Glu Gln Ser Lys Gln
1330 1335 1340

Lys Lys Val Ala Pro Arg Pro Ser Ile Pro Val Lys Gln Lys Pro Lys
1345 1350 1355 1360
Glu Lys Glu Lys Pro Pro Pro Val Asn Lys Gln Glu Asn Ala Gly Thr
1365 1370 1375
Leu Asn Ile Leu Ser Thr Leu Ser Asn Gly Asn Ser Ser Lys Gln Lys
1380 1385 1390
Ile Pro Ala Asp Gly Val His Arg Ile Arg Val Asp Phe Lys Glu Asp
1395 1400 1405
Cys Glu Ala Glu Asn Val Trp Glu Met Gly Gly Leu Gly Ile Leu Thr

1410 1415 1420
Ser Val Pro Ile Thr Pro Arg Val Val Cys Phe Leu Cys Ala Ser Ser
1425 1430 1435 1440
Gly His Val Glu Phe Val Tyr Cys Gln Val Cys Cys Glu Pro Phe His
1445 1450 1455
Lys Phe Cys Leu Glu Glu Asn Glu Arg Pro Leu Glu Asp Gln Leu Glu
1460 1465 1470
Asn Trp Cys Cys Arg Arg Cys Lys Phe Cys His Val Cys Gly Arg Gln
1475 1480 1485

His Gln Ala Thr Lys Gln Leu Leu Glu Cys Asn Lys Cys Arg Asn Ser
1490 1495 1500
Tyr His Pro Glu Cys Leu Gly Pro Asn Tyr Pro Thr Lys Pro Thr Lys
1505 1510 1515 1520
Lys Lys Lys Val Trp Ile Cys Thr Lys Cys Val Arg Cys Lys Ser Cys
1525 1530 1535
Gly Ser Thr Thr Pro Gly Lys Gly Trp Asp Ala Gln Trp Ser His Asp
1540 1545 1550

Phe Ser Leu Cys His Asp Cys Ala Lys Leu Phe Ala Lys Gly Asn Phe

1555 1560 1565

Cys Pro Leu Cys Asp Lys Cys Tyr Asp Asp Asp Asp Tyr Glu Ser Lys

1570 1575 1580

Met Met Gln Cys Gly Lys Cys Asp Arg Trp Val His Ser Lys Cys Glu

1585 1590 1595 1600

Asn Leu Ser Asp Glu Met Tyr Glu Ile Leu Ser Asn Leu Pro Glu Ser

1605 1610 1615

Val Ala Tyr Thr Cys Val Asn Cys Thr Glu Arg His Pro Ala Glu Trp

1620 1625 1630

Arg Leu Ala Leu Glu Lys Glu Leu Gln Ile Ser Leu Lys Gln Val Leu

1635 1640 1645

Thr Ala Leu Leu Asn Ser Arg Thr Thr Ser His Leu Leu Arg Tyr Arg

1650 1655 1660

Gln Ala Ala Lys Pro Pro Asp Leu Asn Pro Glu Thr Glu Glu Ser Ile

1665 1670 1675 1680

Pro Ser Arg Ser Ser Pro Glu Gly Pro Asp Pro Pro Val Leu Thr Glu

1685 1690 1695

Val Ser Lys Gln Asp Asp Gln Gln Pro Leu Asp Leu Glu Gly Val Lys

1700 1705 1710

Arg Lys Met Asp Gln Gly Asn Tyr Thr Ser Val Leu Glu Phe Ser Asp

1715 1720 1725

Asp Ile Val Lys Ile Ile Gln Ala Ala Ile Asn Ser Asp Gly Gly Gln

1730 1735 1740

Pro Glu Ile Lys Lys Ala Asn Ser Met Val Lys Ser Phe Phe Ile Arg

1745 1750 1755 1760

Gln Met Glu Arg Val Phe Pro Trp Phe Ser Val Lys Lys Ser Arg Phe

1765 1770 1775

Trp Glu Pro Asn Lys Val Ser Ser Asn Ser Gly Met Leu Pro Asn Ala

1780 1785 1790

Val Leu Pro Pro Ser Leu Asp His Asn Tyr Ala Gln Trp Gln Glu Arg

1795 1800 1805

Glu Glu Asn Ser His Thr Glu Gln Pro Pro Leu Met Lys Lys Ile Ile

1810 1815 1820

Pro Ala Pro Lys Pro Lys Gly Pro Gly Glu Pro Asp Ser Pro Thr Pro

1825 1830 1835 1840

Leu His Pro Pro Thr Pro Pro Ile Leu Ser Thr Asp Arg Ser Arg Glu

1845 1850 1855

Asp Ser Pro Glu Leu Asn Pro Pro Pro Gly Ile Glu Asp Asn Arg Gln

1860 1865 1870

Cys Ala Leu Cys Leu Thr Tyr Gly Asp Asp Ser Ala Asn Asp Ala Gly

1875 1880 1885

Arg Leu Leu Tyr Ile Gly Gln Asn Glu Trp Thr His Val Asn Cys Ala

1890 1895 1900

Leu Trp Ser Ala Glu Val Phe Glu Asp Asp Asp Gly Ser Leu Lys Asn

1905 1910 1915 1920

Val His Met Ala Val Ile Arg Gly Lys Gln Leu Arg Cys Glu Phe Cys

1925 1930 1935

Gln Lys Pro Gly Ala Thr Val Gly Cys Cys Leu Thr Ser Cys Thr Ser

1940 1945 1950

Asn Tyr His Phe Met Cys Ser Arg Ala Lys Asn Cys Val Phe Leu Asp

1955 1960 1965

Asp Lys Lys Val Tyr Cys Gln Arg His Arg Asp Leu Ile Lys Gly Glu

1970 1975 1980

Val Val Pro Glu Asn Gly Phe Glu Val Phe Arg Arg Val Phe Val Asp

1985 1990 1995 2000

Phe Glu Gly Ile Ser Leu Arg Arg Lys Phe Leu Asn Gly Leu Glu Pro

2005 2010 2015

Glu Asn Ile His Met Met Ile Gly Ser Met Thr Ile Asp Cys Leu Gly

2020 2025 2030

Ile Leu Asn Asp Leu Ser Asp Cys Glu Asp Lys Leu Phe Pro Ile Gly

2035 2040 2045

Tyr Gln Cys Ser Arg Val Tyr Trp Ser Thr Thr Asp Ala Arg Lys Arg

2050 2055 2060

Cys Val Tyr Thr Cys Lys Ile Val Glu Cys Arg Pro Pro Val Val Glu
2065 2070 2075 2080
Pro Asp Ile Asn Ser Thr Val Glu His Asp Glu Asn Arg Thr Ile Ala
2085 2090 2095
His Ser Pro Thr Ser Phe Thr Glu Ser Ser Ser Lys Glu Ser Gln Asn
2100 2105 2110
Thr Ala Glu Ile Ile Ser Pro Pro Ser Pro Asp Arg Pro Pro His Ser
2115 2120 2125
Gln Thr Ser Gly Ser Cys Tyr Tyr His Val Ile Ser Lys Val Pro Arg

2130 2135 2140
Ile Arg Thr Pro Ser Tyr Ser Pro Thr Gln Arg Ser Pro Gly Cys Arg
2145 2150 2155 2160
Pro Leu Pro Ser Ala Gly Ser Pro Thr Pro Thr Thr His Glu Ile Val
2165 2170 2175
Thr Val Gly Asp Pro Leu Leu Ser Ser Gly Leu Arg Ser Ile Gly Ser
2180 2185 2190
Arg Arg His Ser Thr Ser Ser Leu Ser Pro Gln Arg Ser Lys Leu Arg
2195 2200 2205

Ile Met Ser Pro Met Arg Thr Gly Asn Thr Tyr Ser Arg Asn Asn Val
2210 2215 2220
Ser Ser Val Ser Thr Thr Gly Thr Ala Thr Asp Leu Glu Ser Ser Ala
2225 2230 2235 2240
Lys Val Val Asp His Val Leu Gly Pro Leu Asn Ser Ser Thr Ser Leu
2245 2250 2255
Gly Gln Asn Thr Ser Thr Ser Ser Asn Leu Gln Arg Thr Val Val Thr
2260 2265 2270
Val Gly Asn Lys Asn Ser His Leu Asp Gly Ser Ser Ser Ser Glu Met

2275 2280 2285
Lys Gln Ser Ser Ala Ser Asp Leu Val Ser Lys Ser Ser Ser Leu Lys
2290 2295 2300

Gly Glu Lys Thr Lys Val Leu Ser Ser Lys Ser Ser Glu Gly Ser Ala
2305 2310 2315 2320
His Asn Val Ala Tyr Pro Gly Ile Pro Lys Leu Ala Pro Gln Val His
2325 2330 2335
Asn Thr Thr Ser Arg Glu Leu Asn Val Ser Lys Ile Gly Ser Phe Ala
2340 2345 2350

Glu Pro Ser Ser Val Ser Phe Ser Ser Lys Glu Ala Leu Ser Phe Pro
2355 2360 2365
His Leu His Leu Arg Gly Gln Arg Asn Asp Arg Asp Gln His Thr Asp
2370 2375 2380
Ser Thr Gln Ser Ala Asn Ser Ser Pro Asp Glu Asp Thr Glu Val Lys
2385 2390 2395 2400
Thr Leu Lys Leu Ser Gly Met Ser Asn Arg Ser Ser Ile Ile Asn Glu
2405 2410 2415
His Met Gly Ser Ser Ser Arg Asp Arg Arg Gln Lys Gly Lys Lys Ser

2420 2425 2430
Cys Lys Glu Thr Phe Lys Glu Lys His Ser Ser Lys Ser Phe Leu Glu
2435 2440 2445
Pro Gly Gln Val Thr Thr Gly Glu Glu Gly Asn Leu Lys Pro Glu Phe
2450 2455 2460
Met Asp Glu Val Leu Thr Pro Glu Tyr Met Gly Gln Arg Pro Cys Asn
2465 2470 2475 2480
Asn Val Ser Ser Asp Lys Ile Gly Asp Lys Gly Leu Ser Met Pro Gly
2485 2490 2495

Val Pro Lys Ala Pro Pro Met Gln Val Glu Gly Ser Ala Lys Glu Leu
2500 2505 2510
Gln Ala Pro Arg Lys Arg Thr Val Lys Val Thr Leu Thr Pro Leu Lys
2515 2520 2525
Met Glu Asn Glu Ser Gln Ser Lys Asn Ala Leu Lys Glu Ser Ser Pro
2530 2535 2540
Ala Ser Pro Leu Gln Ile Glu Ser Thr Ser Pro Thr Glu Pro Ile Ser
2545 2550 2555 2560

Ala Ser Glu Asn Pro Gly Asp Gly Pro Val Ala Gln Pro Ser Pro Asn

2565 2570 2575

Asn Thr Ser Cys Gln Asp Ser Gln Ser Asn Asn Tyr Gln Asn Leu Pro

2580 2585 2590

Val Gln Asp Arg Asn Leu Met Leu Pro Asp Gly Pro Lys Pro Gln Glu

2595 2600 2605

Asp Gly Ser Phe Lys Arg Arg Tyr Pro Arg Arg Ser Ala Arg Ala Arg

2610 2615 2620

Ser Asn Met Phe Phe Gly Leu Thr Pro Leu Tyr Gly Val Arg Ser Tyr

2625 2630 2635 2640

Gly Glu Glu Asp Ile Pro Phe Tyr Ser Ser Ser Thr Gly Lys Lys Arg

2645 2650 2655

Gly Lys Arg Ser Ala Glu Gly Gln Val Asp Gly Ala Asp Asp Leu Ser

2660 2665 2670

Thr Ser Asp Glu Asp Asp Leu Tyr Tyr Tyr Asn Phe Thr Arg Thr Val

2675 2680 2685

Ile Ser Ser Gly Gly Glu Glu Arg Leu Ala Ser His Asn Leu Phe Arg

2690 2695 2700

Glu Glu Glu Gln Cys Asp Leu Pro Lys Ile Ser Gln Leu Asp Gly Val

2705 2710 2715 2720

Asp Asp Gly Thr Glu Ser Asp Thr Ser Val Thr Ala Thr Thr Arg Lys

2725 2730 2735

Ser Ser Gln Ile Pro Lys Arg Asn Gly Lys Glu Asn Gly Thr Glu Asn

2740 2745 2750

Leu Lys Ile Asp Arg Pro Glu Asp Ala Gly Glu Lys Glu His Val Thr

2755 2760 2765

Lys Ser Ser Val Gly His Lys Asn Glu Pro Lys Met Asp Asn Cys His

2770 2775 2780

Ser Val Ser Arg Val Lys Thr Gln Gly Gln Asp Ser Leu Glu Ala Gln

2785 2790 2795 2800

Leu Ser Ser Leu Glu Ser Ser Arg Arg Val His Thr Ser Thr Pro Ser

2805 2810 2815

Asp Lys Asn Leu Leu Asp Thr Tyr Asn Thr Glu Leu Leu Lys Ser Asp

2820 2825 2830

Ser Asp Asn Asn Asn Ser Asp Asp Cys Gly Asn Ile Leu Pro Ser Asp

2835 2840 2845

Ile Met Asp Phe Val Leu Lys Asn Thr Pro Ser Met Gln Ala Leu Gly

2850 2855 2860

Glu Ser Pro Glu Ser Ser Ser Ser Glu Leu Leu Asn Leu Gly Glu Gly

2865 2870 2875 2880

Leu Gly Leu Asp Ser Asn Arg Glu Lys Asp Met Gly Leu Phe Glu Val

2885 2890 2895

Phe Ser Gln Gln Leu Pro Thr Thr Glu Pro Val Asp Ser Ser Val Ser

2900 2905 2910

Ser Ser Ile Ser Ala Glu Glu Gln Phe Glu Leu Pro Leu Glu Leu Pro

2915 2920 2925

Ser Asp Leu Ser Val Leu Thr Thr Arg Ser Pro Thr Val Pro Ser Gln

2930 2935 2940

Asn Pro Ser Arg Leu Ala Val Ile Ser Asp Ser Gly Glu Lys Arg Val

2945 2950 2955 2960

Thr Ile Thr Glu Lys Ser Val Ala Ser Ser Glu Ser Asp Pro Ala Leu

2965 2970 2975

Leu Ser Pro Gly Val Asp Pro Thr Pro Glu Gly His Met Thr Pro Asp

2980 2985 2990

His Phe Ile Gln Gly His Met Asp Ala Asp His Ile Ser Ser Pro Pro

2995 3000 3005

Cys Gly Ser Val Glu Gln Gly His Gly Asn Asn Gln Asp Leu Thr Arg

3010 3015 3020

Asn Ser Ser Thr Pro Gly Leu Gln Val Pro Val Ser Pro Thr Val Pro

3025 3030 3035 3040

Ile Gln Asn Gln Lys Tyr Val Pro Asn Ser Thr Asp Ser Pro Gly Pro

3045 3050 3055

Ser Gln Ile Ser Asn Ala Ala Val Gln Thr Thr Pro Pro His Leu Lys

3060 3065 3070

Pro Ala Thr Glu Lys Leu Ile Val Val Asn Gln Asn Met Gln Pro Leu

3075 3080 3085

Tyr Val Leu Gln Thr Leu Pro Asn Gly Val Thr Gln Lys Ile Gln Leu

3090 3095 3100

Thr Ser Ser Val Ser Ser Thr Pro Ser Val Met Glu Thr Asn Thr Ser

3105 3110 3115 3120

Val Leu Gly Pro Met Gly Gly Gly Leu Thr Leu Thr Thr Gly Leu Asn

3125 3130 3135

Pro Ser Leu Pro Thr Ser Gln Ser Leu Phe Pro Ser Ala Ser Lys Gly

3140 3145 3150

Leu Leu Pro Met Ser His His Gln His Leu His Ser Phe Pro Ala Ala

3155 3160 3165

Thr Gln Ser Ser Phe Pro Pro Asn Ile Ser Asn Pro Pro Ser Gly Leu

3170 3175 3180

Leu Ile Gly Val Gln Pro Pro Pro Asp Pro Gln Leu Leu Val Ser Glu

3185 3190 3195 3200

Ser Ser Gln Arg Thr Asp Leu Ser Thr Thr Val Ala Thr Pro Ser Ser

3205 3210 3215

Gly Leu Lys Lys Arg Pro Ile Ser Arg Leu Gln Thr Arg Lys Asn Lys

3220 3225 3230

Lys Leu Ala Pro Ser Ser Thr Pro Ser Asn Ile Ala Pro Ser Asp Val

3235 3240 3245

Val Ser Asn Met Thr Leu Ile Asn Phe Thr Pro Ser Gln Leu Pro Asn

3250 3255 3260

His Pro Ser Leu Leu Asp Leu Gly Ser Leu Asn Thr Ser Ser His Arg

3265 3270 3275 3280

Thr Val Pro Asn Ile Ile Lys Arg Ser Lys Ser Ser Ile Met Tyr Phe

3285 3290 3295

Glu Pro Ala Pro Leu Leu Pro Gln Ser Val Gly Gly Thr Ala Ala Thr

3300 3305 3310

Ala Ala Gly Thr Ser Thr Ile Ser Gln Asp Thr Ser His Leu Thr Ser
3315 3320 3325
Gly Ser Val Ser Gly Leu Ala Ser Ser Ser Ser Val Leu Asn Val Val
3330 3335 3340
Ser Met Gln Thr Thr Thr Thr Pro Thr Ser Ser Ala Ser Val Pro Gly
3345 3350 3355 3360

His Val Thr Leu Thr Asn Pro Arg Leu Leu Gly Thr Pro Asp Ile Gly
3365 3370 3375
Ser Ile Ser Asn Leu Leu Ile Lys Ala Ser Gln Gln Ser Leu Gly Ile
3380 3385 3390
Gln Asp Gln Pro Val Ala Leu Pro Pro Ser Ser Gly Met Phe Pro Gln
3395 3400 3405
Leu Gly Thr Ser Gln Thr Pro Ser Thr Ala Ala Ile Thr Ala Ala Ser
3410 3415 3420
Ser Ile Cys Val Leu Pro Ser Thr Gln Thr Thr Gly Ile Thr Ala Ala

3425 3430 3435 3440
Ser Pro Ser Gly Glu Ala Asp Glu His Tyr Gln Leu Gln His Val Asn
3445 3450 3455
Gln Leu Leu Ala Ser Lys Thr Gly Ile His Ser Ser Gln Arg Asp Leu
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Asp Ser Ala Ser Gly Pro Gln Val Ser Asn Phe Thr Gln Thr Val Asp
3475 3480 3485
Ala Pro Asn Ser Met Gly Leu Glu Gln Asn Lys Ala Leu Ser Ser Ala
3490 3495 3500

Val Gln Ala Ser Pro Thr Ser Pro Gly Gly Ser Pro Ser Ser Pro Ser
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Ser Gly Gln Arg Ser Ala Ser Pro Ser Val Pro Gly Pro Thr Lys Pro
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Lys Pro Lys Thr Lys Arg Phe Gln Leu Pro Leu Asp Lys Gly Asn Gly
3540 3545 3550
Lys Lys His Lys Val Ser His Leu Arg Thr Ser Ser Ser Glu Ala His
3555 3560 3565

Ile Pro Asp Gln Glu Thr Thr Ser Leu Thr Ser Gly Thr Gly Thr Pro

3570 3575 3580

Gly Ala Glu Ala Glu Gln Gln Asp Thr Ala Ser Val Glu Gln Ser Ser

3585 3590 3595 3600

Gln Lys Glu Cys Gly Gln Pro Ala Gly Gln Val Ala Val Leu Pro Glu

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Val Gln Val Thr Gln Asn Pro Ala Asn Glu Gln Glu Ser Ala Glu Pro

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Lys Thr Val Glu Glu Glu Glu Ser Asn Phe Ser Ser Pro Leu Met Leu

3635 3640 3645

Trp Leu Gln Gln Glu Gln Lys Arg Lys Glu Ser Ile Thr Glu Lys Lys

3650 3655 3660

Pro Lys Lys Gly Leu Val Phe Glu Ile Ser Ser Asp Asp Gly Phe Gln

3665 3670 3675 3680

Ile Cys Ala Glu Ser Ile Glu Asp Ala Trp Lys Ser Leu Thr Asp Lys

3685 3690 3695

Val Gln Glu Ala Arg Ser Asn Ala Arg Leu Lys Gln Leu Ser Phe Ala

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Gly Val Asn Gly Leu Arg Met Leu Gly Ile Leu His Asp Ala Val Val

3715 3720 3725

Phe Leu Ile Glu Gln Leu Ser Gly Ala Lys His Cys Arg Asn Tyr Lys

3730 3735 3740

Phe Arg Phe His Lys Pro Glu Glu Ala Asn Glu Pro Pro Leu Asn Pro

3745 3750 3755 3760

His Gly Ser Ala Arg Ala Glu Val His Leu Arg Lys Ser Ala Phe Asp

3765 3770 3775

Met Phe Asn Phe Leu Ala Ser Lys His Arg Gln Pro Pro Glu Tyr Asn

3780 3785 3790

Pro Asn Asp Glu Glu Glu Glu Glu Val Gln Leu Lys Ser Ala Arg Arg

3795 3800 3805

Ala Thr Ser Met Asp Leu Pro Met Pro Met Arg Phe Arg His Leu Lys

3810 3815 3820

Lys Thr Ser Lys Glu Ala Val Gly Val Tyr Arg Ser Pro Ile His Gly

3825 3830 3835 3840

Arg Gly Leu Phe Cys Lys Arg Asn Ile Asp Ala Gly Glu Met Val Ile

3845 3850 3855

Glu Tyr Ala Gly Asn Val Ile Arg Ser Ile Gln Thr Asp Lys Arg Glu

3860 3865 3870

Lys Tyr Tyr Asp Ser Lys Gly Ile Gly Cys Tyr Met Phe Arg Ile Asp

3875 3880 3885

Asp Ser Glu Val Val Asp Ala Thr Met His Gly Asn Ala Ala Arg Phe

3890 3895 3900

Ile Asn His Ser Cys Glu Pro Asn Cys Tyr Ser Arg Val Ile Asn Ile

3905 3910 3915 3920

Asp Gly Gln Lys His Ile Val Ile Phe Ala Met Arg Lys Ile Tyr Arg

3925 3930 3935

Gly Glu Glu Leu Thr Tyr Asp Tyr Lys Phe Pro Ile Glu Asp Ala Ser

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Asn Lys Leu Pro Cys Asn Cys Gly Ala Lys Lys Cys Arg Lys Phe Leu

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Asn

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<211> 3972

<212> PRT

<213> Homo sapiens

<400> 74

Met Ala His Ser Cys Arg Trp Arg Phe Pro Ala Arg Pro Gly Thr Thr

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Gln Arg Val Pro Ala Leu Leu Leu Pro Pro Gly Pro Pro Val Gly Gly

35 40 45

Gly Gly Pro Gly Ala Pro Pro Ser Pro Pro Ala Val Ala Ala Ala Ala
50 55 60
Ala Ala Ala Gly Ser Ser Gly Ala Gly Val Pro Gly Gly Ala Ala Ala
65 70 75 80
Ala Ser Ala Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser
85 90 95

Ser Ser Ala Ser Ser Gly Pro Ala Leu Leu Arg Val Gly Pro Gly Phe
100 105 110
Asp Ala Ala Leu Gln Val Ser Ala Ala Ile Gly Thr Asn Leu Arg Arg
115 120 125
Phe Arg Ala Val Phe Gly Glu Ser Gly Gly Gly Gly Gly Ser Gly Glu
130 135 140
Asp Glu Gln Phe Leu Gly Phe Gly Ser Asp Glu Glu Val Arg Val Arg
145 150 155 160
Ser Pro Thr Arg Ser Pro Ser Val Lys Thr Ser Pro Arg Lys Pro Arg

165 170 175
Gly Arg Pro Arg Ser Gly Ser Asp Arg Asn Ser Ala Ile Leu Ser Asp
180 185 190
Pro Ser Val Phe Ser Pro Leu Asn Lys Ser Glu Thr Lys Ser Gly Asp
195 200 205
Lys Ile Lys Lys Lys Asp Ser Lys Ser Ile Glu Lys Lys Arg Gly Arg
210 215 220
Pro Pro Thr Phe Pro Gly Val Lys Ile Lys Ile Thr His Gly Lys Asp
225 230 235 240

Ile Ser Glu Leu Pro Lys Gly Asn Lys Glu Asp Ser Leu Lys Lys Ile
245 250 255
Lys Arg Thr Pro Ser Ala Thr Phe Gln Gln Ala Thr Lys Ile Lys Lys
260 265 270
Leu Arg Ala Gly Lys Leu Ser Pro Leu Lys Ser Lys Phe Lys Thr Gly
275 280 285
Lys Leu Gln Ile Gly Arg Lys Gly Val Gln Ile Val Arg Arg Arg Gly
290 295 300

Arg Pro Pro Ser Thr Glu Arg Ile Lys Thr Pro Ser Gly Leu Leu Ile

305 310 315 320

Asn Ser Glu Leu Glu Lys Pro Gln Lys Val Arg Lys Asp Lys Glu Gly

325 330 335

Thr Pro Pro Leu Thr Lys Glu Asp Lys Thr Val Val Arg Gln Ser Pro

340 345 350

Arg Arg Ile Lys Pro Val Arg Ile Ile Pro Ser Ser Lys Arg Thr Asp

355 360 365

Ala Thr Ile Ala Lys Gln Leu Leu Gln Arg Ala Lys Lys Gly Ala Gln

370 375 380

Lys Lys Ile Glu Lys Glu Ala Ala Gln Leu Gln Gly Arg Lys Val Lys

385 390 395 400

Thr Gln Val Lys Asn Ile Arg Gln Phe Ile Met Pro Val Val Ser Ala

405 410 415

Ile Ser Ser Arg Ile Ile Lys Thr Pro Arg Arg Phe Ile Glu Asp Glu

420 425 430

Asp Tyr Asp Pro Pro Ile Lys Ile Ala Arg Leu Glu Ser Thr Pro Asn

435 440 445

Ser Arg Phe Ser Ala Pro Ser Cys Gly Ser Ser Glu Lys Ser Ser Ala

450 455 460

Ala Ser Gln His Ser Ser Gln Met Ser Ser Asp Ser Ser Arg Ser Ser

465 470 475 480

Ser Pro Ser Val Asp Thr Ser Thr Asp Ser Gln Ala Ser Glu Glu Ile

485 490 495

Gln Val Leu Pro Glu Glu Arg Ser Asp Thr Pro Glu Val His Pro Pro

500 505 510

Leu Pro Ile Ser Gln Ser Pro Glu Asn Glu Ser Asn Asp Arg Arg Ser

515 520 525

Arg Arg Tyr Ser Val Ser Glu Arg Ser Phe Gly Ser Arg Thr Thr Lys

530 535 540

Lys Leu Ser Thr Leu Gln Ser Ala Pro Gln Gln Gln Thr Ser Ser Ser

545 550 555 560

Pro Pro Pro Pro Leu Leu Thr Pro Pro Pro Pro Leu Gln Pro Ala Ser

565 570 575

Ser Ile Ser Asp His Thr Pro Trp Leu Met Pro Pro Thr Ile Pro Leu

580 585 590

Ala Ser Pro Phe Leu Pro Ala Ser Thr Ala Pro Met Gln Gly Lys Arg

595 600 605

Lys Ser Ile Leu Arg Glu Pro Thr Phe Arg Trp Thr Ser Leu Lys His

610 615 620

Ser Arg Ser Glu Pro Gln Tyr Phe Ser Ser Ala Lys Tyr Ala Lys Glu

625 630 635 640

Gly Leu Ile Arg Lys Pro Ile Phe Asp Asn Phe Arg Pro Pro Pro Leu

645 650 655

Thr Pro Glu Asp Val Gly Phe Ala Ser Gly Phe Ser Ala Ser Gly Thr

660 665 670

Ala Ala Ser Ala Arg Leu Phe Ser Pro Leu His Ser Gly Thr Arg Phe

675 680 685

Asp Met His Lys Arg Ser Pro Leu Leu Arg Ala Pro Arg Phe Thr Pro

690 695 700

Ser Glu Ala His Ser Arg Ile Phe Glu Ser Val Thr Leu Pro Ser Asn

705 710 715 720

Arg Thr Ser Ala Gly Thr Ser Ser Ser Gly Val Ser Asn Arg Lys Arg

725 730 735

Lys Arg Lys Val Phe Ser Pro Ile Arg Ser Glu Pro Arg Ser Pro Ser

740 745 750

His Ser Met Arg Thr Arg Ser Gly Arg Leu Ser Ser Ser Glu Leu Ser

755 760 765

Pro Leu Thr Pro Pro Ser Ser Val Ser Ser Ser Leu Ser Ile Ser Val

770 775 780

Ser Pro Leu Ala Thr Ser Ala Leu Asn Pro Thr Phe Thr Phe Pro Ser

785 790 795 800

His Ser Leu Thr Gln Ser Gly Glu Ser Ala Glu Lys Asn Gln Arg Pro

805 810 815

Arg Lys Gln Thr Ser Ala Pro Ala Glu Pro Phe Ser Ser Ser Ser Pro
820 825 830
Thr Pro Leu Phe Pro Trp Phe Thr Pro Gly Ser Gln Thr Glu Arg Gly
835 840 845
Arg Asn Lys Asp Lys Ala Pro Glu Glu Leu Ser Lys Asp Arg Asp Ala
850 855 860
Asp Lys Ser Val Glu Lys Asp Lys Ser Arg Glu Arg Asp Arg Glu Arg
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Glu Lys Glu Asn Lys Arg Glu Ser Arg Lys Glu Lys Arg Lys Lys Gly

885 890 895
Ser Glu Ile Gln Ser Ser Ser Ala Leu Tyr Pro Val Gly Arg Val Ser
900 905 910
Lys Glu Lys Val Val Gly Glu Asp Val Ala Thr Ser Ser Ser Ala Lys
915 920 925
Lys Ala Thr Gly Arg Lys Lys Ser Ser Ser His Asp Ser Gly Thr Asp
930 935 940
Ile Thr Ser Val Thr Leu Gly Asp Thr Thr Ala Val Lys Thr Lys Ile
945 950 955 960

Leu Ile Lys Lys Gly Arg Gly Asn Leu Glu Lys Thr Asn Leu Asp Leu
965 970 975
Gly Pro Thr Ala Pro Ser Leu Glu Lys Glu Lys Thr Leu Cys Leu Ser
980 985 990
Thr Pro Ser Ser Ser Thr Val Lys His Ser Thr Ser Ser Ile Gly Ser
995 1000 1005
Met Leu Ala Gln Ala Asp Lys Leu Pro Met Thr Asp Lys Arg Val Ala
1010 1015 1020
Ser Leu Leu Lys Lys Ala Lys Ala Gln Leu Cys Lys Ile Glu Lys Ser

1025 1030 1035 1040
Lys Ser Leu Lys Gln Thr Asp Gln Pro Lys Ala Gln Gly Gln Glu Ser
1045 1050 1055

Asp Ser Ser Glu Thr Ser Val Arg Gly Pro Arg Ile Lys His Val Cys
1060 1065 1070
Arg Arg Ala Ala Val Ala Leu Gly Arg Lys Arg Ala Val Phe Pro Asp
1075 1080 1085
Asp Met Pro Thr Leu Ser Ala Leu Pro Trp Glu Glu Arg Glu Lys Ile
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Leu Ser Ser Met Gly Asn Asp Asp Lys Ser Ser Ile Ala Gly Ser Glu
1105 1110 1115 1120
Asp Ala Glu Pro Leu Ala Pro Pro Ile Lys Pro Ile Lys Pro Val Thr
1125 1130 1135
Arg Asn Lys Ala Pro Gln Glu Pro Pro Val Lys Lys Gly Arg Arg Ser
1140 1145 1150
Arg Arg Cys Gly Gln Cys Pro Gly Cys Gln Val Pro Glu Asp Cys Gly
1155 1160 1165
Val Cys Thr Asn Cys Leu Asp Lys Pro Lys Phe Gly Gly Arg Asn Ile

1170 1175 1180
Lys Lys Gln Cys Cys Lys Met Arg Lys Cys Gln Asn Leu Gln Trp Met
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Pro Ser Lys Ala Tyr Leu Gln Lys Gln Ala Lys Ala Val Lys Lys Lys
1205 1210 1215
Glu Lys Lys Ser Lys Thr Ser Glu Lys Lys Asp Ser Lys Glu Ser Ser
1220 1225 1230
Val Val Lys Asn Val Val Asp Ser Ser Gln Lys Pro Thr Pro Ser Ala
1235 1240 1245

Arg Glu Asp Pro Ala Pro Lys Lys Ser Ser Ser Glu Pro Pro Pro Arg
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Lys Pro Val Glu Glu Lys Ser Glu Glu Gly Asn Val Ser Ala Pro Gly
1265 1270 1275 1280
Pro Glu Ser Lys Gln Ala Thr Thr Pro Ala Ser Arg Lys Ser Ser Lys
1285 1290 1295
Gln Val Ser Gln Pro Ala Leu Val Ile Pro Pro Gln Pro Pro Thr Thr
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Gly Pro Pro Arg Lys Glu Val Pro Lys Thr Thr Pro Ser Glu Pro Lys

1315 1320 1325

Lys Lys Gln Pro Pro Pro Pro Glu Ser Gly Pro Glu Gln Ser Lys Gln

1330 1335 1340

Lys Lys Val Ala Pro Arg Pro Ser Ile Pro Val Lys Gln Lys Pro Lys

1345 1350 1355 1360

Glu Lys Glu Lys Pro Pro Pro Val Asn Lys Gln Glu Asn Ala Gly Thr

1365 1370 1375

Leu Asn Ile Leu Ser Thr Leu Ser Asn Gly Asn Ser Ser Lys Gln Lys

1380 1385 1390

Ile Pro Ala Asp Gly Val His Arg Ile Arg Val Asp Phe Lys Glu Asp

1395 1400 1405

Cys Glu Ala Glu Asn Val Trp Glu Met Gly Gly Leu Gly Ile Leu Thr

1410 1415 1420

Ser Val Pro Ile Thr Pro Arg Val Val Cys Phe Leu Cys Ala Ser Ser

1425 1430 1435 1440

Gly His Val Glu Phe Val Tyr Cys Gln Val Cys Cys Glu Pro Phe His

1445 1450 1455

Lys Phe Cys Leu Glu Glu Asn Glu Arg Pro Leu Glu Asp Gln Leu Glu

1460 1465 1470

Asn Trp Cys Cys Arg Arg Cys Lys Phe Cys His Val Cys Gly Arg Gln

1475 1480 1485

His Gln Ala Thr Lys Gln Leu Leu Glu Cys Asn Lys Cys Arg Asn Ser

1490 1495 1500

Tyr His Pro Glu Cys Leu Gly Pro Asn Tyr Pro Thr Lys Pro Thr Lys

1505 1510 1515 1520

Lys Lys Lys Val Trp Ile Cys Thr Lys Cys Val Arg Cys Lys Ser Cys

1525 1530 1535

Gly Ser Thr Thr Pro Gly Lys Gly Trp Asp Ala Gln Trp Ser His Asp

1540 1545 1550

Phe Ser Leu Cys His Asp Cys Ala Lys Leu Phe Ala Lys Gly Asn Phe

1555 1560 1565

Cys Pro Leu Cys Asp Lys Cys Tyr Asp Asp Asp Asp Tyr Glu Ser Lys

1570 1575 1580

Met Met Gln Cys Gly Lys Cys Asp Arg Trp Val His Ser Lys Cys Glu

1585 1590 1595 1600

Asn Leu Ser Gly Thr Glu Asp Glu Met Tyr Glu Ile Leu Ser Asn Leu

1605 1610 1615

Pro Glu Ser Val Ala Tyr Thr Cys Val Asn Cys Thr Glu Arg His Pro

1620 1625 1630

Ala Glu Trp Arg Leu Ala Leu Glu Lys Glu Leu Gln Ile Ser Leu Lys

1635 1640 1645

Gln Val Leu Thr Ala Leu Leu Asn Ser Arg Thr Thr Ser His Leu Leu

1650 1655 1660

Arg Tyr Arg Gln Ala Ala Lys Pro Pro Asp Leu Asn Pro Glu Thr Glu

1665 1670 1675 1680

Glu Ser Ile Pro Ser Arg Ser Ser Pro Glu Gly Pro Asp Pro Pro Val

1685 1690 1695

Leu Thr Glu Val Ser Lys Gln Asp Asp Gln Gln Pro Leu Asp Leu Glu

1700 1705 1710

Gly Val Lys Arg Lys Met Asp Gln Gly Asn Tyr Thr Ser Val Leu Glu

1715 1720 1725

Phe Ser Asp Asp Ile Val Lys Ile Ile Gln Ala Ala Ile Asn Ser Asp

1730 1735 1740

Gly Gly Gln Pro Glu Ile Lys Lys Ala Asn Ser Met Val Lys Ser Phe

1745 1750 1755 1760

Phe Ile Arg Gln Met Glu Arg Val Phe Pro Trp Phe Ser Val Lys Lys

1765 1770 1775

Ser Arg Phe Trp Glu Pro Asn Lys Val Ser Ser Asn Ser Gly Met Leu

1780 1785 1790

Pro Asn Ala Val Leu Pro Pro Ser Leu Asp His Asn Tyr Ala Gln Trp

1795 1800 1805

Gln Glu Arg Glu Glu Asn Ser His Thr Glu Gln Pro Pro Leu Met Lys

1810 1815 1820

Lys Ile Ile Pro Ala Pro Lys Pro Lys Gly Pro Gly Glu Pro Asp Ser
1825 1830 1835 1840
Pro Thr Pro Leu His Pro Pro Thr Pro Pro Ile Leu Ser Thr Asp Arg
1845 1850 1855
Ser Arg Glu Asp Ser Pro Glu Leu Asn Pro Pro Pro Gly Ile Glu Asp
1860 1865 1870
Asn Arg Gln Cys Ala Leu Cys Leu Thr Tyr Gly Asp Asp Ser Ala Asn
1875 1880 1885
Asp Ala Gly Arg Leu Leu Tyr Ile Gly Gln Asn Glu Trp Thr His Val

1890 1895 1900
Asn Cys Ala Leu Trp Ser Ala Glu Val Phe Glu Asp Asp Asp Gly Ser
1905 1910 1915 1920
Leu Lys Asn Val His Met Ala Val Ile Arg Gly Lys Gln Leu Arg Cys
1925 1930 1935
Glu Phe Cys Gln Lys Pro Gly Ala Thr Val Gly Cys Cys Leu Thr Ser
1940 1945 1950
Cys Thr Ser Asn Tyr His Phe Met Cys Ser Arg Ala Lys Asn Cys Val
1955 1960 1965

Phe Leu Asp Asp Lys Lys Val Tyr Cys Gln Arg His Arg Asp Leu Ile
1970 1975 1980
Lys Gly Glu Val Val Pro Glu Asn Gly Phe Glu Val Phe Arg Arg Val
1985 1990 1995 2000
Phe Val Asp Phe Glu Gly Ile Ser Leu Arg Arg Lys Phe Leu Asn Gly
2005 2010 2015
Leu Glu Pro Glu Asn Ile His Met Met Ile Gly Ser Met Thr Ile Asp
2020 2025 2030
Cys Leu Gly Ile Leu Asn Asp Leu Ser Asp Cys Glu Asp Lys Leu Phe

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Pro Ile Gly Tyr Gln Cys Ser Arg Val Tyr Trp Ser Thr Thr Asp Ala
2050 2055 2060

Arg Lys Arg Cys Val Tyr Thr Cys Lys Ile Val Glu Cys Arg Pro Pro
2065 2070 2075 2080
Val Val Glu Pro Asp Ile Asn Ser Thr Val Glu His Asp Glu Asn Arg
2085 2090 2095
Thr Ile Ala His Ser Pro Thr Ser Phe Thr Glu Ser Ser Ser Lys Glu
2100 2105 2110

Ser Gln Asn Thr Ala Glu Ile Ile Ser Pro Pro Ser Pro Asp Arg Pro
2115 2120 2125
Pro His Ser Gln Thr Ser Gly Ser Cys Tyr Tyr His Val Ile Ser Lys
2130 2135 2140
Val Pro Arg Ile Arg Thr Pro Ser Tyr Ser Pro Thr Gln Arg Ser Pro
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Gly Cys Arg Pro Leu Pro Ser Ala Gly Ser Pro Thr Pro Thr Thr His
2165 2170 2175
Glu Ile Val Thr Val Gly Asp Pro Leu Leu Ser Ser Gly Leu Arg Ser

2180 2185 2190
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2195 2200 2205
Lys Leu Arg Ile Met Ser Pro Met Arg Thr Gly Asn Thr Tyr Ser Arg
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2225 2230 2235 2240
Ser Ser Ala Lys Val Val Asp His Val Leu Gly Pro Leu Asn Ser Ser
2245 2250 2255

Thr Ser Leu Gly Gln Asn Thr Ser Thr Ser Ser Asn Leu Gln Arg Thr
2260 2265 2270
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2275 2280 2285
Ser Glu Met Lys Gln Ser Ser Ala Ser Asp Leu Val Ser Lys Ser Ser
2290 2295 2300
Ser Leu Lys Gly Glu Lys Thr Lys Val Leu Ser Ser Lys Ser Ser Glu
2305 2310 2315 2320

Gly Ser Ala His Asn Val Ala Tyr Pro Gly Ile Pro Lys Leu Ala Pro

2325 2330 2335

Gln Val His Asn Thr Thr Ser Arg Glu Leu Asn Val Ser Lys Ile Gly

2340 2345 2350

Ser Phe Ala Glu Pro Ser Ser Val Ser Phe Ser Ser Lys Glu Ala Leu

2355 2360 2365

Ser Phe Pro His Leu His Leu Arg Gly Gln Arg Asn Asp Arg Asp Gln

2370 2375 2380

His Thr Asp Ser Thr Gln Ser Ala Asn Ser Ser Pro Asp Glu Asp Thr

2385 2390 2395 2400

Glu Val Lys Thr Leu Lys Leu Ser Gly Met Ser Asn Arg Ser Ser Ile

2405 2410 2415

Ile Asn Glu His Met Gly Ser Ser Ser Arg Asp Arg Arg Gln Lys Gly

2420 2425 2430

Lys Lys Ser Cys Lys Glu Thr Phe Lys Glu Lys His Ser Ser Lys Ser

2435 2440 2445

Phe Leu Glu Pro Gly Gln Val Thr Thr Gly Glu Glu Gly Asn Leu Lys

2450 2455 2460

Pro Glu Phe Met Asp Glu Val Leu Thr Pro Glu Tyr Met Gly Gln Arg

2465 2470 2475 2480

Pro Cys Asn Asn Val Ser Ser Asp Lys Ile Gly Asp Lys Gly Leu Ser

2485 2490 2495

Met Pro Gly Val Pro Lys Ala Pro Pro Met Gln Val Glu Gly Ser Ala

2500 2505 2510

Lys Glu Leu Gln Ala Pro Arg Lys Arg Thr Val Lys Val Thr Leu Thr

2515 2520 2525

Pro Leu Lys Met Glu Asn Glu Ser Gln Ser Lys Asn Ala Leu Lys Glu

2530 2535 2540

Ser Ser Pro Ala Ser Pro Leu Gln Ile Glu Ser Thr Ser Pro Thr Glu

2545 2550 2555 2560

Pro Ile Ser Ala Ser Glu Asn Pro Gly Asp Gly Pro Val Ala Gln Pro

2565 2570 2575

Ser Pro Asn Asn Thr Ser Cys Gln Asp Ser Gln Ser Asn Asn Tyr Gln

2580 2585 2590

Asn Leu Pro Val Gln Asp Arg Asn Leu Met Leu Pro Asp Gly Pro Lys

2595 2600 2605

Pro Gln Glu Asp Gly Ser Phe Lys Arg Arg Tyr Pro Arg Arg Ser Ala

2610 2615 2620

Arg Ala Arg Ser Asn Met Phe Phe Gly Leu Thr Pro Leu Tyr Gly Val

2625 2630 2635 2640

Arg Ser Tyr Gly Glu Glu Asp Ile Pro Phe Tyr Ser Ser Ser Thr Gly

2645 2650 2655

Lys Lys Arg Gly Lys Arg Ser Ala Glu Gly Gln Val Asp Gly Ala Asp

2660 2665 2670

Asp Leu Ser Thr Ser Asp Glu Asp Asp Leu Tyr Tyr Tyr Asn Phe Thr

2675 2680 2685

Arg Thr Val Ile Ser Ser Gly Gly Glu Glu Arg Leu Ala Ser His Asn

2690 2695 2700

Leu Phe Arg Glu Glu Glu Gln Cys Asp Leu Pro Lys Ile Ser Gln Leu

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Asp Gly Val Asp Asp Gly Thr Glu Ser Asp Thr Ser Val Thr Ala Thr

2725 2730 2735

Thr Arg Lys Ser Ser Gln Ile Pro Lys Arg Asn Gly Lys Glu Asn Gly

2740 2745 2750

Thr Glu Asn Leu Lys Ile Asp Arg Pro Glu Asp Ala Gly Glu Lys Glu

2755 2760 2765

His Val Thr Lys Ser Ser Val Gly His Lys Asn Glu Pro Lys Met Asp

2770 2775 2780

Asn Cys His Ser Val Ser Arg Val Lys Thr Gln Gly Gln Asp Ser Leu

2785 2790 2795 2800

Glu Ala Gln Leu Ser Ser Leu Glu Ser Ser Arg Arg Val His Thr Ser

2805 2810 2815

Thr Pro Ser Asp Lys Asn Leu Leu Asp Thr Tyr Asn Thr Glu Leu Leu

2820 2825 2830

Lys Ser Asp Ser Asp Asn Asn Asn Ser Asp Asp Cys Gly Asn Ile Leu

2835 2840 2845

Pro Ser Asp Ile Met Asp Phe Val Leu Lys Asn Thr Pro Ser Met Gln

2850 2855 2860

Ala Leu Gly Glu Ser Pro Glu Ser Ser Ser Ser Glu Leu Leu Asn Leu

2865 2870 2875 2880

Gly Glu Gly Leu Gly Leu Asp Ser Asn Arg Glu Lys Asp Met Gly Leu

2885 2890 2895

Phe Glu Val Phe Ser Gln Gln Leu Pro Thr Thr Glu Pro Val Asp Ser

2900 2905 2910

Ser Val Ser Ser Ser Ile Ser Ala Glu Glu Gln Phe Glu Leu Pro Leu

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Glu Leu Pro Ser Asp Leu Ser Val Leu Thr Thr Arg Ser Pro Thr Val

2930 2935 2940

Pro Ser Gln Asn Pro Ser Arg Leu Ala Val Ile Ser Asp Ser Gly Glu

2945 2950 2955 2960

Lys Arg Val Thr Ile Thr Glu Lys Ser Val Ala Ser Ser Glu Ser Asp

2965 2970 2975

Pro Ala Leu Leu Ser Pro Gly Val Asp Pro Thr Pro Glu Gly His Met

2980 2985 2990

Thr Pro Asp His Phe Ile Gln Gly His Met Asp Ala Asp His Ile Ser

2995 3000 3005

Ser Pro Pro Cys Gly Ser Val Glu Gln Gly His Gly Asn Asn Gln Asp

3010 3015 3020

Leu Thr Arg Asn Ser Ser Thr Pro Gly Leu Gln Val Pro Val Ser Pro

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Thr Val Pro Ile Gln Asn Gln Lys Tyr Val Pro Asn Ser Thr Asp Ser

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Pro Gly Pro Ser Gln Ile Ser Asn Ala Ala Val Gln Thr Thr Pro Pro

3060 3065 3070

His Leu Lys Pro Ala Thr Glu Lys Leu Ile Val Val Asn Gln Asn Met
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Gln Pro Leu Tyr Val Leu Gln Thr Leu Pro Asn Gly Val Thr Gln Lys
3090 3095 3100

Ile Gln Leu Thr Ser Ser Val Ser Ser Thr Pro Ser Val Met Glu Thr
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Asn Thr Ser Val Leu Gly Pro Met Gly Gly Gly Leu Thr Leu Thr Thr
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Gly Leu Asn Pro Ser Leu Pro Thr Ser Gln Ser Leu Phe Pro Ser Ala
3140 3145 3150

Ser Lys Gly Leu Leu Pro Met Ser His His Gln His Leu His Ser Phe
3155 3160 3165

Pro Ala Ala Thr Gln Ser Ser Phe Pro Pro Asn Ile Ser Asn Pro Pro
3170 3175 3180

Ser Gly Leu Leu Ile Gly Val Gln Pro Pro Pro Asp Pro Gln Leu Leu

3185 3190 3195 3200
Val Ser Glu Ser Ser Gln Arg Thr Asp Leu Ser Thr Thr Val Ala Thr
3205 3210 3215

Pro Ser Ser Gly Leu Lys Lys Arg Pro Ile Ser Arg Leu Gln Thr Arg
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Lys Asn Lys Lys Leu Ala Pro Ser Ser Thr Pro Ser Asn Ile Ala Pro
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Ser Asp Val Val Ser Asn Met Thr Leu Ile Asn Phe Thr Pro Ser Gln
3250 3255 3260

Leu Pro Asn His Pro Ser Leu Leu Asp Leu Gly Ser Leu Asn Thr Ser
3265 3270 3275 3280

Ser His Arg Thr Val Pro Asn Ile Ile Lys Arg Ser Lys Ser Ser Ile
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Met Tyr Phe Glu Pro Ala Pro Leu Leu Pro Gln Ser Val Gly Gly Thr
3300 3305 3310

Ala Ala Thr Ala Ala Gly Thr Ser Thr Ile Ser Gln Asp Thr Ser His
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Leu Thr Ser Gly Ser Val Ser Gly Leu Ala Ser Ser Ser Ser Val Leu

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Asn Val Val Ser Met Gln Thr Thr Thr Thr Pro Thr Ser Ser Ala Ser

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Val Pro Gly His Val Thr Leu Thr Asn Pro Arg Leu Leu Gly Thr Pro

3365 3370 3375

Asp Ile Gly Ser Ile Ser Asn Leu Leu Ile Lys Ala Ser Gln Gln Ser

3380 3385 3390

Leu Gly Ile Gln Asp Gln Pro Val Ala Leu Pro Pro Ser Ser Gly Met

3395 3400 3405

Phe Pro Gln Leu Gly Thr Ser Gln Thr Pro Ser Thr Ala Ala Ile Thr

3410 3415 3420

Ala Ala Ser Ser Ile Cys Val Leu Pro Ser Thr Gln Thr Thr Gly Ile

3425 3430 3435 3440

Thr Ala Ala Ser Pro Ser Gly Glu Ala Asp Glu His Tyr Gln Leu Gln

3445 3450 3455

His Val Asn Gln Leu Leu Ala Ser Lys Thr Gly Ile His Ser Ser Gln

3460 3465 3470

Arg Asp Leu Asp Ser Ala Ser Gly Pro Gln Val Ser Asn Phe Thr Gln

3475 3480 3485

Thr Val Asp Ala Pro Asn Ser Met Gly Leu Glu Gln Asn Lys Ala Leu

3490 3495 3500

Ser Ser Ala Val Gln Ala Ser Pro Thr Ser Pro Gly Gly Ser Pro Ser

3505 3510 3515 3520

Ser Pro Ser Ser Gly Gln Arg Ser Ala Ser Pro Ser Val Pro Gly Pro

3525 3530 3535

Thr Lys Pro Lys Pro Lys Thr Lys Arg Phe Gln Leu Pro Leu Asp Lys

3540 3545 3550

Gly Asn Gly Lys Lys His Lys Val Ser His Leu Arg Thr Ser Ser Ser

3555 3560 3565

Glu Ala His Ile Pro Asp Gln Glu Thr Thr Ser Leu Thr Ser Gly Thr

3570 3575 3580

Gly Thr Pro Gly Ala Glu Ala Glu Gln Gln Asp Thr Ala Ser Val Glu

3585 3590 3595 3600

Gln Ser Ser Gln Lys Glu Cys Gly Gln Pro Ala Gly Gln Val Ala Val

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Leu Pro Glu Val Gln Val Thr Gln Asn Pro Ala Asn Glu Gln Glu Ser

3620 3625 3630

Ala Glu Pro Lys Thr Val Glu Glu Glu Glu Ser Asn Phe Ser Ser Pro

3635 3640 3645

Leu Met Leu Trp Leu Gln Gln Glu Gln Lys Arg Lys Glu Ser Ile Thr

3650 3655 3660

Glu Lys Lys Pro Lys Lys Gly Leu Val Phe Glu Ile Ser Ser Asp Asp

3665 3670 3675 3680

Gly Phe Gln Ile Cys Ala Glu Ser Ile Glu Asp Ala Trp Lys Ser Leu

3685 3690 3695

Thr Asp Lys Val Gln Glu Ala Arg Ser Asn Ala Arg Leu Lys Gln Leu

3700 3705 3710

Ser Phe Ala Gly Val Asn Gly Leu Arg Met Leu Gly Ile Leu His Asp

3715 3720 3725

Ala Val Val Phe Leu Ile Glu Gln Leu Ser Gly Ala Lys His Cys Arg

3730 3735 3740

Asn Tyr Lys Phe Arg Phe His Lys Pro Glu Glu Ala Asn Glu Pro Pro

3745 3750 3755 3760

Leu Asn Pro His Gly Ser Ala Arg Ala Glu Val His Leu Arg Lys Ser

3765 3770 3775

Ala Phe Asp Met Phe Asn Phe Leu Ala Ser Lys His Arg Gln Pro Pro

3780 3785 3790

Glu Tyr Asn Pro Asn Asp Glu Glu Glu Glu Glu Val Gln Leu Lys Ser

3795 3800 3805

Ala Arg Arg Ala Thr Ser Met Asp Leu Pro Met Pro Met Arg Phe Arg

3810 3815 3820

His Leu Lys Lys Thr Ser Lys Glu Ala Val Gly Val Tyr Arg Ser Pro

3825 3830 3835 3840

Ile His Gly Arg Gly Leu Phe Cys Lys Arg Asn Ile Asp Ala Gly Glu
3845 3850 3855
Met Val Ile Glu Tyr Ala Gly Asn Val Ile Arg Ser Ile Gln Thr Asp
3860 3865 3870
Lys Arg Glu Lys Tyr Tyr Asp Ser Lys Gly Ile Gly Cys Tyr Met Phe
3875 3880 3885
Arg Ile Asp Asp Ser Glu Val Val Asp Ala Thr Met His Gly Asn Ala
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Ala Arg Phe Ile Asn His Ser Cys Glu Pro Asn Cys Tyr Ser Arg Val

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Ile Asn Ile Asp Gly Gln Lys His Ile Val Ile Phe Ala Met Arg Lys
3925 3930 3935
Ile Tyr Arg Gly Glu Glu Leu Thr Tyr Asp Tyr Lys Phe Pro Ile Glu
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35 40 45
Gly Gly Pro Gly Ala Pro Pro Ser Pro Pro Ala Val Ala Ala Ala Ala

50 55 60

Ala Ala Ala Gly Ser Ser Gly Ala Gly Val Pro Gly Gly Ala Ala Ala
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Ala Ser Ala Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser
85 90 95
Ser Ser Ala Ser Ser Gly Pro Ala Leu Leu Arg Val Gly Pro Gly Phe
100 105 110
Asp Ala Ala Leu Gln Val Ser Ala Ala Ile Gly Thr Asn Leu Arg Arg
115 120 125
Phe Arg Ala Val Phe Gly Glu Ser Gly Gly Gly Gly Gly Ser Gly Glu

130 135 140
Asp Glu Gln Phe Leu Gly Phe Gly Ser Asp Glu Glu Val Arg Val Arg
145 150 155 160
Ser Pro Thr Arg Ser Pro Ser Gly Ser Met Leu Ala Gln Ala Asp Lys
165 170 175
Leu Pro Met Thr Asp Lys Arg Val Ala Ser Leu Leu Lys Lys Ala Lys
180 185 190
Ala Gln Leu Cys Lys Ile Glu Lys Ser Lys Ser Leu Lys Gln Thr Asp
195 200 205

Gln Pro Lys Ala Gln Gly Gln Glu Ser Asp Ser Ser Glu Thr Ser Val
210 215 220
Arg Gly Pro Arg Ile Lys His Val Cys Arg Arg Ala Ala Val Ala Leu
225 230 235 240
Gly Arg Lys Arg Ala Val Phe Pro Asp Asp Met Pro Thr Leu Ser Ala
245 250 255
Leu Pro Trp Glu Glu Arg Glu Lys Ile Leu Ser Ser Met Gly Asn Asp
260 265 270
Asp Lys Ser Ser Ile Ala Gly Ser Glu Asp Ala Glu Pro Leu Ala Pro

275 280 285
Pro Ile Lys Pro Ile Lys Pro Val Thr Arg Asn Lys Ala Pro Gln Glu
290 295 300

Pro Pro Val Lys Lys Gly Arg Arg Ser Arg Arg Cys Gly Gln Cys Pro
305 310 315 320
Gly Cys Gln Val Pro Glu Asp Cys Gly Val Cys Thr Asn Cys Leu Asp
325 330 335
Lys Pro Lys Phe Gly Gly Arg Asn Ile Lys Lys Gln Cys Cys Lys Met
340 345 350

Arg Lys Cys Gln Asn Leu Gln Trp Met Pro Ser Lys Ala Tyr Leu Gln
355 360 365
Lys Gln Ala Lys Ala Val Lys Lys Lys Glu Lys Lys Ser Lys Thr Ser
370 375 380
Glu Lys Lys Asp Ser Lys Glu Ser Ser Val Val Lys Asn Val Val Asp
385 390 395 400
Ser Ser Gln Lys Pro Thr Pro Ser Ala Arg Glu Asp Pro Ala Pro Lys
405 410 415
Lys Ser Ser Ser Glu Pro Pro Pro Arg Lys Pro Val Glu Glu Lys Ser

420 425 430
Glu Glu Gly Asn Val Ser Ala Pro Gly Pro Glu Ser Lys Gln Ala Thr
435 440 445
Thr Pro Ala Ser Arg Lys Ser Ser Lys Gln Val Ser Gln Pro Ala Leu
450 455 460
Val Ile Pro Pro Gln Pro Pro Thr Thr Gly Pro Pro Arg Lys Glu Val
465 470 475 480
Pro Lys Thr Thr Pro Ser Glu Pro Lys Lys Lys Gln Pro Pro Pro Pro
485 490 495

Glu Ser Gly Pro Glu Gln Ser Lys Gln Lys Lys Val Ala Pro Arg Pro
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Ser Ile Pro Val Lys Gln Lys Pro Lys Glu Lys Glu Lys Pro Pro Pro
515 520 525
Val Asn Lys Gln Glu Asn Ala Gly Thr Leu Asn Ile Leu Ser Thr Leu
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Ser Asn Gly Asn Ser Ser Lys Gln Lys Ile Pro Ala Asp Gly Val His
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Arg Ile Arg Val Asp Phe Lys Glu Asp Cys Glu Ala Glu Asn Val Trp

565 570 575

Glu Met Gly Gly Leu Gly Ile Leu Thr Ser Val Pro Ile Thr Pro Arg

580 585 590

Val Val Cys Phe Leu Cys Ala Ser Ser Gly His Val Glu Phe Val Tyr

595 600 605

Cys Gln Val Cys Cys Glu Pro Phe His Lys Phe Cys Leu Glu Glu Asn

610 615 620

Glu Arg Pro Leu Glu Asp Gln Leu Glu Asn Trp Cys Cys Arg Arg Cys

625 630 635 640

Lys Phe Cys His Val Cys Gly Arg Gln His Gln Ala Thr Lys Gln Leu

645 650 655

Leu Glu Cys Asn Lys Cys Arg Asn Ser Tyr His Pro Glu Cys Leu Gly

660 665 670

Pro Asn Tyr Pro Thr Lys Pro Thr Lys Lys Lys Lys Val Trp Ile Cys

675 680 685

Thr Lys Cys Val Arg Cys Lys Ser Cys Gly Ser Thr Thr Pro Gly Lys

690 695 700

Gly Trp Asp Ala Gln Trp Ser His Asp Phe Ser Leu Cys His Asp Cys

705 710 715 720

Ala Lys Leu Phe Ala Lys Gly Asn Phe Cys Pro Leu Cys Asp Lys Cys

725 730 735

Tyr Asp Asp Asp Asp Tyr Glu Ser Lys Met Met Gln Cys Gly Lys Cys

740 745 750

Asp Arg Trp Val His Ser Lys Cys Glu Asn Leu Ser Gly Thr Glu Asp

755 760 765

Glu Met Tyr Glu Ile Leu Ser Asn Leu Pro Glu Ser Val Ala Tyr Thr

770 775 780

Cys Val Asn Cys Thr Glu Arg His Pro Ala Glu Trp Arg Leu Ala Leu

785 790 795 800

Glu Lys Glu Leu Gln Ile Ser Leu Lys Gln Val Leu Thr Ala Leu Leu

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Asn Ser Arg Thr Thr Ser His Leu Leu Arg Tyr Arg Gln Ala Ala Lys

820 825 830

Pro Pro Asp Leu Asn Pro Glu Thr Glu Glu Ser Ile Pro Ser Arg Ser

835 840 845

Ser Pro Glu Gly Pro Asp Pro Pro Val Leu Thr Glu Val Ser Lys Gln

850 855 860

Asp Asp Gln Gln Pro Leu Asp Leu Glu Gly Val Lys Arg Lys Met Asp

865 870 875 880

Gln Gly Asn Tyr Thr Ser Val Leu Glu Phe Ser Asp Asp Ile Val Lys

885 890 895

Ile Ile Gln Ala Ala Ile Asn Ser Asp Gly Gly Gln Pro Glu Ile Lys

900 905 910

Lys Ala Asn Ser Met Val Lys Ser Phe Phe Ile Arg Gln Met Glu Arg

915 920 925

Val Phe Pro Trp Phe Ser Val Lys Lys Ser Arg Phe Trp Glu Pro Asn

930 935 940

Lys Val Ser Ser Asn Ser Gly Met Leu Pro Asn Ala Val Leu Pro Pro

945 950 955 960

Ser Leu Asp His Asn Tyr Ala Gln Trp Gln Glu Arg Glu Glu Asn Ser

965 970 975

His Thr Glu Gln Pro Pro Leu Met Lys Lys Ile Ile Pro Ala Pro Lys

980 985 990

Pro Lys Gly Pro Gly Glu Pro Asp Ser Pro Thr Pro Leu His Pro Pro

995 1000 1005

Thr Pro Pro Ile Leu Ser Thr Asp Arg Ser Arg Glu Asp Ser Pro Glu

1010 1015 1020

Leu Asn Pro Pro Pro Gly Ile Glu Asp Asn Arg Gln Cys Ala Leu Cys

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Leu Thr Tyr Gly Asp Asp Ser Ala Asn Asp Ala Gly Arg Leu Leu Tyr

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Ile Gly Gln Asn Glu Trp Thr His Val Asn Cys Ala Leu Trp Ser Ala

1060 1065 1070

Glu Val Phe Glu Asp Asp Asp Gly Ser Leu Lys Asn Val His Met Ala

1075 1080 1085

Val Ile Arg Gly Lys Gln Leu Arg Cys Glu Phe Cys Gln Lys Pro Gly

1090 1095 1100

Ala Thr Val Gly Cys Cys Leu Thr Ser Cys Thr Ser Asn Tyr His Phe

1105 1110 1115 1120

Met Cys Ser Arg Ala Lys Asn Cys Val Phe Leu Asp Asp Lys Lys Val

1125 1130 1135

Tyr Cys Gln Arg His Arg Asp Leu Ile Lys Gly Glu Val Val Pro Glu

1140 1145 1150

Asn Gly Phe Glu Val Phe Arg Arg Val Phe Val Asp Phe Glu Gly Ile

1155 1160 1165

Ser Leu Arg Arg Lys Phe Leu Asn Gly Leu Glu Pro Glu Asn Ile His

1170 1175 1180

Met Met Ile Gly Ser Met Thr Ile Asp Cys Leu Gly Ile Leu Asn Asp

1185 1190 1195 1200

Leu Ser Asp Cys Glu Asp Lys Leu Phe Pro Ile Gly Tyr Gln Cys Ser

1205 1210 1215

Arg Val Tyr Trp Ser Thr Thr Asp Ala Arg Lys Arg Cys Val Tyr Thr

1220 1225 1230

Cys Lys Ile Val Glu Cys Arg Pro Pro Val Val Glu Pro Asp Ile Asn

1235 1240 1245

Ser Thr Val Glu His Asp Glu Asn Arg Thr Ile Ala His Ser Pro Thr

1250 1255 1260

Ser Phe Thr Glu Ser Ser Ser Lys Glu Ser Gln Asn Thr Ala Glu Ile

1265 1270 1275 1280

Ile Ser Pro Pro Ser Pro Asp Arg Pro Pro His Ser Gln Thr Ser Gly

1285 1290 1295

Ser Cys Tyr Tyr His Val Ile Ser Lys Val Pro Arg Ile Arg Thr Pro

1300 1305 1310

Ser Tyr Ser Pro Thr Gln Arg Ser Pro Gly Cys Arg Pro Leu Pro Ser
1315 1320 1325

Ala Gly Ser Pro Thr Pro Thr Thr His Glu Ile Val Thr Val Gly Asp
1330 1335 1340

Pro Leu Leu Ser Ser Gly Leu Arg Ser Ile Gly Ser Arg Arg His Ser
1345 1350 1355 1360

Thr Ser Ser Leu Ser Pro Gln Arg Ser Lys Leu Arg Ile Met Ser Pro
1365 1370 1375

Met Arg Thr Gly Asn Thr Tyr Ser Arg Asn Asn Val Ser Ser Val Ser
1380 1385 1390

Thr Thr Gly Thr Ala Thr Asp Leu Glu Ser Ser Ala Lys Val Val Asp
1395 1400 1405

His Val Leu Gly Pro Leu Asn Ser Ser Thr Ser Leu Gly Gln Asn Thr
1410 1415 1420

Ser Thr Ser Ser Asn Leu Gln Arg Thr Val Val Thr Val Gly Asn Lys

1425 1430 1435 1440

Asn Ser His Leu Asp Gly Ser Ser Ser Ser Glu Met Lys Gln Ser Ser
1445 1450 1455

Ala Ser Asp Leu Val Ser Lys Ser Ser Ser Leu Lys Gly Glu Lys Thr
1460 1465 1470

Lys Val Leu Ser Ser Lys Ser Ser Glu Gly Ser Ala His Asn Val Ala
1475 1480 1485

Tyr Pro Gly Ile Pro Lys Leu Ala Pro Gln Val His Asn Thr Thr Ser
1490 1495 1500

Arg Glu Leu Asn Val Ser Lys Ile Gly Ser Phe Ala Glu Pro Ser Ser
1505 1510 1515 1520

Val Ser Phe Ser Ser Lys Glu Ala Leu Ser Phe Pro His Leu His Leu
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Arg Gly Gln Arg Asn Asp Arg Asp Gln His Thr Asp Ser Thr Gln Ser
1540 1545 1550

Ala Asn Ser Ser Pro Asp Glu Asp Thr Glu Val Lys Thr Leu Lys Leu
1555 1560 1565

Ser Gly Met Ser Asn Arg Ser Ser Ile Ile Asn Glu His Met Gly Ser

1570 1575 1580

Ser Ser Arg Asp Arg Arg Gln Lys Gly Lys Lys Ser Cys Lys Glu Thr

1585 1590 1595 1600

Phe Lys Glu Lys His Ser Ser Lys Ser Phe Leu Glu Pro Gly Gln Val

1605 1610 1615

Thr Thr Gly Glu Glu Gly Asn Leu Lys Pro Glu Phe Met Asp Glu Val

1620 1625 1630

Leu Thr Pro Glu Tyr Met Gly Gln Arg Pro Cys Asn Asn Val Ser Ser

1635 1640 1645

Asp Lys Ile Gly Asp Lys Gly Leu Ser Met Pro Gly Val Pro Lys Ala

1650 1655 1660

Pro Pro Met Gln Val Glu Gly Ser Ala Lys Glu Leu Gln Ala Pro Arg

1665 1670 1675 1680

Lys Arg Thr Val Lys Val Thr Leu Thr Pro Leu Lys Met Glu Asn Glu

1685 1690 1695

Ser Gln Ser Lys Asn Ala Leu Lys Glu Ser Ser Pro Ala Ser Pro Leu

1700 1705 1710

Gln Ile Glu Ser Thr Ser Pro Thr Glu Pro Ile Ser Ala Ser Glu Asn

1715 1720 1725

Pro Gly Asp Gly Pro Val Ala Gln Pro Ser Pro Asn Asn Thr Ser Cys

1730 1735 1740

Gln Asp Ser Gln Ser Asn Asn Tyr Gln Asn Leu Pro Val Gln Asp Arg

1745 1750 1755 1760

Asn Leu Met Leu Pro Asp Gly Pro Lys Pro Gln Glu Asp Gly Ser Phe

1765 1770 1775

Lys Arg Arg Tyr Pro Arg Arg Ser Ala Arg Ala Arg Ser Asn Met Phe

1780 1785 1790

Phe Gly Leu Thr Pro Leu Tyr Gly Val Arg Ser Tyr Gly Glu Glu Asp

1795 1800 1805

Ile Pro Phe Tyr Ser Ser Ser Thr Gly Lys Lys Arg Gly Lys Arg Ser

1810 1815 1820

Ala Glu Gly Gln Val Asp Gly Ala Asp Asp Leu Ser Thr Ser Asp Glu

1825 1830 1835 1840

Asp Asp Leu Tyr Tyr Tyr Asn Phe Thr Arg Thr Val Ile Ser Ser Gly

1845 1850 1855

Gly Glu Glu Arg Leu Ala Ser His Asn Leu Phe Arg Glu Glu Glu Gln

1860 1865 1870

Cys Asp Leu Pro Lys Ile Ser Gln Leu Asp Gly Val Asp Asp Gly Thr

1875 1880 1885

Glu Ser Asp Thr Ser Val Thr Ala Thr Thr Arg Lys Ser Ser Gln Ile

1890 1895 1900

Pro Lys Arg Asn Gly Lys Glu Asn Gly Thr Glu Asn Leu Lys Ile Asp

1905 1910 1915 1920

Arg Pro Glu Asp Ala Gly Glu Lys Glu His Val Thr Lys Ser Ser Val

1925 1930 1935

Gly His Lys Asn Glu Pro Lys Met Asp Asn Cys His Ser Val Ser Arg

1940 1945 1950

Val Lys Thr Gln Gly Gln Asp Ser Leu Glu Ala Gln Leu Ser Ser Leu

1955 1960 1965

Glu Ser Ser Arg Arg Val His Thr Ser Thr Pro Ser Asp Lys Asn Leu

1970 1975 1980

Leu Asp Thr Tyr Asn Thr Glu Leu Leu Lys Ser Asp Ser Asp Asn Asn

1985 1990 1995 2000

Asn Ser Asp Asp Cys Gly Asn Ile Leu Pro Ser Asp Ile Met Asp Phe

2005 2010 2015

Val Leu Lys Asn Thr Pro Ser Met Gln Ala Leu Gly Glu Ser Pro Glu

2020 2025 2030

Ser Ser Ser Ser Glu Leu Leu Asn Leu Gly Glu Gly Leu Gly Leu Asp

2035 2040 2045

Ser Asn Arg Glu Lys Asp Met Gly Leu Phe Glu Val Phe Ser Gln Gln

2050 2055 2060

Leu Pro Thr Thr Glu Pro Val Asp Ser Ser Val Ser Ser Ser Ile Ser

2065 2070 2075 2080

Ala Glu Glu Gln Phe Glu Leu Pro Leu Glu Leu Pro Ser Asp Leu Ser
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Val Leu Thr Thr Arg Ser Pro Thr Val Pro Ser Gln Asn Pro Ser Arg
2100 2105 2110
Leu Ala Val Ile Ser Asp Ser Gly Glu Lys Arg Val Thr Ile Thr Glu
2115 2120 2125
Lys Ser Val Ala Ser Ser Glu Ser Asp Pro Ala Leu Leu Ser Pro Gly
2130 2135 2140
Val Asp Pro Thr Pro Glu Gly His Met Thr Pro Asp His Phe Ile Gln

2145 2150 2155 2160
Gly His Met Asp Ala Asp His Ile Ser Ser Pro Pro Cys Gly Ser Val
2165 2170 2175
Glu Gln Gly His Gly Asn Asn Gln Asp Leu Thr Arg Asn Ser Ser Thr
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Pro Gly Leu Gln Val Pro Val Ser Pro Thr Val Pro Ile Gln Asn Gln
2195 2200 2205
Lys Tyr Val Pro Asn Ser Thr Asp Ser Pro Gly Pro Ser Gln Ile Ser
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Asn Ala Ala Val Gln Thr Thr Pro Pro His Leu Lys Pro Ala Thr Glu
2225 2230 2235 2240
Lys Leu Ile Val Val Asn Gln Asn Met Gln Pro Leu Tyr Val Leu Gln
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Thr Leu Pro Asn Gly Val Thr Gln Lys Ile Gln Leu Thr Ser Ser Val
2260 2265 2270
Ser Ser Thr Pro Ser Val Met Glu Thr Asn Thr Ser Val Leu Gly Pro
2275 2280 2285
Met Gly Gly Gly Leu Thr Leu Thr Thr Gly Leu Asn Pro Ser Leu Pro

2290 2295 2300
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Ser His His Gln His Leu His Ser Phe Pro Ala Ala Thr Gln Ser Ser
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Phe Pro Pro Asn Ile Ser Asn Pro Pro Ser Gly Leu Leu Ile Gly Val
2340 2345 2350
Gln Pro Pro Pro Asp Pro Gln Leu Leu Val Ser Glu Ser Ser Gln Arg
2355 2360 2365

Thr Asp Leu Ser Thr Thr Val Ala Thr Pro Ser Ser Gly Leu Lys Lys
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Arg Pro Ile Ser Arg Leu Gln Thr Arg Lys Asn Lys Lys Leu Ala Pro
2385 2390 2395 2400
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Thr Leu Ile Asn Phe Thr Pro Ser Gln Leu Pro Asn His Pro Ser Leu
2420 2425 2430
Leu Asp Leu Gly Ser Leu Asn Thr Ser Ser His Arg Thr Val Pro Asn

2435 2440 2445
Ile Ile Lys Arg Ser Lys Ser Ser Ile Met Tyr Phe Glu Pro Ala Pro
2450 2455 2460
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2465 2470 2475 2480
Ser Thr Ile Ser Gln Asp Thr Ser His Leu Thr Ser Gly Ser Val Ser
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Gly Leu Ala Ser Ser Ser Ser Val Leu Asn Val Val Ser Met Gln Thr
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Thr Thr Thr Pro Thr Ser Ser Ala Ser Val Pro Gly His Val Thr Leu
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2530 2535 2540
Leu Leu Ile Lys Ala Ser Gln Gln Ser Leu Gly Ile Gln Asp Gln Pro
2545 2550 2555 2560
Val Ala Leu Pro Pro Ser Ser Gly Met Phe Pro Gln Leu Gly Thr Ser
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Gln Thr Pro Ser Thr Ala Ala Ile Thr Ala Ala Ser Ser Ile Cys Val

2580 2585 2590

Leu Pro Ser Thr Gln Thr Thr Gly Ile Thr Ala Ala Ser Pro Ser Gly

2595 2600 2605

Glu Ala Asp Glu His Tyr Gln Leu Gln His Val Asn Gln Leu Leu Ala

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Ser Lys Thr Gly Ile His Ser Ser Gln Arg Asp Leu Asp Ser Ala Ser

2625 2630 2635 2640

Gly Pro Gln Val Ser Asn Phe Thr Gln Thr Val Asp Ala Pro Asn Ser

2645 2650 2655

Met Gly Leu Glu Gln Asn Lys Ala Leu Ser Ser Ala Val Gln Ala Ser

2660 2665 2670

Pro Thr Ser Pro Gly Gly Ser Pro Ser Ser Pro Ser Ser Gly Gln Arg

2675 2680 2685

Ser Ala Ser Pro Ser Val Pro Gly Pro Thr Lys Pro Lys Pro Lys Thr

2690 2695 2700

Lys Arg Phe Gln Leu Pro Leu Asp Lys Gly Asn Gly Lys Lys His Lys

2705 2710 2715 2720

Val Ser His Leu Arg Thr Ser Ser Ser Glu Ala His Ile Pro Asp Gln

2725 2730 2735

Glu Thr Thr Ser Leu Thr Ser Gly Thr Gly Thr Pro Gly Ala Glu Ala

2740 2745 2750

Glu Gln Gln Asp Thr Ala Ser Val Glu Gln Ser Ser Gln Lys Glu Cys

2755 2760 2765

Gly Gln Pro Ala Gly Gln Val Ala Val Leu Pro Glu Val Gln Val Thr

2770 2775 2780

Gln Asn Pro Ala Asn Glu Gln Glu Ser Ala Glu Pro Lys Thr Val Glu

2785 2790 2795 2800

Glu Glu Glu Ser Asn Phe Ser Ser Pro Leu Met Leu Trp Leu Gln Gln

2805 2810 2815

Glu Gln Lys Arg Lys Glu Ser Ile Thr Glu Lys Lys Pro Lys Lys Gly

2820 2825 2830

Leu Val Phe Glu Ile Ser Ser Asp Asp Gly Phe Gln Ile Cys Ala Glu

2835 2840 2845

Ser Ile Glu Asp Ala Trp Lys Ser Leu Thr Asp Lys Val Gln Glu Ala

2850 2855 2860

Arg Ser Asn Ala Arg Leu Lys Gln Leu Ser Phe Ala Gly Val Asn Gly

2865 2870 2875 2880

Leu Arg Met Leu Gly Ile Leu His Asp Ala Val Val Phe Leu Ile Glu

2885 2890 2895

Gln Leu Ser Gly Ala Lys His Cys Arg Asn Tyr Lys Phe Arg Phe His

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Lys Pro Glu Glu Ala Asn Glu Pro Pro Leu Asn Pro His Gly Ser Ala

2915 2920 2925

Arg Ala Glu Val His Leu Arg Lys Ser Ala Phe Asp Met Phe Asn Phe

2930 2935 2940

Leu Ala Ser Lys His Arg Gln Pro Pro Glu Tyr Asn Pro Asn Asp Glu

2945 2950 2955 2960

Glu Glu Glu Glu Val Gln Leu Lys Ser Ala Arg Arg Ala Thr Ser Met

2965 2970 2975

Asp Leu Pro Met Pro Met Arg Phe Arg His Leu Lys Lys Thr Ser Lys

2980 2985 2990

Glu Ala Val Gly Val Tyr Arg Ser Pro Ile His Gly Arg Gly Leu Phe

2995 3000 3005

Cys Lys Arg Asn Ile Asp Ala Gly Glu Met Val Ile Glu Tyr Ala Gly

3010 3015 3020

Asn Val Ile Arg Ser Ile Gln Thr Asp Lys Arg Glu Lys Tyr Tyr Asp

3025 3030 3035 3040

Ser Lys Gly Ile Gly Cys Tyr Met Phe Arg Ile Asp Asp Ser Glu Val

3045 3050 3055

Val Asp Ala Thr Met His Gly Asn Ala Ala Arg Phe Ile Asn His Ser

3060 3065 3070

Cys Glu Pro Asn Cys Tyr Ser Arg Val Ile Asn Ile Asp Gly Gln Lys

3075 3080 3085

His Ile Val Ile Phe Ala Met Arg Lys Ile Tyr Arg Gly Glu Glu Leu
3090 3095 3100
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Gln Arg Val Pro Ala Leu Leu Leu Pro Pro Gly Pro Pro Val Gly Gly
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50 55 60
Ala Ala Ala Gly Ser Ser Gly Ala Gly Val Pro Gly Gly Ala Ala Ala
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Ala Ser Ala Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser

85 90 95
Ser Ser Ala Ser Ser Gly Pro Ala Leu Leu Arg Val Gly Pro Gly Phe
100 105 110
Asp Ala Ala Leu Gln Val Ser Ala Ala Ile Gly Thr Asn Leu Arg Arg
115 120 125
Phe Arg Ala Val Phe Gly Glu Ser Gly Gly Gly Gly Gly Ser Gly Glu
130 135 140
Leu Thr Thr Gln Ile Pro Cys Ser Trp Arg Thr Lys Gly His Ile His

145 150 155 160

Asp Lys Lys Thr Glu Pro Phe Arg Leu Leu Ala Trp Ser Trp Cys Leu
165 170 175
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180 185 190
Arg Ser Pro Thr Arg Ser Pro Ser Val Lys Thr Ser Pro Arg Lys Pro
195 200 205
Arg Gly Arg Pro Arg Ser Gly Ser Asp Arg Asn Ser Ala Ile Leu Ser
210 215 220
Asp Pro Ser Val Phe Ser Pro Leu Asn Lys Ser Glu Thr Lys Ser Gly

225 230 235 240
Asp Lys Ile Lys Lys Lys Asp Ser Lys Ser Ile Glu Lys Lys Arg Gly
245 250 255
Arg Pro Pro Thr Phe Pro Gly Val Lys Ile Lys Ile Thr His Gly Lys
260 265 270
Asp Ile Ser Glu Leu Pro Lys Gly Asn Lys Glu Asp Ser Leu Lys Lys
275 280 285
Ile Lys Arg Thr Pro Ser Ala Thr Phe Gln Gln Ala Thr Lys Ile Lys
290 295 300

Lys Leu Arg Ala Gly Lys Leu Ser Pro Leu Lys Ser Lys Phe Lys Thr
305 310 315 320
Gly Lys Leu Gln Ile Gly Arg Lys Gly Val Gln Ile Val Arg Arg Arg
325 330 335
Gly Arg Pro Pro Ser Thr Glu Arg Ile Lys Thr Pro Ser Gly Leu Leu
340 345 350
Ile Asn Ser Glu Leu Glu Lys Pro Gln Lys Val Arg Lys Asp Lys Glu
355 360 365
Gly Thr Pro Pro Leu Thr Lys Glu Asp Lys Thr Val Val Arg Gln Ser

370 375 380
Pro Arg Arg Ile Lys Pro Val Arg Ile Ile Pro Ser Ser Lys Arg Thr
385 390 395 400

Asp Ala Thr Ile Ala Lys Gln Leu Leu Gln Arg Ala Lys Lys Gly Ala
405 410 415
Gln Lys Lys Ile Glu Lys Glu Ala Ala Gln Leu Gln Gly Arg Lys Val
420 425 430
Lys Thr Gln Val Lys Asn Ile Arg Gln Phe Ile Met Pro Val Val Ser
435 440 445

Ala Ile Ser Ser Arg Ile Ile Lys Thr Pro Arg Arg Phe Ile Glu Asp
450 455 460
Glu Asp Tyr Asp Pro Pro Ile Lys Ile Ala Arg Leu Glu Ser Thr Pro
465 470 475 480
Asn Ser Arg Phe Ser Ala Pro Ser Cys Gly Ser Ser Glu Lys Ser Ser
485 490 495
Ala Ala Ser Gln His Ser Ser Gln Met Ser Ser Asp Ser Ser Arg Ser
500 505 510
Ser Ser Pro Ser Val Asp Thr Ser Thr Asp Ser Gln Ala Ser Glu Glu

515 520 525
Ile Gln Val Leu Pro Glu Glu Arg Ser Asp Thr Pro Glu Val His Pro
530 535 540
Pro Leu Pro Ile Ser Gln Ser Pro Glu Asn Glu Ser Asn Asp Arg Arg
545 550 555 560
Ser Arg Arg Tyr Ser Val Ser Glu Arg Ser Phe Gly Ser Arg Thr Thr
565 570 575
Lys Lys Leu Ser Thr Leu Gln Ser Ala Pro Gln Gln Gln Thr Ser Ser
580 585 590

Ser Pro Pro Pro Pro Leu Leu Thr Pro Pro Pro Pro Leu Gln Pro Ala
595 600 605
Ser Ser Ile Ser Asp His Thr Pro Trp Leu Met Pro Pro Thr Ile Pro
610 615 620
Leu Ala Ser Pro Phe Leu Pro Ala Ser Thr Ala Pro Met Gln Gly Lys
625 630 635 640
Arg Lys Ser Ile Leu Arg Glu Pro Thr Phe Arg Trp Thr Ser Leu Lys
645 650 655

His Ser Arg Ser Glu Pro Gln Tyr Phe Ser Ser Ala Lys Tyr Ala Lys

660 665 670

Glu Gly Leu Ile Arg Lys Pro Ile Phe Asp Asn Phe Arg Pro Pro Pro

675 680 685

Leu Thr Pro Glu Asp Val Gly Phe Ala Ser Gly Phe Ser Ala Ser Gly

690 695 700

Thr Ala Ala Ser Ala Arg Leu Phe Ser Pro Leu His Ser Gly Thr Arg

705 710 715 720

Phe Asp Met His Lys Arg Ser Pro Leu Leu Arg Ala Pro Arg Phe Thr

725 730 735

Pro Ser Glu Ala His Ser Arg Ile Phe Glu Ser Val Thr Leu Pro Ser

740 745 750

Asn Arg Thr Ser Ala Gly Thr Ser Ser Ser Gly Val Ser Asn Arg Lys

755 760 765

Arg Lys Arg Lys Val Phe Ser Pro Ile Arg Ser Glu Pro Arg Ser Pro

770 775 780

Ser His Ser Met Arg Thr Arg Ser Gly Arg Leu Ser Ser Ser Glu Leu

785 790 795 800

Ser Pro Leu Thr Pro Pro Ser Ser Val Ser Ser Ser Leu Ser Ile Ser

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Val Ser Pro Leu Ala Thr Ser Ala Leu Asn Pro Thr Phe Thr Phe Pro

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Ser His Ser Leu Thr Gln Ser Gly Glu Ser Ala Glu Lys Asn Gln Arg

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Pro Arg Lys Gln Thr Ser Ala Pro Ala Glu Pro Phe Ser Ser Ser Ser

850 855 860

Pro Thr Pro Leu Phe Pro Trp Phe Thr Pro Gly Ser Gln Thr Glu Arg

865 870 875 880

Gly Arg Asn Lys Asp Lys Ala Pro Glu Glu Leu Ser Lys Asp Arg Asp

885 890 895

Ala Asp Lys Ser Val Glu Lys Asp Lys Ser Arg Glu Arg Asp Arg Glu

900 905 910

Arg Glu Lys Glu Asn Lys Arg Glu Ser Arg Lys Glu Lys Arg Lys Lys

915 920 925

Gly Ser Glu Ile Gln Ser Ser Ser Ala Leu Tyr Pro Val Gly Arg Val

930 935 940

Ser Lys Glu Lys Val Val Gly Glu Asp Val Ala Thr Ser Ser Ser Ala

945 950 955 960

Lys Lys Ala Thr Gly Arg Lys Lys Ser Ser Ser His Asp Ser Gly Thr

965 970 975

Asp Ile Thr Ser Val Thr Leu Gly Asp Thr Thr Ala Val Lys Thr Lys

980 985 990

Ile Leu Ile Lys Lys Gly Arg Gly Asn Leu Glu Lys Thr Asn Leu Asp

995 1000 1005

Leu Gly Pro Thr Ala Pro Ser Leu Glu Lys Glu Lys Thr Leu Cys Leu

1010 1015 1020

Ser Thr Pro Ser Ser Ser Thr Val Lys His Ser Thr Ser Ser Ile Gly

1025 1030 1035 1040

Ser Met Leu Ala Gln Ala Asp Lys Leu Pro Met Thr Asp Lys Arg Val

1045 1050 1055

Ala Ser Leu Leu Lys Lys Ala Lys Ala Gln Leu Cys Lys Ile Glu Lys

1060 1065 1070

Ser Lys Ser Leu Lys Gln Thr Asp Gln Pro Lys Ala Gln Gly Gln Glu

1075 1080 1085

Ser Asp Ser Ser Glu Thr Ser Val Arg Gly Pro Arg Ile Lys His Val

1090 1095 1100

Cys Arg Arg Ala Ala Val Ala Leu Gly Arg Lys Arg Ala Val Phe Pro

1105 1110 1115 1120

Asp Asp Met Pro Thr Leu Ser Ala Leu Pro Trp Glu Glu Arg Glu Lys

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Ile Leu Ser Ser Met Gly Asn Asp Asp Lys Ser Ser Ile Ala Gly Ser

1140 1145 1150

Glu Asp Ala Glu Pro Leu Ala Pro Pro Ile Lys Pro Ile Lys Pro Val

1155 1160 1165

Thr Arg Asn Lys Ala Pro Gln Glu Pro Pro Val Lys Lys Gly Arg Arg
1170 1175 1180
Ser Arg Arg Cys Gly Gln Cys Pro Gly Cys Gln Val Pro Glu Asp Cys
1185 1190 1195 1200
Gly Val Cys Thr Asn Cys Leu Asp Lys Pro Lys Phe Gly Gly Arg Asn
1205 1210 1215
Ile Lys Lys Gln Cys Cys Lys Met Arg Lys Cys Gln Asn Leu Gln Trp
1220 1225 1230
Met Pro Ser Lys Ala Tyr Leu Gln Lys Gln Ala Lys Ala Val Lys Lys

1235 1240 1245
Lys Glu Lys Lys Ser Lys Thr Ser Glu Lys Lys Asp Ser Lys Glu Ser
1250 1255 1260
Ser Val Val Lys Asn Val Val Asp Ser Ser Gln Lys Pro Thr Pro Ser
1265 1270 1275 1280
Ala Arg Glu Asp Pro Ala Pro Lys Lys Ser Ser Ser Glu Pro Pro Pro
1285 1290 1295
Arg Lys Pro Val Glu Glu Lys Ser Glu Glu Gly Asn Val Ser Ala Pro
1300 1305 1310

Gly Pro Glu Ser Lys Gln Ala Thr Thr Pro Ala Ser Arg Lys Ser Ser
1315 1320 1325
Lys Gln Val Ser Gln Pro Ala Leu Val Ile Pro Pro Gln Pro Pro Thr
1330 1335 1340
Thr Gly Pro Pro Arg Lys Glu Val Pro Lys Thr Thr Pro Ser Glu Pro
1345 1350 1355 1360
Lys Lys Lys Gln Pro Pro Pro Pro Glu Ser Gly Pro Glu Gln Ser Lys
1365 1370 1375
Gln Lys Lys Val Ala Pro Arg Pro Ser Ile Pro Val Lys Gln Lys Pro

1380 1385 1390
Lys Glu Lys Glu Lys Pro Pro Pro Val Asn Lys Gln Glu Asn Ala Gly
1395 1400 1405

Thr Leu Asn Ile Leu Ser Thr Leu Ser Asn Gly Asn Ser Ser Lys Gln
1410 1415 1420
Lys Ile Pro Ala Asp Gly Val His Arg Ile Arg Val Asp Phe Lys Glu
1425 1430 1435 1440
Asp Cys Glu Ala Glu Asn Val Trp Glu Met Gly Gly Leu Gly Ile Leu
1445 1450 1455

Thr Ser Val Pro Ile Thr Pro Arg Val Val Cys Phe Leu Cys Ala Ser
1460 1465 1470
Ser Gly His Val Glu Phe Val Tyr Cys Gln Val Cys Cys Glu Pro Phe
1475 1480 1485
His Lys Phe Cys Leu Glu Glu Asn Glu Arg Pro Leu Glu Asp Gln Leu
1490 1495 1500
Glu Asn Trp Cys Cys Arg Arg Cys Lys Phe Cys His Val Cys Gly Arg
1505 1510 1515 1520
Gln His Gln Ala Thr Lys Gln Leu Leu Glu Cys Asn Lys Cys Arg Asn

1525 1530 1535
Ser Tyr His Pro Glu Cys Leu Gly Pro Asn Tyr Pro Thr Lys Pro Thr
1540 1545 1550
Lys Lys Lys Lys Val Trp Ile Cys Thr Lys Cys Val Arg Cys Lys Ser
1555 1560 1565
Cys Gly Ser Thr Thr Pro Gly Lys Gly Trp Asp Ala Gln Trp Ser His
1570 1575 1580
Asp Phe Ser Leu Cys His Asp Cys Ala Lys Leu Phe Ala Lys Gly Asn
1585 1590 1595 1600

Phe Cys Pro Leu Cys Asp Lys Cys Tyr Asp Asp Asp Asp Tyr Glu Ser
1605 1610 1615
Lys Met Met Gln Cys Gly Lys Cys Asp Arg Trp Val His Ser Lys Cys
1620 1625 1630
Glu Asn Leu Ser Gly Thr Glu Asp Glu Met Tyr Glu Ile Leu Ser Asn
1635 1640 1645
Leu Pro Glu Ser Val Ala Tyr Thr Cys Val Asn Cys Thr Glu Arg His
1650 1655 1660

Pro Ala Glu Trp Arg Leu Ala Leu Glu Lys Glu Leu Gln Ile Ser Leu

1665 1670 1675 1680

Lys Gln Val Leu Thr Ala Leu Leu Asn Ser Arg Thr Thr Ser His Leu

1685 1690 1695

Leu Arg Tyr Arg Gln Ala Ala Lys Pro Pro Asp Leu Asn Pro Glu Thr

1700 1705 1710

Glu Glu Ser Ile Pro Ser Arg Ser Ser Pro Glu Gly Pro Asp Pro Pro

1715 1720 1725

Val Leu Thr Glu Val Ser Lys Gln Asp Asp Gln Gln Pro Leu Asp Leu

1730 1735 1740

Glu Gly Val Lys Arg Lys Met Asp Gln Gly Asn Tyr Thr Ser Val Leu

1745 1750 1755 1760

Glu Phe Ser Asp Asp Ile Val Lys Ile Ile Gln Ala Ala Ile Asn Ser

1765 1770 1775

Asp Gly Gly Gln Pro Glu Ile Lys Lys Ala Asn Ser Met Val Lys Ser

1780 1785 1790

Phe Phe Ile Arg Gln Met Glu Arg Val Phe Pro Trp Phe Ser Val Lys

1795 1800 1805

Lys Ser Arg Phe Trp Glu Pro Asn Lys Val Ser Ser Asn Ser Gly Met

1810 1815 1820

Leu Pro Asn Ala Val Leu Pro Pro Ser Leu Asp His Asn Tyr Ala Gln

1825 1830 1835 1840

Trp Gln Glu Arg Glu Glu Asn Ser His Thr Glu Gln Pro Pro Leu Met

1845 1850 1855

Lys Lys Ile Ile Pro Ala Pro Lys Pro Lys Gly Pro Gly Glu Pro Asp

1860 1865 1870

Ser Pro Thr Pro Leu His Pro Pro Thr Pro Pro Ile Leu Ser Thr Asp

1875 1880 1885

Arg Ser Arg Glu Asp Ser Pro Glu Leu Asn Pro Pro Pro Gly Ile Glu

1890 1895 1900

Asp Asn Arg Gln Cys Ala Leu Cys Leu Thr Tyr Gly Asp Asp Ser Ala

1905 1910 1915 1920

Asn Asp Ala Gly Arg Leu Leu Tyr Ile Gly Gln Asn Glu Trp Thr His

1925 1930 1935

Val Asn Cys Ala Leu Trp Ser Ala Glu Val Phe Glu Asp Asp Asp Gly

1940 1945 1950

Ser Leu Lys Asn Val His Met Ala Val Ile Arg Gly Lys Gln Leu Arg

1955 1960 1965

Cys Glu Phe Cys Gln Lys Pro Gly Ala Thr Val Gly Cys Cys Leu Thr

1970 1975 1980

Ser Cys Thr Ser Asn Tyr His Phe Met Cys Ser Arg Ala Lys Asn Cys

1985 1990 1995 2000

Val Phe Leu Asp Asp Lys Lys Val Tyr Cys Gln Arg His Arg Asp Leu

2005 2010 2015

Ile Lys Gly Glu Val Val Pro Glu Asn Gly Phe Glu Val Phe Arg Arg

2020 2025 2030

Val Phe Val Asp Phe Glu Gly Ile Ser Leu Arg Arg Lys Phe Leu Asn

2035 2040 2045

Gly Leu Glu Pro Glu Asn Ile His Met Met Ile Gly Ser Met Thr Ile

2050 2055 2060

Asp Cys Leu Gly Ile Leu Asn Asp Leu Ser Asp Cys Glu Asp Lys Leu

2065 2070 2075 2080

Phe Pro Ile Gly Tyr Gln Cys Ser Arg Val Tyr Trp Ser Thr Thr Asp

2085 2090 2095

Ala Arg Lys Arg Cys Val Tyr Thr Cys Lys Ile Val Glu Cys Arg Pro

2100 2105 2110

Pro Val Val Glu Pro Asp Ile Asn Ser Thr Val Glu His Asp Glu Asn

2115 2120 2125

Arg Thr Ile Ala His Ser Pro Thr Ser Phe Thr Glu Ser Ser Ser Lys

2130 2135 2140

Glu Ser Gln Asn Thr Ala Glu Ile Ile Ser Pro Pro Ser Pro Asp Arg

2145 2150 2155 2160

Pro Pro His Ser Gln Thr Ser Gly Ser Cys Tyr Tyr His Val Ile Ser

2165 2170 2175

Lys Val Pro Arg Ile Arg Thr Pro Ser Tyr Ser Pro Thr Gln Arg Ser
2180 2185 2190
Pro Gly Cys Arg Pro Leu Pro Ser Ala Gly Ser Pro Thr Pro Thr Thr
2195 2200 2205
His Glu Ile Val Thr Val Gly Asp Pro Leu Leu Ser Ser Gly Leu Arg
2210 2215 2220
Ser Ile Gly Ser Arg Arg His Ser Thr Ser Ser Leu Ser Pro Gln Arg
2225 2230 2235 2240
Ser Lys Leu Arg Ile Met Ser Pro Met Arg Thr Gly Asn Thr Tyr Ser

2245 2250 2255
Arg Asn Asn Val Ser Ser Val Ser Thr Thr Gly Thr Ala Thr Asp Leu
2260 2265 2270
Glu Ser Ser Ala Lys Val Val Asp His Val Leu Gly Pro Leu Asn Ser
2275 2280 2285
Ser Thr Ser Leu Gly Gln Asn Thr Ser Thr Ser Ser Asn Leu Gln Arg
2290 2295 2300
Thr Val Val Thr Val Gly Asn Lys Asn Ser His Leu Asp Gly Ser Ser
2305 2310 2315 2320

Ser Ser Glu Met Lys Gln Ser Ser Ala Ser Asp Leu Val Ser Lys Ser
2325 2330 2335
Ser Ser Leu Lys Gly Glu Lys Thr Lys Val Leu Ser Ser Lys Ser Ser
2340 2345 2350
Glu Gly Ser Ala His Asn Val Ala Tyr Pro Gly Ile Pro Lys Leu Ala
2355 2360 2365
Pro Gln Val His Asn Thr Thr Ser Arg Glu Leu Asn Val Ser Lys Ile
2370 2375 2380
Gly Ser Phe Ala Glu Pro Ser Ser Val Ser Phe Ser Ser Lys Glu Ala

2385 2390 2395 2400
Leu Ser Phe Pro His Leu His Leu Arg Gly Gln Arg Asn Asp Arg Asp
2405 2410 2415

Gln His Thr Asp Ser Thr Gln Ser Ala Asn Ser Ser Pro Asp Glu Asp
2420 2425 2430
Thr Glu Val Lys Thr Leu Lys Leu Ser Gly Met Ser Asn Arg Ser Ser
2435 2440 2445
Ile Ile Asn Glu His Met Gly Ser Ser Ser Arg Asp Arg Arg Gln Lys
2450 2455 2460

Gly Lys Lys Ser Cys Lys Glu Thr Phe Lys Glu Lys His Ser Ser Lys
2465 2470 2475 2480
Ser Phe Leu Glu Pro Gly Gln Val Thr Thr Gly Glu Glu Gly Asn Leu
2485 2490 2495
Lys Pro Glu Phe Met Asp Glu Val Leu Thr Pro Glu Tyr Met Gly Gln
2500 2505 2510
Arg Pro Cys Asn Asn Val Ser Ser Asp Lys Ile Gly Asp Lys Gly Leu
2515 2520 2525
Ser Met Pro Gly Val Pro Lys Ala Pro Pro Met Gln Val Glu Gly Ser

2530 2535 2540
Ala Lys Glu Leu Gln Ala Pro Arg Lys Arg Thr Val Lys Val Thr Leu
2545 2550 2555 2560
Thr Pro Leu Lys Met Glu Asn Glu Ser Gln Ser Lys Asn Ala Leu Lys
2565 2570 2575
Glu Ser Ser Pro Ala Ser Pro Leu Gln Ile Glu Ser Thr Ser Pro Thr
2580 2585 2590
Glu Pro Ile Ser Ala Ser Glu Asn Pro Gly Asp Gly Pro Val Ala Gln
2595 2600 2605

Pro Ser Pro Asn Asn Thr Ser Cys Gln Asp Ser Gln Ser Asn Asn Tyr
2610 2615 2620
Gln Asn Leu Pro Val Gln Asp Arg Asn Leu Met Leu Pro Asp Gly Pro
2625 2630 2635 2640
Lys Pro Gln Glu Asp Gly Ser Phe Lys Arg Arg Tyr Pro Arg Arg Ser
2645 2650 2655
Ala Arg Ala Arg Ser Asn Met Phe Phe Gly Leu Thr Pro Leu Tyr Gly
2660 2665 2670

Val Arg Ser Tyr Gly Glu Glu Asp Ile Pro Phe Tyr Ser Ser Ser Thr

2675 2680 2685

Gly Lys Lys Arg Gly Lys Arg Ser Ala Glu Gly Gln Val Asp Gly Ala

2690 2695 2700

Asp Asp Leu Ser Thr Ser Asp Glu Asp Asp Leu Tyr Tyr Tyr Asn Phe

2705 2710 2715 2720

Thr Arg Thr Val Ile Ser Ser Gly Gly Glu Glu Arg Leu Ala Ser His

2725 2730 2735

Asn Leu Phe Arg Glu Glu Glu Gln Cys Asp Leu Pro Lys Ile Ser Gln

2740 2745 2750

Leu Asp Gly Val Asp Asp Gly Thr Glu Ser Asp Thr Ser Val Thr Ala

2755 2760 2765

Thr Thr Arg Lys Ser Ser Gln Ile Pro Lys Arg Asn Gly Lys Glu Asn

2770 2775 2780

Gly Thr Glu Asn Leu Lys Ile Asp Arg Pro Glu Asp Ala Gly Glu Lys

2785 2790 2795 2800

Glu His Val Thr Lys Ser Ser Val Gly His Lys Asn Glu Pro Lys Met

2805 2810 2815

Asp Asn Cys His Ser Val Ser Arg Val Lys Thr Gln Gly Gln Asp Ser

2820 2825 2830

Leu Glu Ala Gln Leu Ser Ser Leu Glu Ser Ser Arg Arg Val His Thr

2835 2840 2845

Ser Thr Pro Ser Asp Lys Asn Leu Leu Asp Thr Tyr Asn Thr Glu Leu

2850 2855 2860

Leu Lys Ser Asp Ser Asp Asn Asn Asn Ser Asp Asp Cys Gly Asn Ile

2865 2870 2875 2880

Leu Pro Ser Asp Ile Met Asp Phe Val Leu Lys Asn Thr Pro Ser Met

2885 2890 2895

Gln Ala Leu Gly Glu Ser Pro Glu Ser Ser Ser Ser Glu Leu Leu Asn

2900 2905 2910

Leu Gly Glu Gly Leu Gly Leu Asp Ser Asn Arg Glu Lys Asp Met Gly

2915 2920 2925

Leu Phe Glu Val Phe Ser Gln Gln Leu Pro Thr Thr Glu Pro Val Asp

2930 2935 2940

Ser Ser Val Ser Ser Ser Ile Ser Ala Glu Glu Gln Phe Glu Leu Pro

2945 2950 2955 2960

Leu Glu Leu Pro Ser Asp Leu Ser Val Leu Thr Thr Arg Ser Pro Thr

2965 2970 2975

Val Pro Ser Gln Asn Pro Ser Arg Leu Ala Val Ile Ser Asp Ser Gly

2980 2985 2990

Glu Lys Arg Val Thr Ile Thr Glu Lys Ser Val Ala Ser Ser Glu Ser

2995 3000 3005

Asp Pro Ala Leu Leu Ser Pro Gly Val Asp Pro Thr Pro Glu Gly His

3010 3015 3020

Met Thr Pro Asp His Phe Ile Gln Gly His Met Asp Ala Asp His Ile

3025 3030 3035 3040

Ser Ser Pro Pro Cys Gly Ser Val Glu Gln Gly His Gly Asn Asn Gln

3045 3050 3055

Asp Leu Thr Arg Asn Ser Ser Thr Pro Gly Leu Gln Val Pro Val Ser

3060 3065 3070

Pro Thr Val Pro Ile Gln Asn Gln Lys Tyr Val Pro Asn Ser Thr Asp

3075 3080 3085

Ser Pro Gly Pro Ser Gln Ile Ser Asn Ala Ala Val Gln Thr Thr Pro

3090 3095 3100

Pro His Leu Lys Pro Ala Thr Glu Lys Leu Ile Val Val Asn Gln Asn

3105 3110 3115 3120

Met Gln Pro Leu Tyr Val Leu Gln Thr Leu Pro Asn Gly Val Thr Gln

3125 3130 3135

Lys Ile Gln Leu Thr Ser Ser Val Ser Ser Thr Pro Ser Val Met Glu

3140 3145 3150

Thr Asn Thr Ser Val Leu Gly Pro Met Gly Gly Gly Leu Thr Leu Thr

3155 3160 3165

Thr Gly Leu Asn Pro Ser Leu Pro Thr Ser Gln Ser Leu Phe Pro Ser

3170 3175 3180

Ala Ser Lys Gly Leu Leu Pro Met Ser His His Gln His Leu His Ser
3185 3190 3195 3200
Phe Pro Ala Ala Thr Gln Ser Ser Phe Pro Pro Asn Ile Ser Asn Pro
3205 3210 3215
Pro Ser Gly Leu Leu Ile Gly Val Gln Pro Pro Pro Asp Pro Gln Leu
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Leu Val Ser Glu Ser Ser Gln Arg Thr Asp Leu Ser Thr Thr Val Ala
3235 3240 3245
Thr Pro Ser Ser Gly Leu Lys Lys Arg Pro Ile Ser Arg Leu Gln Thr

3250 3255 3260
Arg Lys Asn Lys Lys Leu Ala Pro Ser Ser Thr Pro Ser Asn Ile Ala
3265 3270 3275 3280
Pro Ser Asp Val Val Ser Asn Met Thr Leu Ile Asn Phe Thr Pro Ser
3285 3290 3295
Gln Leu Pro Asn His Pro Ser Leu Leu Asp Leu Gly Ser Leu Asn Thr
3300 3305 3310
Ser Ser His Arg Thr Val Pro Asn Ile Ile Lys Arg Ser Lys Ser Ser
3315 3320 3325

Ile Met Tyr Phe Glu Pro Ala Pro Leu Leu Pro Gln Ser Val Gly Gly
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Thr Ala Ala Thr Ala Ala Gly Thr Ser Thr Ile Ser Gln Asp Thr Ser
3345 3350 3355 3360
His Leu Thr Ser Gly Ser Val Ser Gly Leu Ala Ser Ser Ser Ser Val
3365 3370 3375
Leu Asn Val Val Ser Met Gln Thr Thr Thr Thr Pro Thr Ser Ser Ala
3380 3385 3390
Ser Val Pro Gly His Val Thr Leu Thr Asn Pro Arg Leu Leu Gly Thr

3395 3400 3405
Pro Asp Ile Gly Ser Ile Ser Asn Leu Leu Ile Lys Ala Ser Gln Gln
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Ser Leu Gly Ile Gln Asp Gln Pro Val Ala Leu Pro Pro Ser Ser Gly
3425 3430 3435 3440
Met Phe Pro Gln Leu Gly Thr Ser Gln Thr Pro Ser Thr Ala Ala Ile
3445 3450 3455
Thr Ala Ala Ser Ser Ile Cys Val Leu Pro Ser Thr Gln Thr Thr Gly
3460 3465 3470

Ile Thr Ala Ala Ser Pro Ser Gly Glu Ala Asp Glu His Tyr Gln Leu
3475 3480 3485
Gln His Val Asn Gln Leu Leu Ala Ser Lys Thr Gly Ile His Ser Ser
3490 3495 3500
Gln Arg Asp Leu Asp Ser Ala Ser Gly Pro Gln Val Ser Asn Phe Thr
3505 3510 3515 3520
Gln Thr Val Asp Ala Pro Asn Ser Met Gly Leu Glu Gln Asn Lys Ala
3525 3530 3535
Leu Ser Ser Ala Val Gln Ala Ser Pro Thr Ser Pro Gly Gly Ser Pro

3540 3545 3550
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3555 3560 3565
Pro Thr Lys Pro Lys Pro Lys Thr Lys Arg Phe Gln Leu Pro Leu Asp
3570 3575 3580
Lys Gly Asn Gly Lys Lys His Lys Val Ser His Leu Arg Thr Ser Ser
3585 3590 3595 3600
Ser Glu Ala His Ile Pro Asp Gln Glu Thr Thr Ser Leu Thr Ser Gly
3605 3610 3615

Thr Gly Thr Pro Gly Ala Glu Ala Glu Gln Gln Asp Thr Ala Ser Val
3620 3625 3630
Glu Gln Ser Ser Gln Lys Glu Cys Gly Gln Pro Ala Gly Gln Val Ala
3635 3640 3645
Val Leu Pro Glu Val Gln Val Thr Gln Asn Pro Ala Asn Glu Gln Glu
3650 3655 3660
Ser Ala Glu Pro Lys Thr Val Glu Glu Glu Glu Ser Asn Phe Ser Ser
3665 3670 3675 3680

Pro Leu Met Leu Trp Leu Gln Gln Glu Gln Lys Arg Lys Glu Ser Ile

3685 3690 3695

Thr Glu Lys Lys Pro Lys Lys Gly Leu Val Phe Glu Ile Ser Ser Asp

3700 3705 3710

Asp Gly Phe Gln Ile Cys Ala Glu Ser Ile Glu Asp Ala Trp Lys Ser

3715 3720 3725

Leu Thr Asp Lys Val Gln Glu Ala Arg Ser Asn Ala Arg Leu Lys Gln

3730 3735 3740

Leu Ser Phe Ala Gly Val Asn Gly Leu Arg Met Leu Gly Ile Leu His

3745 3750 3755 3760

Asp Ala Val Val Phe Leu Ile Glu Gln Leu Ser Gly Ala Lys His Cys

3765 3770 3775

Arg Asn Tyr Lys Phe Arg Phe His Lys Pro Glu Glu Ala Asn Glu Pro

3780 3785 3790

Pro Leu Asn Pro His Gly Ser Ala Arg Ala Glu Val His Leu Arg Lys

3795 3800 3805

Ser Ala Phe Asp Met Phe Asn Phe Leu Ala Ser Lys His Arg Gln Pro

3810 3815 3820

Pro Glu Tyr Asn Pro Asn Asp Glu Glu Glu Glu Glu Val Gln Leu Lys

3825 3830 3835 3840

Ser Ala Arg Arg Ala Thr Ser Met Asp Leu Pro Met Pro Met Arg Phe

3845 3850 3855

Arg His Leu Lys Lys Thr Ser Lys Glu Ala Val Gly Val Tyr Arg Ser

3860 3865 3870

Pro Ile His Gly Arg Gly Leu Phe Cys Lys Arg Asn Ile Asp Ala Gly

3875 3880 3885

Glu Met Val Ile Glu Tyr Ala Gly Asn Val Ile Arg Ser Ile Gln Thr

3890 3895 3900

Asp Lys Arg Glu Lys Tyr Tyr Asp Ser Lys Gly Ile Gly Cys Tyr Met

3905 3910 3915 3920

Phe Arg Ile Asp Asp Ser Glu Val Val Asp Ala Thr Met His Gly Asn

3925 3930 3935

Ala Ala Arg Phe Ile Asn His Ser Cys Glu Pro Asn Cys Tyr Ser Arg

3940 3945 3950

Val Ile Asn Ile Asp Gly Gln Lys His Ile Val Ile Phe Ala Met Arg

3955 3960 3965

Lys Ile Tyr Arg Gly Glu Glu Leu Thr Tyr Asp Tyr Lys Phe Pro Ile

3970 3975 3980

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Arg Lys Phe Leu Asn

4005

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<211> 4004

<212> PRT

<213> Homo sapiens

<400> 77

Met Ala His Ser Cys Arg Trp Arg Phe Pro Ala Arg Pro Gly Thr Thr

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Gly Gly Gly Gly Gly Gly Gly Arg Arg Gly Leu Gly Gly Ala Pro Arg

20 25 30

Gln Arg Val Pro Ala Leu Leu Leu Pro Pro Gly Pro Pro Val Gly Gly

35 40 45

Gly Gly Pro Gly Ala Pro Pro Ser Pro Pro Ala Val Ala Ala Ala Ala

50 55 60

Ala Ala Ala Gly Ser Ser Gly Ala Gly Val Pro Gly Gly Ala Ala Ala

65 70 75 80

Ala Ser Ala Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser

85 90 95

Ser Ser Ala Ser Ser Gly Pro Ala Leu Leu Arg Val Gly Pro Gly Phe

100 105 110

Asp Ala Ala Leu Gln Val Ser Ala Ala Ile Gly Thr Asn Leu Arg Arg

115 120 125

Phe Arg Ala Val Phe Gly Glu Ser Gly Gly Gly Gly Gly Ser Gly Glu
130 135 140
Leu Thr Thr Gln Ile Pro Cys Ser Trp Arg Thr Lys Gly His Ile His
145 150 155 160
Asp Lys Lys Thr Glu Pro Phe Arg Leu Leu Ala Trp Ser Trp Cys Leu
165 170 175

Asn Asp Glu Gln Phe Leu Gly Phe Gly Ser Asp Glu Glu Val Arg Val
180 185 190
Arg Ser Pro Thr Arg Ser Pro Ser Val Lys Thr Ser Pro Arg Lys Pro
195 200 205
Arg Gly Arg Pro Arg Ser Gly Ser Asp Arg Asn Ser Ala Ile Leu Ser
210 215 220
Asp Pro Ser Val Phe Ser Pro Leu Asn Lys Ser Glu Thr Lys Ser Gly
225 230 235 240
Asp Lys Ile Lys Lys Lys Asp Ser Lys Ser Ile Glu Lys Lys Arg Gly

245 250 255
Arg Pro Pro Thr Phe Pro Gly Val Lys Ile Lys Ile Thr His Gly Lys
260 265 270
Asp Ile Ser Glu Leu Pro Lys Gly Asn Lys Glu Asp Ser Leu Lys Lys
275 280 285
Ile Lys Arg Thr Pro Ser Ala Thr Phe Gln Gln Ala Thr Lys Ile Lys
290 295 300
Lys Leu Arg Ala Gly Lys Leu Ser Pro Leu Lys Ser Lys Phe Lys Thr
305 310 315 320

Gly Lys Leu Gln Ile Gly Arg Lys Gly Val Gln Ile Val Arg Arg Arg
325 330 335
Gly Arg Pro Pro Ser Thr Glu Arg Ile Lys Thr Pro Ser Gly Leu Leu
340 345 350
Ile Asn Ser Glu Leu Glu Lys Pro Gln Lys Val Arg Lys Asp Lys Glu
355 360 365
Gly Thr Pro Pro Leu Thr Lys Glu Asp Lys Thr Val Val Arg Gln Ser
370 375 380

Pro Arg Arg Ile Lys Pro Val Arg Ile Ile Pro Ser Ser Lys Arg Thr

385 390 395 400

Asp Ala Thr Ile Ala Lys Gln Leu Leu Gln Arg Ala Lys Lys Gly Ala

405 410 415

Gln Lys Lys Ile Glu Lys Glu Ala Ala Gln Leu Gln Gly Arg Lys Val

420 425 430

Lys Thr Gln Val Lys Asn Ile Arg Gln Phe Ile Met Pro Val Val Ser

435 440 445

Ala Ile Ser Ser Arg Ile Ile Lys Thr Pro Arg Arg Phe Ile Glu Asp

450 455 460

Glu Asp Tyr Asp Pro Pro Ile Lys Ile Ala Arg Leu Glu Ser Thr Pro

465 470 475 480

Asn Ser Arg Phe Ser Ala Pro Ser Cys Gly Ser Ser Glu Lys Ser Ser

485 490 495

Ala Ala Ser Gln His Ser Ser Gln Met Ser Ser Asp Ser Ser Arg Ser

500 505 510

Ser Ser Pro Ser Val Asp Thr Ser Thr Asp Ser Gln Ala Ser Glu Glu

515 520 525

Ile Gln Val Leu Pro Glu Glu Arg Ser Asp Thr Pro Glu Val His Pro

530 535 540

Pro Leu Pro Ile Ser Gln Ser Pro Glu Asn Glu Ser Asn Asp Arg Arg

545 550 555 560

Ser Arg Arg Tyr Ser Val Ser Glu Arg Ser Phe Gly Ser Arg Thr Thr

565 570 575

Lys Lys Leu Ser Thr Leu Gln Ser Ala Pro Gln Gln Gln Thr Ser Ser

580 585 590

Ser Pro Pro Pro Pro Leu Leu Thr Pro Pro Pro Pro Leu Gln Pro Ala

595 600 605

Ser Ser Ile Ser Asp His Thr Pro Trp Leu Met Pro Pro Thr Ile Pro

610 615 620

Leu Ala Ser Pro Phe Leu Pro Ala Ser Thr Ala Pro Met Gln Gly Lys

625 630 635 640

Arg Lys Ser Ile Leu Arg Glu Pro Thr Phe Arg Trp Thr Ser Leu Lys

645 650 655

His Ser Arg Ser Glu Pro Gln Tyr Phe Ser Ser Ala Lys Tyr Ala Lys

660 665 670

Glu Gly Leu Ile Arg Lys Pro Ile Phe Asp Asn Phe Arg Pro Pro Pro

675 680 685

Leu Thr Pro Glu Asp Val Gly Phe Ala Ser Gly Phe Ser Ala Ser Gly

690 695 700

Thr Ala Ala Ser Ala Arg Leu Phe Ser Pro Leu His Ser Gly Thr Arg

705 710 715 720

Phe Asp Met His Lys Arg Ser Pro Leu Leu Arg Ala Pro Arg Phe Thr

725 730 735

Pro Ser Glu Ala His Ser Arg Ile Phe Glu Ser Val Thr Leu Pro Ser

740 745 750

Asn Arg Thr Ser Ala Gly Thr Ser Ser Ser Gly Val Ser Asn Arg Lys

755 760 765

Arg Lys Arg Lys Val Phe Ser Pro Ile Arg Ser Glu Pro Arg Ser Pro

770 775 780

Ser His Ser Met Arg Thr Arg Ser Gly Arg Leu Ser Ser Ser Glu Leu

785 790 795 800

Ser Pro Leu Thr Pro Pro Ser Ser Val Ser Ser Ser Leu Ser Ile Ser

805 810 815

Val Ser Pro Leu Ala Thr Ser Ala Leu Asn Pro Thr Phe Thr Phe Pro

820 825 830

Ser His Ser Leu Thr Gln Ser Gly Glu Ser Ala Glu Lys Asn Gln Arg

835 840 845

Pro Arg Lys Gln Thr Ser Ala Pro Ala Glu Pro Phe Ser Ser Ser Ser

850 855 860

Pro Thr Pro Leu Phe Pro Trp Phe Thr Pro Gly Ser Gln Thr Glu Arg

865 870 875 880

Gly Arg Asn Lys Asp Lys Ala Pro Glu Glu Leu Ser Lys Asp Arg Asp

885 890 895

Ala Asp Lys Ser Val Glu Lys Asp Lys Ser Arg Glu Arg Asp Arg Glu

900 905 910

Arg Glu Lys Glu Asn Lys Arg Glu Ser Arg Lys Glu Lys Arg Lys Lys

915 920 925

Gly Ser Glu Ile Gln Ser Ser Ser Ala Leu Tyr Pro Val Gly Arg Val

930 935 940

Ser Lys Glu Lys Val Val Gly Glu Asp Val Ala Thr Ser Ser Ser Ala

945 950 955 960

Lys Lys Ala Thr Gly Arg Lys Lys Ser Ser Ser His Asp Ser Gly Thr

965 970 975

Asp Ile Thr Ser Val Thr Leu Gly Asp Thr Thr Ala Val Lys Thr Lys

980 985 990

Ile Leu Ile Lys Lys Gly Arg Gly Asn Leu Glu Lys Thr Asn Leu Asp

995 1000 1005

Leu Gly Pro Thr Ala Pro Ser Leu Glu Lys Glu Lys Thr Leu Cys Leu

1010 1015 1020

Ser Thr Pro Ser Ser Ser Thr Val Lys His Ser Thr Ser Ser Ile Gly

1025 1030 1035 1040

Ser Met Leu Ala Gln Ala Asp Lys Leu Pro Met Thr Asp Lys Arg Val

1045 1050 1055

Ala Ser Leu Leu Lys Lys Ala Lys Ala Gln Leu Cys Lys Ile Glu Lys

1060 1065 1070

Ser Lys Ser Leu Lys Gln Thr Asp Gln Pro Lys Ala Gln Gly Gln Glu

1075 1080 1085

Ser Asp Ser Ser Glu Thr Ser Val Arg Gly Pro Arg Ile Lys His Val

1090 1095 1100

Cys Arg Arg Ala Ala Val Ala Leu Gly Arg Lys Arg Ala Val Phe Pro

1105 1110 1115 1120

Asp Asp Met Pro Thr Leu Ser Ala Leu Pro Trp Glu Glu Arg Glu Lys

1125 1130 1135

Ile Leu Ser Ser Met Gly Asn Asp Asp Lys Ser Ser Ile Ala Gly Ser
1140 1145 1150
Glu Asp Ala Glu Pro Leu Ala Pro Pro Ile Lys Pro Ile Lys Pro Val
1155 1160 1165
Thr Arg Asn Lys Ala Pro Gln Glu Pro Pro Val Lys Lys Gly Arg Arg
1170 1175 1180

Ser Arg Arg Cys Gly Gln Cys Pro Gly Cys Gln Val Pro Glu Asp Cys
1185 1190 1195 1200
Gly Val Cys Thr Asn Cys Leu Asp Lys Pro Lys Phe Gly Gly Arg Asn
1205 1210 1215
Ile Lys Lys Gln Cys Cys Lys Met Arg Lys Cys Gln Asn Leu Gln Trp
1220 1225 1230
Met Pro Ser Lys Ala Tyr Leu Gln Lys Gln Ala Lys Ala Val Lys Lys
1235 1240 1245
Lys Glu Lys Lys Ser Lys Thr Ser Glu Lys Lys Asp Ser Lys Glu Ser

1250 1255 1260
Ser Val Val Lys Asn Val Val Asp Ser Ser Gln Lys Pro Thr Pro Ser
1265 1270 1275 1280
Ala Arg Glu Asp Pro Ala Pro Lys Lys Ser Ser Ser Glu Pro Pro Pro
1285 1290 1295
Arg Lys Pro Val Glu Glu Lys Ser Glu Glu Gly Asn Val Ser Ala Pro
1300 1305 1310
Gly Pro Glu Ser Lys Gln Ala Thr Thr Pro Ala Ser Arg Lys Ser Ser
1315 1320 1325

Lys Gln Val Ser Gln Pro Ala Leu Val Ile Pro Pro Gln Pro Pro Thr
1330 1335 1340
Thr Gly Pro Pro Arg Lys Glu Val Pro Lys Thr Thr Pro Ser Glu Pro
1345 1350 1355 1360
Lys Lys Lys Gln Pro Pro Pro Pro Glu Ser Gly Pro Glu Gln Ser Lys
1365 1370 1375
Gln Lys Lys Val Ala Pro Arg Pro Ser Ile Pro Val Lys Gln Lys Pro
1380 1385 1390

Lys Glu Lys Glu Lys Pro Pro Pro Val Asn Lys Gln Glu Asn Ala Gly

1395 1400 1405

Thr Leu Asn Ile Leu Ser Thr Leu Ser Asn Gly Asn Ser Ser Lys Gln

1410 1415 1420

Lys Ile Pro Ala Asp Gly Val His Arg Ile Arg Val Asp Phe Lys Glu

1425 1430 1435 1440

Asp Cys Glu Ala Glu Asn Val Trp Glu Met Gly Gly Leu Gly Ile Leu

1445 1450 1455

Thr Ser Val Pro Ile Thr Pro Arg Val Val Cys Phe Leu Cys Ala Ser

1460 1465 1470

Ser Gly His Val Glu Phe Val Tyr Cys Gln Val Cys Cys Glu Pro Phe

1475 1480 1485

His Lys Phe Cys Leu Glu Glu Asn Glu Arg Pro Leu Glu Asp Gln Leu

1490 1495 1500

Glu Asn Trp Cys Cys Arg Arg Cys Lys Phe Cys His Val Cys Gly Arg

1505 1510 1515 1520

Gln His Gln Ala Thr Lys Leu Leu Glu Cys Asn Lys Cys Arg Asn Ser

1525 1530 1535

Tyr His Pro Glu Cys Leu Gly Pro Asn Tyr Pro Thr Lys Pro Thr Lys

1540 1545 1550

Lys Lys Lys Val Trp Ile Cys Thr Lys Cys Val Arg Cys Lys Ser Cys

1555 1560 1565

Gly Ser Thr Thr Pro Gly Lys Gly Trp Asp Ala Gln Trp Ser His Asp

1570 1575 1580

Phe Ser Leu Cys His Asp Cys Ala Lys Leu Phe Ala Lys Gly Asn Phe

1585 1590 1595 1600

Cys Pro Leu Cys Asp Lys Cys Tyr Asp Asp Asp Asp Tyr Glu Ser Lys

1605 1610 1615

Met Met Gln Cys Gly Lys Cys Asp Arg Trp Val His Ser Lys Cys Glu

1620 1625 1630

Asn Leu Ser Gly Thr Glu Asp Glu Met Tyr Glu Ile Leu Ser Asn Leu

1635 1640 1645

Pro Glu Ser Val Ala Tyr Thr Cys Val Asn Cys Thr Glu Arg His Pro

1650 1655 1660

Ala Glu Trp Arg Leu Ala Leu Glu Lys Glu Leu Gln Ile Ser Leu Lys

1665 1670 1675 1680

Gln Val Leu Thr Ala Leu Leu Asn Ser Arg Thr Thr Ser His Leu Leu

1685 1690 1695

Arg Tyr Arg Gln Ala Ala Lys Pro Pro Asp Leu Asn Pro Glu Thr Glu

1700 1705 1710

Glu Ser Ile Pro Ser Arg Ser Ser Pro Glu Gly Pro Asp Pro Pro Val

1715 1720 1725

Leu Thr Glu Val Ser Lys Gln Asp Asp Gln Gln Pro Leu Asp Leu Glu

1730 1735 1740

Gly Val Lys Arg Lys Met Asp Gln Gly Asn Tyr Thr Ser Val Leu Glu

1745 1750 1755 1760

Phe Ser Asp Asp Ile Val Lys Ile Ile Gln Ala Ala Ile Asn Ser Asp

1765 1770 1775

Gly Gly Gln Pro Glu Ile Lys Lys Ala Asn Ser Met Val Lys Ser Phe

1780 1785 1790

Phe Ile Arg Gln Met Glu Arg Val Phe Pro Trp Phe Ser Val Lys Lys

1795 1800 1805

Ser Arg Phe Trp Glu Pro Asn Lys Val Ser Ser Asn Ser Gly Met Leu

1810 1815 1820

Pro Asn Ala Val Leu Pro Pro Ser Leu Asp His Asn Tyr Ala Gln Trp

1825 1830 1835 1840

Gln Glu Arg Glu Glu Asn Ser His Thr Glu Gln Pro Pro Leu Met Lys

1845 1850 1855

Lys Ile Ile Pro Ala Pro Lys Pro Lys Gly Pro Gly Glu Pro Asp Ser

1860 1865 1870

Pro Thr Pro Leu His Pro Pro Thr Pro Pro Ile Leu Ser Thr Asp Arg

1875 1880 1885

Ser Arg Glu Asp Ser Pro Glu Leu Asn Pro Pro Pro Gly Ile Glu Asp

1890 1895 1900

Asn Arg Gln Cys Ala Leu Cys Leu Thr Tyr Gly Asp Asp Ser Ala Asn
1905 1910 1915 1920
Asp Ala Gly Arg Leu Leu Tyr Ile Gly Gln Asn Glu Trp Thr His Val
1925 1930 1935
Asn Cys Ala Leu Trp Ser Ala Glu Val Phe Glu Asp Asp Asp Gly Ser
1940 1945 1950
Leu Lys Asn Val His Met Ala Val Ile Arg Gly Lys Gln Leu Arg Cys
1955 1960 1965
Glu Phe Cys Gln Lys Pro Gly Ala Thr Val Gly Cys Cys Leu Thr Ser

1970 1975 1980
Cys Thr Ser Asn Tyr His Phe Met Cys Ser Arg Ala Lys Asn Cys Val
1985 1990 1995 2000
Phe Leu Asp Asp Lys Lys Val Tyr Cys Gln Arg His Arg Asp Leu Ile
2005 2010 2015
Lys Gly Glu Val Val Pro Glu Asn Gly Phe Glu Val Phe Arg Arg Val
2020 2025 2030
Phe Val Asp Phe Glu Gly Ile Ser Leu Arg Arg Lys Phe Leu Asn Gly
2035 2040 2045

Leu Glu Pro Glu Asn Ile His Met Met Ile Gly Ser Met Thr Ile Asp
2050 2055 2060
Cys Leu Gly Ile Leu Asn Asp Leu Ser Asp Cys Glu Asp Lys Leu Phe
2065 2070 2075 2080
Pro Ile Gly Tyr Gln Cys Ser Arg Val Tyr Trp Ser Thr Thr Asp Ala
2085 2090 2095
Arg Lys Arg Cys Val Tyr Thr Cys Lys Ile Val Glu Cys Arg Pro Pro
2100 2105 2110
Val Val Glu Pro Asp Ile Asn Ser Thr Val Glu His Asp Glu Asn Arg

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Ser Gln Asn Thr Ala Glu Ile Ile Ser Pro Pro Ser Pro Asp Arg Pro
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Pro His Ser Gln Thr Ser Gly Ser Cys Tyr Tyr His Val Ile Ser Lys
2165 2170 2175
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Gly Cys Arg Pro Leu Pro Ser Ala Gly Ser Pro Thr Pro Thr Thr His
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Glu Ile Val Thr Val Gly Asp Pro Leu Leu Ser Ser Gly Leu Arg Ser
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Ile Gly Ser Arg Arg His Ser Thr Ser Ser Leu Ser Pro Gln Arg Ser
2225 2230 2235 2240
Lys Leu Arg Ile Met Ser Pro Met Arg Thr Gly Asn Thr Tyr Ser Arg
2245 2250 2255
Asn Asn Val Ser Ser Val Ser Thr Thr Gly Thr Ala Thr Asp Leu Glu

2260 2265 2270
Ser Ser Ala Lys Val Val Asp His Val Leu Gly Pro Leu Asn Ser Ser
2275 2280 2285
Thr Ser Leu Gly Gln Asn Thr Ser Thr Ser Ser Asn Leu Gln Arg Thr
2290 2295 2300
Val Val Thr Val Gly Asn Lys Asn Ser His Leu Asp Gly Ser Ser Ser
2305 2310 2315 2320
Ser Glu Met Lys Gln Ser Ser Ala Ser Asp Leu Val Ser Lys Ser Ser
2325 2330 2335

Ser Leu Lys Gly Glu Lys Thr Lys Val Leu Ser Ser Lys Ser Ser Glu
2340 2345 2350
Gly Ser Ala His Asn Val Ala Tyr Pro Gly Ile Pro Lys Leu Ala Pro
2355 2360 2365
Gln Val His Asn Thr Thr Ser Arg Glu Leu Asn Val Ser Lys Ile Gly
2370 2375 2380
Ser Phe Ala Glu Pro Ser Ser Val Ser Phe Ser Ser Lys Glu Ala Leu
2385 2390 2395 2400

Ser Phe Pro His Leu His Leu Arg Gly Gln Arg Asn Asp Arg Asp Gln

2405 2410 2415

His Thr Asp Ser Thr Gln Ser Ala Asn Ser Ser Pro Asp Glu Asp Thr

2420 2425 2430

Glu Val Lys Thr Leu Lys Leu Ser Gly Met Ser Asn Arg Ser Ser Ile

2435 2440 2445

Ile Asn Glu His Met Gly Ser Ser Ser Arg Asp Arg Arg Gln Lys Gly

2450 2455 2460

Lys Lys Ser Cys Lys Glu Thr Phe Lys Glu Lys His Ser Ser Lys Ser

2465 2470 2475 2480

Phe Leu Glu Pro Gly Gln Val Thr Thr Gly Glu Glu Gly Asn Leu Lys

2485 2490 2495

Pro Glu Phe Met Asp Glu Val Leu Thr Pro Glu Tyr Met Gly Gln Arg

2500 2505 2510

Pro Cys Asn Asn Val Ser Ser Asp Lys Ile Gly Asp Lys Gly Leu Ser

2515 2520 2525

Met Pro Gly Val Pro Lys Ala Pro Pro Met Gln Val Glu Gly Ser Ala

2530 2535 2540

Lys Glu Leu Gln Ala Pro Arg Lys Arg Thr Val Lys Val Thr Leu Thr

2545 2550 2555 2560

Pro Leu Lys Met Glu Asn Glu Ser Gln Ser Lys Asn Ala Leu Lys Glu

2565 2570 2575

Ser Ser Pro Ala Ser Pro Leu Gln Ile Glu Ser Thr Ser Pro Thr Glu

2580 2585 2590

Pro Ile Ser Ala Ser Glu Asn Pro Gly Asp Gly Pro Val Ala Gln Pro

2595 2600 2605

Ser Pro Asn Asn Thr Ser Cys Gln Asp Ser Gln Ser Asn Asn Tyr Gln

2610 2615 2620

Asn Leu Pro Val Gln Asp Arg Asn Leu Met Leu Pro Asp Gly Pro Lys

2625 2630 2635 2640

Pro Gln Glu Asp Gly Ser Phe Lys Arg Arg Tyr Pro Arg Arg Ser Ala

2645 2650 2655

Arg Ala Arg Ser Asn Met Phe Phe Gly Leu Thr Pro Leu Tyr Gly Val

2660 2665 2670

Arg Ser Tyr Gly Glu Glu Asp Ile Pro Phe Tyr Ser Ser Ser Thr Gly

2675 2680 2685

Lys Lys Arg Gly Lys Arg Ser Ala Glu Gly Gln Val Asp Gly Ala Asp

2690 2695 2700

Asp Leu Ser Thr Ser Asp Glu Asp Asp Leu Tyr Tyr Tyr Asn Phe Thr

2705 2710 2715 2720

Arg Thr Val Ile Ser Ser Gly Gly Glu Glu Arg Leu Ala Ser His Asn

2725 2730 2735

Leu Phe Arg Glu Glu Glu Gln Cys Asp Leu Pro Lys Ile Ser Gln Leu

2740 2745 2750

Asp Gly Val Asp Asp Gly Thr Glu Ser Asp Thr Ser Val Thr Ala Thr

2755 2760 2765

Thr Arg Lys Ser Ser Gln Ile Pro Lys Arg Asn Gly Lys Glu Asn Gly

2770 2775 2780

Thr Glu Asn Leu Lys Ile Asp Arg Pro Glu Asp Ala Gly Glu Lys Glu

2785 2790 2795 2800

His Val Thr Lys Ser Ser Val Gly His Lys Asn Glu Pro Lys Met Asp

2805 2810 2815

Asn Cys His Ser Val Ser Arg Val Lys Thr Gln Gly Gln Asp Ser Leu

2820 2825 2830

Glu Ala Gln Leu Ser Ser Leu Glu Ser Ser Arg Arg Val His Thr Ser

2835 2840 2845

Thr Pro Ser Asp Lys Asn Leu Leu Asp Thr Tyr Asn Thr Glu Leu Leu

2850 2855 2860

Lys Ser Asp Ser Asp Asn Asn Asn Ser Asp Asp Cys Gly Asn Ile Leu

2865 2870 2875 2880

Pro Ser Asp Ile Met Asp Phe Val Leu Lys Asn Thr Pro Ser Met Gln

2885 2890 2895

Ala Leu Gly Glu Ser Pro Glu Ser Ser Ser Ser Glu Leu Leu Asn Leu

2900 2905 2910

Gly Glu Gly Leu Gly Leu Asp Ser Asn Arg Glu Lys Asp Met Gly Leu

2915 2920 2925

Phe Glu Val Phe Ser Gln Gln Leu Pro Thr Thr Glu Pro Val Asp Ser

2930 2935 2940

Ser Val Ser Ser Ser Ile Ser Ala Glu Glu Gln Phe Glu Leu Pro Leu

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Glu Leu Pro Ser Asp Leu Ser Val Leu Thr Thr Arg Ser Pro Thr Val

2965 2970 2975

Pro Ser Gln Asn Pro Ser Arg Leu Ala Val Ile Ser Asp Ser Gly Glu

2980 2985 2990

Lys Arg Val Thr Ile Thr Glu Lys Ser Val Ala Ser Ser Glu Ser Asp

2995 3000 3005

Pro Ala Leu Leu Ser Pro Gly Val Asp Pro Thr Pro Glu Gly His Met

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Thr Pro Asp His Phe Ile Gln Gly His Met Asp Ala Asp His Ile Ser

3025 3030 3035 3040

Ser Pro Pro Cys Gly Ser Val Glu Gln Gly His Gly Asn Asn Gln Asp

3045 3050 3055

Leu Thr Arg Asn Ser Ser Thr Pro Gly Leu Gln Val Pro Val Ser Pro

3060 3065 3070

Thr Val Pro Ile Gln Asn Gln Lys Tyr Val Pro Asn Ser Thr Asp Ser

3075 3080 3085

Pro Gly Pro Ser Gln Ile Ser Asn Ala Ala Val Gln Thr Thr Pro Pro

3090 3095 3100

His Leu Lys Pro Ala Thr Glu Lys Leu Ile Val Val Asn Gln Asn Met

3105 3110 3115 3120

Gln Pro Leu Tyr Val Leu Gln Thr Leu Pro Asn Gly Val Thr Gln Lys

3125 3130 3135

Ile Gln Leu Thr Ser Ser Val Ser Ser Thr Pro Ser Val Met Glu Thr

3140 3145 3150

Asn Thr Ser Val Leu Gly Pro Met Gly Gly Gly Leu Thr Leu Thr Thr
3155 3160 3165

Gly Leu Asn Pro Ser Leu Pro Thr Ser Gln Ser Leu Phe Pro Ser Ala
3170 3175 3180

Ser Lys Gly Leu Leu Pro Met Ser His His Gln His Leu His Ser Phe
3185 3190 3195 3200

Pro Ala Ala Thr Gln Ser Ser Phe Pro Pro Asn Ile Ser Asn Pro Pro
3205 3210 3215

Ser Gly Leu Leu Ile Gly Val Gln Pro Pro Pro Asp Pro Gln Leu Leu
3220 3225 3230

Val Ser Glu Ser Ser Gln Arg Thr Asp Leu Ser Thr Thr Val Ala Thr
3235 3240 3245

Pro Ser Ser Gly Leu Lys Lys Arg Pro Ile Ser Arg Leu Gln Thr Arg
3250 3255 3260

Lys Asn Lys Lys Leu Ala Pro Ser Ser Thr Pro Ser Asn Ile Ala Pro

3265 3270 3275 3280
Ser Asp Val Val Ser Asn Met Thr Leu Ile Asn Phe Thr Pro Ser Gln
3285 3290 3295

Leu Pro Asn His Pro Ser Leu Leu Asp Leu Gly Ser Leu Asn Thr Ser
3300 3305 3310

Ser His Arg Thr Val Pro Asn Ile Ile Lys Arg Ser Lys Ser Ser Ile
3315 3320 3325

Met Tyr Phe Glu Pro Ala Pro Leu Leu Pro Gln Ser Val Gly Gly Thr
3330 3335 3340

Ala Ala Thr Ala Ala Gly Thr Ser Thr Ile Ser Gln Asp Thr Ser His
3345 3350 3355 3360

Leu Thr Ser Gly Ser Val Ser Gly Leu Ala Ser Ser Ser Ser Val Leu
3365 3370 3375

Asn Val Val Ser Met Gln Thr Thr Thr Thr Pro Thr Ser Ser Ala Ser
3380 3385 3390

Val Pro Gly His Val Thr Leu Thr Asn Pro Arg Leu Leu Gly Thr Pro
3395 3400 3405

Asp Ile Gly Ser Ile Ser Asn Leu Leu Ile Lys Ala Ser Gln Gln Ser

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Leu Gly Ile Gln Asp Gln Pro Val Ala Leu Pro Pro Ser Ser Gly Met

3425 3430 3435 3440

Phe Pro Gln Leu Gly Thr Ser Gln Thr Pro Ser Thr Ala Ala Ile Thr

3445 3450 3455

Ala Ala Ser Ser Ile Cys Val Leu Pro Ser Thr Gln Thr Thr Gly Ile

3460 3465 3470

Thr Ala Ala Ser Pro Ser Gly Glu Ala Asp Glu His Tyr Gln Leu Gln

3475 3480 3485

His Val Asn Gln Leu Leu Ala Ser Lys Thr Gly Ile His Ser Ser Gln

3490 3495 3500

Arg Asp Leu Asp Ser Ala Ser Gly Pro Gln Val Ser Asn Phe Thr Gln

3505 3510 3515 3520

Thr Val Asp Ala Pro Asn Ser Met Gly Leu Glu Gln Asn Lys Ala Leu

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Ser Ser Ala Val Gln Ala Ser Pro Thr Ser Pro Gly Gly Ser Pro Ser

3540 3545 3550

Ser Pro Ser Ser Gly Gln Arg Ser Ala Ser Pro Ser Val Pro Gly Pro

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Thr Lys Pro Lys Pro Lys Thr Lys Arg Phe Gln Leu Pro Leu Asp Lys

3570 3575 3580

Gly Asn Gly Lys Lys His Lys Val Ser His Leu Arg Thr Ser Ser Ser

3585 3590 3595 3600

Glu Ala His Ile Pro Asp Gln Glu Thr Thr Ser Leu Thr Ser Gly Thr

3605 3610 3615

Gly Thr Pro Gly Ala Glu Ala Glu Gln Gln Asp Thr Ala Ser Val Glu

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Gln Ser Ser Gln Lys Glu Cys Gly Gln Pro Ala Gly Gln Val Ala Val

3635 3640 3645

Leu Pro Glu Val Gln Val Thr Gln Asn Pro Ala Asn Glu Gln Glu Ser

3650 3655 3660

Ala Glu Pro Lys Thr Val Glu Glu Glu Glu Ser Asn Phe Ser Ser Pro

3665 3670 3675 3680

Leu Met Leu Trp Leu Gln Gln Glu Gln Lys Arg Lys Glu Ser Ile Thr

3685 3690 3695

Glu Lys Lys Pro Lys Lys Gly Leu Val Phe Glu Ile Ser Ser Asp Asp

3700 3705 3710

Gly Phe Gln Ile Cys Ala Glu Ser Ile Glu Asp Ala Trp Lys Ser Leu

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Thr Asp Lys Val Gln Glu Ala Arg Ser Asn Ala Arg Leu Lys Gln Leu

3730 3735 3740

Ser Phe Ala Gly Val Asn Gly Leu Arg Met Leu Gly Ile Leu His Asp

3745 3750 3755 3760

Ala Val Val Phe Leu Ile Glu Gln Leu Ser Gly Ala Lys His Cys Arg

3765 3770 3775

Asn Tyr Lys Phe Arg Phe His Lys Pro Glu Glu Ala Asn Glu Pro Pro

3780 3785 3790

Leu Asn Pro His Gly Ser Ala Arg Ala Glu Val His Leu Arg Lys Ser

3795 3800 3805

Ala Phe Asp Met Phe Asn Phe Leu Ala Ser Lys His Arg Gln Pro Pro

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Glu Tyr Asn Pro Asn Asp Glu Glu Glu Glu Glu Val Gln Leu Lys Ser

3825 3830 3835 3840

Ala Arg Arg Ala Thr Ser Met Asp Leu Pro Met Pro Met Arg Phe Arg

3845 3850 3855

His Leu Lys Lys Thr Ser Lys Glu Ala Val Gly Val Tyr Arg Ser Pro

3860 3865 3870

Ile His Gly Arg Gly Leu Phe Cys Lys Arg Asn Ile Asp Ala Gly Glu

3875 3880 3885

Met Val Ile Glu Tyr Ala Gly Asn Val Ile Arg Ser Ile Gln Thr Asp

3890 3895 3900

Lys Arg Glu Lys Tyr Tyr Asp Ser Lys Gly Ile Gly Cys Tyr Met Phe

3905 3910 3915 3920

Arg Ile Asp Asp Ser Glu Val Val Asp Ala Thr Met His Gly Asn Ala
3925 3930 3935
Ala Arg Phe Ile Asn His Ser Cys Glu Pro Asn Cys Tyr Ser Arg Val
3940 3945 3950
Ile Asn Ile Asp Gly Gln Lys His Ile Val Ile Phe Ala Met Arg Lys
3955 3960 3965
Ile Tyr Arg Gly Glu Glu Leu Thr Tyr Asp Tyr Lys Phe Pro Ile Glu
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Lys Phe Leu Asn

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<211> 4002
<212> PRT
<213> Homo sapiens
<400> 78

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20 25 30
Gln Arg Val Pro Ala Leu Leu Leu Pro Pro Gly Pro Pro Val Gly Gly
35 40 45

Gly Gly Pro Gly Ala Pro Pro Ser Pro Pro Ala Val Ala Ala Ala Ala
50 55 60
Ala Ala Ala Gly Ser Ser Gly Ala Gly Val Pro Gly Gly Ala Ala Ala
65 70 75 80
Ala Ser Ala Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser
85 90 95
Ser Ser Ala Ser Ser Gly Pro Ala Leu Leu Arg Val Gly Pro Gly Phe
100 105 110

Asp Ala Ala Leu Gln Val Ser Ala Ala Ile Gly Thr Asn Leu Arg Arg

115 120 125

Phe Arg Ala Val Phe Gly Glu Ser Gly Gly Gly Gly Gly Ser Gly Glu

130 135 140

Leu Thr Thr Gln Ile Pro Cys Ser Trp Arg Thr Lys Gly His Ile His

145 150 155 160

Asp Lys Lys Thr Glu Pro Phe Arg Leu Leu Ala Trp Ser Trp Cys Leu

165 170 175

Asn Asp Glu Gln Phe Leu Gly Phe Gly Ser Asp Glu Glu Val Arg Val

180 185 190

Arg Ser Pro Thr Arg Ser Pro Ser Val Lys Thr Ser Pro Arg Lys Pro

195 200 205

Arg Gly Arg Pro Arg Ser Gly Ser Asp Arg Asn Ser Ala Ile Leu Ser

210 215 220

Asp Pro Ser Val Phe Ser Pro Leu Asn Lys Ser Glu Thr Lys Ser Gly

225 230 235 240

Asp Lys Ile Lys Lys Lys Asp Ser Lys Ser Ile Glu Lys Lys Arg Gly

245 250 255

Arg Pro Pro Thr Phe Pro Gly Val Lys Ile Lys Ile Thr His Gly Lys

260 265 270

Asp Ile Ser Glu Leu Pro Lys Gly Asn Lys Glu Asp Ser Leu Lys Lys

275 280 285

Ile Lys Arg Thr Pro Ser Ala Thr Phe Gln Gln Ala Thr Lys Ile Lys

290 295 300

Lys Leu Arg Ala Gly Lys Leu Ser Pro Leu Lys Ser Lys Phe Lys Thr

305 310 315 320

Gly Lys Leu Gln Ile Gly Arg Lys Gly Val Gln Ile Val Arg Arg Arg

325 330 335

Gly Arg Pro Pro Ser Thr Glu Arg Ile Lys Thr Pro Ser Gly Leu Leu

340 345 350

Ile Asn Ser Glu Leu Glu Lys Pro Gln Lys Val Arg Lys Asp Lys Glu

355 360 365

Gly Thr Pro Pro Leu Thr Lys Glu Asp Lys Thr Val Val Arg Gln Ser

370 375 380

Pro Arg Arg Ile Lys Pro Val Arg Ile Ile Pro Ser Ser Lys Arg Thr

385 390 395 400

Asp Ala Thr Ile Ala Lys Gln Leu Leu Gln Arg Ala Lys Lys Gly Ala

405 410 415

Gln Lys Lys Ile Glu Lys Glu Ala Ala Gln Leu Gln Gly Arg Lys Val

420 425 430

Lys Thr Gln Val Lys Asn Ile Arg Gln Phe Ile Met Pro Val Val Ser

435 440 445

Ala Ile Ser Ser Arg Ile Ile Lys Thr Pro Arg Arg Phe Ile Glu Asp

450 455 460

Glu Asp Tyr Asp Pro Pro Ile Lys Ile Ala Arg Leu Glu Ser Thr Pro

465 470 475 480

Asn Ser Arg Phe Ser Ala Pro Ser Cys Gly Ser Ser Glu Lys Ser Ser

485 490 495

Ala Ala Ser Gln His Ser Ser Gln Met Ser Ser Asp Ser Ser Arg Ser

500 505 510

Ser Ser Pro Ser Val Asp Thr Ser Thr Asp Ser Gln Ala Ser Glu Glu

515 520 525

Ile Gln Val Leu Pro Glu Glu Arg Ser Asp Thr Pro Glu Val His Pro

530 535 540

Pro Leu Pro Ile Ser Gln Ser Pro Glu Asn Glu Ser Asn Asp Arg Arg

545 550 555 560

Ser Arg Arg Tyr Ser Val Ser Glu Arg Ser Phe Gly Ser Arg Thr Thr

565 570 575

Lys Lys Leu Ser Thr Leu Gln Ser Ala Pro Gln Gln Gln Thr Ser Ser

580 585 590

Ser Pro Pro Pro Pro Leu Leu Thr Pro Pro Pro Pro Leu Gln Pro Ala

595 600 605

Ser Ser Ile Ser Asp His Thr Pro Trp Leu Met Pro Pro Thr Ile Pro

610 615 620

Leu Ala Ser Pro Phe Leu Pro Ala Ser Thr Ala Pro Met Gln Gly Lys
625 630 635 640
Arg Lys Ser Ile Leu Arg Glu Pro Thr Phe Arg Trp Thr Ser Leu Lys
645 650 655
His Ser Arg Ser Glu Pro Gln Tyr Phe Ser Ser Ala Lys Tyr Ala Lys
660 665 670
Glu Gly Leu Ile Arg Lys Pro Ile Phe Asp Asn Phe Arg Pro Pro Pro
675 680 685
Leu Thr Pro Glu Asp Val Gly Phe Ala Ser Gly Phe Ser Ala Ser Gly

690 695 700
Thr Ala Ala Ser Ala Arg Leu Phe Ser Pro Leu His Ser Gly Thr Arg
705 710 715 720
Phe Asp Met His Lys Arg Ser Pro Leu Leu Arg Ala Pro Arg Phe Thr
725 730 735
Pro Ser Glu Ala His Ser Arg Ile Phe Glu Ser Val Thr Leu Pro Ser
740 745 750
Asn Arg Thr Ser Ala Gly Thr Ser Ser Ser Gly Val Ser Asn Arg Lys
755 760 765

Arg Lys Arg Lys Val Phe Ser Pro Ile Arg Ser Glu Pro Arg Ser Pro
770 775 780
Ser His Ser Met Arg Thr Arg Ser Gly Arg Leu Ser Ser Ser Glu Leu
785 790 795 800
Ser Pro Leu Thr Pro Pro Ser Ser Val Ser Ser Ser Leu Ser Ile Ser
805 810 815
Val Ser Pro Leu Ala Thr Ser Ala Leu Asn Pro Thr Phe Thr Phe Pro
820 825 830
Ser His Ser Leu Thr Gln Ser Gly Glu Ser Ala Glu Lys Asn Gln Arg

835 840 845
Pro Arg Lys Gln Thr Ser Ala Pro Ala Glu Pro Phe Ser Ser Ser Ser
850 855 860

Pro Thr Pro Leu Phe Pro Trp Phe Thr Pro Gly Ser Gln Thr Glu Arg
865 870 875 880
Gly Arg Asn Lys Asp Lys Ala Pro Glu Glu Leu Ser Lys Asp Arg Asp
885 890 895
Ala Asp Lys Ser Val Glu Lys Asp Lys Ser Arg Glu Arg Asp Arg Glu
900 905 910

Arg Glu Lys Glu Asn Lys Arg Glu Ser Arg Lys Glu Lys Arg Lys Lys
915 920 925
Gly Ser Glu Ile Gln Ser Ser Ser Ala Leu Tyr Pro Val Gly Arg Val
930 935 940
Ser Lys Glu Lys Val Val Gly Glu Asp Val Ala Thr Ser Ser Ser Ala
945 950 955 960
Lys Lys Ala Thr Gly Arg Lys Lys Ser Ser Ser His Asp Ser Gly Thr
965 970 975
Asp Ile Thr Ser Val Thr Leu Gly Asp Thr Thr Ala Val Lys Thr Lys

980 985 990
Ile Leu Ile Lys Lys Gly Arg Gly Asn Leu Glu Lys Thr Asn Leu Asp
995 1000 1005
Leu Gly Pro Thr Ala Pro Ser Leu Glu Lys Glu Lys Thr Leu Cys Leu
1010 1015 1020
Ser Thr Pro Ser Ser Ser Thr Val Lys His Ser Thr Ser Ser Ile Gly
1025 1030 1035 1040
Ser Met Leu Ala Gln Ala Asp Lys Leu Pro Met Thr Asp Lys Arg Val
1045 1050 1055

Ala Ser Leu Leu Lys Lys Ala Lys Ala Gln Leu Cys Lys Ile Glu Lys
1060 1065 1070
Ser Lys Ser Leu Lys Gln Thr Asp Gln Pro Lys Ala Gln Gly Gln Glu
1075 1080 1085
Ser Asp Ser Ser Glu Thr Ser Val Arg Gly Pro Arg Ile Lys His Val
1090 1095 1100
Cys Arg Arg Ala Ala Val Ala Leu Gly Arg Lys Arg Ala Val Phe Pro
1105 1110 1115 1120

Asp Asp Met Pro Thr Leu Ser Ala Leu Pro Trp Glu Glu Arg Glu Lys

1125 1130 1135

Ile Leu Ser Ser Met Gly Asn Asp Asp Lys Ser Ser Ile Ala Gly Ser

1140 1145 1150

Glu Asp Ala Glu Pro Leu Ala Pro Pro Ile Lys Pro Ile Lys Pro Val

1155 1160 1165

Thr Arg Asn Lys Ala Pro Gln Glu Pro Pro Val Lys Lys Gly Arg Arg

1170 1175 1180

Ser Arg Arg Cys Gly Gln Cys Pro Gly Cys Gln Val Pro Glu Asp Cys

1185 1190 1195 1200

Gly Val Cys Thr Asn Cys Leu Asp Lys Pro Lys Phe Gly Gly Arg Asn

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Ile Lys Lys Gln Cys Cys Lys Met Arg Lys Cys Gln Asn Leu Gln Trp

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Met Pro Ser Lys Ala Tyr Leu Gln Lys Gln Ala Lys Ala Val Lys Lys

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Lys Glu Lys Lys Ser Lys Thr Ser Glu Lys Lys Asp Ser Lys Glu Ser

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Ala Arg Glu Asp Pro Ala Pro Lys Lys Ser Ser Ser Glu Pro Pro Pro

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Arg Lys Pro Val Glu Glu Lys Ser Glu Glu Gly Asn Val Ser Ala Pro

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Gly Pro Glu Ser Lys Gln Ala Thr Thr Pro Ala Ser Arg Lys Ser Ser

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Lys Gln Val Ser Gln Pro Ala Leu Val Ile Pro Pro Gln Pro Pro Thr

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Thr Gly Pro Pro Arg Lys Glu Val Pro Lys Thr Thr Pro Ser Glu Pro

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Lys Lys Lys Gln Pro Pro Pro Pro Glu Ser Gly Pro Glu Gln Ser Lys

1365 1370 1375

Gln Lys Lys Val Ala Pro Arg Pro Ser Ile Pro Val Lys Gln Lys Pro

1380 1385 1390

Lys Glu Lys Glu Lys Pro Pro Pro Val Asn Lys Gln Glu Asn Ala Gly

1395 1400 1405

Thr Leu Asn Ile Leu Ser Thr Leu Ser Asn Gly Asn Ser Ser Lys Gln

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Lys Ile Pro Ala Asp Gly Val His Arg Ile Arg Val Asp Phe Lys Glu

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Asp Cys Glu Ala Glu Asn Val Trp Glu Met Gly Gly Leu Gly Ile Leu

1445 1450 1455

Thr Ser Val Pro Ile Thr Pro Arg Val Val Cys Phe Leu Cys Ala Ser

1460 1465 1470

Ser Gly His Val Glu Phe Val Tyr Cys Gln Val Cys Cys Glu Pro Phe

1475 1480 1485

His Lys Phe Cys Leu Glu Glu Asn Glu Arg Pro Leu Glu Asp Gln Leu

1490 1495 1500

Glu Asn Trp Cys Cys Arg Arg Cys Lys Phe Cys His Val Cys Gly Arg

1505 1510 1515 1520

Gln His Gln Ala Thr Lys Gln Leu Leu Glu Cys Asn Lys Cys Arg Asn

1525 1530 1535

Ser Tyr His Pro Glu Cys Leu Gly Pro Asn Tyr Pro Thr Lys Pro Thr

1540 1545 1550

Lys Lys Lys Lys Val Trp Ile Cys Thr Lys Cys Val Arg Cys Lys Ser

1555 1560 1565

Cys Gly Ser Thr Thr Pro Gly Lys Gly Trp Asp Ala Gln Trp Ser His

1570 1575 1580

Asp Phe Ser Leu Cys His Asp Cys Ala Lys Leu Phe Ala Lys Gly Asn

1585 1590 1595 1600

Phe Cys Pro Leu Cys Asp Lys Cys Tyr Asp Asp Asp Asp Tyr Glu Ser

1605 1610 1615

Lys Met Met Gln Cys Gly Lys Cys Asp Arg Trp Val His Ser Lys Cys

1620 1625 1630

Glu Asn Leu Ser Asp Glu Met Tyr Glu Ile Leu Ser Asn Leu Pro Glu

1635 1640 1645

Ser Val Ala Tyr Thr Cys Val Asn Cys Thr Glu Arg His Pro Ala Glu

1650 1655 1660

Trp Arg Leu Ala Leu Glu Lys Glu Leu Gln Ile Ser Leu Lys Gln Val

1665 1670 1675 1680

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1685 1690 1695

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Glu Val Ser Lys Gln Asp Asp Gln Gln Pro Leu Asp Leu Glu Gly Val

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Lys Arg Lys Met Asp Gln Gly Asn Tyr Thr Ser Val Leu Glu Phe Ser

1745 1750 1755 1760

Asp Asp Ile Val Lys Ile Ile Gln Ala Ala Ile Asn Ser Asp Gly Gly

1765 1770 1775

Gln Pro Glu Ile Lys Lys Ala Asn Ser Met Val Lys Ser Phe Phe Ile

1780 1785 1790

Arg Gln Met Glu Arg Val Phe Pro Trp Phe Ser Val Lys Lys Ser Arg

1795 1800 1805

Phe Trp Glu Pro Asn Lys Val Ser Ser Asn Ser Gly Met Leu Pro Asn

1810 1815 1820

Ala Val Leu Pro Pro Ser Leu Asp His Asn Tyr Ala Gln Trp Gln Glu

1825 1830 1835 1840

Arg Glu Glu Asn Ser His Thr Glu Gln Pro Pro Leu Met Lys Lys Ile

1845 1850 1855

Ile Pro Ala Pro Lys Pro Lys Gly Pro Gly Glu Pro Asp Ser Pro Thr

1860 1865 1870

Pro Leu His Pro Pro Thr Pro Pro Ile Leu Ser Thr Asp Arg Ser Arg
1875 1880 1885

Glu Asp Ser Pro Glu Leu Asn Pro Pro Pro Gly Ile Glu Asp Asn Arg
1890 1895 1900

Gln Cys Ala Leu Cys Leu Thr Tyr Gly Asp Asp Ser Ala Asn Asp Ala
1905 1910 1915 1920

Gly Arg Leu Leu Tyr Ile Gly Gln Asn Glu Trp Thr His Val Asn Cys
1925 1930 1935

Ala Leu Trp Ser Ala Glu Val Phe Glu Asp Asp Asp Gly Ser Leu Lys
1940 1945 1950

Asn Val His Met Ala Val Ile Arg Gly Lys Gln Leu Arg Cys Glu Phe
1955 1960 1965

Cys Gln Lys Pro Gly Ala Thr Val Gly Cys Cys Leu Thr Ser Cys Thr
1970 1975 1980

Ser Asn Tyr His Phe Met Cys Ser Arg Ala Lys Asn Cys Val Phe Leu

1985 1990 1995 2000

Asp Asp Lys Lys Val Tyr Cys Gln Arg His Arg Asp Leu Ile Lys Gly
2005 2010 2015

Glu Val Val Pro Glu Asn Gly Phe Glu Val Phe Arg Arg Val Phe Val
2020 2025 2030

Asp Phe Glu Gly Ile Ser Leu Arg Arg Lys Phe Leu Asn Gly Leu Glu
2035 2040 2045

Pro Glu Asn Ile His Met Met Ile Gly Ser Met Thr Ile Asp Cys Leu
2050 2055 2060

Gly Ile Leu Asn Asp Leu Ser Asp Cys Glu Asp Lys Leu Phe Pro Ile
2065 2070 2075 2080

Gly Tyr Gln Cys Ser Arg Val Tyr Trp Ser Thr Thr Asp Ala Arg Lys
2085 2090 2095

Arg Cys Val Tyr Thr Cys Lys Ile Val Glu Cys Arg Pro Pro Val Val
2100 2105 2110

Glu Pro Asp Ile Asn Ser Thr Val Glu His Asp Glu Asn Arg Thr Ile
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Ala His Ser Pro Thr Ser Phe Thr Glu Ser Ser Ser Lys Glu Ser Gln

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Arg Pro Leu Pro Ser Ala Gly Ser Pro Thr Pro Thr Thr His Glu Ile

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Val Thr Val Gly Asp Pro Leu Leu Ser Ser Gly Leu Arg Ser Ile Gly

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Ser Arg Arg His Ser Thr Ser Ser Leu Ser Pro Gln Arg Ser Lys Leu

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Arg Ile Met Ser Pro Met Arg Thr Gly Asn Thr Tyr Ser Arg Asn Asn

2245 2250 2255

Val Ser Ser Val Ser Thr Thr Gly Thr Ala Thr Asp Leu Glu Ser Ser

2260 2265 2270

Ala Lys Val Val Asp His Val Leu Gly Pro Leu Asn Ser Ser Thr Ser

2275 2280 2285

Leu Gly Gln Asn Thr Ser Thr Ser Ser Asn Leu Gln Arg Thr Val Val

2290 2295 2300

Thr Val Gly Asn Lys Asn Ser His Leu Asp Gly Ser Ser Ser Ser Glu

2305 2310 2315 2320

Met Lys Gln Ser Ser Ala Ser Asp Leu Val Ser Lys Ser Ser Ser Leu

2325 2330 2335

Lys Gly Glu Lys Thr Lys Val Leu Ser Ser Lys Ser Ser Glu Gly Ser

2340 2345 2350

Ala His Asn Val Ala Tyr Pro Gly Ile Pro Lys Leu Ala Pro Gln Val

2355 2360 2365

His Asn Thr Thr Ser Arg Glu Leu Asn Val Ser Lys Ile Gly Ser Phe

2370 2375 2380

Ala Glu Pro Ser Ser Val Ser Phe Ser Ser Lys Glu Ala Leu Ser Phe

2385 2390 2395 2400

Pro His Leu His Leu Arg Gly Gln Arg Asn Asp Arg Asp Gln His Thr

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Asp Ser Thr Gln Ser Ala Asn Ser Ser Pro Asp Glu Asp Thr Glu Val

2420 2425 2430

Lys Thr Leu Lys Leu Ser Gly Met Ser Asn Arg Ser Ser Ile Ile Asn

2435 2440 2445

Glu His Met Gly Ser Ser Ser Arg Asp Arg Arg Gln Lys Gly Lys Lys

2450 2455 2460

Ser Cys Lys Glu Thr Phe Lys Glu Lys His Ser Ser Lys Ser Phe Leu

2465 2470 2475 2480

Glu Pro Gly Gln Val Thr Thr Gly Glu Glu Gly Asn Leu Lys Pro Glu

2485 2490 2495

Phe Met Asp Glu Val Leu Thr Pro Glu Tyr Met Gly Gln Arg Pro Cys

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Asn Asn Val Ser Ser Asp Lys Ile Gly Asp Lys Gly Leu Ser Met Pro

2515 2520 2525

Gly Val Pro Lys Ala Pro Pro Met Gln Val Glu Gly Ser Ala Lys Glu

2530 2535 2540

Leu Gln Ala Pro Arg Lys Arg Thr Val Lys Val Thr Leu Thr Pro Leu

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Lys Met Glu Asn Glu Ser Gln Ser Lys Asn Ala Leu Lys Glu Ser Ser

2565 2570 2575

Pro Ala Ser Pro Leu Gln Ile Glu Ser Thr Ser Pro Thr Glu Pro Ile

2580 2585 2590

Ser Ala Ser Glu Asn Pro Gly Asp Gly Pro Val Ala Gln Pro Ser Pro

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Asn Asn Thr Ser Cys Gln Asp Ser Gln Ser Asn Asn Tyr Gln Asn Leu

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Pro Val Gln Asp Arg Asn Leu Met Leu Pro Asp Gly Pro Lys Pro Gln

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Glu Asp Gly Ser Phe Lys Arg Arg Tyr Pro Arg Arg Ser Ala Arg Ala
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Tyr Gly Glu Glu Asp Ile Pro Phe Tyr Ser Ser Ser Thr Gly Lys Lys
2675 2680 2685
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Ser Thr Ser Asp Glu Asp Asp Leu Tyr Tyr Tyr Asn Phe Thr Arg Thr

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Val Ile Ser Ser Gly Gly Glu Glu Arg Leu Ala Ser His Asn Leu Phe
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Arg Glu Glu Glu Gln Cys Asp Leu Pro Lys Ile Ser Gln Leu Asp Gly
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Gln Leu Ser Ser Leu Glu Ser Ser Arg Arg Val His Thr Ser Thr Pro
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Leu Thr Ser Ser Val Ser Ser Thr Pro Ser Val Met Glu Thr Asn Thr

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Ser Val Leu Gly Pro Met Gly Gly Gly Leu Thr Leu Thr Thr Gly Leu

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Asn Pro Ser Leu Pro Thr Ser Gln Ser Leu Phe Pro Ser Ala Ser Lys

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Gly Leu Leu Pro Met Ser His His Gln His Leu His Ser Phe Pro Ala

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Ala Thr Gln Ser Ser Phe Pro Pro Asn Ile Ser Asn Pro Pro Ser Gly

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3235 3240 3245

Ser Gly Leu Lys Lys Arg Pro Ile Ser Arg Leu Gln Thr Arg Lys Asn

3250 3255 3260

Lys Lys Leu Ala Pro Ser Ser Thr Pro Ser Asn Ile Ala Pro Ser Asp

3265 3270 3275 3280

Val Val Ser Asn Met Thr Leu Ile Asn Phe Thr Pro Ser Gln Leu Pro

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Asn His Pro Ser Leu Leu Asp Leu Gly Ser Leu Asn Thr Ser Ser His

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Ala Ser Pro Ser Gly Glu Ala Asp Glu His Tyr Gln Leu Gln His Val

3475 3480 3485

Asn Gln Leu Leu Ala Ser Lys Thr Gly Ile His Ser Ser Gln Arg Asp

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Leu Asp Ser Ala Ser Gly Pro Gln Val Ser Asn Phe Thr Gln Thr Val

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Ala Val Gln Ala Ser Pro Thr Ser Pro Gly Gly Ser Pro Ser Ser Pro

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Ser Ser Gly Gln Arg Ser Ala Ser Pro Ser Val Pro Gly Pro Thr Lys

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Pro Lys Pro Lys Thr Lys Arg Phe Gln Leu Pro Leu Asp Lys Gly Asn

3570 3575 3580

Gly Lys Lys His Lys Val Ser His Leu Arg Thr Ser Ser Ser Glu Ala

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His Ile Pro Asp Gln Glu Thr Thr Ser Leu Thr Ser Gly Thr Gly Thr

3605 3610 3615

Pro Gly Ala Glu Ala Glu Gln Gln Asp Thr Ala Ser Val Glu Gln Ser

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Ser Gln Lys Glu Cys Gly Gln Pro Ala Gly Gln Val Ala Val Leu Pro

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Glu Val Gln Val Thr Gln Asn Pro Ala Asn Glu Gln Glu Ser Ala Glu

3650 3655 3660

Pro Lys Thr Val Glu Glu Glu Glu Ser Asn Phe Ser Ser Pro Leu Met

3665 3670 3675 3680

Leu Trp Leu Gln Gln Glu Gln Lys Arg Lys Glu Ser Ile Thr Glu Lys

3685 3690 3695

Lys Pro Lys Lys Gly Leu Val Phe Glu Ile Ser Ser Asp Asp Gly Phe

3700 3705 3710

Gln Ile Cys Ala Glu Ser Ile Glu Asp Ala Trp Lys Ser Leu Thr Asp

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Ala Gly Val Asn Gly Leu Arg Met Leu Gly Ile Leu His Asp Ala Val

3745 3750 3755 3760

Val Phe Leu Ile Glu Gln Leu Ser Gly Ala Lys His Cys Arg Asn Tyr

3765 3770 3775

Lys Phe Arg Phe His Lys Pro Glu Glu Ala Asn Glu Pro Pro Leu Asn

3780 3785 3790

Pro His Gly Ser Ala Arg Ala Glu Val His Leu Arg Lys Ser Ala Phe

3795 3800 3805

Asp Met Phe Asn Phe Leu Ala Ser Lys His Arg Gln Pro Pro Glu Tyr

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Asn Pro Asn Asp Glu Glu Glu Glu Glu Val Gln Leu Lys Ser Ala Arg

3825 3830 3835 3840

Arg Ala Thr Ser Met Asp Leu Pro Met Pro Met Arg Phe Arg His Leu

3845 3850 3855

Lys Lys Thr Ser Lys Glu Ala Val Gly Val Tyr Arg Ser Pro Ile His

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Leu Asn

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<211> 3166

<212> PRT

<213> Homo sapiens

<400> 79

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20 25 30
Gln Arg Val Pro Ala Leu Leu Leu Pro Pro Gly Pro Pro Val Gly Gly
35 40 45
Gly Gly Pro Gly Ala Pro Pro Ser Pro Pro Ala Val Ala Ala Ala Ala

50 55 60
Ala Ala Ala Gly Ser Ser Gly Ala Gly Val Pro Gly Gly Ala Ala Ala
65 70 75 80
Ala Ser Ala Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser

85 90 95

Ser Ser Ala Ser Ser Gly Pro Ala Leu Leu Arg Val Gly Pro Gly Phe

100 105 110

Asp Ala Ala Leu Gln Val Ser Ala Ala Ile Gly Thr Asn Leu Arg Arg

115 120 125

Phe Arg Ala Val Phe Gly Glu Ser Gly Gly Gly Gly Gly Ser Gly Glu

130 135 140

Leu Thr Thr Gln Ile Pro Cys Ser Trp Arg Thr Lys Gly His Ile His

145 150 155 160

Asp Lys Lys Thr Glu Pro Phe Arg Leu Leu Ala Trp Ser Trp Cys Leu

165 170 175

Asn Asp Glu Gln Phe Leu Gly Phe Gly Ser Asp Glu Glu Val Arg Val

180 185 190

Arg Ser Pro Thr Arg Ser Pro Ser Gly Ser Met Leu Ala Gln Ala Asp

195 200 205

Lys Leu Pro Met Thr Asp Lys Arg Val Ala Ser Leu Leu Lys Lys Ala

210 215 220

Lys Ala Gln Leu Cys Lys Ile Glu Lys Ser Lys Ser Leu Lys Gln Thr

225 230 235 240

Asp Gln Pro Lys Ala Gln Gly Gln Glu Ser Asp Ser Ser Glu Thr Ser

245 250 255

Val Arg Gly Pro Arg Ile Lys His Val Cys Arg Arg Ala Ala Val Ala

260 265 270

Leu Gly Arg Lys Arg Ala Val Phe Pro Asp Asp Met Pro Thr Leu Ser

275 280 285

Ala Leu Pro Trp Glu Glu Arg Glu Lys Ile Leu Ser Ser Met Gly Asn

290 295 300

Asp Asp Lys Ser Ser Ile Ala Gly Ser Glu Asp Ala Glu Pro Leu Ala

305 310 315 320

Pro Pro Ile Lys Pro Ile Lys Pro Val Thr Arg Asn Lys Ala Pro Gln

325 330 335

Glu Pro Pro Val Lys Lys Gly Arg Arg Ser Arg Arg Cys Gly Gln Cys

340 345 350

Pro Gly Cys Gln Val Pro Glu Asp Cys Gly Val Cys Thr Asn Cys Leu

355 360 365

Asp Lys Pro Lys Phe Gly Gly Arg Asn Ile Lys Lys Gln Cys Cys Lys

370 375 380

Met Arg Lys Cys Gln Asn Leu Gln Trp Met Pro Ser Lys Ala Tyr Leu

385 390 395 400

Gln Lys Gln Ala Lys Ala Val Lys Lys Lys Glu Lys Lys Ser Lys Thr

405 410 415

Ser Glu Lys Lys Asp Ser Lys Glu Ser Ser Val Val Lys Asn Val Val

420 425 430

Asp Ser Ser Gln Lys Pro Thr Pro Ser Ala Arg Glu Asp Pro Ala Pro

435 440 445

Lys Lys Ser Ser Ser Glu Pro Pro Pro Arg Lys Pro Val Glu Glu Lys

450 455 460

Ser Glu Glu Gly Asn Val Ser Ala Pro Gly Pro Glu Ser Lys Gln Ala

465 470 475 480

Thr Thr Pro Ala Ser Arg Lys Ser Ser Lys Gln Val Ser Gln Pro Ala

485 490 495

Leu Val Ile Pro Pro Gln Pro Pro Thr Thr Gly Pro Pro Arg Lys Glu

500 505 510

Val Pro Lys Thr Thr Pro Ser Glu Pro Lys Lys Lys Gln Pro Pro Pro

515 520 525

Pro Glu Ser Gly Pro Glu Gln Ser Lys Gln Lys Lys Val Ala Pro Arg

530 535 540

Pro Ser Ile Pro Val Lys Gln Lys Pro Lys Glu Lys Glu Lys Pro Pro

545 550 555 560

Pro Val Asn Lys Gln Glu Asn Ala Gly Thr Leu Asn Ile Leu Ser Thr

565 570 575

Leu Ser Asn Gly Asn Ser Ser Lys Gln Lys Ile Pro Ala Asp Gly Val

580 585 590

His Arg Ile Arg Val Asp Phe Lys Glu Asp Cys Glu Ala Glu Asn Val

595 600 605

Trp Glu Met Gly Gly Leu Gly Ile Leu Thr Ser Val Pro Ile Thr Pro

610 615 620

Arg Val Val Cys Phe Leu Cys Ala Ser Ser Gly His Val Glu Phe Val

625 630 635 640

Tyr Cys Gln Val Cys Cys Glu Pro Phe His Lys Phe Cys Leu Glu Glu

645 650 655

Asn Glu Arg Pro Leu Glu Asp Gln Leu Glu Asn Trp Cys Cys Arg Arg

660 665 670

Cys Lys Phe Cys His Val Cys Gly Arg Gln His Gln Ala Thr Lys Gln

675 680 685

Leu Leu Glu Cys Asn Lys Cys Arg Asn Ser Tyr His Pro Glu Cys Leu

690 695 700

Gly Pro Asn Tyr Pro Thr Lys Pro Thr Lys Lys Lys Lys Val Trp Ile

705 710 715 720

Cys Thr Lys Cys Val Arg Cys Lys Ser Cys Gly Ser Thr Thr Pro Gly

725 730 735

Lys Gly Trp Asp Ala Gln Trp Ser His Asp Phe Ser Leu Cys His Asp

740 745 750

Cys Ala Lys Leu Phe Ala Lys Gly Asn Phe Cys Pro Leu Cys Asp Lys

755 760 765

Cys Tyr Asp Asp Asp Asp Tyr Glu Ser Lys Met Met Gln Cys Gly Lys

770 775 780

Cys Asp Arg Trp Val His Ser Lys Cys Glu Asn Leu Ser Gly Thr Glu

785 790 795 800

Asp Glu Met Tyr Glu Ile Leu Ser Asn Leu Pro Glu Ser Val Ala Tyr

805 810 815

Thr Cys Val Asn Cys Thr Glu Arg His Pro Ala Glu Trp Arg Leu Ala

820 825 830

Leu Glu Lys Glu Leu Gln Ile Ser Leu Lys Gln Val Leu Thr Ala Leu

835 840 845

Leu Asn Ser Arg Thr Thr Ser His Leu Leu Arg Tyr Arg Gln Ala Ala
850 855 860
Lys Pro Pro Asp Leu Asn Pro Glu Thr Glu Glu Ser Ile Pro Ser Arg
865 870 875 880
Ser Ser Pro Glu Gly Pro Asp Pro Pro Val Leu Thr Glu Val Ser Lys
885 890 895
Gln Asp Asp Gln Gln Pro Leu Asp Leu Glu Gly Val Lys Arg Lys Met
900 905 910
Asp Gln Gly Asn Tyr Thr Ser Val Leu Glu Phe Ser Asp Asp Ile Val

915 920 925
Lys Ile Ile Gln Ala Ala Ile Asn Ser Asp Gly Gly Gln Pro Glu Ile
930 935 940
Lys Lys Ala Asn Ser Met Val Lys Ser Phe Phe Ile Arg Gln Met Glu
945 950 955 960
Arg Val Phe Pro Trp Phe Ser Val Lys Lys Ser Arg Phe Trp Glu Pro
965 970 975
Asn Lys Val Ser Ser Asn Ser Gly Met Leu Pro Asn Ala Val Leu Pro
980 985 990

Pro Ser Leu Asp His Asn Tyr Ala Gln Trp Gln Glu Arg Glu Glu Asn
995 1000 1005
Ser His Thr Glu Gln Pro Pro Leu Met Lys Lys Ile Ile Pro Ala Pro
1010 1015 1020
Lys Pro Lys Gly Pro Gly Glu Pro Asp Ser Pro Thr Pro Leu His Pro
1025 1030 1035 1040
Pro Thr Pro Pro Ile Leu Ser Thr Asp Arg Ser Arg Glu Asp Ser Pro
1045 1050 1055
Glu Leu Asn Pro Pro Pro Gly Ile Glu Asp Asn Arg Gln Cys Ala Leu

1060 1065 1070
Cys Leu Thr Tyr Gly Asp Asp Ser Ala Asn Asp Ala Gly Arg Leu Leu
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Tyr Ile Gly Gln Asn Glu Trp Thr His Val Asn Cys Ala Leu Trp Ser
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Ala Glu Val Phe Glu Asp Asp Asp Gly Ser Leu Lys Asn Val His Met
1105 1110 1115 1120
Ala Val Ile Arg Gly Lys Gln Leu Arg Cys Glu Phe Cys Gln Lys Pro
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Gly Ala Thr Val Gly Cys Cys Leu Thr Ser Cys Thr Ser Asn Tyr His
1140 1145 1150
Phe Met Cys Ser Arg Ala Lys Asn Cys Val Phe Leu Asp Asp Lys Lys
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Val Tyr Cys Gln Arg His Arg Asp Leu Ile Lys Gly Glu Val Val Pro
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Glu Asn Gly Phe Glu Val Phe Arg Arg Val Phe Val Asp Phe Glu Gly
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Ile Ser Leu Arg Arg Lys Phe Leu Asn Gly Leu Glu Pro Glu Asn Ile

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Thr Ser Phe Thr Glu Ser Ser Ser Lys Glu Ser Gln Asn Thr Ala Glu
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Ile Ile Ser Pro Pro Ser Pro Asp Arg Pro Pro His Ser Gln Thr Ser
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Gly Ser Cys Tyr Tyr His Val Ile Ser Lys Val Pro Arg Ile Arg Thr
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Pro Ser Tyr Ser Pro Thr Gln Arg Ser Pro Gly Cys Arg Pro Leu Pro

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Ser Ala Gly Ser Pro Thr Pro Thr Thr His Glu Ile Val Thr Val Gly

1365 1370 1375

Asp Pro Leu Leu Ser Ser Gly Leu Arg Ser Ile Gly Ser Arg Arg His

1380 1385 1390

Ser Thr Ser Ser Leu Ser Pro Gln Arg Ser Lys Leu Arg Ile Met Ser

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Pro Met Arg Thr Gly Asn Thr Tyr Ser Arg Asn Asn Val Ser Ser Val

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Ser Thr Thr Gly Thr Ala Thr Asp Leu Glu Ser Ser Ala Lys Val Val

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Asp His Val Leu Gly Pro Leu Asn Ser Ser Thr Ser Leu Gly Gln Asn

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Thr Ser Thr Ser Ser Asn Leu Gln Arg Thr Val Val Thr Val Gly Asn

1460 1465 1470

Lys Asn Ser His Leu Asp Gly Ser Ser Ser Ser Glu Met Lys Gln Ser

1475 1480 1485

Ser Ala Ser Asp Leu Val Ser Lys Ser Ser Ser Leu Lys Gly Glu Lys

1490 1495 1500

Thr Lys Val Leu Ser Ser Lys Ser Ser Glu Gly Ser Ala His Asn Val

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Ser Arg Glu Leu Asn Val Ser Lys Ile Gly Ser Phe Ala Glu Pro Ser

1540 1545 1550

Ser Val Ser Phe Ser Ser Lys Glu Ala Leu Ser Phe Pro His Leu His

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Leu Arg Gly Gln Arg Asn Asp Arg Asp Gln His Thr Asp Ser Thr Gln

1570 1575 1580

Ser Ala Asn Ser Ser Pro Asp Glu Asp Thr Glu Val Lys Thr Leu Lys

1585 1590 1595 1600

Leu Ser Gly Met Ser Asn Arg Ser Ser Ile Ile Asn Glu His Met Gly

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Thr Phe Lys Glu Lys His Ser Ser Lys Ser Phe Leu Glu Pro Gly Gln

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Val Thr Thr Gly Glu Glu Gly Asn Leu Lys Pro Glu Phe Met Asp Glu

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Val Leu Thr Pro Glu Tyr Met Gly Gln Arg Pro Cys Asn Asn Val Ser

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Leu Gln Ile Glu Ser Thr Ser Pro Thr Glu Pro Ile Ser Ala Ser Glu

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Asn Pro Gly Asp Gly Pro Val Ala Gln Pro Ser Pro Asn Asn Thr Ser

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Cys Gln Asp Ser Gln Ser Asn Asn Tyr Gln Asn Leu Pro Val Gln Asp

1780 1785 1790

Arg Asn Leu Met Leu Pro Asp Gly Pro Lys Pro Gln Glu Asp Gly Ser

1795 1800 1805

Phe Lys Arg Arg Tyr Pro Arg Arg Ser Ala Arg Ala Arg Ser Asn Met

1810 1815 1820

Phe Phe Gly Leu Thr Pro Leu Tyr Gly Val Arg Ser Tyr Gly Glu Glu

1825 1830 1835 1840

Asp Ile Pro Phe Tyr Ser Ser Ser Thr Gly Lys Lys Arg Gly Lys Arg

1845 1850 1855

Ser Ala Glu Gly Gln Val Asp Gly Ala Asp Asp Leu Ser Thr Ser Asp

1860 1865 1870

Glu Asp Asp Leu Tyr Tyr Tyr Asn Phe Thr Arg Thr Val Ile Ser Ser

1875 1880 1885

Gly Gly Glu Glu Arg Leu Ala Ser His Asn Leu Phe Arg Glu Glu Glu

1890 1895 1900

Gln Cys Asp Leu Pro Lys Ile Ser Gln Leu Asp Gly Val Asp Asp Gly

1905 1910 1915 1920

Thr Glu Ser Asp Thr Ser Val Thr Ala Thr Thr Arg Lys Ser Ser Gln

1925 1930 1935

Ile Pro Lys Arg Asn Gly Lys Glu Asn Gly Thr Glu Asn Leu Lys Ile

1940 1945 1950

Asp Arg Pro Glu Asp Ala Gly Glu Lys Glu His Val Thr Lys Ser Ser

1955 1960 1965

Val Gly His Lys Asn Glu Pro Lys Met Asp Asn Cys His Ser Val Ser

1970 1975 1980

Arg Val Lys Thr Gln Gly Gln Asp Ser Leu Glu Ala Gln Leu Ser Ser

1985 1990 1995 2000

Leu Glu Ser Ser Arg Arg Val His Thr Ser Thr Pro Ser Asp Lys Asn

2005 2010 2015

Leu Leu Asp Thr Tyr Asn Thr Glu Leu Leu Lys Ser Asp Ser Asp Asn

2020 2025 2030

Asn Asn Ser Asp Asp Cys Gly Asn Ile Leu Pro Ser Asp Ile Met Asp

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Phe Val Leu Lys Asn Thr Pro Ser Met Gln Ala Leu Gly Glu Ser Pro

2050 2055 2060

Glu Ser Ser Ser Ser Glu Leu Leu Asn Leu Gly Glu Gly Leu Gly Leu

2065 2070 2075 2080

Asp Ser Asn Arg Glu Lys Asp Met Gly Leu Phe Glu Val Phe Ser Gln

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Met Ser His His Gln His Leu His Ser Phe Pro Ala Ala Thr Gln Ser

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Ser Phe Pro Pro Asn Ile Ser Asn Pro Pro Ser Gly Leu Leu Ile Gly

2370 2375 2380

Val Gln Pro Pro Pro Asp Pro Gln Leu Leu Val Ser Glu Ser Ser Gln

2385 2390 2395 2400

Arg Thr Asp Leu Ser Thr Thr Val Ala Thr Pro Ser Ser Gly Leu Lys

2405 2410 2415

Lys Arg Pro Ile Ser Arg Leu Gln Thr Arg Lys Asn Lys Lys Leu Ala

2420 2425 2430

Pro Ser Ser Thr Pro Ser Asn Ile Ala Pro Ser Asp Val Val Ser Asn

2435 2440 2445

Met Thr Leu Ile Asn Phe Thr Pro Ser Gln Leu Pro Asn His Pro Ser

2450 2455 2460

Leu Leu Asp Leu Gly Ser Leu Asn Thr Ser Ser His Arg Thr Val Pro

2465 2470 2475 2480

Asn Ile Ile Lys Arg Ser Lys Ser Ser Ile Met Tyr Phe Glu Pro Ala

2485 2490 2495

Pro Leu Leu Pro Gln Ser Val Gly Gly Thr Ala Ala Thr Ala Ala Gly

2500 2505 2510

Thr Ser Thr Ile Ser Gln Asp Thr Ser His Leu Thr Ser Gly Ser Val

2515 2520 2525

Ser Gly Leu Ala Ser Ser Ser Ser Val Leu Asn Val Val Ser Met Gln

2530 2535 2540

Thr Thr Thr Thr Pro Thr Ser Ser Ala Ser Val Pro Gly His Val Thr

2545 2550 2555 2560

Leu Thr Asn Pro Arg Leu Leu Gly Thr Pro Asp Ile Gly Ser Ile Ser

2565 2570 2575

Asn Leu Leu Ile Lys Ala Ser Gln Gln Ser Leu Gly Ile Gln Asp Gln

2580 2585 2590

Pro Val Ala Leu Pro Pro Ser Ser Gly Met Phe Pro Gln Leu Gly Thr

2595 2600 2605

Ser Gln Thr Pro Ser Thr Ala Ala Ile Thr Ala Ala Ser Ser Ile Cys

2610 2615 2620

Val Leu Pro Ser Thr Gln Thr Thr Gly Ile Thr Ala Ala Ser Pro Ser

2625 2630 2635 2640

Gly Glu Ala Asp Glu His Tyr Gln Leu Gln His Val Asn Gln Leu Leu

2645 2650 2655

Ala Ser Lys Thr Gly Ile His Ser Ser Gln Arg Asp Leu Asp Ser Ala

2660 2665 2670

Ser Gly Pro Gln Val Ser Asn Phe Thr Gln Thr Val Asp Ala Pro Asn

2675 2680 2685

Ser Met Gly Leu Glu Gln Asn Lys Ala Leu Ser Ser Ala Val Gln Ala

2690 2695 2700

Ser Pro Thr Ser Pro Gly Gly Ser Pro Ser Ser Pro Ser Ser Gly Gln

2705 2710 2715 2720

Arg Ser Ala Ser Pro Ser Val Pro Gly Pro Thr Lys Pro Lys Pro Lys

2725 2730 2735

Thr Lys Arg Phe Gln Leu Pro Leu Asp Lys Gly Asn Gly Lys Lys His

2740 2745 2750

Lys Val Ser His Leu Arg Thr Ser Ser Ser Glu Ala His Ile Pro Asp

2755 2760 2765

Gln Glu Thr Thr Ser Leu Thr Ser Gly Thr Gly Thr Pro Gly Ala Glu

2770 2775 2780

Ala Glu Gln Gln Asp Thr Ala Ser Val Glu Gln Ser Ser Gln Lys Glu

2785 2790 2795 2800

Cys Gly Gln Pro Ala Gly Gln Val Ala Val Leu Pro Glu Val Gln Val

2805 2810 2815

Thr Gln Asn Pro Ala Asn Glu Gln Glu Ser Ala Glu Pro Lys Thr Val

2820 2825 2830

Glu Glu Glu Glu Ser Asn Phe Ser Ser Pro Leu Met Leu Trp Leu Gln

2835 2840 2845

Gln Glu Gln Lys Arg Lys Glu Ser Ile Thr Glu Lys Lys Pro Lys Lys

2850 2855 2860

Gly Leu Val Phe Glu Ile Ser Ser Asp Asp Gly Phe Gln Ile Cys Ala
2865 2870 2875 2880
Glu Ser Ile Glu Asp Ala Trp Lys Ser Leu Thr Asp Lys Val Gln Glu
2885 2890 2895
Ala Arg Ser Asn Ala Arg Leu Lys Gln Leu Ser Phe Ala Gly Val Asn
2900 2905 2910
Gly Leu Arg Met Leu Gly Ile Leu His Asp Ala Val Val Phe Leu Ile
2915 2920 2925
Glu Gln Leu Ser Gly Ala Lys His Cys Arg Asn Tyr Lys Phe Arg Phe

2930 2935 2940
His Lys Pro Glu Glu Ala Asn Glu Pro Pro Leu Asn Pro His Gly Ser
2945 2950 2955 2960
Ala Arg Ala Glu Val His Leu Arg Lys Ser Ala Phe Asp Met Phe Asn
2965 2970 2975
Phe Leu Ala Ser Lys His Arg Gln Pro Pro Glu Tyr Asn Pro Asn Asp
2980 2985 2990
Glu Glu Glu Glu Glu Val Gln Leu Lys Ser Ala Arg Arg Ala Thr Ser
2995 3000 3005

Met Asp Leu Pro Met Pro Met Arg Phe Arg His Leu Lys Lys Thr Ser
3010 3015 3020
Lys Glu Ala Val Gly Val Tyr Arg Ser Pro Ile His Gly Arg Gly Leu
3025 3030 3035 3040
Phe Cys Lys Arg Asn Ile Asp Ala Gly Glu Met Val Ile Glu Tyr Ala
3045 3050 3055
Gly Asn Val Ile Arg Ser Ile Gln Thr Asp Lys Arg Glu Lys Tyr Tyr
3060 3065 3070
Asp Ser Lys Gly Ile Gly Cys Tyr Met Phe Arg Ile Asp Asp Ser Glu

3075 3080 3085
Val Val Asp Ala Thr Met His Gly Asn Ala Ala Arg Phe Ile Asn His
3090 3095 3100

Ser Cys Glu Pro Asn Cys Tyr Ser Arg Val Ile Asn Ile Asp Gly Gln
3105 3110 3115 3120
Lys His Ile Val Ile Phe Ala Met Arg Lys Ile Tyr Arg Gly Glu Glu
3125 3130 3135
Leu Thr Tyr Asp Tyr Lys Phe Pro Ile Glu Asp Ala Ser Asn Lys Leu
3140 3145 3150

Pro Cys Asn Cys Gly Ala Lys Lys Cys Arg Lys Phe Leu Asn
3155 3160 3165

<210> 80
<211> 3117
<212> PRT
<213> Homo sapiens
<400> 80

Met Arg Ser Ser Lys Ser Lys Glu Val Pro Leu Pro Asn Pro Arg Asn
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Ser Gln Ser Lys Asp Thr Val Gln Ala Asp Ile Thr Thr Ser Trp Asp
20 25 30
Ala Leu Ser Gln Thr Lys Ala Ala Leu Arg His Ile Glu Asn Lys Leu

35 40 45
Glu Val Ala Pro Thr Ser Thr Ala Val Cys Asp Ser Val Met Asp Thr
50 55 60
Lys Lys Ser Ser Thr Ser Ala Thr Arg Lys Ile Ser Arg Lys Asp Gly
65 70 75 80
Arg Tyr Leu Asp Asp Ser Trp Val Asn Ala Pro Ile Ser Lys Ser Thr
85 90 95
Lys Ser Arg Lys Glu Lys Ser Arg Ser Pro Leu Arg Ala Thr Thr Leu
100 105 110

Glu Ser Asn Val Lys Lys Asn Asn Arg Val Glu Phe Arg Glu Pro Leu
115 120 125
Val Ser Tyr Arg Glu Ile His Gly Ala Pro Ser Asn Phe Ser Ser Ser
130 135 140
His Leu Glu Ser Lys His Val Tyr Cys Val Asp Val Asn Glu Glu Lys

145 150 155 160

Thr Glu Ser Gly Asn Trp Met Ile Gly Ser Arg Glu Glu Arg Asn Ile

165 170 175

Arg Ser Cys Asp Phe Glu Ser Ser Gln Ser Ser Val Ile Asn Asp Thr

180 185 190

Val Val Arg Phe Leu Asn Asp Arg Pro Ala Ile Asp Ala Leu Gln Asn

195 200 205

Ser Glu Cys Leu Ile Arg Met Gly Ala Ser Met Arg Thr Glu Glu Glu

210 215 220

Met Pro Asn Arg Thr Lys Gly Ser Glu Asn Asn Leu Lys Leu Ser Val

225 230 235 240

Asn Asn Met Ala His Asp Thr Asp Pro Lys Ala Leu Arg Leu Thr Asp

245 250 255

Ser Ser Pro Ser Ser Thr Ser Thr Ser Asn Ser Gln Arg Leu Asp Ile

260 265 270

Leu Lys Arg Arg Gln His Asp Val Lys Leu Glu Lys Leu Lys Glu Arg

275 280 285

Ile Arg Lys Gln Trp Glu His Ser Glu Glu Thr Asn Gly Arg Gly Gln

290 295 300

Lys Leu Gly His Ile Asp His Pro Val Met Val Val Asn Val Asp Asn

305 310 315 320

Ser Val Thr Ala Lys Val Arg Lys Val Ala Thr Ala Pro Pro Ala Pro

325 330 335

Ala Tyr Lys Gly Phe Asn Pro Ser Glu Thr Lys Ile Arg Thr Pro Asp

340 345 350

Gly Lys Val Trp Gln Glu Ala Glu Phe Gln Asn Met Ser Arg Glu Leu

355 360 365

Tyr Arg Asp Leu Ala Leu His Phe Ala Asp Asp Ile Ser Ile Lys Glu

370 375 380

Lys Pro Ala Glu Lys Ser Lys Glu Lys Lys Val Val Lys Pro Val Arg

385 390 395 400

Lys Val Gln Lys Val Ala Gln Leu Ser Ser Thr Glu Cys Arg Thr Gly
405 410 415
Ser Ser His Leu Ile Ser Thr Ser Ser Trp Arg Asp Gly Gln Lys Leu
420 425 430
Val Lys Lys Ile Leu Gly Pro Ala Pro Arg Met Glu Pro Lys Glu Gln
435 440 445
Arg Thr Ala Ser Ser Asp Arg Gly Gly Arg Glu Arg Thr Ala Lys Ser
450 455 460
Gly Gly His Ile Gly Arg Ala Glu Ser Asp Pro Arg Leu Asp Val Leu

465 470 475 480
His Arg His Leu Gln Arg Asn Ser Glu Arg Ser Arg Ser Lys Ser Arg
485 490 495
Ser Glu Asn Asn Ile Lys Lys Leu Ala Ser Ser Leu Pro Asp Asn Lys
500 505 510
Gln Glu Glu Asn Thr Ala Leu Asn Lys Asp Phe Leu Pro Ile Glu Ile
515 520 525
Arg Gly Ile Leu Asp Asp Leu Gln Leu Asp Ser Thr Ala His Thr Ala
530 535 540

Lys Gln Asp Thr Val Glu Leu Gln Asn Gln Lys Ser Ser Ala Pro Val
545 550 555 560
His Ala Pro Arg Ser His Ser Pro Val Lys Arg Lys Pro Asp Lys Ile
565 570 575
Thr Ala Asn Glu Asp Pro Pro Val Ile Ser Lys Arg Arg His Tyr Asp
580 585 590
Thr Asp Glu Val Arg Gln Tyr Ile Val Arg Gln Gln Glu Glu Arg Lys
595 600 605
Arg Lys Gln Asn Glu Glu Lys Lys Ala Gln Lys Glu Ala Thr Glu Gln

610 615 620
Lys Asn Lys Arg Leu Gln Glu Leu Tyr Arg Lys Gln Lys Glu Ala Phe
625 630 635 640
Thr Lys Val Lys Asn Val Pro Pro Ser Glu Pro Ser Ala Thr Arg Arg
645 650 655

Leu Gln Glu Thr Tyr Ser Lys Leu Leu Leu Glu Lys Thr Leu Leu Glu
660 665 670
Glu Pro Ser His Gln His Val Thr Gln Glu Thr Gln Ala Lys Pro Gly
675 680 685

Tyr Gln Pro Ser Gly Glu Ser Asp Lys Glu Asn Lys Val Gln Glu Arg
690 695 700
Pro Pro Ser Ala Ser Ser Ser Ser Asp Met Ser Leu Ser Glu Pro Pro
705 710 715 720
Gln Pro Leu Ala Arg Lys Asp Leu Met Glu Ser Thr Trp Met Gln Pro
725 730 735
Glu Arg Leu Ser Pro Gln Val His His Ser Gln Pro Gln Pro Phe Ala
740 745 750
Gly Thr Ala Gly Ser Leu Leu Ser His Leu Leu Ser Leu Glu His Val

755 760 765
Gly Ile Leu His Lys Asp Phe Glu Ser Ile Leu Pro Thr Arg Lys Asn
770 775 780
His Asn Met Ala Ser Arg Pro Leu Thr Phe Thr Pro Gln Pro Tyr Val
785 790 795 800
Thr Ser Pro Ala Ala Tyr Thr Asp Ala Leu Leu Lys Pro Ser Ala Ser
805 810 815
Gln Tyr Lys Ser Lys Leu Asp Arg Ile Glu Ala Leu Lys Ala Thr Ala
820 825 830

Ala Ser Leu Ser Ser Arg Ile Glu Ser Glu Ala Lys Lys Leu Ala Gly
835 840 845
Ala Ser Ile Asn Tyr Gly Ser Ala Trp Asn Thr Glu Tyr Asp Val Gln
850 855 860
Gln Ala Pro Gln Glu Asp Gly Pro Trp Thr Lys Ala Val Thr Pro Pro
865 870 875 880
Val Lys Asp Asp Asn Glu Asp Val Phe Ser Ala Arg Ile Gln Lys Met
885 890 895
Leu Gly Ser Cys Val Ser His Ala Thr Phe Asp Asp Asp Leu Pro Gly

900 905 910

Val Gly Asn Leu Ser Glu Phe Lys Lys Leu Pro Glu Met Ile Arg Pro

915 920 925

Gln Ser Ala Ile Ser Ser Phe Arg Val Arg Ser Pro Gly Pro Lys Pro

930 935 940

Glu Gly Leu Leu Ala Gln Leu Cys Lys Arg Gln Thr Asp Ser Ser Ser

945 950 955 960

Ser Asp Met Gln Ala Cys Ser Gln Asp Lys Ala Lys Ile Ser Leu Gly

965 970 975

Ser Ser Ile Asp Ser Val Ser Glu Gly Pro Leu Leu Ser Glu Gly Ser

980 985 990

Leu Ser Glu Glu Glu Gly Asp Gln Asp Gly Gln Pro Leu Leu Lys Val

995 1000 1005

Ala Glu Ile Leu Lys Glu Lys Glu Phe Cys Pro Gly Glu Arg Asn Ser

1010 1015 1020

Tyr Glu Pro Ile Lys Glu Phe Gln Lys Glu Ala Glu Lys Phe Leu Pro

1025 1030 1035 1040

Leu Phe Gly His Ile Gly Gly Thr Gln Ser Lys Gly Pro Trp Glu Glu

1045 1050 1055

Leu Ala Lys Gly Ser Pro His Ser Val Ile Asn Ile Phe Thr Lys Ser

1060 1065 1070

Tyr Gln Leu Tyr Gly Lys Gly Phe Glu Asp Lys Leu Asp Arg Gly Thr

1075 1080 1085

Ser Thr Ser Arg Pro Leu Asn Ala Thr Ala Thr Pro Leu Ser Gly Val

1090 1095 1100

Ser Tyr Glu Asp Asp Phe Val Ser Ser Pro Gly Thr Gly Thr Ser Thr

1105 1110 1115 1120

Glu Lys Lys Ser Thr Leu Glu Pro His Ser Thr Leu Ser Pro Gln Glu

1125 1130 1135

Asp His Ser Asn Arg Lys Ser Ala Tyr Asp Pro Ser Ser Val Asp Val

1140 1145 1150

Thr Ser Gln His Ser Ser Gly Ala Gln Ser Ala Ala Ser Ser Arg Ser

1155 1160 1165

Ser Thr Ser Ser Lys Gly Lys Lys Gly Lys Lys Glu Lys Thr Glu Trp

1170 1175 1180

Leu Asp Ser Phe Thr Gly Asn Val Gln Asn Ser Leu Leu Asp Glu Glu

1185 1190 1195 1200

Lys Ala Glu Arg Gly Ser His Gln Gly Lys Lys Ser Gly Thr Ser Ser

1205 1210 1215

Lys Leu Ser Val Lys Asp Phe Glu Gln Thr Leu Asp Thr Asp Ser Thr

1220 1225 1230

Leu Glu Asp Leu Ser Gly His Ser Val Ser Val Ser Ser Asp Lys Gly

1235 1240 1245

Arg Ser Gln Lys Thr Pro Thr Ser Pro Leu Ser Pro Ser Ser Gln Lys

1250 1255 1260

Ser Leu Gln Phe Asp Val Ala Gly Thr Ser Ser Glu Arg Ser Lys Ser

1265 1270 1275 1280

Ser Val Met Pro Pro Thr Ile Thr Gly Phe Lys Pro Asn Ala Pro Leu

1285 1290 1295

Thr Asp Leu Asn Pro Ala Ala Ser Arg Thr Thr Thr Glu Asn Met Ala

1300 1305 1310

Pro Ile Pro Gly Ser Lys Arg Phe Ser Pro Ala Gly Leu His His Arg

1315 1320 1325

Met Ala Ala Glu Leu Ser Tyr Leu Asn Ala Ile Glu Glu Ser Val Arg

1330 1335 1340

Gln Leu Ser Asp Val Glu Arg Val Arg Gly Ile Ser Leu Ala Gln Gln

1345 1350 1355 1360

Glu Ser Val Ser Leu Ala Gln Ile Ile Lys Ala Gln Gln Gln Arg His

1365 1370 1375

Glu Arg Asp Leu Ala Leu Leu Lys Leu Lys Ala Glu Gln Glu Ala Leu

1380 1385 1390

Glu Ser Gln Arg Gln Leu Glu Glu Thr Arg Asn Lys Ala Ala Gln Val

1395 1400 1405

His Ala Glu Ser Leu Gln Gln Val Val Gln Ser Gln Arg Glu Val Thr
1410 1415 1420
Glu Val Leu Gln Glu Ala Thr Cys Lys Ile Ala Ala Gln Gln Ser Glu
1425 1430 1435 1440
Thr Ala Arg Leu Thr Thr Asp Ala Ala Arg Gln Ile Cys Glu Met Ala
1445 1450 1455
Glu Leu Thr Arg Thr His Ile Ser Asp Ala Val Val Ala Ser Gly Ala
1460 1465 1470
Pro Leu Ala Ile Leu Tyr Asp His Gln Arg Gln His Leu Pro Asp Phe

1475 1480 1485
Val Lys Gln Leu Arg Thr Arg Thr Glu Thr Asp Arg Lys Ser Pro Ser
1490 1495 1500
Val Ser Leu Ser Gln Ser Lys Glu Gly Thr Leu Asp Ser Lys His Gln
1505 1510 1515 1520
Lys Tyr Ser Ala Ser Tyr Asp Ser Tyr Ser Glu Ser Ser Gly Tyr Lys
1525 1530 1535
Asn His Asp Arg Arg Ser Ser Ser Gly Ser Ser Arg Gln Glu Ser Pro
1540 1545 1550

Ser Val Pro Ser Cys Lys Glu Asn Glu Lys Lys Leu Asn Gly Glu Lys
1555 1560 1565
Ile Glu Ser Ser Ile Asp Glu Gln Val Gln Thr Ala Ala Asp Asp Ser
1570 1575 1580
Leu Arg Ser Asp Ser Val Pro Ser Leu Pro Asp Glu Lys Asp Ser Thr
1585 1590 1595 1600
Ser Ile Ala Thr Glu Tyr Ser Leu Lys Phe Asp Glu Ser Met Thr Glu
1605 1610 1615
Asp Glu Ile Glu Glu Gln Ser Phe Arg Ser Leu Leu Pro Ser Glu Ser

1620 1625 1630
His Arg Arg Phe Asn Met Glu Lys Arg Arg Gly His His Asp Asp Ser
1635 1640 1645
Asp Glu Glu Ala Ser Pro Glu Lys Thr Thr Leu Ser Thr Ala Lys Glu
1650 1655 1660

Leu Asn Met Pro Phe Ser Gly Gly Gln Asp Ser Phe Ser Lys Phe Thr
1665 1670 1675 1680
Met Glu Met Val Arg Gln Tyr Met Lys Glu Glu Glu Met Arg Ala Ala
1685 1690 1695

His Gln Ser Ser Leu Leu Arg Leu Arg Glu Lys Ala Leu Lys Glu Lys
1700 1705 1710
Thr Lys Ala Glu Leu Ala Trp Leu Glu His Gln Lys Lys His Leu Arg
1715 1720 1725
Asp Lys Gly Glu Asp Asp Lys Met Pro Pro Leu Arg Lys Lys Gln Arg
1730 1735 1740
Gly Leu Leu Leu Arg Leu Gln Gln Glu Lys Ala Glu Ile Lys Arg Leu
1745 1750 1755 1760
Gln Glu Ala Asn Lys Ala Ala Arg Lys Glu Arg Gln Leu Ile Leu Lys

1765 1770 1775
Gln Gln Glu Glu Ile Glu Lys Ile Arg Gln Thr Thr Ile Lys Leu Gln
1780 1785 1790
Glu Lys Leu Lys Ser Ala Gly Glu Ser Lys Leu Asp Ser His Ser Asp
1795 1800 1805
Asp Asp Thr Lys Asp Asn Lys Ala Thr Ser Pro Gly Pro Thr Asp Leu
1810 1815 1820
Glu Thr Arg Ser Pro Ser Pro Ile Ser Ile Ser Ser Ser Glu Thr Ser
1825 1830 1835 1840

Ser Ile Met Gln Lys Leu Lys Lys Met Arg Ser Arg Met Asp Glu Lys
1845 1850 1855
Phe Leu Thr Lys Arg Glu Gln Lys Leu Met Gln Arg Arg Gln His Ala
1860 1865 1870
Glu Glu Leu Leu Glu Trp Lys Arg Arg Leu Asp Ala Glu Glu Ala Glu
1875 1880 1885
Ile Arg Gln Met Glu Lys Gln Ala Leu Ala Ala Trp Asp Lys Glu Leu
1890 1895 1900
Ile Lys Pro Lys Thr Pro Lys Lys Glu Leu Glu Asp Gln Arg Thr Glu

1905 1910 1915 1920

Gln Lys Glu Ile Ala Ser Glu Glu Glu Ser Pro Val Pro Leu Tyr Ser

1925 1930 1935

His Leu Asn Ser Glu Ser Ser Ile Pro Glu Glu Leu Gly Ser Pro Ala

1940 1945 1950

Val Glu Tyr Val Pro Ser Glu Ser Ile Gly Gln Glu Gln Pro Gly Ser

1955 1960 1965

Pro Asp His Ser Ile Leu Thr Glu Glu Met Ile Cys Ser Gln Glu Leu

1970 1975 1980

Glu Ser Ser Thr Ser Pro Ser Lys His Ser Leu Pro Lys Ser Cys Thr

1985 1990 1995 2000

Ser Val Ser Lys Gln Glu Ser Ser Lys Gly Ser His Arg Thr Gly Gly

2005 2010 2015

Gln Cys His Leu Pro Ile Lys Ser His Gln His Cys Tyr Ser Trp Ser

2020 2025 2030

Asp Glu Ser Leu Ser Met Thr Gln Ser Glu Thr Thr Ser Asp Gln Ser

2035 2040 2045

Asp Ile Glu Gly Arg Ile Arg Ala Leu Lys Asp Glu Leu Arg Lys Arg

2050 2055 2060

Lys Ser Val Val Asn Gln Leu Lys Lys Glu Gln Lys Lys Arg Gln Lys

2065 2070 2075 2080

Glu Arg Leu Lys Ala Gln Glu Ala Ser Leu Ile Lys Gln Leu Glu Ser

2085 2090 2095

Tyr Asp Glu Phe Ile Lys Lys Thr Glu Ala Glu Leu Ser Gln Asp Leu

2100 2105 2110

Glu Thr Ser Pro Thr Ala Lys Pro Gln Ile Lys Thr Leu Ser Ser Ala

2115 2120 2125

Ser Glu Lys Pro Lys Ile Lys Pro Leu Thr Pro Leu His Arg Ser Glu

2130 2135 2140

Thr Ala Lys Asn Trp Lys Ser Leu Thr Glu Ser Glu Arg Ser Arg Gly

2145 2150 2155 2160

Ser Leu Glu Ser Ile Ala Glu His Val Asp Ala Ser Leu Ser Gly Ser

2165 2170 2175

Glu Arg Ser Val Ser Glu Arg Ser Leu Ser Ala Tyr Ala Lys Arg Val

2180 2185 2190

Asn Glu Trp Asp Ser Arg Thr Glu Asp Phe Gln Thr Pro Ser Pro Val

2195 2200 2205

Leu Arg Ser Ser Arg Lys Ile Arg Glu Glu Ser Gly Asp Ser Leu Glu

2210 2215 2220

Asn Val Pro Ala Leu His Leu Leu Lys Glu Leu Asn Ala Thr Ser Arg

2225 2230 2235 2240

Ile Leu Asp Met Ser Asp Gly Lys Val Gly Glu Ser Ser Lys Lys Ser

2245 2250 2255

Glu Ile Lys Glu Ile Glu Tyr Thr Lys Leu Lys Lys Ser Lys Ile Glu

2260 2265 2270

Asp Ala Phe Ser Lys Glu Gly Lys Ser Asp Val Leu Leu Lys Leu Val

2275 2280 2285

Leu Glu Gln Gly Asp Ser Ser Glu Ile Leu Ser Lys Lys Asp Leu Pro

2290 2295 2300

Leu Asp Ser Glu Asn Val Gln Lys Asp Leu Val Gly Leu Ala Ile Glu

2305 2310 2315 2320

Asn Leu His Lys Ser Glu Glu Met Leu Lys Glu Arg Gln Ser Asp Gln

2325 2330 2335

Asp Met Asn His Ser Pro Asn Ile Gln Ser Gly Lys Asp Ile His Glu

2340 2345 2350

Gln Lys Asn Thr Lys Glu Lys Asp Leu Ser Trp Ser Glu His Leu Phe

2355 2360 2365

Ala Pro Lys Glu Ile Pro Tyr Ser Glu Asp Phe Glu Val Ser Ser Phe

2370 2375 2380

Lys Lys Glu Ile Ser Ala Glu Leu Tyr Lys Asp Asp Phe Glu Val Ser

2385 2390 2395 2400

Ser Leu Leu Ser Leu Arg Lys Asp Ser Gln Ser Cys Arg Asp Lys Pro

2405 2410 2415

Gln Pro Met Arg Ser Ser Thr Ser Gly Ala Thr Ser Phe Gly Ser Asn
2420 2425 2430
Glu Glu Ile Ser Glu Cys Leu Ser Glu Lys Ser Leu Ser Ile His Ser
2435 2440 2445
Asn Val His Ser Asp Arg Leu Leu Glu Leu Lys Ser Pro Thr Glu Leu
2450 2455 2460
Met Lys Ser Lys Glu Arg Ser Asp Val Glu His Glu Gln Gln Val Thr
2465 2470 2475 2480
Glu Ser Pro Ser Leu Ala Ser Val Pro Thr Ala Asp Glu Leu Phe Asp

2485 2490 2495
Phe His Ile Gly Asp Arg Val Leu Ile Gly Asn Val Gln Pro Gly Ile
2500 2505 2510
Leu Arg Phe Lys Gly Glu Thr Ser Phe Ala Lys Gly Phe Trp Ala Gly
2515 2520 2525
Val Glu Leu Asp Lys Pro Glu Gly Asn Asn Asn Gly Thr Tyr Asp Gly
2530 2535 2540
Ile Ala Tyr Phe Glu Cys Lys Glu Lys His Gly Ile Phe Ala Pro Pro
2545 2550 2555 2560

Gln Lys Ile Ser His Ile Pro Glu Asn Phe Asp Asp Tyr Val Asp Ile
2565 2570 2575
Asn Glu Asp Glu Asp Cys Tyr Ser Asp Glu Arg Tyr Gln Cys Tyr Asn
2580 2585 2590
Gln Glu Gln Asn Asp Thr Glu Gly Pro Lys Asp Arg Glu Lys Asp Val
2595 2600 2605
Ser Glu Tyr Phe Tyr Glu Lys Ser Leu Pro Ser Val Asn Asp Ile Glu
2610 2615 2620
Ala Ser Val Asn Arg Ser Arg Ser Leu Lys Ile Glu Thr Asp Asn Val

2625 2630 2635 2640
Gln Asp Ile Ser Gly Val Leu Glu Ala His Val His Gln Gln Ser Ser
2645 2650 2655
Val Asp Ser Gln Ile Ser Ser Lys Glu Asn Lys Asp Leu Ile Ser Asp
2660 2665 2670

Ala Thr Glu Lys Val Ser Ile Ala Ala Glu Asp Asp Thr Leu Asp Asn
2675 2680 2685
Thr Phe Ser Glu Glu Leu Glu Lys Gln Gln Gln Phe Thr Glu Glu Glu
2690 2695 2700

Asp Asn Leu Tyr Ala Glu Ala Ser Glu Lys Leu Cys Thr Pro Leu Leu
2705 2710 2715 2720
Asp Leu Leu Thr Arg Glu Lys Asn Gln Leu Glu Ala Gln Leu Lys Ser
2725 2730 2735
Ser Leu Asn Glu Glu Lys Lys Ser Lys Gln Gln Leu Glu Lys Ile Ser
2740 2745 2750
Leu Leu Thr Asp Ser Leu Leu Lys Val Phe Val Lys Asp Thr Val Asn
2755 2760 2765
Gln Leu Gln Gln Ile Lys Lys Thr Arg Asp Glu Lys Ile Gln Leu Ser

2770 2775 2780
Asn Gln Glu Leu Leu Gly Asp Asp Gln Lys Lys Val Thr Pro Gln Asp
2785 2790 2795 2800
Leu Ser Gln Asn Val Glu Glu Gln Ser Pro Ser Ile Ser Gly Cys Phe
2805 2810 2815
Leu Ser Ser Glu Leu Glu Asp Glu Lys Glu Glu Ile Ser Ser Pro Asp
2820 2825 2830
Met Cys Pro Arg Pro Glu Ser Pro Val Phe Gly Ala Ser Gly Gln Glu
2835 2840 2845

Glu Leu Ala Lys Arg Leu Ala Glu Leu Glu Leu Ser Arg Glu Phe Leu
2850 2855 2860
Ser Ala Leu Gly Asp Asp Gln Asp Trp Phe Asp Glu Asp Phe Gly Leu
2865 2870 2875 2880
Ser Ser Ser His Lys Ile Gln Lys Asn Lys Ala Glu Glu Thr Ile Val
2885 2890 2895
Pro Leu Met Ala Glu Pro Lys Arg Val Thr Gln Gln Pro Cys Glu Thr
2900 2905 2910
Leu Leu Ala Val Pro His Thr Ala Glu Glu Val Glu Ile Leu Val His

2915 2920 2925

Asn Ala Ala Glu Glu Leu Trp Lys Trp Lys Glu Leu Gly His Asp Leu

2930 2935 2940

His Ser Ile Ser Ile Pro Thr Lys Leu Leu Gly Cys Ala Ser Lys Gly

2945 2950 2955 2960

Leu Asp Ile Glu Ser Thr Ser Lys Arg Val Tyr Lys Gln Ala Val Phe

2965 2970 2975

Asp Leu Thr Lys Glu Ile Phe Glu Glu Ile Phe Ala Glu Asp Pro Asn

2980 2985 2990

Leu Asn Gln Pro Val Trp Met Lys Pro Cys Arg Ile Asn Ser Ser Tyr

2995 3000 3005

Phe Arg Arg Val Lys Asn Pro Asn Asn Leu Asp Glu Ile Lys Ser Phe

3010 3015 3020

Ile Ala Ser Glu Val Leu Lys Leu Phe Ser Leu Lys Lys Glu Pro Asn

3025 3030 3035 3040

His Lys Thr Asp Trp Gln Lys Met Met Lys Phe Gly Arg Lys Lys Arg

3045 3050 3055

Asp Arg Val Asp His Ile Leu Val Gln Glu Leu His Glu Glu Glu Ala

3060 3065 3070

Gln Trp Val Asn Tyr Asp Glu Asp Glu Leu Cys Val Lys Met Gln Leu

3075 3080 3085

Ala Asp Gly Ile Phe Glu Thr Leu Ile Lys Asp Thr Ile Asp Val Leu

3090 3095 3100

Asn Gln Ile Ser Glu Lys Gln Gly Arg Met Leu Leu Val

3105 3110 3115

<210> 81

<211> 3189

<212> PRT

<213> Homo sapiens

<400> 81

Met Arg Ser Ser Lys Ser Lys Glu Val Pro Leu Pro Asn Pro Arg Asn

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Ser Gln Ser Lys Asp Thr Val Gln Ala Asp Ile Thr Thr Ser Trp Asp
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Ala Leu Ser Gln Thr Lys Ala Ala Leu Arg His Ile Glu Asn Lys Leu
35 40 45
Glu Val Ala Pro Thr Ser Thr Ala Val Cys Asp Ser Val Met Asp Thr
50 55 60
Lys Lys Ser Ser Thr Ser Ala Thr Arg Lys Ile Ser Arg Lys Asp Gly
65 70 75 80

Arg Tyr Leu Asp Asp Ser Trp Val Asn Ala Pro Ile Ser Lys Ser Thr
85 90 95
Lys Ser Arg Lys Glu Lys Ser Arg Ser Pro Leu Arg Ala Thr Thr Leu
100 105 110
Glu Ser Asn Val Lys Lys Asn Asn Arg Val Glu Phe Arg Glu Pro Leu
115 120 125
Val Ser Tyr Arg Glu Ile His Gly Ala Pro Ser Asn Phe Ser Ser Ser
130 135 140
His Leu Glu Ser Lys His Val Tyr Cys Val Asp Val Asn Glu Glu Lys

145 150 155 160
Thr Glu Ser Gly Asn Trp Met Ile Gly Ser Arg Glu Glu Arg Asn Ile
165 170 175
Arg Ser Cys Asp Phe Glu Ser Ser Gln Ser Ser Val Ile Asn Asp Thr
180 185 190
Val Val Arg Phe Leu Asn Asp Arg Pro Ala Ile Asp Ala Leu Gln Asn
195 200 205
Ser Glu Cys Leu Ile Arg Met Gly Ala Ser Met Arg Thr Glu Glu Glu
210 215 220

Met Pro Asn Arg Thr Lys Gly Ser Glu Asn Asn Leu Lys Leu Ser Val
225 230 235 240
Asn Asn Met Ala His Asp Thr Asp Pro Lys Ala Leu Arg Leu Thr Asp
245 250 255
Ser Ser Pro Ser Ser Thr Ser Thr Ser Asn Ser Gln Arg Leu Asp Ile
260 265 270

Leu Lys Arg Arg Gln His Asp Val Lys Leu Glu Lys Leu Lys Glu Arg
275 280 285
Ile Arg Lys Gln Trp Glu His Ser Glu Glu Thr Asn Gly Arg Gly Gln

290 295 300
Lys Leu Gly His Ile Asp His Pro Val Met Val Val Asn Val Asp Asn
305 310 315 320
Ser Val Thr Ala Lys Val Arg Lys Val Ala Thr Ala Pro Pro Ala Pro
325 330 335
Ala Tyr Lys Gly Phe Asn Pro Ser Glu Thr Lys Ile Arg Thr Pro Asp
340 345 350
Gly Lys Val Trp Gln Glu Ala Glu Phe Gln Asn Met Ser Arg Glu Leu
355 360 365

Tyr Arg Asp Leu Ala Leu His Phe Ala Asp Asp Ile Ser Ile Lys Glu
370 375 380
Lys Pro Ala Glu Lys Ser Lys Glu Lys Lys Val Val Lys Pro Val Arg
385 390 395 400
Lys Val Gln Lys Val Ala Gln Leu Ser Ser Thr Glu Cys Arg Thr Gly
405 410 415
Ser Ser His Leu Ile Ser Thr Ser Ser Trp Arg Asp Gly Gln Lys Leu
420 425 430
Val Lys Lys Ile Leu Gly Pro Ala Pro Arg Met Glu Pro Lys Glu Gln

435 440 445
Arg Thr Ala Ser Ser Asp Arg Gly Gly Arg Glu Arg Thr Ala Lys Ser
450 455 460
Gly Gly His Ile Gly Arg Ala Glu Ser Asp Pro Arg Leu Asp Val Leu
465 470 475 480
His Arg His Leu Gln Arg Asn Ser Glu Arg Ser Arg Ser Lys Ser Arg
485 490 495
Ser Glu Asn Asn Ile Lys Lys Leu Ala Ser Ser Leu Pro Asp Asn Lys
500 505 510

Gln Glu Glu Asn Thr Ala Leu Asn Lys Asp Phe Leu Pro Ile Glu Ile

515 520 525

Arg Gly Ile Leu Asp Asp Leu Gln Leu Asp Ser Thr Ala His Thr Ala

530 535 540

Lys Gln Asp Thr Val Glu Leu Gln Asn Gln Lys Ser Ser Ala Pro Val

545 550 555 560

His Ala Pro Arg Ser His Ser Pro Val Lys Arg Lys Pro Asp Lys Ile

565 570 575

Thr Ala Asn Glu Asp Pro Pro Val Ile Ser Lys Arg Arg His Tyr Asp

580 585 590

Thr Asp Glu Val Arg Gln Tyr Ile Val Arg Gln Gln Glu Glu Arg Lys

595 600 605

Arg Lys Gln Asn Glu Glu Lys Lys Ala Gln Lys Glu Ala Thr Glu Gln

610 615 620

Lys Asn Lys Arg Leu Gln Glu Leu Tyr Arg Lys Gln Lys Glu Ala Phe

625 630 635 640

Thr Lys Val Lys Asn Val Pro Pro Ser Glu Pro Ser Ala Thr Arg Arg

645 650 655

Leu Gln Glu Thr Tyr Ser Lys Leu Leu Leu Glu Lys Thr Leu Leu Glu

660 665 670

Glu Pro Ser His Gln His Val Thr Gln Glu Thr Gln Ala Lys Pro Gly

675 680 685

Tyr Gln Pro Ser Gly Glu Ser Asp Lys Glu Asn Lys Val Gln Glu Arg

690 695 700

Pro Pro Ser Ala Ser Ser Ser Ser Asp Met Ser Leu Ser Glu Pro Pro

705 710 715 720

Gln Pro Leu Ala Arg Lys Asp Leu Met Glu Ser Thr Trp Met Gln Pro

725 730 735

Glu Arg Leu Ser Pro Gln Val His His Ser Gln Pro Gln Pro Phe Ala

740 745 750

Gly Thr Ala Gly Ser Leu Leu Ser His Leu Leu Ser Leu Glu His Val

755 760 765

Gly Ile Leu His Lys Asp Phe Glu Ser Ile Leu Pro Thr Arg Lys Asn

770 775 780

His Asn Met Ala Ser Arg Pro Leu Thr Phe Thr Pro Gln Pro Tyr Val

785 790 795 800

Thr Ser Pro Ala Ala Tyr Thr Asp Ala Leu Leu Lys Pro Ser Ala Ser

805 810 815

Gln Tyr Lys Ser Lys Leu Asp Arg Ile Glu Ala Leu Lys Ala Thr Ala

820 825 830

Ala Ser Leu Ser Ser Arg Ile Glu Ser Glu Ala Lys Lys Leu Ala Gly

835 840 845

Ala Ser Ile Asn Tyr Gly Ser Ala Trp Asn Thr Glu Tyr Asp Val Gln

850 855 860

Gln Ala Pro Gln Glu Asp Gly Pro Trp Thr Lys Ala Val Thr Pro Pro

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Val Lys Asp Asp Asn Glu Asp Val Phe Ser Ala Arg Ile Gln Lys Met

885 890 895

Leu Gly Ser Cys Val Ser His Ala Thr Phe Asp Asp Asp Leu Pro Gly

900 905 910

Val Gly Asn Leu Ser Glu Phe Lys Lys Leu Pro Glu Met Ile Arg Pro

915 920 925

Gln Ser Ala Ile Ser Ser Phe Arg Val Arg Ser Pro Gly Pro Lys Pro

930 935 940

Glu Gly Leu Leu Ala Gln Leu Cys Lys Arg Gln Thr Asp Ser Ser Ser

945 950 955 960

Ser Asp Met Gln Ala Cys Ser Gln Asp Lys Ala Lys Ile Ser Leu Gly

965 970 975

Ser Ser Ile Asp Ser Val Ser Glu Gly Pro Leu Leu Ser Glu Gly Ser

980 985 990

Leu Ser Glu Glu Glu Gly Asp Gln Asp Gly Gln Pro Leu Leu Lys Val

995 1000 1005

Ala Glu Ile Leu Lys Glu Lys Glu Phe Cys Pro Gly Glu Arg Asn Ser

1010 1015 1020

Tyr Glu Pro Ile Lys Glu Phe Gln Lys Glu Ala Glu Lys Phe Leu Pro
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Leu Phe Gly His Ile Gly Gly Thr Gln Ser Lys Gly Pro Trp Glu Glu
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Leu Ala Lys Gly Ser Pro His Ser Val Ile Asn Ile Phe Thr Lys Ser
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Tyr Gln Leu Tyr Gly Lys Gly Phe Glu Asp Lys Leu Asp Arg Gly Thr
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Ser Tyr Glu Asp Asp Phe Val Ser Ser Pro Gly Thr Gly Thr Ser Thr
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Glu Lys Lys Ser Thr Leu Glu Pro His Ser Thr Leu Ser Pro Gln Glu
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1170 1175 1180
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Leu Glu Asp Leu Ser Gly His Ser Val Ser Val Ser Ser Asp Lys Gly
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Arg Ser Gln Lys Thr Pro Thr Ser Pro Leu Ser Pro Ser Ser Gln Lys
1250 1255 1260
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Ser Val Met Pro Pro Thr Ile Thr Gly Phe Lys Pro Asn Ala Pro Leu
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Gln Leu Ser Asp Val Glu Arg Val Arg Gly Ile Ser Leu Ala Gln Gln
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Glu Arg Asp Leu Ala Leu Leu Lys Leu Lys Ala Glu Gln Glu Ala Leu
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Glu Ser Gln Arg Gln Leu Glu Glu Thr Arg Asn Lys Ala Ala Gln Val
1395 1400 1405
His Ala Glu Ser Leu Gln Gln Val Val Gln Ser Gln Arg Glu Val Thr
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Glu Leu Thr Arg Thr His Ile Ser Asp Ala Val Val Ala Ser Gly Ala
1460 1465 1470
Pro Leu Ala Ile Leu Tyr Asp His Gln Arg Gln His Leu Pro Asp Phe
1475 1480 1485
Val Lys Gln Leu Arg Thr Arg Thr Glu Thr Asp Arg Lys Ser Pro Ser
1490 1495 1500
Val Ser Leu Ser Gln Ser Lys Glu Gly Thr Leu Asp Ser Lys His Gln
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Lys Tyr Ser Ala Ser Tyr Asp Ser Tyr Ser Glu Ser Ser Gly Tyr Lys

1525 1530 1535

Asn His Asp Arg Arg Ser Ser Ser Gly Ser Ser Arg Gln Glu Ser Pro

1540 1545 1550

Ser Val Pro Ser Cys Lys Glu Asn Glu Lys Lys Leu Asn Gly Glu Lys

1555 1560 1565

Ile Glu Ser Ser Ile Asp Glu Gln Val Gln Thr Ala Ala Asp Asp Ser

1570 1575 1580

Leu Arg Ser Asp Ser Val Pro Ser Leu Pro Asp Glu Lys Glu Thr Gly

1585 1590 1595 1600

Ser Cys Ser Val Thr Gln Ala Gly Leu Glu Leu Leu Ala Ser Arg Asp

1605 1610 1615

Pro Pro Thr Leu Ala Ser Gln Asn Ala Gly Ile Thr Asp Ser Thr Ser

1620 1625 1630

Ile Ala Thr Glu Tyr Ser Leu Lys Phe Asp Glu Ser Met Thr Glu Asp

1635 1640 1645

Glu Ile Glu Glu Gln Ser Phe Arg Ser Leu Leu Pro Ser Glu Ser His

1650 1655 1660

Arg Arg Phe Asn Met Glu Lys Arg Arg Gly His His Asp Asp Ser Asp

1665 1670 1675 1680

Glu Glu Ala Ser Pro Glu Lys Thr Thr Leu Ser Thr Ala Lys Glu Leu

1685 1690 1695

Asn Met Pro Phe Ser Gly Gly Gln Asp Ser Phe Ser Lys Phe Thr Met

1700 1705 1710

Glu Met Val Arg Gln Tyr Met Lys Glu Glu Glu Met Arg Ala Ala His

1715 1720 1725

Gln Ser Ser Leu Leu Arg Leu Arg Glu Lys Ala Leu Lys Glu Lys Thr

1730 1735 1740

Lys Ala Glu Leu Ala Trp Leu Glu His Gln Lys Lys His Leu Arg Asp

1745 1750 1755 1760

Lys Gly Glu Asp Asp Lys Met Pro Pro Leu Arg Lys Lys Gln Arg Gly

1765 1770 1775

Leu Leu Leu Arg Leu Gln Gln Glu Lys Ala Glu Ile Lys Arg Leu Gln

1780 1785 1790

Glu Ala Asn Lys Ala Ala Arg Lys Glu Arg Gln Leu Ile Leu Lys Gln

1795 1800 1805

Gln Glu Glu Ile Glu Lys Ile Arg Gln Thr Thr Ile Lys Leu Gln Glu

1810 1815 1820

Lys Leu Lys Ser Ala Gly Glu Ser Lys Leu Asp Ser His Ser Asp Asp

1825 1830 1835 1840

Asp Thr Lys Asp Asn Lys Ala Thr Ser Pro Gly Pro Thr Asp Leu Glu

1845 1850 1855

Thr Arg Ser Pro Ser Pro Ile Ser Ile Ser Ser Ser Glu Thr Ser Ser

1860 1865 1870

Ile Met Gln Lys Leu Lys Lys Met Arg Ser Arg Met Asp Glu Lys His

1875 1880 1885

Cys Ser Pro Val His Tyr Phe Phe Ser Val Phe Thr Ser His His Trp

1890 1895 1900

Ala Ser Leu Ser Val Cys Phe Pro Asn Leu His Pro Lys Phe Gln Leu

1905 1910 1915 1920

Tyr Ile Tyr Asn Gln Leu Val Arg Phe Leu Thr Lys Arg Glu Gln Lys

1925 1930 1935

Leu Met Gln Arg Arg Gln His Ala Glu Glu Leu Leu Glu Trp Lys Arg

1940 1945 1950

Arg Leu Asp Ala Glu Glu Ala Glu Ile Arg Gln Met Glu Lys Gln Ala

1955 1960 1965

Leu Ala Ala Trp Asp Lys Glu Leu Ile Lys Pro Lys Thr Pro Lys Lys

1970 1975 1980

Glu Leu Glu Asp Gln Arg Thr Glu Gln Lys Glu Ile Ala Ser Glu Glu

1985 1990 1995 2000

Glu Ser Pro Val Pro Leu Tyr Ser His Leu Asn Ser Glu Ser Ser Ile

2005 2010 2015

Pro Glu Glu Leu Gly Ser Pro Ala Val Glu Tyr Val Pro Ser Glu Ser

2020 2025 2030

Ile Gly Gln Glu Gln Pro Gly Ser Pro Asp His Ser Ile Leu Thr Glu
2035 2040 2045

Glu Met Ile Cys Ser Gln Glu Leu Glu Ser Ser Thr Ser Pro Ser Lys
2050 2055 2060

His Ser Leu Pro Lys Ser Cys Thr Ser Val Ser Lys Gln Glu Ser Ser
2065 2070 2075 2080

Lys Gly Ser His Arg Thr Gly Gly Gln Cys His Leu Pro Ile Lys Ser
2085 2090 2095

His Gln His Cys Tyr Ser Trp Ser Asp Glu Ser Leu Ser Met Thr Gln
2100 2105 2110

Ser Glu Thr Thr Ser Asp Gln Ser Asp Ile Glu Gly Arg Ile Arg Ala
2115 2120 2125

Leu Lys Asp Glu Leu Arg Lys Arg Lys Ser Val Val Asn Gln Leu Lys
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Lys Glu Gln Lys Lys Arg Gln Lys Glu Arg Leu Lys Ala Gln Glu Ala
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Ser Leu Ile Lys Gln Leu Glu Ser Tyr Asp Glu Phe Ile Lys Lys Thr
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Glu Ala Glu Leu Ser Gln Asp Leu Glu Thr Ser Pro Thr Ala Lys Pro
2180 2185 2190

Gln Ile Lys Thr Leu Ser Ser Ala Ser Glu Lys Pro Lys Ile Lys Pro
2195 2200 2205

Leu Thr Pro Leu His Arg Ser Glu Thr Ala Lys Asn Trp Lys Ser Leu
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Thr Glu Ser Glu Arg Ser Arg Gly Ser Leu Glu Ser Ile Ala Glu His
2225 2230 2235 2240

Val Asp Ala Ser Leu Ser Gly Ser Glu Arg Ser Val Ser Glu Arg Ser
2245 2250 2255

Leu Ser Ala Tyr Ala Lys Arg Val Asn Glu Trp Asp Ser Arg Thr Glu
2260 2265 2270

Asp Phe Gln Thr Pro Ser Pro Val Leu Arg Ser Ser Arg Lys Ile Arg
2275 2280 2285

Glu Glu Ser Gly Asp Ser Leu Glu Asn Val Pro Ala Leu His Leu Leu

2290 2295 2300

Lys Glu Leu Asn Ala Thr Ser Arg Ile Leu Asp Met Ser Asp Gly Lys

2305 2310 2315 2320

Val Gly Glu Ser Ser Lys Lys Ser Glu Ile Lys Glu Ile Glu Tyr Thr

2325 2330 2335

Lys Leu Lys Lys Ser Lys Ile Glu Asp Ala Phe Ser Lys Glu Gly Lys

2340 2345 2350

Ser Asp Val Leu Leu Lys Leu Val Leu Glu Gln Gly Asp Ser Ser Glu

2355 2360 2365

Ile Leu Ser Lys Lys Asp Leu Pro Leu Asp Ser Glu Asn Val Gln Lys

2370 2375 2380

Asp Leu Val Gly Leu Ala Ile Glu Asn Leu His Lys Ser Glu Glu Met

2385 2390 2395 2400

Leu Lys Glu Arg Gln Ser Asp Gln Asp Met Asn His Ser Pro Asn Ile

2405 2410 2415

Gln Ser Gly Lys Asp Ile His Glu Gln Lys Asn Thr Lys Glu Lys Asp

2420 2425 2430

Leu Ser Trp Ser Glu His Leu Phe Ala Pro Lys Glu Ile Pro Tyr Ser

2435 2440 2445

Glu Asp Phe Glu Val Ser Ser Phe Lys Lys Glu Ile Ser Ala Glu Leu

2450 2455 2460

Tyr Lys Asp Asp Phe Glu Val Ser Ser Leu Leu Ser Leu Arg Lys Asp

2465 2470 2475 2480

Ser Gln Ser Cys Arg Asp Lys Pro Gln Pro Met Arg Ser Ser Thr Ser

2485 2490 2495

Gly Ala Thr Ser Phe Gly Ser Asn Glu Glu Ile Ser Glu Cys Leu Ser

2500 2505 2510

Glu Lys Ser Leu Ser Ile His Ser Asn Val His Ser Asp Arg Leu Leu

2515 2520 2525

Glu Leu Lys Ser Pro Thr Glu Leu Met Lys Ser Lys Glu Arg Ser Asp

2530 2535 2540

Val Glu His Glu Gln Gln Val Thr Glu Ser Pro Ser Leu Ala Ser Val

2545 2550 2555 2560

Pro Thr Ala Asp Glu Leu Phe Asp Phe His Ile Gly Asp Arg Val Leu

2565 2570 2575

Ile Gly Asn Val Gln Pro Gly Ile Leu Arg Phe Lys Gly Glu Thr Ser

2580 2585 2590

Phe Ala Lys Gly Phe Trp Ala Gly Val Glu Leu Asp Lys Pro Glu Gly

2595 2600 2605

Asn Asn Asn Gly Thr Tyr Asp Gly Ile Ala Tyr Phe Glu Cys Lys Glu

2610 2615 2620

Lys His Gly Ile Phe Ala Pro Pro Gln Lys Ile Ser His Ile Pro Glu

2625 2630 2635 2640

Asn Phe Asp Asp Tyr Val Asp Ile Asn Glu Asp Glu Asp Cys Tyr Ser

2645 2650 2655

Asp Glu Arg Tyr Gln Cys Tyr Asn Gln Glu Gln Asn Asp Thr Glu Gly

2660 2665 2670

Pro Lys Asp Arg Glu Lys Asp Val Ser Glu Tyr Phe Tyr Glu Lys Ser

2675 2680 2685

Leu Pro Ser Val Asn Asp Ile Glu Ala Ser Val Asn Arg Ser Arg Ser

2690 2695 2700

Leu Lys Ile Glu Thr Asp Asn Val Gln Asp Ile Ser Gly Val Leu Glu

2705 2710 2715 2720

Ala His Val His Gln Gln Ser Ser Val Asp Ser Gln Ile Ser Ser Lys

2725 2730 2735

Glu Asn Lys Asp Leu Ile Ser Asp Ala Thr Glu Lys Val Ser Ile Ala

2740 2745 2750

Ala Glu Asp Asp Thr Leu Asp Asn Thr Phe Ser Glu Glu Leu Glu Lys

2755 2760 2765

Gln Gln Gln Phe Thr Glu Glu Glu Asp Asn Leu Tyr Ala Glu Ala Ser

2770 2775 2780

Glu Lys Leu Cys Thr Pro Leu Leu Asp Leu Leu Thr Arg Glu Lys Asn

2785 2790 2795 2800

Gln Leu Glu Ala Gln Leu Lys Ser Ser Leu Asn Glu Glu Lys Lys Ser

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Lys Gln Gln Leu Glu Lys Ile Ser Leu Leu Thr Asp Ser Leu Leu Lys

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Val Phe Val Lys Asp Thr Val Asn Gln Leu Gln Gln Ile Lys Lys Thr

2835 2840 2845

Arg Asp Glu Lys Ile Gln Leu Ser Asn Gln Glu Leu Leu Gly Asp Asp

2850 2855 2860

Gln Lys Lys Val Thr Pro Gln Asp Leu Ser Gln Asn Val Glu Glu Gln

2865 2870 2875 2880

Ser Pro Ser Ile Ser Gly Cys Phe Leu Ser Ser Glu Leu Glu Asp Glu

2885 2890 2895

Lys Glu Glu Ile Ser Ser Pro Asp Met Cys Pro Arg Pro Glu Ser Pro

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2930 2935 2940

Trp Phe Asp Glu Asp Phe Gly Leu Ser Ser Ser His Lys Ile Gln Lys

2945 2950 2955 2960

Asn Lys Ala Glu Glu Thr Ile Val Pro Leu Met Ala Glu Pro Lys Arg

2965 2970 2975

Val Thr Gln Gln Pro Cys Glu Thr Leu Leu Ala Val Pro His Thr Ala

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Glu Glu Val Glu Ile Leu Val His Asn Ala Ala Glu Glu Leu Trp Lys

2995 3000 3005

Trp Lys Glu Leu Gly His Asp Leu His Ser Ile Ser Ile Pro Thr Lys

3010 3015 3020

Leu Leu Gly Cys Ala Ser Lys Gly Leu Asp Ile Glu Ser Thr Ser Lys

3025 3030 3035 3040

Arg Val Tyr Lys Gln Ala Val Phe Asp Leu Thr Lys Glu Ile Phe Glu
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Glu Ile Phe Ala Glu Asp Pro Asn Leu Asn Gln Pro Val Trp Met Lys
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Pro Cys Arg Ile Asn Ser Ser Tyr Phe Arg Arg Val Lys Asn Pro Asn
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Asn Leu Asp Glu Ile Lys Ser Phe Ile Ala Ser Glu Val Leu Lys Leu
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Phe Ser Leu Lys Lys Glu Pro Asn His Lys Thr Asp Trp Gln Lys Met
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Ala Leu Ser Gln Thr Lys Ala Ala Leu Arg His Ile Glu Asn Lys Leu
35 40 45

Glu Val Ala Pro Thr Ser Thr Ala Val Cys Asp Ser Val Met Asp Thr

50 55 60

Lys Lys Ser Ser Thr Ser Ala Thr Arg Lys Ile Ser Arg Lys Asp Gly

65 70 75 80

Arg Tyr Leu Asp Asp Ser Trp Val Asn Ala Pro Ile Ser Lys Ser Thr

85 90 95

Lys Ser Arg Lys Glu Lys Ser Arg Ser Pro Leu Arg Ala Thr Thr Leu

100 105 110

Glu Ser Asn Val Lys Lys Asn Asn Arg Val Glu Phe Arg Glu Pro Leu

115 120 125

Val Ser Tyr Arg Glu Ile His Gly Ala Pro Ser Asn Phe Ser Ser Ser

130 135 140

His Leu Glu Ser Lys His Val Tyr Cys Val Asp Val Asn Glu Glu Lys

145 150 155 160

Thr Glu Ser Gly Asn Trp Met Ile Gly Ser Arg Glu Glu Arg Asn Ile

165 170 175

Arg Ser Cys Asp Phe Glu Ser Ser Gln Ser Ser Val Ile Asn Asp Thr

180 185 190

Val Val Arg Phe Leu Asn Asp Arg Pro Ala Ile Asp Ala Leu Gln Asn

195 200 205

Ser Glu Cys Leu Ile Arg Met Gly Ala Ser Met Arg Thr Glu Glu Glu

210 215 220

Met Pro Asn Arg Thr Lys Gly Ser Glu Asn Asn Leu Lys Leu Ser Val

225 230 235 240

Asn Asn Met Ala His Asp Thr Asp Pro Lys Ala Leu Arg Leu Thr Asp

245 250 255

Ser Ser Pro Ser Ser Thr Ser Thr Ser Asn Ser Gln Arg Leu Asp Ile

260 265 270

Leu Lys Arg Arg Gln His Asp Val Lys Leu Glu Lys Leu Lys Glu Arg

275 280 285

Ile Arg Lys Gln Trp Glu His Ser Glu Glu Thr Asn Gly Arg Gly Gln

290 295 300

Lys Leu Gly His Ile Asp His Pro Val Met Val Val Asn Val Asp Asn

305 310 315 320

Ser Val Thr Ala Lys Val Arg Lys Val Ala Thr Ala Pro Pro Ala Pro

325 330 335

Ala Tyr Lys Gly Phe Asn Pro Ser Glu Thr Lys Ile Arg Thr Pro Asp

340 345 350

Gly Lys Val Trp Gln Glu Ala Glu Phe Gln Asn Met Ser Arg Glu Leu

355 360 365

Tyr Arg Asp Leu Ala Leu His Phe Ala Asp Asp Ile Ser Ile Lys Glu

370 375 380

Lys Pro Ala Glu Lys Ser Lys Glu Lys Lys Val Val Lys Pro Val Arg

385 390 395 400

Lys Val Gln Lys Val Ala Gln Leu Ser Ser Thr Glu Cys Arg Thr Gly

405 410 415

Ser Ser His Leu Ile Ser Thr Ser Ser Trp Arg Asp Gly Gln Lys Leu

420 425 430

Val Lys Lys Ile Leu Gly Pro Ala Pro Arg Met Glu Pro Lys Glu Gln

435 440 445

Arg Thr Ala Ser Ser Asp Arg Gly Gly Arg Glu Arg Thr Ala Lys Ser

450 455 460

Gly Gly His Ile Gly Arg Ala Glu Ser Asp Pro Arg Leu Asp Val Leu

465 470 475 480

His Arg His Leu Gln Arg Asn Ser Glu Arg Ser Arg Ser Lys Ser Arg

485 490 495

Ser Glu Asn Asn Ile Lys Lys Leu Ala Ser Ser Leu Pro Asp Asn Lys

500 505 510

Gln Glu Glu Asn Thr Ala Leu Asn Lys Asp Phe Leu Pro Ile Glu Ile

515 520 525

Arg Gly Ile Leu Asp Asp Leu Gln Leu Asp Ser Thr Ala His Thr Ala

530 535 540

Lys Gln Asp Thr Val Glu Leu Gln Asn Gln Lys Ser Ser Ala Pro Val

545 550 555 560

His Ala Pro Arg Ser His Ser Pro Val Lys Arg Lys Pro Asp Lys Ile
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Thr Ala Asn Glu Asp Pro Pro Val Ile Ser Lys Arg Arg His Tyr Asp
580 585 590
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595 600 605
Arg Lys Gln Asn Glu Glu Lys Lys Ala Gln Lys Glu Ala Thr Glu Gln
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Lys Asn Lys Arg Leu Gln Glu Leu Tyr Arg Lys Gln Lys Glu Ala Phe
625 630 635 640
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645 650 655
Leu Gln Glu Thr Tyr Ser Lys Leu Leu Leu Glu Lys Thr Leu Leu Glu
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Glu Pro Ser His Gln His Val Thr Gln Glu Thr Gln Ala Lys Pro Gly
675 680 685
Tyr Gln Pro Ser Gly Glu Ser Asp Lys Glu Asn Lys Val Gln Glu Arg

690 695 700
Pro Pro Ser Ala Ser Ser Ser Ser Asp Met Ser Leu Ser Glu Pro Pro
705 710 715 720
Gln Pro Leu Ala Arg Lys Asp Leu Met Glu Ser Thr Trp Met Gln Pro
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740 745 750
Gly Thr Ala Gly Ser Leu Leu Ser His Leu Leu Ser Leu Glu His Val
755 760 765

Gly Ile Leu His Lys Asp Phe Glu Ser Ile Leu Pro Thr Arg Lys Asn
770 775 780
His Asn Met Ala Ser Arg Pro Leu Thr Phe Thr Pro Gln Pro Tyr Val
785 790 795 800
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885 890 895
Leu Gly Ser Cys Val Ser His Ala Thr Phe Asp Asp Asp Leu Pro Gly
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Val Gly Asn Leu Ser Glu Phe Lys Lys Leu Pro Glu Met Ile Arg Pro
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Gln Ser Ala Ile Ser Ser Phe Arg Val Arg Ser Pro Gly Pro Lys Pro
930 935 940
Glu Gly Leu Leu Ala Gln Leu Cys Lys Arg Gln Thr Asp Ser Ser Ser
945 950 955 960
Ser Asp Met Gln Ala Cys Ser Gln Asp Lys Ala Lys Ile Ser Leu Gly
965 970 975
Ser Ser Ile Asp Ser Val Ser Glu Gly Pro Leu Leu Ser Glu Gly Ser

980 985 990
Leu Ser Glu Glu Glu Gly Asp Gln Asp Gly Gln Pro Leu Leu Lys Val
995 1000 1005
Ala Glu Ile Leu Lys Glu Lys Glu Phe Cys Pro Gly Glu Arg Asn Ser
1010 1015 1020
Tyr Glu Pro Ile Lys Glu Phe Gln Lys Glu Ala Glu Lys Phe Leu Pro
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Leu Phe Gly His Ile Gly Gly Thr Gln Ser Lys Gly Pro Trp Glu Glu
1045 1050 1055

Leu Ala Lys Gly Ser Pro His Ser Val Ile Asn Ile Phe Thr Lys Ser

1060 1065 1070

Tyr Gln Leu Tyr Gly Lys Gly Phe Glu Asp Lys Leu Asp Arg Gly Thr

1075 1080 1085

Ser Thr Ser Arg Pro Leu Asn Ala Thr Ala Thr Pro Leu Ser Gly Val

1090 1095 1100

Ser Tyr Glu Asp Asp Phe Val Ser Ser Pro Gly Thr Gly Thr Ser Thr

1105 1110 1115 1120

Glu Lys Lys Ser Thr Leu Glu Pro His Ser Thr Leu Ser Pro Gln Glu

1125 1130 1135

Asp His Ser Asn Arg Lys Ser Ala Tyr Asp Pro Ser Ser Val Asp Val

1140 1145 1150

Thr Ser Gln His Ser Ser Gly Ala Gln Ser Ala Ala Ser Ser Arg Ser

1155 1160 1165

Ser Thr Ser Ser Lys Gly Lys Lys Gly Lys Lys Glu Lys Thr Glu Trp

1170 1175 1180

Leu Asp Ser Phe Thr Gly Asn Val Gln Asn Ser Leu Leu Asp Glu Glu

1185 1190 1195 1200

Lys Ala Glu Arg Gly Ser His Gln Gly Lys Lys Ser Gly Thr Ser Ser

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Lys Leu Ser Val Lys Asp Phe Glu Gln Thr Leu Asp Thr Asp Ser Thr

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Leu Glu Asp Leu Ser Gly His Ser Val Ser Val Ser Ser Asp Lys Gly

1235 1240 1245

Arg Ser Gln Lys Thr Pro Thr Ser Pro Leu Ser Pro Ser Ser Gln Lys

1250 1255 1260

Ser Leu Gln Phe Asp Val Ala Gly Thr Ser Ser Glu Arg Ser Lys Ser

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Ser Val Met Pro Pro Thr Ile Thr Gly Phe Lys Pro Asn Ala Pro Leu

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Thr Asp Leu Asn Pro Ala Ala Ser Arg Thr Thr Thr Glu Asn Met Ala

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Pro Ile Pro Gly Ser Lys Arg Phe Ser Pro Ala Gly Leu His His Arg

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Met Ala Ala Glu Leu Ser Tyr Leu Asn Ala Ile Glu Glu Ser Val Arg

1330 1335 1340

Gln Leu Ser Asp Val Glu Arg Val Arg Gly Ile Ser Leu Ala Gln Gln

1345 1350 1355 1360

Glu Ser Val Ser Leu Ala Gln Ile Ile Lys Ala Gln Gln Gln Arg His

1365 1370 1375

Glu Arg Asp Leu Ala Leu Leu Lys Leu Lys Ala Glu Gln Glu Ala Leu

1380 1385 1390

Glu Ser Gln Arg Gln Leu Glu Glu Thr Arg Asn Lys Ala Ala Gln Val

1395 1400 1405

His Ala Glu Ser Leu Gln Gln Val Val Gln Ser Gln Arg Glu Val Thr

1410 1415 1420

Glu Val Leu Gln Glu Ala Thr Cys Lys Ile Ala Ala Gln Gln Ser Glu

1425 1430 1435 1440

Thr Ala Arg Leu Thr Thr Asp Ala Ala Arg Gln Ile Cys Glu Met Ala

1445 1450 1455

Glu Leu Thr Arg Thr His Ile Ser Asp Ala Val Val Ala Ser Gly Ala

1460 1465 1470

Pro Leu Ala Ile Leu Tyr Asp His Gln Arg Gln His Leu Pro Asp Phe

1475 1480 1485

Val Lys Gln Leu Arg Thr Arg Thr Glu Thr Asp Arg Lys Ser Pro Ser

1490 1495 1500

Val Ser Leu Ser Gln Ser Lys Glu Gly Thr Leu Asp Ser Lys His Gln

1505 1510 1515 1520

Lys Tyr Ser Ala Ser Tyr Asp Ser Tyr Ser Glu Ser Ser Gly Tyr Lys

1525 1530 1535

Asn His Asp Arg Arg Ser Ser Ser Gly Ser Ser Arg Gln Glu Ser Pro

1540 1545 1550

Ser Val Pro Ser Cys Lys Glu Asn Glu Lys Lys Leu Asn Gly Glu Lys

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Ile Glu Ser Ser Ile Asp Glu Gln Val Gln Thr Ala Ala Asp Asp Ser
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Ser Cys Ser Val Thr Gln Ala Gly Leu Glu Leu Leu Ala Ser Arg Asp
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Pro Pro Thr Leu Ala Ser Gln Asn Ala Gly Ile Thr Asp Ser Thr Ser
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Ile Ala Thr Glu Tyr Ser Leu Lys Phe Asp Glu Ser Met Thr Glu Asp
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Arg Arg Phe Asn Met Glu Lys Arg Arg Gly His His Asp Asp Ser Asp
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Glu Glu Ala Ser Pro Glu Lys Thr Thr Leu Ser Thr Ala Lys Glu Leu
1685 1690 1695
Asn Met Pro Phe Ser Gly Gly Gln Asp Ser Phe Ser Lys Phe Thr Met

1700 1705 1710
Glu Met Val Arg Gln Tyr Met Lys Glu Glu Glu Met Arg Ala Ala His
1715 1720 1725
Gln Ser Ser Leu Leu Arg Leu Arg Glu Lys Ala Leu Lys Glu Lys Thr
1730 1735 1740
Lys Ala Glu Leu Ala Trp Leu Glu His Gln Lys Lys His Leu Arg Asp
1745 1750 1755 1760
Lys Gly Glu Asp Asp Lys Met Pro Pro Leu Arg Lys Lys Gln Arg Gly
1765 1770 1775

Leu Leu Leu Arg Leu Gln Gln Glu Lys Ala Glu Ile Lys Arg Leu Gln
1780 1785 1790
Glu Ala Asn Lys Ala Ala Arg Lys Glu Arg Gln Leu Ile Leu Lys Gln
1795 1800 1805
Gln Glu Glu Ile Glu Lys Ile Arg Gln Thr Thr Ile Lys Leu Gln Glu
1810 1815 1820

Lys Leu Lys Ser Ala Gly Glu Ser Lys Leu Asp Ser His Ser Asp Asp
1825 1830 1835 1840
Asp Thr Lys Asp Asn Lys Ala Thr Ser Pro Gly Pro Thr Asp Leu Glu

1845 1850 1855
Thr Arg Ser Pro Ser Pro Ile Ser Ile Ser Ser Ser Glu Thr Ser Ser
1860 1865 1870
Ile Met Gln Lys Leu Lys Lys Met Arg Ser Arg Met Asp Glu Lys Phe
1875 1880 1885
Leu Thr Lys Arg Glu Gln Lys Leu Met Gln Arg Arg Gln His Ala Glu
1890 1895 1900
Glu Leu Leu Glu Trp Lys Arg Arg Leu Asp Ala Glu Glu Ala Glu Ile
1905 1910 1915 1920

Arg Gln Met Glu Lys Gln Ala Leu Ala Ala Trp Asp Lys Glu Leu Ile
1925 1930 1935
Lys Pro Lys Thr Pro Lys Lys Glu Leu Glu Asp Gln Arg Thr Glu Gln
1940 1945 1950
Lys Glu Ile Ala Ser Glu Glu Glu Ser Pro Val Pro Leu Tyr Ser His
1955 1960 1965
Leu Asn Ser Glu Ser Ser Ile Pro Glu Glu Leu Gly Ser Pro Ala Val
1970 1975 1980
Glu Tyr Val Pro Ser Glu Ser Ile Gly Gln Glu Gln Pro Gly Ser Pro

1985 1990 1995 2000
Asp His Ser Ile Leu Thr Glu Glu Met Ile Cys Ser Gln Glu Leu Glu
2005 2010 2015
Ser Ser Thr Ser Pro Ser Lys His Ser Leu Pro Lys Ser Cys Thr Ser
2020 2025 2030
Val Ser Lys Gln Glu Ser Ser Lys Gly Ser His Arg Thr Gly Gly Gln
2035 2040 2045
Cys His Leu Pro Ile Lys Ser His Gln His Cys Tyr Ser Trp Ser Asp
2050 2055 2060

Glu Ser Leu Ser Met Thr Gln Ser Glu Thr Thr Ser Asp Gln Ser Asp

2065 2070 2075 2080

Ile Glu Gly Arg Ile Arg Ala Leu Lys Asp Glu Leu Arg Lys Arg Lys

2085 2090 2095

Ser Val Val Asn Gln Leu Lys Lys Glu Gln Lys Lys Arg Gln Lys Glu

2100 2105 2110

Arg Leu Lys Ala Gln Glu Ala Ser Leu Ile Lys Gln Leu Glu Ser Tyr

2115 2120 2125

Asp Glu Phe Ile Lys Lys Thr Glu Ala Glu Leu Ser Gln Asp Leu Glu

2130 2135 2140

Thr Ser Pro Thr Ala Lys Pro Gln Ile Lys Thr Leu Ser Ser Ala Ser

2145 2150 2155 2160

Glu Lys Pro Lys Ile Lys Pro Leu Thr Pro Leu His Arg Ser Glu Thr

2165 2170 2175

Ala Lys Asn Trp Lys Ser Leu Thr Glu Ser Glu Arg Ser Arg Gly Ser

2180 2185 2190

Leu Glu Ser Ile Ala Glu His Val Asp Ala Ser Leu Ser Gly Ser Glu

2195 2200 2205

Arg Ser Val Ser Glu Arg Ser Leu Ser Ala Tyr Ala Lys Arg Val Asn

2210 2215 2220

Glu Trp Asp Ser Arg Thr Glu Asp Phe Gln Thr Pro Ser Pro Val Leu

2225 2230 2235 2240

Arg Ser Ser Arg Lys Ile Arg Glu Glu Ser Gly Asp Ser Leu Glu Asn

2245 2250 2255

Val Pro Ala Leu His Leu Leu Lys Glu Leu Asn Ala Thr Ser Arg Ile

2260 2265 2270

Leu Asp Met Ser Asp Gly Lys Val Gly Glu Ser Ser Lys Lys Ser Glu

2275 2280 2285

Ile Lys Glu Ile Glu Tyr Thr Lys Leu Lys Lys Ser Lys Ile Glu Asp

2290 2295 2300

Ala Phe Ser Lys Glu Gly Lys Ser Asp Val Leu Leu Lys Leu Val Leu

2305 2310 2315 2320

Glu Gln Gly Asp Ser Ser Glu Ile Leu Ser Lys Lys Asp Leu Pro Leu

2325 2330 2335

Asp Ser Glu Asn Val Gln Lys Asp Leu Val Gly Leu Ala Ile Glu Asn

2340 2345 2350

Leu His Lys Ser Glu Glu Met Leu Lys Glu Arg Gln Ser Asp Gln Asp

2355 2360 2365

Met Asn His Ser Pro Asn Ile Gln Ser Gly Lys Asp Ile His Glu Gln

2370 2375 2380

Lys Asn Thr Lys Glu Lys Asp Leu Ser Trp Ser Glu His Leu Phe Ala

2385 2390 2395 2400

Pro Lys Glu Ile Pro Tyr Ser Glu Asp Phe Glu Val Ser Ser Phe Lys

2405 2410 2415

Lys Glu Ile Ser Ala Glu Leu Tyr Lys Asp Asp Phe Glu Val Ser Ser

2420 2425 2430

Leu Leu Ser Leu Arg Lys Asp Ser Gln Ser Cys Arg Asp Lys Pro Gln

2435 2440 2445

Pro Met Arg Ser Ser Thr Ser Gly Ala Thr Ser Phe Gly Ser Asn Glu

2450 2455 2460

Glu Ile Ser Glu Cys Leu Ser Glu Lys Ser Leu Ser Ile His Ser Asn

2465 2470 2475 2480

Val His Ser Asp Arg Leu Leu Glu Leu Lys Ser Pro Thr Glu Leu Met

2485 2490 2495

Lys Ser Lys Glu Arg Ser Asp Val Glu His Glu Gln Gln Val Thr Glu

2500 2505 2510

Ser Pro Ser Leu Ala Ser Val Pro Thr Ala Asp Glu Leu Phe Asp Phe

2515 2520 2525

His Ile Gly Asp Arg Val Leu Ile Gly Asn Val Gln Pro Gly Ile Leu

2530 2535 2540

Arg Phe Lys Gly Glu Thr Ser Phe Ala Lys Gly Phe Trp Ala Gly Val

2545 2550 2555 2560

Glu Leu Asp Lys Pro Glu Gly Asn Asn Asn Gly Thr Tyr Asp Gly Ile

2565 2570 2575

Ala Tyr Phe Glu Cys Lys Glu Lys His Gly Ile Phe Ala Pro Pro Gln
2580 2585 2590

Lys Ile Ser His Ile Pro Glu Asn Phe Asp Asp Tyr Val Asp Ile Asn
2595 2600 2605

Glu Asp Glu Asp Cys Tyr Ser Asp Glu Arg Tyr Gln Cys Tyr Asn Gln
2610 2615 2620

Glu Gln Asn Asp Thr Glu Gly Pro Lys Asp Arg Glu Lys Asp Val Ser
2625 2630 2635 2640

Glu Tyr Phe Tyr Glu Lys Ser Leu Pro Ser Val Asn Asp Ile Glu Ala
2645 2650 2655

Ser Val Asn Arg Ser Arg Ser Leu Lys Ile Glu Thr Asp Asn Val Gln
2660 2665 2670

Asp Ile Ser Gly Val Leu Glu Ala His Val His Gln Gln Ser Ser Val
2675 2680 2685

Asp Ser Gln Ile Ser Ser Lys Glu Asn Lys Asp Leu Ile Ser Asp Ala
2690 2695 2700

Thr Glu Lys Val Ser Ile Ala Ala Glu Asp Asp Thr Leu Asp Asn Thr

2705 2710 2715 2720
Phe Ser Glu Glu Leu Glu Lys Gln Gln Gln Phe Thr Glu Glu Glu Asp
2725 2730 2735

Asn Leu Tyr Ala Glu Ala Ser Glu Lys Leu Cys Thr Pro Leu Leu Asp
2740 2745 2750

Leu Leu Thr Arg Glu Lys Asn Gln Leu Glu Ala Gln Leu Lys Ser Ser
2755 2760 2765

Leu Asn Glu Glu Lys Lys Ser Lys Gln Gln Leu Glu Lys Ile Ser Leu
2770 2775 2780

Leu Thr Asp Ser Leu Leu Lys Val Phe Val Lys Asp Thr Val Asn Gln
2785 2790 2795 2800
Leu Gln Gln Ile Lys Lys Thr Arg Asp Glu Lys Ile Gln Leu Ser Asn
2805 2810 2815

Gln Glu Leu Leu Gly Asp Asp Gln Lys Lys Val Thr Pro Gln Asp Leu
2820 2825 2830

Ser Gln Asn Val Glu Glu Gln Ser Pro Ser Ile Ser Gly Cys Phe Leu
2835 2840 2845
Ser Ser Glu Leu Glu Asp Glu Lys Glu Glu Ile Ser Ser Pro Asp Met

2850 2855 2860
Cys Pro Arg Pro Glu Ser Pro Val Phe Gly Ala Ser Gly Gln Glu Glu
2865 2870 2875 2880
Leu Ala Lys Arg Leu Ala Glu Leu Glu Leu Ser Arg Glu Phe Leu Ser
2885 2890 2895
Ala Leu Gly Asp Asp Gln Asp Trp Phe Asp Glu Asp Phe Gly Leu Ser
2900 2905 2910
Ser Ser His Lys Ile Gln Lys Asn Lys Ala Glu Glu Thr Ile Val Pro
2915 2920 2925

Leu Met Ala Glu Pro Lys Arg Val Thr Gln Gln Pro Cys Glu Thr Leu
2930 2935 2940
Leu Ala Val Pro His Thr Ala Glu Glu Val Glu Ile Leu Val His Asn
2945 2950 2955 2960
Ala Ala Glu Glu Leu Trp Lys Trp Lys Glu Leu Gly His Asp Leu His
2965 2970 2975
Ser Ile Ser Ile Pro Thr Lys Leu Leu Gly Cys Ala Ser Lys Gly Leu
2980 2985 2990
Asp Ile Glu Ser Thr Ser Lys Arg Val Tyr Lys Gln Ala Val Phe Asp

2995 3000 3005
Leu Thr Lys Glu Ile Phe Glu Glu Ile Phe Ala Glu Asp Pro Asn Leu
3010 3015 3020
Asn Gln Pro Val Trp Met Lys Pro Cys Arg Ile Asn Ser Ser Tyr Phe
3025 3030 3035 3040
Arg Arg Val Lys Asn Pro Asn Asn Leu Asp Glu Ile Lys Ser Phe Ile
3045 3050 3055
Ala Ser Glu Val Leu Lys Leu Phe Ser Leu Lys Lys Glu Pro Asn His
3060 3065 3070

Lys Thr Asp Trp Gln Lys Met Met Lys Phe Gly Arg Lys Lys Arg Asp

3075 3080 3085

Arg Val Asp His Ile Leu Val Gln Glu Leu His Glu Glu Glu Ala Gln

3090 3095 3100

Trp Val Asn Tyr Asp Glu Asp Glu Leu Cys Val Lys Met Gln Leu Ala

3105 3110 3115 3120

Asp Gly Ile Phe Glu Thr Leu Ile Lys Asp Thr Ile Asp Val Leu Asn

3125 3130 3135

Gln Ile Ser Glu Lys Gln Gly Arg Met Leu Leu Val

3140 3145

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<211> 3167

<212> PRT

<213> Homo sapiens

<400> 83

Met Arg Ser Ser Lys Ser Lys Glu Val Pro Leu Pro Asn Pro Arg Asn

1 5 10 15

Ser Gln Ser Lys Asp Thr Val Gln Ala Asp Ile Thr Thr Ser Trp Asp

20 25 30

Ala Leu Ser Gln Thr Lys Ala Ala Leu Arg His Ile Glu Asn Lys Leu

35 40 45

Glu Val Ala Pro Thr Ser Thr Ala Val Cys Asp Ser Val Met Asp Thr

50 55 60

Lys Lys Ser Ser Thr Ser Ala Thr Arg Lys Ile Ser Arg Lys Asp Gly

65 70 75 80

Arg Tyr Leu Asp Asp Ser Trp Val Asn Ala Pro Ile Ser Lys Ser Thr

85 90 95

Lys Ser Arg Lys Glu Lys Ser Arg Ser Pro Leu Arg Ala Thr Thr Leu

100 105 110

Glu Ser Asn Val Lys Lys Asn Asn Arg Val Glu Phe Arg Glu Pro Leu

115 120 125

Val Ser Tyr Arg Glu Ile His Gly Ala Pro Ser Asn Phe Ser Ser Ser

130 135 140

His Leu Glu Ser Lys His Val Tyr Cys Val Asp Val Asn Glu Glu Lys
145 150 155 160
Thr Glu Ser Gly Asn Trp Met Ile Gly Ser Arg Glu Glu Arg Asn Ile
165 170 175
Arg Ser Cys Asp Phe Glu Ser Ser Gln Ser Ser Val Ile Asn Asp Thr
180 185 190
Val Val Arg Phe Leu Asn Asp Arg Pro Ala Ile Asp Ala Leu Gln Asn

195 200 205
Ser Glu Cys Leu Ile Arg Met Gly Ala Ser Met Arg Thr Glu Glu Glu
210 215 220
Met Pro Asn Arg Thr Lys Gly Ser Glu Asn Asn Leu Lys Leu Ser Val
225 230 235 240
Asn Asn Met Ala His Asp Thr Asp Pro Lys Ala Leu Arg Leu Thr Asp
245 250 255
Ser Ser Pro Ser Ser Thr Ser Thr Ser Asn Ser Gln Arg Leu Asp Ile
260 265 270

Leu Lys Arg Arg Gln His Asp Val Lys Leu Glu Lys Leu Lys Glu Arg
275 280 285
Ile Arg Lys Gln Trp Glu His Ser Glu Glu Thr Asn Gly Arg Gly Gln
290 295 300
Lys Leu Gly His Ile Asp His Pro Val Met Val Val Asn Val Asp Asn
305 310 315 320
Ser Val Thr Ala Lys Val Arg Lys Val Ala Thr Ala Pro Pro Ala Pro
325 330 335
Ala Tyr Lys Gly Phe Asn Pro Ser Glu Thr Lys Ile Arg Thr Pro Asp

340 345 350
Gly Lys Val Trp Gln Glu Ala Glu Phe Gln Asn Met Ser Arg Glu Leu
355 360 365
Tyr Arg Asp Leu Ala Leu His Phe Ala Asp Asp Ile Ser Ile Lys Glu
370 375 380
Lys Pro Ala Glu Lys Ser Lys Glu Lys Lys Val Val Lys Pro Val Arg
385 390 395 400

Lys Val Gln Lys Val Ala Gln Leu Ser Ser Thr Glu Cys Arg Thr Gly
405 410 415

Ser Ser His Leu Ile Ser Thr Ser Ser Trp Arg Asp Gly Gln Lys Leu
420 425 430

Val Lys Lys Ile Leu Gly Pro Ala Pro Arg Met Glu Pro Lys Glu Gln
435 440 445

Arg Thr Ala Ser Ser Asp Arg Gly Gly Arg Glu Arg Thr Ala Lys Ser
450 455 460

Gly Gly His Ile Gly Arg Ala Glu Ser Asp Pro Arg Leu Asp Val Leu
465 470 475 480

His Arg His Leu Gln Arg Asn Ser Glu Arg Ser Arg Ser Lys Ser Arg
485 490 495

Ser Glu Asn Asn Ile Lys Lys Leu Ala Ser Ser Leu Pro Asp Asn Lys
500 505 510

Gln Glu Glu Asn Thr Ala Leu Asn Lys Asp Phe Leu Pro Ile Glu Ile
515 520 525

Arg Gly Ile Leu Asp Asp Leu Gln Leu Asp Ser Thr Ala His Thr Ala
530 535 540

Lys Gln Asp Thr Val Glu Leu Gln Asn Gln Lys Ser Ser Ala Pro Val
545 550 555 560

His Ala Pro Arg Ser His Ser Pro Val Lys Arg Lys Pro Asp Lys Ile
565 570 575

Thr Ala Asn Glu Asp Pro Pro Val Ile Ser Lys Arg Arg His Tyr Asp
580 585 590

Thr Asp Glu Val Arg Gln Tyr Ile Val Arg Gln Gln Glu Glu Arg Lys
595 600 605

Arg Lys Gln Asn Glu Glu Lys Lys Ala Gln Lys Glu Ala Thr Glu Gln
610 615 620

Lys Asn Lys Arg Leu Gln Glu Leu Tyr Arg Lys Gln Lys Glu Ala Phe
625 630 635 640

Thr Lys Val Lys Asn Val Pro Pro Ser Glu Pro Ser Ala Thr Arg Arg

645 650 655

Leu Gln Glu Thr Tyr Ser Lys Leu Leu Leu Glu Lys Thr Leu Leu Glu

660 665 670

Glu Pro Ser His Gln His Val Thr Gln Glu Thr Gln Ala Lys Pro Gly

675 680 685

Tyr Gln Pro Ser Gly Glu Ser Asp Lys Glu Asn Lys Val Gln Glu Arg

690 695 700

Pro Pro Ser Ala Ser Ser Ser Ser Asp Met Ser Leu Ser Glu Pro Pro

705 710 715 720

Gln Pro Leu Ala Arg Lys Asp Leu Met Glu Ser Thr Trp Met Gln Pro

725 730 735

Glu Arg Leu Ser Pro Gln Val His His Ser Gln Pro Gln Pro Phe Ala

740 745 750

Gly Thr Ala Gly Ser Leu Leu Ser His Leu Leu Ser Leu Glu His Val

755 760 765

Gly Ile Leu His Lys Asp Phe Glu Ser Ile Leu Pro Thr Arg Lys Asn

770 775 780

His Asn Met Ala Ser Arg Pro Leu Thr Phe Thr Pro Gln Pro Tyr Val

785 790 795 800

Thr Ser Pro Ala Ala Tyr Thr Asp Ala Leu Leu Lys Pro Ser Ala Ser

805 810 815

Gln Tyr Lys Ser Lys Leu Asp Arg Ile Glu Ala Leu Lys Ala Thr Ala

820 825 830

Ala Ser Leu Ser Ser Arg Ile Glu Ser Glu Ala Lys Lys Leu Ala Gly

835 840 845

Ala Ser Ile Asn Tyr Gly Ser Ala Trp Asn Thr Glu Tyr Asp Val Gln

850 855 860

Gln Ala Pro Gln Glu Asp Gly Pro Trp Thr Lys Ala Val Thr Pro Pro

865 870 875 880

Val Lys Asp Asp Asn Glu Asp Val Phe Ser Ala Arg Ile Gln Lys Met

885 890 895

Leu Gly Ser Cys Val Ser His Ala Thr Phe Asp Asp Asp Leu Pro Gly

900 905 910

Val Gly Asn Leu Ser Glu Phe Lys Lys Leu Pro Glu Met Ile Arg Pro

915 920 925

Gln Ser Ala Ile Ser Ser Phe Arg Val Arg Ser Pro Gly Pro Lys Pro

930 935 940

Glu Gly Leu Leu Ala Gln Leu Cys Lys Arg Gln Thr Asp Ser Ser Ser

945 950 955 960

Ser Asp Met Gln Ala Cys Ser Gln Asp Lys Ala Lys Ile Ser Leu Gly

965 970 975

Ser Ser Ile Asp Ser Val Ser Glu Gly Pro Leu Leu Ser Glu Gly Ser

980 985 990

Leu Ser Glu Glu Glu Gly Asp Gln Asp Gly Gln Pro Leu Leu Lys Val

995 1000 1005

Ala Glu Ile Leu Lys Glu Lys Glu Phe Cys Pro Gly Glu Arg Asn Ser

1010 1015 1020

Tyr Glu Pro Ile Lys Glu Phe Gln Lys Glu Ala Glu Lys Phe Leu Pro

1025 1030 1035 1040

Leu Phe Gly His Ile Gly Gly Thr Gln Ser Lys Gly Pro Trp Glu Glu

1045 1050 1055

Leu Ala Lys Gly Ser Pro His Ser Val Ile Asn Ile Phe Thr Lys Ser

1060 1065 1070

Tyr Gln Leu Tyr Gly Lys Gly Phe Glu Asp Lys Leu Asp Arg Gly Thr

1075 1080 1085

Ser Thr Ser Arg Pro Leu Asn Ala Thr Ala Thr Pro Leu Ser Gly Val

1090 1095 1100

Ser Tyr Glu Asp Asp Phe Val Ser Ser Pro Gly Thr Gly Thr Ser Thr

1105 1110 1115 1120

Glu Lys Lys Ser Thr Leu Glu Pro His Ser Thr Leu Ser Pro Gln Glu

1125 1130 1135

Asp His Ser Asn Arg Lys Ser Ala Tyr Asp Pro Ser Ser Val Asp Val

1140 1145 1150

Thr Ser Gln His Ser Ser Gly Ala Gln Ser Ala Ala Ser Ser Arg Ser
1155 1160 1165
Ser Thr Ser Ser Lys Gly Lys Lys Gly Lys Lys Glu Lys Thr Glu Trp
1170 1175 1180
Leu Asp Ser Phe Thr Gly Asn Val Gln Asn Ser Leu Leu Asp Glu Glu
1185 1190 1195 1200
Lys Ala Glu Arg Gly Ser His Gln Gly Lys Lys Ser Gly Thr Ser Ser

1205 1210 1215
Lys Leu Ser Val Lys Asp Phe Glu Gln Thr Leu Asp Thr Asp Ser Thr
1220 1225 1230
Leu Glu Asp Leu Ser Gly His Ser Val Ser Val Ser Ser Asp Lys Gly
1235 1240 1245
Arg Ser Gln Lys Thr Pro Thr Ser Pro Leu Ser Pro Ser Ser Gln Lys
1250 1255 1260
Ser Leu Gln Phe Asp Val Ala Gly Thr Ser Ser Glu Arg Ser Lys Ser
1265 1270 1275 1280

Ser Val Met Pro Pro Thr Ile Thr Gly Phe Lys Pro Asn Ala Pro Leu
1285 1290 1295
Thr Asp Leu Asn Pro Ala Ala Ser Arg Thr Thr Thr Glu Asn Met Ala
1300 1305 1310
Pro Ile Pro Gly Ser Lys Arg Phe Ser Pro Ala Gly Leu His His Arg
1315 1320 1325
Met Ala Ala Glu Leu Ser Tyr Leu Asn Ala Ile Glu Glu Ser Val Arg
1330 1335 1340
Gln Leu Ser Asp Val Glu Arg Val Arg Gly Ile Ser Leu Ala Gln Gln

1345 1350 1355 1360
Glu Ser Val Ser Leu Ala Gln Ile Ile Lys Ala Gln Gln Gln Arg His
1365 1370 1375
Glu Arg Asp Leu Ala Leu Leu Lys Leu Lys Ala Glu Gln Glu Ala Leu
1380 1385 1390
Glu Ser Gln Arg Gln Leu Glu Glu Thr Arg Asn Lys Ala Ala Gln Val
1395 1400 1405

His Ala Glu Ser Leu Gln Gln Val Val Gln Ser Gln Arg Glu Val Thr
1410 1415 1420

Glu Val Leu Gln Glu Ala Thr Cys Lys Ile Ala Ala Gln Gln Ser Glu
1425 1430 1435 1440
Thr Ala Arg Leu Thr Thr Asp Ala Ala Arg Gln Ile Cys Glu Met Ala
1445 1450 1455
Glu Leu Thr Arg Thr His Ile Ser Asp Ala Val Val Ala Ser Gly Ala
1460 1465 1470
Pro Leu Ala Ile Leu Tyr Asp His Gln Arg Gln His Leu Pro Asp Phe
1475 1480 1485
Val Lys Gln Leu Arg Thr Arg Thr Glu Thr Asp Arg Lys Ser Pro Ser

1490 1495 1500
Val Ser Leu Ser Gln Ser Lys Glu Gly Thr Leu Asp Ser Lys His Gln
1505 1510 1515 1520
Lys Tyr Ser Ala Ser Tyr Asp Ser Tyr Ser Glu Ser Ser Gly Tyr Lys
1525 1530 1535
Asn His Asp Arg Arg Ser Ser Ser Gly Ser Ser Arg Gln Glu Ser Pro
1540 1545 1550
Ser Val Pro Ser Cys Lys Glu Asn Glu Lys Lys Leu Asn Gly Glu Lys
1555 1560 1565

Ile Glu Ser Ser Ile Asp Glu Gln Val Gln Thr Ala Ala Asp Asp Ser
1570 1575 1580
Leu Arg Ser Asp Ser Val Pro Ser Leu Pro Asp Glu Lys Asp Ser Thr
1585 1590 1595 1600
Ser Ile Ala Thr Glu Tyr Ser Leu Lys Phe Asp Glu Ser Met Thr Glu
1605 1610 1615
Asp Glu Ile Glu Glu Gln Ser Phe Arg Ser Leu Leu Pro Ser Glu Ser
1620 1625 1630
His Arg Arg Phe Asn Met Glu Lys Arg Arg Gly His His Asp Asp Ser

1635 1640 1645
Asp Glu Glu Ala Ser Pro Glu Lys Thr Thr Leu Ser Thr Ala Lys Glu

1650 1655 1660

Leu Asn Met Pro Phe Ser Gly Gly Gln Asp Ser Phe Ser Lys Phe Thr

1665 1670 1675 1680

Met Glu Met Val Arg Gln Tyr Met Lys Glu Glu Glu Met Arg Ala Ala

1685 1690 1695

His Gln Ser Ser Leu Leu Arg Leu Arg Glu Lys Ala Leu Lys Glu Lys

1700 1705 1710

Thr Lys Ala Glu Leu Ala Trp Leu Glu His Gln Lys Lys His Leu Arg

1715 1720 1725

Asp Lys Gly Glu Asp Asp Lys Met Pro Pro Leu Arg Lys Lys Gln Arg

1730 1735 1740

Gly Leu Leu Leu Arg Leu Gln Gln Glu Lys Ala Glu Ile Lys Arg Leu

1745 1750 1755 1760

Gln Glu Ala Asn Lys Ala Ala Arg Lys Glu Arg Gln Leu Ile Leu Lys

1765 1770 1775

Gln Gln Glu Glu Ile Glu Lys Ile Arg Gln Thr Thr Ile Lys Leu Gln

1780 1785 1790

Glu Lys Leu Lys Ser Ala Gly Glu Ser Lys Leu Asp Ser His Ser Asp

1795 1800 1805

Asp Asp Thr Lys Asp Asn Lys Ala Thr Ser Pro Gly Pro Thr Asp Leu

1810 1815 1820

Glu Thr Arg Ser Pro Ser Pro Ile Ser Ile Ser Ser Ser Glu Thr Ser

1825 1830 1835 1840

Ser Ile Met Gln Lys Leu Lys Lys Met Arg Ser Arg Met Asp Glu Lys

1845 1850 1855

His Cys Ser Pro Val His Tyr Phe Phe Ser Val Phe Thr Ser His His

1860 1865 1870

Trp Ala Ser Leu Ser Val Cys Phe Pro Asn Leu His Pro Lys Phe Gln

1875 1880 1885

Leu Tyr Ile Tyr Asn Gln Leu Val Arg Phe Leu Thr Lys Arg Glu Gln

1890 1895 1900

Lys Leu Met Gln Arg Arg Gln His Ala Glu Glu Leu Leu Glu Trp Lys

1905 1910 1915 1920

Arg Arg Leu Asp Ala Glu Glu Ala Glu Ile Arg Gln Met Glu Lys Gln

1925 1930 1935

Ala Leu Ala Ala Trp Asp Lys Glu Leu Ile Lys Pro Lys Thr Pro Lys

1940 1945 1950

Lys Glu Leu Glu Asp Gln Arg Thr Glu Gln Lys Glu Ile Ala Ser Glu

1955 1960 1965

Glu Glu Ser Pro Val Pro Leu Tyr Ser His Leu Asn Ser Glu Ser Ser

1970 1975 1980

Ile Pro Glu Glu Leu Gly Ser Pro Ala Val Glu Tyr Val Pro Ser Glu

1985 1990 1995 2000

Ser Ile Gly Gln Glu Gln Pro Gly Ser Pro Asp His Ser Ile Leu Thr

2005 2010 2015

Glu Glu Met Ile Cys Ser Gln Glu Leu Glu Ser Ser Thr Ser Pro Ser

2020 2025 2030

Lys His Phe Pro Phe Gly Phe Leu Phe Glu Gln Ser Leu Pro Lys Ser

2035 2040 2045

Cys Thr Ser Val Ser Lys Gln Glu Ser Ser Lys Gly Ser His Arg Thr

2050 2055 2060

Gly Gly Gln Cys His Leu Pro Ile Lys Ser His Gln His Cys Tyr Ser

2065 2070 2075 2080

Trp Ser Asp Glu Ser Leu Ser Met Thr Gln Ser Glu Thr Thr Ser Asp

2085 2090 2095

Gln Ser Asp Ile Glu Gly Arg Ile Arg Ala Leu Lys Asp Glu Leu Arg

2100 2105 2110

Lys Arg Lys Ser Val Val Asn Gln Leu Lys Lys Glu Gln Lys Lys Arg

2115 2120 2125

Gln Lys Glu Arg Leu Lys Ala Gln Glu Ala Ser Leu Ile Lys Gln Leu

2130 2135 2140

Glu Ser Tyr Asp Glu Phe Ile Lys Lys Thr Glu Ala Glu Leu Ser Gln

2145 2150 2155 2160

Asp Leu Glu Thr Ser Pro Thr Ala Lys Pro Gln Ile Lys Thr Leu Ser
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Ser Ala Ser Glu Lys Pro Lys Ile Lys Pro Leu Thr Pro Leu His Arg
2180 2185 2190
Ser Glu Thr Ala Lys Asn Trp Lys Ser Leu Thr Glu Ser Glu Arg Ser
2195 2200 2205
Arg Gly Ser Leu Glu Ser Ile Ala Glu His Val Asp Ala Ser Leu Ser

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2225 2230 2235 2240
Arg Val Asn Glu Trp Asp Ser Arg Thr Glu Asp Phe Gln Thr Pro Ser
2245 2250 2255
Pro Val Leu Arg Ser Ser Arg Lys Ile Arg Glu Glu Ser Gly Asp Ser
2260 2265 2270
Leu Glu Asn Val Pro Ala Leu His Leu Leu Lys Glu Leu Asn Ala Thr
2275 2280 2285

Ser Arg Ile Leu Asp Met Ser Asp Gly Lys Val Gly Glu Ser Ser Lys
2290 2295 2300
Lys Ser Glu Ile Lys Glu Ile Glu Tyr Thr Lys Leu Lys Lys Ser Lys
2305 2310 2315 2320
Ile Glu Asp Ala Phe Ser Lys Glu Gly Lys Ser Asp Val Leu Leu Lys
2325 2330 2335
Leu Val Leu Glu Gln Gly Asp Ser Ser Glu Ile Leu Ser Lys Lys Asp
2340 2345 2350
Leu Pro Leu Asp Ser Glu Asn Val Gln Lys Asp Leu Val Gly Leu Ala

2355 2360 2365
Ile Glu Asn Leu His Lys Ser Glu Glu Met Leu Lys Glu Arg Gln Ser
2370 2375 2380
Asp Gln Asp Met Asn His Ser Pro Asn Ile Gln Ser Gly Lys Asp Ile
2385 2390 2395 2400
His Glu Gln Lys Asn Thr Lys Glu Lys Asp Leu Ser Trp Ser Glu His
2405 2410 2415

Leu Phe Ala Pro Lys Glu Ile Pro Tyr Ser Glu Asp Phe Glu Val Ser
2420 2425 2430

Ser Phe Lys Lys Glu Ile Ser Ala Glu Leu Tyr Lys Asp Asp Phe Glu
2435 2440 2445

Val Ser Ser Leu Leu Ser Leu Arg Lys Asp Ser Gln Ser Cys Arg Asp
2450 2455 2460

Lys Pro Gln Pro Met Arg Ser Ser Thr Ser Gly Ala Thr Ser Phe Gly
2465 2470 2475 2480

Ser Asn Glu Glu Ile Ser Glu Cys Leu Ser Glu Lys Ser Leu Ser Ile
2485 2490 2495

His Ser Asn Val His Ser Asp Arg Leu Leu Glu Leu Lys Ser Pro Thr
2500 2505 2510

Glu Leu Met Lys Ser Lys Glu Arg Ser Asp Val Glu His Glu Gln Gln
2515 2520 2525

Val Thr Glu Ser Pro Ser Leu Ala Ser Val Pro Thr Ala Asp Glu Leu
2530 2535 2540

Phe Asp Phe His Ile Gly Asp Arg Val Leu Ile Gly Asn Val Gln Pro
2545 2550 2555 2560

Gly Ile Leu Arg Phe Lys Gly Glu Thr Ser Phe Ala Lys Gly Phe Trp
2565 2570 2575

Ala Gly Val Glu Leu Asp Lys Pro Glu Gly Asn Asn Asn Gly Thr Tyr
2580 2585 2590

Asp Gly Ile Ala Tyr Phe Glu Cys Lys Glu Lys His Gly Ile Phe Ala
2595 2600 2605

Pro Pro Gln Lys Ile Ser His Ile Pro Glu Asn Phe Asp Asp Tyr Val
2610 2615 2620

Asp Ile Asn Glu Asp Glu Asp Cys Tyr Ser Asp Glu Arg Tyr Gln Cys
2625 2630 2635 2640

Tyr Asn Gln Glu Gln Asn Asp Thr Glu Gly Pro Lys Asp Arg Glu Lys
2645 2650 2655

Asp Val Ser Glu Tyr Phe Tyr Glu Lys Ser Leu Pro Ser Val Asn Asp

2660 2665 2670

Ile Glu Ala Ser Val Asn Arg Ser Arg Ser Leu Lys Ile Glu Thr Asp

2675 2680 2685

Asn Val Gln Asp Ile Ser Gly Val Leu Glu Ala His Val His Gln Gln

2690 2695 2700

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2705 2710 2715 2720

Ser Asp Ala Thr Glu Lys Val Ser Ile Ala Ala Glu Asp Asp Thr Leu

2725 2730 2735

Asp Asn Thr Phe Ser Glu Glu Leu Glu Lys Gln Gln Gln Phe Thr Glu

2740 2745 2750

Glu Glu Asp Asn Leu Tyr Ala Glu Ala Ser Glu Lys Leu Cys Thr Pro

2755 2760 2765

Leu Leu Asp Leu Leu Thr Arg Glu Lys Asn Gln Leu Glu Ala Gln Leu

2770 2775 2780

Lys Ser Ser Leu Asn Glu Glu Lys Lys Ser Lys Gln Gln Leu Glu Lys

2785 2790 2795 2800

Ile Ser Leu Leu Thr Asp Ser Leu Leu Lys Val Phe Val Lys Asp Thr

2805 2810 2815

Val Asn Gln Leu Gln Gln Ile Lys Lys Thr Arg Asp Glu Lys Ile Gln

2820 2825 2830

Leu Ser Asn Gln Glu Leu Leu Gly Asp Asp Gln Lys Lys Val Thr Pro

2835 2840 2845

Gln Asp Leu Ser Gln Asn Val Glu Glu Gln Ser Pro Ser Ile Ser Gly

2850 2855 2860

Cys Phe Leu Ser Ser Glu Leu Glu Asp Glu Lys Glu Glu Ile Ser Ser

2865 2870 2875 2880

Pro Asp Met Cys Pro Arg Pro Glu Ser Pro Val Phe Gly Ala Ser Gly

2885 2890 2895

Gln Glu Glu Leu Ala Lys Arg Leu Ala Glu Leu Glu Leu Ser Arg Glu

2900 2905 2910

Phe Leu Ser Ala Leu Gly Asp Asp Gln Asp Trp Phe Asp Glu Asp Phe

2915 2920 2925

Gly Leu Ser Ser Ser His Lys Ile Gln Lys Asn Lys Ala Glu Glu Thr

2930 2935 2940

Ile Val Pro Leu Met Ala Glu Pro Lys Arg Val Thr Gln Gln Pro Cys

2945 2950 2955 2960

Glu Thr Leu Leu Ala Val Pro His Thr Ala Glu Glu Val Glu Ile Leu

2965 2970 2975

Val His Asn Ala Ala Glu Glu Leu Trp Lys Trp Lys Glu Leu Gly His

2980 2985 2990

Asp Leu His Ser Ile Ser Ile Pro Thr Lys Leu Leu Gly Cys Ala Ser

2995 3000 3005

Lys Gly Leu Asp Ile Glu Ser Thr Ser Lys Arg Val Tyr Lys Gln Ala

3010 3015 3020

Val Phe Asp Leu Thr Lys Glu Ile Phe Glu Glu Ile Phe Ala Glu Asp

3025 3030 3035 3040

Pro Asn Leu Asn Gln Pro Val Trp Met Lys Pro Cys Arg Ile Asn Ser

3045 3050 3055

Ser Tyr Phe Arg Arg Val Lys Asn Pro Asn Asn Leu Asp Glu Ile Lys

3060 3065 3070

Ser Phe Ile Ala Ser Glu Val Leu Lys Leu Phe Ser Leu Lys Lys Glu

3075 3080 3085

Pro Asn His Lys Thr Asp Trp Gln Lys Met Met Lys Phe Gly Arg Lys

3090 3095 3100

Lys Arg Asp Arg Val Asp His Ile Leu Val Gln Glu Leu His Glu Glu

3105 3110 3115 3120

Glu Ala Gln Trp Val Asn Tyr Asp Glu Asp Glu Leu Cys Val Lys Met

3125 3130 3135

Gln Leu Ala Asp Gly Ile Phe Glu Thr Leu Ile Lys Asp Thr Ile Asp

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3155 3160 3165

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<213> Homo sapiens

<400> 84

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Leu Ser Gln Thr Lys Ala Ala Leu Arg His Ile Glu Asn Lys Leu Glu
35 40 45

Val Ala Pro Thr Ser Thr Ala Val Cys Asp Ser Val Met Asp Thr Lys
50 55 60

Lys Ser Ser Thr Ser Ala Thr Arg Lys Ile Ser Arg Lys Asp Gly Arg
65 70 75 80

Tyr Leu Asp Asp Ser Trp Val Asn Ala Pro Ile Ser Lys Ser Thr Lys
85 90 95

Ser Arg Lys Glu Lys Ser Arg Ser Pro Leu Arg Ala Thr Thr Leu Glu
100 105 110

Ser Asn Val Lys Lys Asn Asn Arg Val Glu Phe Arg Glu Pro Leu Val
115 120 125

Ser Tyr Arg Glu Ile His Gly Ala Pro Ser Asn Phe Ser Ser Ser His
130 135 140

Leu Glu Ser Lys His Val Tyr Cys Val Asp Val Asn Glu Glu Lys Thr
145 150 155 160

Glu Ser Gly Asn Trp Met Ile Gly Ser Arg Glu Glu Arg Asn Ile Arg
165 170 175

Ser Cys Asp Phe Glu Ser Ser Gln Ser Ser Val Ile Asn Asp Thr Val
180 185 190

Val Arg Phe Leu Asn Asp Arg Pro Ala Ile Asp Ala Leu Gln Asn Ser
195 200 205

Glu Cys Leu Ile Arg Met Gly Ala Ser Met Arg Thr Glu Glu Glu Met

210 215 220

Pro Asn Arg Thr Lys Gly Ser Glu Asn Asn Leu Lys Leu Ser Val Asn

225 230 235 240

Asn Met Ala His Asp Thr Asp Pro Lys Ala Leu Arg Leu Thr Asp Ser

245 250 255

Ser Pro Ser Ser Thr Ser Thr Ser Asn Ser Gln Arg Leu Asp Ile Leu

260 265 270

Lys Arg Arg Gln His Asp Val Lys Leu Glu Lys Leu Lys Glu Arg Ile

275 280 285

Arg Lys Gln Trp Glu His Ser Glu Glu Thr Asn Gly Arg Gly Gln Lys

290 295 300

Leu Gly His Ile Asp His Pro Val Met Val Val Asn Val Asp Asn Ser

305 310 315 320

Val Thr Ala Lys Val Arg Lys Val Ala Thr Ala Pro Pro Ala Pro Ala

325 330 335

Tyr Lys Gly Phe Asn Pro Ser Glu Thr Lys Ile Arg Thr Pro Asp Gly

340 345 350

Lys Val Trp Gln Glu Ala Glu Phe Gln Asn Met Ser Arg Glu Leu Tyr

355 360 365

Arg Asp Leu Ala Leu His Phe Ala Asp Asp Ile Ser Ile Lys Glu Lys

370 375 380

Pro Ala Glu Lys Ser Lys Glu Lys Lys Val Val Lys Pro Val Arg Lys

385 390 395 400

Val Gln Lys Val Ala Gln Leu Ser Ser Thr Glu Cys Arg Thr Gly Ser

405 410 415

Ser His Leu Ile Ser Thr Ser Ser Trp Arg Asp Gly Gln Lys Leu Val

420 425 430

Lys Lys Ile Leu Gly Pro Ala Pro Arg Met Glu Pro Lys Glu Gln Arg

435 440 445

Thr Ala Ser Ser Asp Arg Gly Gly Arg Glu Arg Thr Ala Lys Ser Gly

450 455 460

Gly His Ile Gly Arg Ala Glu Ser Asp Pro Arg Leu Asp Val Leu His

465 470 475 480

Arg His Leu Gln Arg Asn Ser Glu Arg Ser Arg Ser Lys Ser Arg Ser

485 490 495

Glu Asn Asn Ile Lys Lys Leu Ala Ser Ser Leu Pro Asp Asn Lys Gln

500 505 510

Glu Glu Asn Thr Ala Leu Asn Lys Asp Phe Leu Pro Ile Glu Ile Arg

515 520 525

Gly Ile Leu Asp Asp Leu Gln Leu Asp Ser Thr Ala His Thr Ala Lys

530 535 540

Gln Asp Thr Val Glu Leu Gln Asn Gln Lys Ser Ser Ala Pro Val His

545 550 555 560

Ala Pro Arg Ser His Ser Pro Val Lys Arg Lys Pro Asp Lys Ile Thr

565 570 575

Ala Asn Glu Asp Pro Pro Val Ile Ser Lys Arg Arg His Tyr Asp Thr

580 585 590

Asp Glu Val Arg Gln Tyr Ile Val Arg Gln Gln Glu Glu Arg Lys Arg

595 600 605

Lys Gln Asn Glu Glu Lys Lys Ala Gln Lys Glu Ala Thr Glu Gln Lys

610 615 620

Asn Lys Arg Leu Gln Glu Leu Tyr Arg Lys Gln Lys Glu Ala Phe Thr

625 630 635 640

Lys Val Lys Asn Val Pro Pro Ser Glu Pro Ser Ala Thr Arg Arg Leu

645 650 655

Gln Glu Thr Tyr Ser Lys Leu Leu Leu Glu Lys Thr Leu Leu Glu Glu

660 665 670

Pro Ser His Gln His Val Thr Gln Glu Thr Gln Ala Lys Pro Gly Tyr

675 680 685

Gln Pro Ser Gly Glu Ser Asp Lys Glu Asn Lys Val Gln Glu Arg Pro

690 695 700

Pro Ser Ala Ser Ser Ser Ser Asp Met Ser Leu Ser Glu Pro Pro Gln

705 710 715 720

Pro Leu Ala Arg Lys Asp Leu Met Glu Ser Thr Trp Met Gln Pro Glu

725 730 735

Arg Leu Ser Pro Gln Val His His Ser Gln Pro Gln Pro Phe Ala Gly

740 745 750

Thr Ala Gly Ser Leu Leu Ser His Leu Leu Ser Leu Glu His Val Gly

755 760 765

Ile Leu His Lys Asp Phe Glu Ser Ile Leu Pro Thr Arg Lys Asn His

770 775 780

Asn Met Ala Ser Arg Pro Leu Thr Phe Thr Pro Gln Pro Tyr Val Thr

785 790 795 800

Ser Pro Ala Ala Tyr Thr Asp Ala Leu Leu Lys Pro Ser Ala Ser Gln

805 810 815

Tyr Lys Ser Lys Leu Asp Arg Ile Glu Ala Leu Lys Ala Thr Ala Ala

820 825 830

Ser Leu Ser Ser Arg Ile Glu Ser Glu Ala Lys Lys Leu Ala Gly Ala

835 840 845

Ser Ile Asn Tyr Gly Ser Ala Trp Asn Thr Glu Tyr Asp Val Gln Gln

850 855 860

Ala Pro Gln Glu Asp Gly Pro Trp Thr Lys Ala Val Thr Pro Pro Val

865 870 875 880

Lys Asp Asp Asn Glu Asp Val Phe Ser Ala Arg Ile Gln Lys Met Leu

885 890 895

Gly Ser Cys Val Ser His Ala Thr Phe Asp Asp Asp Leu Pro Gly Val

900 905 910

Gly Asn Leu Ser Glu Phe Lys Lys Leu Pro Glu Met Ile Arg Pro Gln

915 920 925

Ser Ala Ile Ser Ser Phe Arg Val Arg Ser Pro Gly Pro Lys Pro Glu

930 935 940

Gly Leu Leu Ala Gln Leu Cys Lys Arg Gln Thr Asp Ser Ser Ser Ser

945 950 955 960

Asp Met Gln Ala Cys Ser Gln Asp Lys Ala Lys Ile Ser Leu Gly Ser

965 970 975

Ser Ile Asp Ser Val Ser Glu Gly Pro Leu Leu Ser Glu Gly Ser Leu
980 985 990
Ser Glu Glu Glu Gly Asp Gln Asp Gly Gln Pro Leu Leu Lys Val Ala
995 1000 1005
Glu Ile Leu Lys Glu Lys Glu Phe Cys Pro Gly Glu Arg Asn Ser Tyr
1010 1015 1020
Glu Pro Ile Lys Glu Phe Gln Lys Glu Ala Glu Lys Phe Leu Pro Leu
1025 1030 1035 1040
Phe Gly His Ile Gly Gly Thr Gln Ser Lys Gly Pro Trp Glu Glu Leu

1045 1050 1055
Ala Lys Gly Ser Pro His Ser Val Ile Asn Ile Phe Thr Lys Ser Tyr
1060 1065 1070
Gln Leu Tyr Gly Lys Gly Phe Glu Asp Lys Leu Asp Arg Gly Thr Ser
1075 1080 1085
Thr Ser Arg Pro Leu Asn Ala Thr Ala Thr Pro Leu Ser Gly Val Ser
1090 1095 1100
Tyr Glu Asp Asp Phe Val Ser Ser Pro Gly Thr Gly Thr Ser Thr Glu
1105 1110 1115 1120

Lys Lys Ser Thr Leu Glu Pro His Ser Thr Leu Ser Pro Gln Glu Asp
1125 1130 1135
His Ser Asn Arg Lys Ser Ala Tyr Asp Pro Ser Ser Val Asp Val Thr
1140 1145 1150
Ser Gln His Ser Ser Gly Ala Gln Ser Ala Ala Ser Ser Arg Ser Ser
1155 1160 1165
Thr Ser Ser Lys Gly Lys Lys Gly Lys Lys Glu Lys Thr Glu Trp Leu
1170 1175 1180
Asp Ser Phe Thr Gly Asn Val Gln Asn Ser Leu Leu Asp Glu Glu Lys

1185 1190 1195 1200
Ala Glu Arg Gly Ser His Gln Gly Lys Lys Ser Gly Thr Ser Ser Lys
1205 1210 1215

Leu Ser Val Lys Asp Phe Glu Gln Thr Leu Asp Thr Asp Ser Thr Leu
1220 1225 1230
Glu Asp Leu Ser Gly His Ser Val Ser Val Ser Ser Asp Lys Gly Arg
1235 1240 1245
Ser Gln Lys Thr Pro Thr Ser Pro Leu Ser Pro Ser Ser Gln Lys Ser
1250 1255 1260

Leu Gln Phe Asp Val Ala Gly Thr Ser Ser Glu Arg Ser Lys Ser Ser
1265 1270 1275 1280
Val Met Pro Pro Thr Ile Thr Gly Phe Lys Pro Asn Ala Pro Leu Thr
1285 1290 1295
Asp Leu Asn Pro Ala Ala Ser Arg Thr Thr Thr Glu Asn Met Ala Pro
1300 1305 1310
Ile Pro Gly Ser Lys Arg Phe Ser Pro Ala Gly Leu His His Arg Met
1315 1320 1325
Ala Ala Glu Leu Ser Tyr Leu Asn Ala Ile Glu Glu Ser Val Arg Gln

1330 1335 1340
Leu Ser Asp Val Glu Arg Val Arg Gly Ile Ser Leu Ala Gln Gln Glu
1345 1350 1355 1360
Ser Val Ser Leu Ala Gln Ile Ile Lys Ala Gln Gln Gln Arg His Glu
1365 1370 1375
Arg Asp Leu Ala Leu Leu Lys Leu Lys Ala Glu Gln Glu Ala Leu Glu
1380 1385 1390
Ser Gln Arg Gln Leu Glu Glu Thr Arg Asn Lys Ala Ala Gln Val His
1395 1400 1405

Ala Glu Ser Leu Gln Gln Val Val Gln Ser Gln Arg Glu Val Thr Glu
1410 1415 1420
Val Leu Gln Glu Ala Thr Cys Lys Ile Ala Ala Gln Gln Ser Glu Thr
1425 1430 1435 1440
Ala Arg Leu Thr Thr Asp Ala Ala Arg Gln Ile Cys Glu Met Ala Glu
1445 1450 1455
Leu Thr Arg Thr His Ile Ser Asp Ala Val Val Ala Ser Gly Ala Pro
1460 1465 1470

Leu Ala Ile Leu Tyr Asp His Gln Arg Gln His Leu Pro Asp Phe Val

1475 1480 1485

Lys Gln Leu Arg Thr Arg Thr Glu Thr Asp Arg Lys Ser Pro Ser Val

1490 1495 1500

Ser Leu Ser Gln Ser Lys Glu Gly Thr Leu Asp Ser Lys His Gln Lys

1505 1510 1515 1520

Tyr Ser Ala Ser Tyr Asp Ser Tyr Ser Glu Ser Ser Gly Tyr Lys Asn

1525 1530 1535

His Asp Arg Arg Ser Ser Ser Gly Ser Ser Arg Gln Glu Ser Pro Ser

1540 1545 1550

Val Pro Ser Cys Lys Glu Asn Glu Lys Lys Leu Asn Gly Glu Lys Ile

1555 1560 1565

Glu Ser Ser Ile Asp Glu Gln Val Gln Thr Ala Ala Asp Asp Ser Leu

1570 1575 1580

Arg Ser Asp Ser Val Pro Ser Leu Pro Asp Glu Lys Asp Ser Thr Ser

1585 1590 1595 1600

Ile Ala Thr Glu Tyr Ser Leu Lys Phe Asp Glu Ser Met Thr Glu Asp

1605 1610 1615

Glu Ile Glu Glu Gln Ser Phe Arg Ser Leu Leu Pro Ser Glu Ser His

1620 1625 1630

Arg Arg Phe Asn Met Glu Lys Arg Arg Gly His His Asp Asp Ser Asp

1635 1640 1645

Glu Glu Ala Ser Pro Glu Lys Thr Thr Leu Ser Thr Ala Lys Glu Leu

1650 1655 1660

Asn Met Pro Phe Ser Gly Gly Gln Asp Ser Phe Ser Lys Phe Thr Met

1665 1670 1675 1680

Glu Met Val Arg Gln Tyr Met Lys Glu Glu Glu Met Arg Ala Ala His

1685 1690 1695

Gln Ser Ser Leu Leu Arg Leu Arg Glu Lys Ala Leu Lys Glu Lys Thr

1700 1705 1710

Lys Ala Glu Leu Ala Trp Leu Glu His Gln Lys Lys His Leu Arg Asp

1715 1720 1725

Lys Gly Glu Asp Asp Lys Met Pro Pro Leu Arg Lys Lys Gln Arg Gly

1730 1735 1740

Leu Leu Leu Arg Leu Gln Gln Glu Lys Ala Glu Ile Lys Arg Leu Gln

1745 1750 1755 1760

Glu Ala Asn Lys Ala Ala Arg Lys Glu Arg Gln Leu Ile Leu Lys Gln

1765 1770 1775

Gln Glu Glu Ile Glu Lys Ile Arg Gln Thr Thr Ile Lys Leu Gln Glu

1780 1785 1790

Lys Leu Lys Ser Ala Gly Glu Ser Lys Leu Asp Ser His Ser Asp Asp

1795 1800 1805

Asp Thr Lys Asp Asn Lys Ala Thr Ser Pro Gly Pro Thr Asp Leu Glu

1810 1815 1820

Thr Arg Ser Pro Ser Pro Ile Ser Ile Ser Ser Ser Glu Thr Ser Ser

1825 1830 1835 1840

Ile Met Gln Lys Leu Lys Lys Met Arg Ser Arg Met Asp Glu Lys His

1845 1850 1855

Cys Ser Pro Val His Tyr Phe Phe Ser Val Phe Thr Ser His His Trp

1860 1865 1870

Ala Ser Leu Ser Val Cys Phe Pro Asn Leu His Pro Lys Phe Gln Leu

1875 1880 1885

Tyr Ile Tyr Asn Gln Leu Val Arg Phe Leu Thr Lys Arg Glu Gln Lys

1890 1895 1900

Leu Met Gln Arg Arg Gln His Ala Glu Glu Leu Leu Glu Trp Lys Arg

1905 1910 1915 1920

Arg Leu Asp Ala Glu Glu Ala Glu Ile Arg Gln Met Glu Lys Gln Ala

1925 1930 1935

Leu Ala Ala Trp Asp Lys Glu Leu Ile Lys Pro Lys Thr Pro Lys Lys

1940 1945 1950

Glu Leu Glu Asp Gln Arg Thr Glu Gln Lys Glu Ile Ala Ser Glu Glu

1955 1960 1965

Glu Ser Pro Val Pro Leu Tyr Ser His Leu Asn Ser Glu Ser Ser Ile

1970 1975 1980

Pro Glu Glu Leu Gly Ser Pro Ala Val Glu Tyr Val Pro Ser Glu Ser
1985 1990 1995 2000
Ile Gly Gln Glu Gln Pro Gly Ser Pro Asp His Ser Ile Leu Thr Glu
2005 2010 2015
Glu Met Ile Cys Ser Gln Glu Leu Glu Ser Ser Thr Ser Pro Ser Lys
2020 2025 2030
His Phe Pro Phe Gly Phe Leu Phe Glu Gln Ser Leu Pro Lys Ser Cys
2035 2040 2045
Thr Ser Val Ser Lys Gln Glu Ser Ser Lys Gly Ser His Arg Thr Gly

2050 2055 2060
Gly Gln Cys His Leu Pro Ile Lys Ser His Gln His Cys Tyr Ser Trp
2065 2070 2075 2080
Ser Asp Glu Ser Leu Ser Met Thr Gln Ser Glu Thr Thr Ser Asp Gln
2085 2090 2095
Ser Asp Ile Glu Gly Arg Ile Arg Ala Leu Lys Asp Glu Leu Arg Lys
2100 2105 2110
Arg Lys Ser Val Val Asn Gln Leu Lys Lys Glu Gln Lys Lys Arg Gln
2115 2120 2125

Lys Glu Arg Leu Lys Ala Gln Glu Ala Ser Leu Ile Lys Gln Leu Glu
2130 2135 2140
Ser Tyr Asp Glu Phe Ile Lys Lys Thr Glu Ala Glu Leu Ser Gln Asp
2145 2150 2155 2160
Leu Glu Thr Ser Pro Thr Ala Lys Pro Gln Ile Lys Thr Leu Ser Ser
2165 2170 2175
Ala Ser Glu Lys Pro Lys Ile Lys Pro Leu Thr Pro Leu His Arg Ser
2180 2185 2190
Glu Thr Ala Lys Asn Trp Lys Ser Leu Thr Glu Ser Glu Arg Ser Arg

2195 2200 2205
Gly Ser Leu Glu Ser Ile Ala Glu His Val Asp Ala Ser Leu Ser Gly
2210 2215 2220

Ser Glu Arg Ser Val Ser Glu Arg Ser Leu Ser Ala Tyr Ala Lys Arg
2225 2230 2235 2240
Val Asn Glu Trp Asp Ser Arg Thr Glu Asp Phe Gln Thr Pro Ser Pro
2245 2250 2255
Val Leu Arg Ser Ser Arg Lys Ile Arg Glu Glu Ser Gly Asp Ser Leu
2260 2265 2270

Glu Asn Val Pro Ala Leu His Leu Leu Lys Glu Leu Asn Ala Thr Ser
2275 2280 2285
Arg Ile Leu Asp Met Ser Asp Gly Lys Val Gly Glu Ser Ser Lys Lys
2290 2295 2300
Ser Glu Ile Lys Glu Ile Glu Tyr Thr Lys Leu Lys Lys Ser Lys Ile
2305 2310 2315 2320
Glu Asp Ala Phe Ser Lys Glu Gly Lys Ser Asp Val Leu Leu Lys Leu
2325 2330 2335
Val Leu Glu Gln Gly Asp Ser Ser Glu Ile Leu Ser Lys Lys Asp Leu

2340 2345 2350
Pro Leu Asp Ser Glu Asn Val Gln Lys Asp Leu Val Gly Leu Ala Ile
2355 2360 2365
Glu Asn Leu His Lys Ser Glu Glu Met Leu Lys Glu Arg Gln Ser Asp
2370 2375 2380
Gln Asp Met Asn His Ser Pro Asn Ile Gln Ser Gly Lys Asp Ile His
2385 2390 2395 2400
Glu Gln Lys Asn Thr Lys Glu Lys Asp Leu Ser Trp Ser Glu His Leu
2405 2410 2415

Phe Ala Pro Lys Glu Ile Pro Tyr Ser Glu Asp Phe Glu Val Ser Ser
2420 2425 2430
Phe Lys Lys Glu Ile Ser Ala Glu Leu Tyr Lys Asp Asp Phe Glu Val
2435 2440 2445
Ser Ser Leu Leu Ser Leu Arg Lys Asp Ser Gln Ser Cys Arg Asp Lys
2450 2455 2460
Pro Gln Pro Met Arg Ser Ser Thr Ser Gly Ala Thr Ser Phe Gly Ser
2465 2470 2475 2480

Asn Glu Glu Ile Ser Glu Cys Leu Ser Glu Lys Ser Leu Ser Ile His

2485 2490 2495

Ser Asn Val His Ser Asp Arg Leu Leu Glu Leu Lys Ser Pro Thr Glu

2500 2505 2510

Leu Met Lys Ser Lys Glu Arg Ser Asp Val Glu His Glu Gln Gln Val

2515 2520 2525

Thr Glu Ser Pro Ser Leu Ala Ser Val Pro Thr Ala Asp Glu Leu Phe

2530 2535 2540

Asp Phe His Ile Gly Asp Arg Val Leu Ile Gly Asn Val Gln Pro Gly

2545 2550 2555 2560

Ile Leu Arg Phe Lys Gly Glu Thr Ser Phe Ala Lys Gly Phe Trp Ala

2565 2570 2575

Gly Val Glu Leu Asp Lys Pro Glu Gly Asn Asn Asn Gly Thr Tyr Asp

2580 2585 2590

Gly Ile Ala Tyr Phe Glu Cys Lys Glu Lys His Gly Ile Phe Ala Pro

2595 2600 2605

Pro Gln Lys Ile Ser His Ile Pro Glu Asn Phe Asp Asp Tyr Val Asp

2610 2615 2620

Ile Asn Glu Asp Glu Asp Cys Tyr Ser Asp Glu Arg Tyr Gln Cys Tyr

2625 2630 2635 2640

Asn Gln Glu Gln Asn Asp Thr Glu Gly Pro Lys Asp Arg Glu Lys Asp

2645 2650 2655

Val Ser Glu Tyr Phe Tyr Glu Lys Ser Leu Pro Ser Val Asn Asp Ile

2660 2665 2670

Glu Ala Ser Val Asn Arg Ser Arg Ser Leu Lys Ile Glu Thr Asp Asn

2675 2680 2685

Val Gln Asp Ile Ser Gly Val Leu Glu Ala His Val His Gln Gln Ser

2690 2695 2700

Ser Val Asp Ser Gln Ile Ser Ser Lys Glu Asn Lys Asp Leu Ile Ser

2705 2710 2715 2720

Asp Ala Thr Glu Lys Val Ser Ile Ala Ala Glu Asp Asp Thr Leu Asp

2725 2730 2735

Asn Thr Phe Ser Glu Glu Leu Glu Lys Gln Gln Gln Phe Thr Glu Glu

2740 2745 2750

Glu Asp Asn Leu Tyr Ala Glu Ala Ser Glu Lys Leu Cys Thr Pro Leu

2755 2760 2765

Leu Asp Leu Leu Thr Arg Glu Lys Asn Gln Leu Glu Ala Gln Leu Lys

2770 2775 2780

Ser Ser Leu Asn Glu Glu Lys Lys Ser Lys Gln Gln Leu Glu Lys Ile

2785 2790 2795 2800

Ser Leu Leu Thr Asp Ser Leu Leu Lys Val Phe Val Lys Asp Thr Val

2805 2810 2815

Asn Gln Leu Gln Gln Ile Lys Lys Thr Arg Asp Glu Lys Ile Gln Leu

2820 2825 2830

Ser Asn Gln Glu Leu Leu Gly Asp Asp Gln Lys Lys Val Thr Pro Gln

2835 2840 2845

Asp Leu Ser Gln Asn Val Glu Glu Gln Ser Pro Ser Ile Ser Gly Cys

2850 2855 2860

Phe Leu Ser Ser Glu Leu Glu Asp Glu Lys Glu Glu Ile Ser Ser Pro

2865 2870 2875 2880

Asp Met Cys Pro Arg Pro Glu Ser Pro Val Phe Gly Ala Ser Gly Gln

2885 2890 2895

Glu Glu Leu Ala Lys Arg Leu Ala Glu Leu Glu Leu Ser Arg Glu Phe

2900 2905 2910

Leu Ser Ala Leu Gly Asp Asp Gln Asp Trp Phe Asp Glu Asp Phe Gly

2915 2920 2925

Leu Ser Ser Ser His Lys Ile Gln Lys Asn Lys Ala Glu Glu Thr Ile

2930 2935 2940

Val Pro Leu Met Ala Glu Pro Lys Arg Val Thr Gln Gln Pro Cys Glu

2945 2950 2955 2960

Thr Leu Leu Ala Val Pro His Thr Ala Glu Glu Val Glu Ile Leu Val

2965 2970 2975

His Asn Ala Ala Glu Glu Leu Trp Lys Trp Lys Glu Leu Gly His Asp

2980 2985 2990

Leu His Ser Ile Ser Ile Pro Thr Lys Leu Leu Gly Cys Ala Ser Lys

2995 3000 3005

Gly Leu Asp Ile Glu Ser Thr Ser Lys Arg Val Tyr Lys Gln Ala Val

3010 3015 3020

Phe Asp Leu Thr Lys Glu Ile Phe Glu Glu Ile Phe Ala Glu Asp Pro

3025 3030 3035 3040

Asn Leu Asn Gln Pro Val Trp Met Lys Pro Cys Arg Ile Asn Ser Ser

3045 3050 3055

Tyr Phe Arg Arg Val Lys Asn Pro Asn Asn Leu Asp Glu Ile Lys Ser

3060 3065 3070

Phe Ile Ala Ser Glu Val Leu Lys Leu Phe Ser Leu Lys Lys Glu Pro

3075 3080 3085

Asn His Lys Thr Asp Trp Gln Lys Met Met Lys Phe Gly Arg Lys Lys

3090 3095 3100

Arg Asp Arg Val Asp His Ile Leu Val Gln Glu Leu His Glu Glu Glu

3105 3110 3115 3120

Ala Gln Trp Val Asn Tyr Asp Glu Asp Glu Leu Cys Val Lys Met Gln

3125 3130 3135

Leu Ala Asp Gly Ile Phe Glu Thr Leu Ile Lys Asp Thr Ile Asp Val

3140 3145 3150

Leu Asn Gln Ile Ser Glu Lys Gln Gly Arg Met Leu Leu Val

3155 3160 3165

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<213> Homo sapiens

<400> 85

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20 25 30

Ala Leu Ser Gln Thr Lys Ala Ala Leu Arg His Ile Glu Asn Lys Leu

35 40 45

Glu Val Ala Pro Thr Ser Thr Ala Val Cys Asp Ser Val Met Asp Thr

50 55 60

Lys Lys Ser Ser Thr Ser Ala Thr Arg Lys Ile Ser Arg Lys Asp Gly

65 70 75 80

Arg Tyr Leu Asp Asp Ser Trp Val Asn Ala Pro Ile Ser Lys Ser Thr

85 90 95

Lys Ser Arg Lys Glu Lys Ser Arg Ser Pro Leu Arg Ala Thr Thr Leu

100 105 110

Glu Ser Asn Val Lys Lys Asn Asn Arg Val Glu Phe Arg Glu Pro Leu

115 120 125

Val Ser Tyr Arg Glu Ile His Gly Ala Pro Ser Asn Phe Ser Ser Ser

130 135 140

His Leu Glu Ser Lys His Val Tyr Cys Val Asp Val Asn Glu Glu Lys

145 150 155 160

Thr Glu Ser Gly Asn Trp Met Ile Gly Ser Arg Glu Glu Arg Asn Ile

165 170 175

Arg Ser Cys Asp Phe Glu Ser Ser Gln Ser Ser Val Ile Asn Asp Thr

180 185 190

Val Val Arg Phe Leu Asn Asp Arg Pro Ala Ile Asp Ala Leu Gln Asn

195 200 205

Ser Glu Cys Leu Ile Arg Met Gly Ala Ser Met Arg Thr Glu Glu Glu

210 215 220

Met Pro Asn Arg Thr Lys Gly Ser Glu Asn Asn Leu Lys Leu Ser Val

225 230 235 240

Asn Asn Met Ala His Asp Thr Asp Pro Lys Ala Leu Arg Leu Thr Asp

245 250 255

Ser Ser Pro Ser Ser Thr Ser Thr Ser Asn Ser Gln Arg Leu Asp Ile

260 265 270

Leu Lys Arg Arg Gln His Asp Val Lys Leu Glu Lys Leu Lys Glu Arg

275 280 285

Ile Arg Lys Gln Trp Glu His Ser Glu Glu Thr Asn Gly Arg Gly Gln

290 295 300

Lys Leu Gly His Ile Asp His Pro Val Met Val Val Asn Val Asp Asn

305 310 315 320

Ser Val Thr Ala Lys Val Arg Lys Val Ala Thr Ala Pro Pro Ala Pro

325 330 335

Ala Tyr Lys Gly Phe Asn Pro Ser Glu Thr Lys Ile Arg Thr Pro Asp

340 345 350

Gly Lys Val Trp Gln Glu Ala Glu Phe Gln Asn Met Ser Arg Glu Leu

355 360 365

Tyr Arg Asp Leu Ala Leu His Phe Ala Asp Asp Ile Ser Ile Lys Glu

370 375 380

Lys Pro Ala Glu Lys Ser Lys Glu Lys Lys Val Val Lys Pro Val Arg

385 390 395 400

Lys Val Gln Lys Val Ala Gln Leu Ser Ser Thr Glu Cys Arg Thr Gly

405 410 415

Ser Ser His Leu Ile Ser Thr Ser Ser Trp Arg Asp Gly Gln Lys Leu

420 425 430

Val Lys Lys Ile Leu Gly Pro Ala Pro Arg Met Glu Pro Lys Glu Gln

435 440 445

Arg Thr Ala Ser Ser Asp Arg Gly Gly Arg Glu Arg Thr Ala Lys Ser

450 455 460

Gly Gly His Ile Gly Arg Ala Glu Ser Asp Pro Arg Leu Asp Val Leu

465 470 475 480

His Arg His Leu Gln Arg Asn Ser Glu Arg Ser Arg Ser Lys Ser Arg

485 490 495

Ser Glu Asn Asn Ile Lys Lys Leu Ala Ser Ser Leu Pro Asp Asn Lys

500 505 510

Gln Glu Glu Asn Thr Ala Leu Asn Lys Asp Phe Leu Pro Ile Glu Ile

515 520 525

Arg Gly Ile Leu Asp Asp Leu Gln Leu Asp Ser Thr Ala His Thr Ala
530 535 540
Lys Gln Asp Thr Val Glu Leu Gln Asn Gln Lys Ser Ser Ala Pro Val
545 550 555 560
His Ala Pro Arg Ser His Ser Pro Val Lys Arg Lys Pro Asp Lys Ile
565 570 575
Thr Ala Asn Glu Asp Pro Pro Val Ile Ser Lys Arg Arg His Tyr Asp
580 585 590
Thr Asp Glu Val Arg Gln Tyr Ile Val Arg Gln Gln Glu Glu Arg Lys

595 600 605
Arg Lys Gln Asn Glu Glu Lys Lys Ala Gln Lys Glu Ala Thr Glu Gln
610 615 620
Lys Asn Lys Arg Leu Gln Glu Leu Tyr Arg Lys Gln Lys Glu Ala Phe
625 630 635 640
Thr Lys Val Lys Asn Val Pro Pro Ser Glu Pro Ser Ala Thr Arg Arg
645 650 655
Leu Gln Glu Thr Tyr Ser Lys Leu Leu Leu Glu Lys Thr Leu Leu Glu
660 665 670

Glu Pro Ser His Gln His Val Thr Gln Glu Thr Gln Ala Lys Pro Gly
675 680 685
Tyr Gln Pro Ser Gly Glu Ser Asp Lys Glu Asn Lys Val Gln Glu Arg
690 695 700
Pro Pro Ser Ala Ser Ser Ser Ser Asp Met Ser Leu Ser Glu Pro Pro
705 710 715 720
Gln Pro Leu Ala Arg Lys Asp Leu Met Glu Ser Thr Trp Met Gln Pro
725 730 735
Glu Arg Leu Ser Pro Gln Val His His Ser Gln Pro Gln Pro Phe Ala

740 745 750
Gly Thr Ala Gly Ser Leu Leu Ser His Leu Leu Ser Leu Glu His Val
755 760 765
Gly Ile Leu His Lys Asp Phe Glu Ser Ile Leu Pro Thr Arg Lys Asn
770 775 780

His Asn Met Ala Ser Arg Pro Leu Thr Phe Thr Pro Gln Pro Tyr Val
785 790 795 800
Thr Ser Pro Ala Ala Tyr Thr Asp Ala Leu Leu Lys Pro Ser Ala Ser
805 810 815

Gln Tyr Lys Ser Lys Leu Asp Arg Ile Glu Ala Leu Lys Ala Thr Ala
820 825 830
Ala Ser Leu Ser Ser Arg Ile Glu Ser Glu Ala Lys Lys Leu Ala Gly
835 840 845
Ala Ser Ile Asn Tyr Gly Ser Ala Trp Asn Thr Glu Tyr Asp Val Gln
850 855 860
Gln Ala Pro Gln Glu Asp Gly Pro Trp Thr Lys Ala Val Thr Pro Pro
865 870 875 880
Val Lys Asp Asp Asn Glu Asp Val Phe Ser Ala Arg Ile Gln Lys Met
885 890 895
Leu Gly Ser Cys Val Ser His Ala Thr Phe Asp Asp Asp Leu Pro Gly
900 905 910
Val Gly Asn Leu Ser Glu Phe Lys Lys Leu Pro Glu Met Ile Arg Pro
915 920 925
Gln Ser Ala Ile Ser Ser Phe Arg Val Arg Ser Pro Gly Pro Lys Pro
930 935 940
Glu Gly Leu Leu Ala Gln Leu Cys Lys Arg Gln Thr Asp Ser Ser Ser
945 950 955 960

Ser Asp Met Gln Ala Cys Ser Gln Asp Lys Ala Lys Ile Ser Leu Gly
965 970 975
Ser Ser Ile Asp Ser Val Ser Glu Gly Pro Leu Leu Ser Glu Gly Ser
980 985 990
Leu Ser Glu Glu Glu Gly Asp Gln Asp Gly Gln Pro Leu Leu Lys Val
995 1000 1005
Ala Glu Ile Leu Lys Glu Lys Glu Phe Cys Pro Gly Glu Arg Asn Ser
1010 1015 1020
Tyr Glu Pro Ile Lys Glu Phe Gln Lys Glu Ala Glu Lys Phe Leu Pro

1025 1030 1035 1040

Leu Phe Gly His Ile Gly Gly Thr Gln Ser Lys Gly Pro Trp Glu Glu

1045 1050 1055

Leu Ala Lys Gly Ser Pro His Ser Val Ile Asn Ile Phe Thr Lys Ser

1060 1065 1070

Tyr Gln Leu Tyr Gly Lys Gly Phe Glu Asp Lys Leu Asp Arg Gly Thr

1075 1080 1085

Ser Thr Ser Arg Pro Leu Asn Ala Thr Ala Thr Pro Leu Ser Gly Val

1090 1095 1100

Ser Tyr Glu Asp Asp Phe Val Ser Ser Pro Gly Thr Gly Thr Ser Thr

1105 1110 1115 1120

Glu Lys Lys Ser Thr Leu Glu Pro His Ser Thr Leu Ser Pro Gln Glu

1125 1130 1135

Asp His Ser Asn Arg Lys Ser Ala Tyr Asp Pro Ser Ser Val Asp Val

1140 1145 1150

Thr Ser Gln His Ser Ser Gly Ala Gln Ser Ala Ala Ser Ser Arg Ser

1155 1160 1165

Ser Thr Ser Ser Lys Gly Lys Lys Gly Lys Lys Glu Lys Thr Glu Trp

1170 1175 1180

Leu Asp Ser Phe Thr Gly Asn Val Gln Asn Ser Leu Leu Asp Glu Glu

1185 1190 1195 1200

Lys Ala Glu Arg Gly Ser His Gln Gly Lys Lys Ser Gly Thr Ser Ser

1205 1210 1215

Lys Leu Ser Val Lys Asp Phe Glu Gln Thr Leu Asp Thr Asp Ser Thr

1220 1225 1230

Leu Glu Asp Leu Ser Gly His Ser Val Ser Val Ser Ser Asp Lys Gly

1235 1240 1245

Arg Ser Gln Lys Thr Pro Thr Ser Pro Leu Ser Pro Ser Ser Gln Lys

1250 1255 1260

Ser Leu Gln Phe Asp Val Ala Gly Thr Ser Ser Glu Arg Ser Lys Ser

1265 1270 1275 1280

Ser Val Met Pro Pro Thr Ile Thr Gly Phe Lys Pro Asn Ala Pro Leu

1285 1290 1295

Thr Asp Leu Asn Pro Ala Ala Ser Arg Thr Thr Thr Glu Asn Met Ala

1300 1305 1310

Pro Ile Pro Gly Ser Lys Arg Phe Ser Pro Ala Gly Leu His His Arg

1315 1320 1325

Met Ala Ala Glu Leu Ser Tyr Leu Asn Ala Ile Glu Glu Ser Val Arg

1330 1335 1340

Gln Leu Ser Asp Val Glu Arg Val Arg Gly Ile Ser Leu Ala Gln Gln

1345 1350 1355 1360

Glu Ser Val Ser Leu Ala Gln Ile Ile Lys Ala Gln Gln Gln Arg His

1365 1370 1375

Glu Arg Asp Leu Ala Leu Leu Lys Leu Lys Ala Glu Gln Glu Ala Leu

1380 1385 1390

Glu Ser Gln Arg Gln Leu Glu Glu Thr Arg Asn Lys Ala Ala Gln Val

1395 1400 1405

His Ala Glu Ser Leu Gln Gln Val Val Gln Ser Gln Arg Glu Val Thr

1410 1415 1420

Glu Val Leu Gln Glu Ala Thr Cys Lys Ile Ala Ala Gln Gln Ser Glu

1425 1430 1435 1440

Thr Ala Arg Leu Thr Thr Asp Ala Ala Arg Gln Ile Cys Glu Met Ala

1445 1450 1455

Glu Leu Thr Arg Thr His Ile Ser Asp Ala Val Val Ala Ser Gly Ala

1460 1465 1470

Pro Leu Ala Ile Leu Tyr Asp His Gln Arg Gln His Leu Pro Asp Phe

1475 1480 1485

Val Lys Gln Leu Arg Thr Arg Thr Glu Thr Asp Arg Lys Ser Pro Ser

1490 1495 1500

Val Ser Leu Ser Gln Ser Lys Glu Gly Thr Leu Asp Ser Lys His Gln

1505 1510 1515 1520

Lys Tyr Ser Ala Ser Tyr Asp Ser Tyr Ser Glu Ser Ser Gly Tyr Lys

1525 1530 1535

Asn His Asp Arg Arg Ser Ser Ser Gly Ser Ser Arg Gln Glu Ser Pro
1540 1545 1550
Ser Val Pro Ser Cys Lys Glu Asn Glu Lys Lys Leu Asn Gly Glu Lys
1555 1560 1565
Ile Glu Ser Ser Ile Asp Glu Gln Val Gln Thr Ala Ala Asp Asp Ser
1570 1575 1580
Leu Arg Ser Asp Ser Val Pro Ser Leu Pro Asp Glu Lys Glu Thr Gly
1585 1590 1595 1600
Ser Cys Ser Val Thr Gln Ala Gly Leu Glu Leu Leu Ala Ser Arg Asp

1605 1610 1615
Pro Pro Thr Leu Ala Ser Gln Asn Ala Gly Ile Thr Asp Ser Thr Ser
1620 1625 1630
Ile Ala Thr Glu Tyr Ser Leu Lys Phe Asp Glu Ser Met Thr Glu Asp
1635 1640 1645
Glu Ile Glu Glu Gln Ser Phe Arg Ser Leu Leu Pro Ser Glu Ser His
1650 1655 1660
Arg Arg Phe Asn Met Glu Lys Arg Arg Gly His His Asp Asp Ser Asp
1665 1670 1675 1680

Glu Glu Ala Ser Pro Glu Lys Thr Thr Leu Ser Thr Ala Lys Glu Leu
1685 1690 1695
Asn Met Pro Phe Ser Gly Gly Gln Asp Ser Phe Ser Lys Phe Thr Met
1700 1705 1710
Glu Met Val Arg Gln Tyr Met Lys Glu Glu Glu Met Arg Ala Ala His
1715 1720 1725
Gln Ser Ser Leu Leu Arg Leu Arg Glu Lys Ala Leu Lys Glu Lys Thr
1730 1735 1740
Lys Ala Glu Leu Ala Trp Leu Glu His Gln Lys Lys His Leu Arg Asp

1745 1750 1755 1760
Lys Gly Glu Asp Asp Lys Met Pro Pro Leu Arg Lys Lys Gln Arg Gly
1765 1770 1775
Leu Leu Leu Arg Leu Gln Gln Glu Lys Ala Glu Ile Lys Arg Leu Gln
1780 1785 1790

Glu Ala Asn Lys Ala Ala Arg Lys Glu Arg Gln Leu Ile Leu Lys Gln
1795 1800 1805
Gln Glu Glu Ile Glu Lys Ile Arg Gln Thr Thr Ile Lys Leu Gln Glu
1810 1815 1820

Lys Leu Lys Ser Ala Gly Glu Ser Lys Leu Asp Ser His Ser Asp Asp
1825 1830 1835 1840
Asp Thr Lys Asp Asn Lys Ala Thr Ser Pro Gly Pro Thr Asp Leu Glu
1845 1850 1855
Thr Arg Ser Pro Ser Pro Ile Ser Ile Ser Ser Ser Glu Thr Ser Ser
1860 1865 1870
Ile Met Gln Lys Leu Lys Lys Met Arg Ser Arg Met Asp Glu Lys Phe
1875 1880 1885
Leu Thr Lys Arg Glu Gln Lys Leu Met Gln Arg Arg Gln His Ala Glu

1890 1895 1900
Glu Leu Leu Glu Trp Lys Arg Arg Leu Asp Ala Glu Glu Ala Glu Ile
1905 1910 1915 1920
Arg Gln Met Glu Lys Gln Ala Leu Ala Ala Trp Asp Lys Glu Leu Ile
1925 1930 1935
Lys Pro Lys Thr Pro Lys Lys Glu Leu Glu Asp Gln Arg Thr Glu Gln
1940 1945 1950
Lys Glu Ile Ala Ser Glu Glu Glu Ser Pro Val Pro Leu Tyr Ser His
1955 1960 1965

Leu Asn Ser Glu Ser Ser Ile Pro Glu Glu Leu Gly Ser Pro Ala Val
1970 1975 1980
Glu Tyr Val Pro Ser Glu Ser Ile Gly Gln Glu Gln Pro Gly Ser Pro
1985 1990 1995 2000
Asp His Ser Ile Leu Thr Glu Glu Met Ile Cys Ser Gln Glu Leu Glu
2005 2010 2015
Ser Ser Thr Ser Pro Ser Lys His Phe Pro Phe Gly Phe Leu Phe Glu
2020 2025 2030
Gln Ser Leu Pro Lys Ser Cys Thr Ser Val Ser Lys Gln Glu Ser Ser

2035 2040 2045

Lys Gly Ser His Arg Thr Gly Gly Gln Cys His Leu Pro Ile Lys Ser

2050 2055 2060

His Gln His Cys Tyr Ser Trp Ser Asp Glu Ser Leu Ser Met Thr Gln

2065 2070 2075 2080

Ser Glu Thr Thr Ser Asp Gln Ser Asp Ile Glu Gly Arg Ile Arg Ala

2085 2090 2095

Leu Lys Asp Glu Leu Arg Lys Arg Lys Ser Val Val Asn Gln Leu Lys

2100 2105 2110

Lys Glu Gln Lys Lys Arg Gln Lys Glu Arg Leu Lys Ala Gln Glu Ala

2115 2120 2125

Ser Leu Ile Lys Gln Leu Glu Ser Tyr Asp Glu Phe Ile Lys Lys Thr

2130 2135 2140

Glu Ala Glu Leu Ser Gln Asp Leu Glu Thr Ser Pro Thr Ala Lys Pro

2145 2150 2155 2160

Gln Ile Lys Thr Leu Ser Ser Ala Ser Glu Lys Pro Lys Ile Lys Pro

2165 2170 2175

Leu Thr Pro Leu His Arg Ser Glu Thr Ala Lys Asn Trp Lys Ser Leu

2180 2185 2190

Thr Glu Ser Glu Arg Ser Arg Gly Ser Leu Glu Ser Ile Ala Glu His

2195 2200 2205

Val Asp Ala Ser Leu Ser Gly Ser Glu Arg Ser Val Ser Glu Arg Ser

2210 2215 2220

Leu Ser Ala Tyr Ala Lys Arg Val Asn Glu Trp Asp Ser Arg Thr Glu

2225 2230 2235 2240

Asp Phe Gln Thr Pro Ser Pro Val Leu Arg Ser Ser Arg Lys Ile Arg

2245 2250 2255

Glu Glu Ser Gly Asp Ser Leu Glu Asn Val Pro Ala Leu His Leu Leu

2260 2265 2270

Lys Glu Leu Asn Ala Thr Ser Arg Ile Leu Asp Met Ser Asp Gly Lys

2275 2280 2285

Val Gly Glu Ser Ser Lys Lys Ser Glu Ile Lys Glu Ile Glu Tyr Thr

2290 2295 2300

Lys Leu Lys Lys Ser Lys Ile Glu Asp Ala Phe Ser Lys Glu Gly Lys

2305 2310 2315 2320

Ser Asp Val Leu Leu Lys Leu Val Leu Glu Gln Gly Asp Ser Ser Glu

2325 2330 2335

Ile Leu Ser Lys Lys Asp Leu Pro Leu Asp Ser Glu Asn Val Gln Lys

2340 2345 2350

Asp Leu Val Gly Leu Ala Ile Glu Asn Leu His Lys Ser Glu Glu Met

2355 2360 2365

Leu Lys Glu Arg Gln Ser Asp Gln Asp Met Asn His Ser Pro Asn Ile

2370 2375 2380

Gln Ser Gly Lys Asp Ile His Glu Gln Lys Asn Thr Lys Glu Lys Asp

2385 2390 2395 2400

Leu Ser Trp Ser Glu His Leu Phe Ala Pro Lys Glu Ile Pro Tyr Ser

2405 2410 2415

Glu Asp Phe Glu Val Ser Ser Phe Lys Lys Glu Ile Ser Ala Glu Leu

2420 2425 2430

Tyr Lys Asp Asp Phe Glu Val Ser Ser Leu Leu Ser Leu Arg Lys Asp

2435 2440 2445

Ser Gln Ser Cys Arg Asp Lys Pro Gln Pro Met Arg Ser Ser Thr Ser

2450 2455 2460

Gly Ala Thr Ser Phe Gly Ser Asn Glu Glu Ile Ser Glu Cys Leu Ser

2465 2470 2475 2480

Glu Lys Ser Leu Ser Ile His Ser Asn Val His Ser Asp Arg Leu Leu

2485 2490 2495

Glu Leu Lys Ser Pro Thr Glu Leu Met Lys Ser Lys Glu Arg Ser Asp

2500 2505 2510

Val Glu His Glu Gln Gln Val Thr Glu Ser Pro Ser Leu Ala Ser Val

2515 2520 2525

Pro Thr Ala Asp Glu Leu Phe Asp Phe His Ile Gly Asp Arg Val Leu

2530 2535 2540

Ile Gly Asn Val Gln Pro Gly Ile Leu Arg Phe Lys Gly Glu Thr Ser
2545 2550 2555 2560
Phe Ala Lys Gly Phe Trp Ala Gly Val Glu Leu Asp Lys Pro Glu Gly
2565 2570 2575
Asn Asn Asn Gly Thr Tyr Asp Gly Ile Ala Tyr Phe Glu Cys Lys Glu
2580 2585 2590
Lys His Gly Ile Phe Ala Pro Pro Gln Lys Ile Ser His Ile Pro Glu
2595 2600 2605
Asn Phe Asp Asp Tyr Val Asp Ile Asn Glu Asp Glu Asp Cys Tyr Ser

2610 2615 2620
Asp Glu Arg Tyr Gln Cys Tyr Asn Gln Glu Gln Asn Asp Thr Glu Gly
2625 2630 2635 2640
Pro Lys Asp Arg Glu Lys Asp Val Ser Glu Tyr Phe Tyr Glu Lys Ser
2645 2650 2655
Leu Pro Ser Val Asn Asp Ile Glu Ala Ser Val Asn Arg Ser Arg Ser
2660 2665 2670
Leu Lys Ile Glu Thr Asp Asn Val Gln Asp Ile Ser Gly Val Leu Glu
2675 2680 2685

Ala His Val His Gln Gln Ser Ser Val Asp Ser Gln Ile Ser Ser Lys
2690 2695 2700
Glu Asn Lys Asp Leu Ile Ser Asp Ala Thr Glu Lys Val Ser Ile Ala
2705 2710 2715 2720
Ala Glu Asp Asp Thr Leu Asp Asn Thr Phe Ser Glu Glu Leu Glu Lys
2725 2730 2735
Gln Gln Gln Phe Thr Glu Glu Glu Asp Asn Leu Tyr Ala Glu Ala Ser
2740 2745 2750
Glu Lys Leu Cys Thr Pro Leu Leu Asp Leu Leu Thr Arg Glu Lys Asn

2755 2760 2765
Gln Leu Glu Ala Gln Leu Lys Ser Ser Leu Asn Glu Glu Lys Lys Ser
2770 2775 2780
Lys Gln Gln Leu Glu Lys Ile Ser Leu Leu Thr Asp Ser Leu Leu Lys
2785 2790 2795 2800

Val Phe Val Lys Asp Thr Val Asn Gln Leu Gln Gln Ile Lys Lys Thr
2805 2810 2815
Arg Asp Glu Lys Ile Gln Leu Ser Asn Gln Glu Leu Leu Gly Asp Asp
2820 2825 2830

Gln Lys Lys Val Thr Pro Gln Asp Leu Ser Gln Asn Val Glu Glu Gln
2835 2840 2845
Ser Pro Ser Ile Ser Gly Cys Phe Leu Ser Ser Glu Leu Glu Asp Glu
2850 2855 2860
Lys Glu Glu Ile Ser Ser Pro Asp Met Cys Pro Arg Pro Glu Ser Pro
2865 2870 2875 2880
Val Phe Gly Ala Ser Gly Gln Glu Glu Leu Ala Lys Arg Leu Ala Glu
2885 2890 2895
Leu Glu Leu Ser Arg Glu Phe Leu Ser Ala Leu Gly Asp Asp Gln Asp

2900 2905 2910
Trp Phe Asp Glu Asp Phe Gly Leu Ser Ser Ser His Lys Ile Gln Lys
2915 2920 2925
Asn Lys Ala Glu Glu Thr Ile Val Pro Leu Met Ala Glu Pro Lys Arg
2930 2935 2940
Val Thr Gln Gln Pro Cys Glu Thr Leu Leu Ala Val Pro His Thr Ala
2945 2950 2955 2960
Glu Glu Val Glu Ile Leu Val His Asn Ala Ala Glu Glu Leu Trp Lys
2965 2970 2975

Trp Lys Glu Leu Gly His Asp Leu His Ser Ile Ser Ile Pro Thr Lys
2980 2985 2990
Leu Leu Gly Cys Ala Ser Lys Gly Leu Asp Ile Glu Ser Thr Ser Lys
2995 3000 3005
Arg Val Tyr Lys Gln Ala Val Phe Asp Leu Thr Lys Glu Ile Phe Glu
3010 3015 3020
Glu Ile Phe Ala Glu Asp Pro Asn Leu Asn Gln Pro Val Trp Met Lys
3025 3030 3035 3040
Pro Cys Arg Ile Asn Ser Ser Tyr Phe Arg Arg Val Lys Asn Pro Asn

3045 3050 3055

Asn Leu Asp Glu Ile Lys Ser Phe Ile Ala Ser Glu Val Leu Lys Leu

3060 3065 3070

Phe Ser Leu Lys Lys Glu Pro Asn His Lys Thr Asp Trp Gln Lys Met

3075 3080 3085

Met Lys Phe Gly Arg Lys Lys Arg Asp Arg Val Asp His Ile Leu Val

3090 3095 3100

Gln Glu Leu His Glu Glu Glu Ala Gln Trp Val Asn Tyr Asp Glu Asp

3105 3110 3115 3120

Glu Leu Cys Val Lys Met Gln Leu Ala Asp Gly Ile Phe Glu Thr Leu

3125 3130 3135

Ile Lys Asp Thr Ile Asp Val Leu Asn Gln Ile Ser Glu Lys Gln Gly

3140 3145 3150

Arg Met Leu Leu Val

3155

<210> 86

<211> 655

<212> PRT

<213> Homo sapiens

<400> 86

Met Ala Glu Ala Pro Gln Val Val Glu Ile Asp Pro Asp Phe Glu Pro

1 5 10 15

Leu Pro Arg Pro Arg Ser Cys Thr Trp Pro Leu Pro Arg Pro Glu Phe

20 25 30

Ser Gln Ser Asn Ser Ala Thr Ser Ser Pro Ala Pro Ser Gly Ser Ala

35 40 45

Ala Ala Asn Pro Asp Ala Ala Ala Gly Leu Pro Ser Ala Ser Ala Ala

50 55 60

Ala Val Ser Ala Asp Phe Met Ser Asn Leu Ser Leu Leu Glu Glu Ser

65 70 75 80

Glu Asp Phe Pro Gln Ala Pro Gly Ser Val Ala Ala Ala Val Ala Ala

85 90 95

Ala Ala Ala Ala Ala Ala Thr Gly Gly Leu Cys Gly Asp Phe Gln Gly
100 105 110
Pro Glu Ala Gly Cys Leu His Pro Ala Pro Pro Gln Pro Pro Pro Pro
115 120 125
Gly Pro Leu Ser Gln His Pro Pro Val Pro Pro Ala Ala Ala Gly Pro
130 135 140
Leu Ala Gly Gln Pro Arg Lys Ser Ser Ser Ser Arg Arg Asn Ala Trp
145 150 155 160
Gly Asn Leu Ser Tyr Ala Asp Leu Ile Thr Lys Ala Ile Glu Ser Ser

165 170 175
Ala Glu Lys Arg Leu Thr Leu Ser Gln Ile Tyr Glu Trp Met Val Lys
180 185 190
Ser Val Pro Tyr Phe Lys Asp Lys Gly Asp Ser Asn Ser Ser Ala Gly
195 200 205
Trp Lys Asn Ser Ile Arg His Asn Leu Ser Leu His Ser Lys Phe Ile
210 215 220
Arg Val Gln Asn Glu Gly Thr Gly Lys Ser Ser Trp Trp Met Leu Asn
225 230 235 240

Pro Glu Gly Gly Lys Ser Gly Lys Ser Pro Arg Arg Arg Ala Ala Ser
245 250 255
Met Asp Asn Asn Ser Lys Phe Ala Lys Ser Arg Ser Arg Ala Ala Lys
260 265 270
Lys Lys Ala Ser Leu Gln Ser Gly Gln Glu Gly Ala Gly Asp Ser Pro
275 280 285
Gly Ser Gln Phe Ser Lys Trp Pro Ala Ser Pro Gly Ser His Ser Asn
290 295 300
Asp Asp Phe Asp Asn Trp Ser Thr Phe Arg Pro Arg Thr Ser Ser Asn

305 310 315 320
Ala Ser Thr Ile Ser Gly Arg Leu Ser Pro Ile Met Thr Glu Gln Asp
325 330 335
Asp Leu Gly Glu Gly Asp Val His Ser Met Val Tyr Pro Pro Ser Ala
340 345 350

Ala Lys Met Ala Ser Thr Leu Pro Ser Leu Ser Glu Ile Ser Asn Pro
355 360 365
Glu Asn Met Glu Asn Leu Leu Asp Asn Leu Asn Leu Leu Ser Ser Pro
370 375 380

Thr Ser Leu Thr Val Ser Thr Gln Ser Ser Pro Gly Thr Met Met Gln
385 390 395 400
Gln Thr Pro Cys Tyr Ser Phe Ala Pro Pro Asn Thr Ser Leu Asn Ser
405 410 415
Pro Ser Pro Asn Tyr Gln Lys Tyr Thr Tyr Gly Gln Ser Ser Met Ser
420 425 430
Pro Leu Pro Gln Met Pro Ile Gln Thr Leu Gln Asp Asn Lys Ser Ser
435 440 445
Tyr Gly Gly Met Ser Gln Tyr Asn Cys Ala Pro Gly Leu Leu Lys Glu

450 455 460
Leu Leu Thr Ser Asp Ser Pro Pro His Asn Asp Ile Met Thr Pro Val
465 470 475 480
Asp Pro Gly Val Ala Gln Pro Asn Ser Arg Val Leu Gly Gln Asn Val
485 490 495
Met Met Gly Pro Asn Ser Val Met Ser Thr Tyr Gly Ser Gln Ala Ser
500 505 510
His Asn Lys Met Met Asn Pro Ser Ser His Thr His Pro Gly His Ala
515 520 525

Gln Gln Thr Ser Ala Val Asn Gly Arg Pro Leu Pro His Thr Val Ser
530 535 540
Thr Met Pro His Thr Ser Gly Met Asn Arg Leu Thr Gln Val Lys Thr
545 550 555 560
Pro Val Gln Val Pro Leu Pro His Pro Met Gln Met Ser Ala Leu Gly
565 570 575
Gly Tyr Ser Ser Val Ser Ser Cys Asn Gly Tyr Gly Arg Met Gly Leu
580 585 590
Leu His Gln Glu Lys Leu Pro Ser Asp Leu Asp Gly Met Phe Ile Glu

595 600 605

Arg Leu Asp Cys Asp Met Glu Ser Ile Ile Arg Asn Asp Leu Met Asp

610 615 620

Gly Asp Thr Leu Asp Phe Asn Phe Asp Asn Val Leu Pro Asn Gln Ser

625 630 635 640

Phe Pro His Ser Val Lys Thr Thr Thr His Ser Trp Val Ser Gly

645 650 655

<210> 87

<211> 474

<212> PRT

<213> Homo sapiens

<400> 87

Met Arg Ser Lys His Thr Ala Asn Cys Leu Ala Phe Arg Cys Ile Leu

1 5 10 15

Ala Trp Pro Gly Gly Leu Ala Gln Asn Cys Trp Cys Gln Asn Ser Ile

20 25 30

Arg His Asn Leu Ser Leu His Ser Lys Phe Ile Arg Val Gln Asn Glu

35 40 45

Gly Thr Gly Lys Ser Ser Trp Trp Met Leu Asn Pro Glu Gly Gly Lys

50 55 60

Ser Gly Lys Ser Pro Arg Arg Arg Ala Ala Ser Met Asp Asn Asn Ser

65 70 75 80

Lys Phe Ala Lys Ser Arg Ser Arg Ala Ala Lys Lys Lys Ala Ser Leu

85 90 95

Gln Ser Gly Gln Glu Gly Ala Gly Asp Ser Pro Gly Ser Gln Phe Ser

100 105 110

Lys Trp Pro Ala Ser Pro Gly Ser His Ser Asn Asp Asp Phe Asp Asn

115 120 125

Trp Ser Thr Phe Arg Pro Arg Thr Ser Ser Asn Ala Ser Thr Ile Ser

130 135 140

Gly Arg Leu Ser Pro Ile Met Thr Glu Gln Asp Asp Leu Gly Glu Gly

145 150 155 160

Asp Val His Ser Met Val Tyr Pro Pro Ser Ala Ala Lys Met Ala Ser
165 170 175
Thr Leu Pro Ser Leu Ser Glu Ile Ser Asn Pro Glu Asn Met Glu Asn
180 185 190
Leu Leu Asp Asn Leu Asn Leu Leu Ser Ser Pro Thr Ser Leu Thr Val
195 200 205
Ser Thr Gln Ser Ser Pro Gly Thr Met Met Gln Gln Thr Pro Cys Tyr
210 215 220

Ser Phe Ala Pro Pro Asn Thr Ser Leu Asn Ser Pro Ser Pro Asn Tyr
225 230 235 240
Gln Lys Tyr Thr Tyr Gly Gln Ser Ser Met Ser Pro Leu Pro Gln Met
245 250 255
Pro Ile Gln Thr Leu Gln Asp Asn Lys Ser Ser Tyr Gly Gly Met Ser
260 265 270
Gln Tyr Asn Cys Ala Pro Gly Leu Leu Lys Glu Leu Leu Thr Ser Asp
275 280 285
Ser Pro Pro His Asn Asp Ile Met Thr Pro Val Asp Pro Gly Val Ala

290 295 300
Gln Pro Asn Ser Arg Val Leu Gly Gln Asn Val Met Met Gly Pro Asn
305 310 315 320
Ser Val Met Ser Thr Tyr Gly Ser Gln Ala Ser His Asn Lys Met Met
325 330 335
Asn Pro Ser Ser His Thr His Pro Gly His Ala Gln Gln Thr Ser Ala
340 345 350
Val Asn Gly Arg Pro Leu Pro His Thr Val Ser Thr Met Pro His Thr
355 360 365

Ser Gly Met Asn Arg Leu Thr Gln Val Lys Thr Pro Val Gln Val Pro
370 375 380
Leu Pro His Pro Met Gln Met Ser Ala Leu Gly Gly Tyr Ser Ser Val
385 390 395 400
Ser Ser Cys Asn Gly Tyr Gly Arg Met Gly Leu Leu His Gln Glu Lys
405 410 415

Leu Pro Ser Asp Leu Asp Gly Met Phe Ile Glu Arg Leu Asp Cys Asp
420 425 430
Met Glu Ser Ile Ile Arg Asn Asp Leu Met Asp Gly Asp Thr Leu Asp

435 440 445
Phe Asn Phe Asp Asn Val Leu Pro Asn Gln Ser Phe Pro His Ser Val
450 455 460
Lys Thr Thr Thr His Ser Trp Val Ser Gly
465 470

<210> 88
<211> 418
<212> PRT
<213> Homo sapiens
<400> 88

Met Leu Asn Pro Glu Gly Gly Lys Ser Gly Lys Ser Pro Arg Arg Arg
1 5 10 15
Ala Ala Ser Met Asp Asn Asn Ser Lys Phe Ala Lys Ser Arg Ser Arg

20 25 30
Ala Ala Lys Lys Lys Ala Ser Leu Gln Ser Gly Gln Glu Gly Ala Gly
35 40 45
Asp Ser Pro Gly Ser Gln Phe Ser Lys Trp Pro Ala Ser Pro Gly Ser
50 55 60
His Ser Asn Asp Asp Phe Asp Asn Trp Ser Thr Phe Arg Pro Arg Thr
65 70 75 80
Ser Ser Asn Ala Ser Thr Ile Ser Gly Arg Leu Ser Pro Ile Met Thr
85 90 95

Glu Gln Asp Asp Leu Gly Glu Gly Asp Val His Ser Met Val Tyr Pro
100 105 110
Pro Ser Ala Ala Lys Met Ala Ser Thr Leu Pro Ser Leu Ser Glu Ile
115 120 125
Ser Asn Pro Glu Asn Met Glu Asn Leu Leu Asp Asn Leu Asn Leu Leu
130 135 140
Ser Ser Pro Thr Ser Leu Thr Val Ser Thr Gln Ser Ser Pro Gly Thr

145 150 155 160

Met Met Gln Gln Thr Pro Cys Tyr Ser Phe Ala Pro Pro Asn Thr Ser

165 170 175

Leu Asn Ser Pro Ser Pro Asn Tyr Gln Lys Tyr Thr Tyr Gly Gln Ser

180 185 190

Ser Met Ser Pro Leu Pro Gln Met Pro Ile Gln Thr Leu Gln Asp Asn

195 200 205

Lys Ser Ser Tyr Gly Gly Met Ser Gln Tyr Asn Cys Ala Pro Gly Leu

210 215 220

Leu Lys Glu Leu Leu Thr Ser Asp Ser Pro Pro His Asn Asp Ile Met

225 230 235 240

Thr Pro Val Asp Pro Gly Val Ala Gln Pro Asn Ser Arg Val Leu Gly

245 250 255

Gln Asn Val Met Met Gly Pro Asn Ser Val Met Ser Thr Tyr Gly Ser

260 265 270

Gln Ala Ser His Asn Lys Met Met Asn Pro Ser Ser His Thr His Pro

275 280 285

Gly His Ala Gln Gln Thr Ser Ala Val Asn Gly Arg Pro Leu Pro His

290 295 300

Thr Val Ser Thr Met Pro His Thr Ser Gly Met Asn Arg Leu Thr Gln

305 310 315 320

Val Lys Thr Pro Val Gln Val Pro Leu Pro His Pro Met Gln Met Ser

325 330 335

Ala Leu Gly Gly Tyr Ser Ser Val Ser Ser Cys Asn Gly Tyr Gly Arg

340 345 350

Met Gly Leu Leu His Gln Glu Lys Leu Pro Ser Asp Leu Asp Gly Met

355 360 365

Phe Ile Glu Arg Leu Asp Cys Asp Met Glu Ser Ile Ile Arg Asn Asp

370 375 380

Leu Met Asp Gly Asp Thr Leu Asp Phe Asn Phe Asp Asn Val Leu Pro

385 390 395 400

Asn Gln Ser Phe Pro His Ser Val Lys Thr Thr Thr His Ser Trp Val
405 410 415
Ser Gly

<210> 89
<211> 89
<212> PRT
<213> Homo sapiens
<400> 89
Met Ala Ala Gln Ile Pro Glu Ser Asp Gln Ile Lys Gln Phe Lys Glu
1 5 10 15
Phe Leu Gly Thr Tyr Asn Lys Leu Thr Glu Thr Cys Phe Leu Asp Cys

20 25 30
Val Lys Asp Phe Thr Thr Arg Glu Val Lys Pro Glu Glu Thr Thr Cys
35 40 45
Ser Glu His Cys Leu Gln Lys Tyr Leu Lys Met Thr Gln Arg Ile Ser
50 55 60
Met Arg Phe Gln Glu Tyr His Ile Gln Gln Asn Glu Ala Leu Ala Ala
65 70 75 80
Lys Ala Gly Leu Leu Gly Gln Pro Arg
85

<210> 90

<211> 66
<212> PRT
<213> Homo sapiens
<400> 90
Met Ala Ala Gln Ile Pro Glu Ser Asp Gln Ile Lys Gln Phe Lys Glu
1 5 10 15
Phe Leu Gly Thr Tyr Asn Lys Leu Thr Glu Thr Cys Phe Leu Asp Cys
20 25 30
Val Lys Asp Phe Thr Thr Arg Glu Val Lys Pro Glu Glu Glu Tyr His
35 40 45
Ile Gln Gln Asn Glu Ala Leu Ala Ala Lys Ala Gly Leu Leu Gly Gln

50 55 60

Pro Arg
65

<210> 91
<211> 61
<212> PRT
<213> Homo sapiens
<400> 91

Met Ala Ala Gln Ile Pro Glu Ser Asp Gln Ile Lys Gln Phe Lys Glu
1 5 10 15
Phe Leu Gly Thr Tyr Asn Lys Leu Thr Glu Thr Cys Phe Leu Asp Cys
20 25 30
Val Lys Asp Phe Thr Thr Arg Glu Val Lys Pro Glu Glu Gln Asn Glu
35 40 45
Ala Leu Ala Ala Lys Ala Gly Leu Leu Gly Gln Pro Arg

50 55 60

<210> 92
<211> 60
<212> PRT
<213> Homo sapiens
<400> 92

Met Ala Ala Gln Ile Pro Glu Ser Asp Gln Ile Lys Gln Phe Lys Glu
1 5 10 15
Phe Leu Gly Thr Tyr Asn Lys Leu Thr Glu Thr Cys Phe Leu Asp Cys
20 25 30
Val Lys Asp Phe Thr Thr Arg Glu Val Lys Pro Glu Glu Asn Glu Ala
35 40 45
Leu Ala Ala Lys Ala Gly Leu Leu Gly Gln Pro Arg

50 55 60

<210> 93
<211> 1905
<212> PRT

<213> Homo sapiens

<400> 93

Met Ala Ser Gly Leu Gly Ser Pro Ser Pro Cys Ser Ala Gly Ser Glu
1 5 10 15

Glu Glu Asp Met Asp Ala Leu Leu Asn Asn Ser Leu Pro Pro Pro His
20 25 30

Pro Glu Asn Glu Glu Asp Pro Glu Glu Asp Leu Ser Glu Thr Glu Thr
35 40 45

Pro Lys Leu Lys Lys Lys Lys Lys Pro Lys Lys Pro Arg Asp Pro Lys

50 55 60

Ile Pro Lys Ser Lys Arg Gln Lys Lys Glu Leu Gly Asp Ser Ser Gly
65 70 75 80

Glu Gly Pro Glu Phe Val Glu Glu Glu Glu Glu Val Ala Leu Arg Ser
85 90 95

Asp Ser Glu Gly Ser Asp Tyr Thr Pro Gly Lys Lys Lys Lys Lys Lys
100 105 110

Leu Gly Pro Lys Lys Glu Lys Lys Ser Lys Ser Lys Arg Lys Glu Glu
115 120 125

Glu Glu Glu Glu Asp Asp Asp Asp Asp Ser Lys Glu Pro Lys Ser Ser
130 135 140

Ala Gln Leu Leu Glu Asp Trp Gly Met Glu Asp Ile Asp His Val Phe
145 150 155 160

Ser Glu Glu Asp Tyr Arg Thr Leu Thr Asn Tyr Lys Ala Phe Ser Gln
165 170 175

Phe Val Arg Pro Leu Ile Ala Ala Lys Asn Pro Lys Ile Ala Val Ser
180 185 190

Lys Met Met Met Val Leu Gly Ala Lys Trp Arg Glu Phe Ser Thr Asn

195 200 205

Asn Pro Phe Lys Gly Ser Ser Gly Ala Ser Val Ala Ala Ala Ala Ala
210 215 220

Ala Ala Val Ala Val Val Glu Ser Met Val Thr Ala Thr Glu Val Ala
225 230 235 240

Pro Pro Pro Pro Pro Val Glu Val Pro Ile Arg Lys Ala Lys Thr Lys
245 250 255
Glu Gly Lys Gly Pro Asn Ala Arg Arg Lys Pro Lys Gly Ser Pro Arg
260 265 270

Val Pro Asp Ala Lys Lys Pro Lys Pro Lys Lys Val Ala Pro Leu Lys
275 280 285
Ile Lys Leu Gly Gly Phe Gly Ser Lys Arg Lys Arg Ser Ser Ser Glu
290 295 300
Asp Asp Asp Leu Asp Val Glu Ser Asp Phe Asp Asp Ala Ser Ile Asn
305 310 315 320
Ser Tyr Ser Val Ser Asp Gly Ser Thr Ser Arg Ser Ser Arg Ser Arg
325 330 335
Lys Lys Leu Arg Thr Thr Lys Lys Lys Lys Lys Gly Glu Glu Glu Val

340 345 350
Thr Ala Val Asp Gly Tyr Glu Thr Asp His Gln Asp Tyr Cys Glu Val
355 360 365
Cys Gln Gln Gly Gly Glu Ile Ile Leu Cys Asp Thr Cys Pro Arg Ala
370 375 380
Tyr His Met Val Cys Leu Asp Pro Asp Met Glu Lys Ala Pro Glu Gly
385 390 395 400
Lys Trp Ser Cys Pro His Cys Glu Lys Glu Gly Ile Gln Trp Glu Ala
405 410 415

Lys Glu Asp Asn Ser Glu Gly Glu Glu Ile Leu Glu Glu Val Gly Gly
420 425 430
Asp Leu Glu Glu Glu Asp Asp His His Met Glu Phe Cys Arg Val Cys
435 440 445
Lys Asp Gly Gly Glu Leu Leu Cys Cys Asp Thr Cys Pro Ser Ser Tyr
450 455 460
His Ile His Cys Leu Asn Pro Pro Leu Pro Glu Ile Pro Asn Gly Glu
465 470 475 480
Trp Leu Cys Pro Arg Cys Thr Cys Pro Ala Leu Lys Gly Lys Val Gln

485 490 495

Lys Ile Leu Ile Trp Lys Trp Gly Gln Pro Pro Ser Pro Thr Pro Val

500 505 510

Pro Arg Pro Pro Asp Ala Asp Pro Asn Thr Pro Ser Pro Lys Pro Leu

515 520 525

Glu Gly Arg Pro Glu Arg Gln Phe Phe Val Lys Trp Gln Gly Met Ser

530 535 540

Tyr Trp His Cys Ser Trp Val Ser Glu Leu Gln Leu Glu Leu His Cys

545 550 555 560

Gln Val Met Phe Arg Asn Tyr Gln Arg Lys Asn Asp Met Asp Glu Pro

565 570 575

Pro Ser Gly Asp Phe Gly Gly Asp Glu Glu Lys Ser Arg Lys Arg Lys

580 585 590

Asn Lys Asp Pro Lys Phe Ala Glu Met Glu Glu Arg Phe Tyr Arg Tyr

595 600 605

Gly Ile Lys Pro Glu Trp Met Met Ile His Arg Ile Leu Asn His Ser

610 615 620

Val Asp Lys Lys Gly His Val His Tyr Leu Ile Lys Trp Arg Asp Leu

625 630 635 640

Pro Tyr Asp Gln Ala Ser Trp Glu Ser Glu Asp Val Glu Ile Gln Asp

645 650 655

Tyr Asp Leu Phe Lys Gln Ser Tyr Trp Asn His Arg Glu Leu Met Arg

660 665 670

Gly Glu Glu Gly Arg Pro Gly Lys Lys Leu Lys Lys Val Lys Leu Arg

675 680 685

Lys Leu Glu Arg Pro Pro Glu Thr Pro Thr Val Asp Pro Thr Val Lys

690 695 700

Tyr Glu Arg Gln Pro Glu Tyr Leu Asp Ala Thr Gly Gly Thr Leu His

705 710 715 720

Pro Tyr Gln Met Glu Gly Leu Asn Trp Leu Arg Phe Ser Trp Ala Gln

725 730 735

Gly Thr Asp Thr Ile Leu Ala Asp Glu Met Gly Leu Gly Lys Thr Val

740 745 750

Gln Thr Ala Val Phe Leu Tyr Ser Leu Tyr Lys Glu Gly His Ser Lys

755 760 765

Gly Pro Phe Leu Val Ser Ala Pro Leu Ser Thr Ile Ile Asn Trp Glu

770 775 780

Arg Glu Phe Glu Met Trp Ala Pro Asp Met Tyr Val Val Thr Tyr Val

785 790 795 800

Gly Asp Lys Asp Ser Arg Ala Ile Ile Arg Glu Asn Glu Phe Ser Phe

805 810 815

Glu Asp Asn Ala Ile Arg Gly Gly Lys Lys Ala Ser Arg Met Lys Lys

820 825 830

Glu Ala Ser Val Lys Phe His Val Leu Leu Thr Ser Tyr Glu Leu Ile

835 840 845

Thr Ile Asp Met Ala Ile Leu Gly Ser Ile Asp Trp Ala Cys Leu Ile

850 855 860

Val Asp Glu Ala His Arg Leu Lys Asn Asn Gln Ser Lys Phe Phe Arg

865 870 875 880

Val Leu Asn Gly Tyr Ser Leu Gln His Lys Leu Leu Leu Thr Gly Thr

885 890 895

Pro Leu Gln Asn Asn Leu Glu Glu Leu Phe His Leu Leu Asn Phe Leu

900 905 910

Thr Pro Glu Arg Phe His Asn Leu Glu Gly Phe Leu Glu Glu Phe Ala

915 920 925

Asp Ile Ala Lys Glu Asp Gln Ile Lys Lys Leu His Asp Met Leu Gly

930 935 940

Pro His Met Leu Arg Arg Leu Lys Ala Asp Val Phe Lys Asn Met Pro

945 950 955 960

Ser Lys Thr Glu Leu Ile Val Arg Val Glu Leu Ser Pro Met Gln Lys

965 970 975

Lys Tyr Tyr Lys Tyr Ile Leu Thr Arg Asn Phe Glu Ala Leu Asn Ala

980 985 990

Arg Gly Gly Gly Asn Gln Val Ser Leu Leu Asn Val Val Met Asp Leu
995 1000 1005

Lys Lys Cys Cys Asn His Pro Tyr Leu Phe Pro Val Ala Ala Met Glu
1010 1015 1020

Ala Pro Lys Met Pro Asn Gly Met Tyr Asp Gly Ser Ala Leu Ile Arg
1025 1030 1035 1040

Ala Ser Gly Lys Leu Leu Leu Leu Gln Lys Met Leu Lys Asn Leu Lys
1045 1050 1055

Glu Gly Gly His Arg Val Leu Ile Phe Ser Gln Met Thr Lys Met Leu

1060 1065 1070

Asp Leu Leu Glu Asp Phe Leu Glu His Glu Gly Tyr Lys Tyr Glu Arg
1075 1080 1085

Ile Asp Gly Gly Ile Thr Gly Asn Met Arg Gln Glu Ala Ile Asp Arg
1090 1095 1100

Phe Asn Ala Pro Gly Ala Gln Gln Phe Cys Phe Leu Leu Ser Thr Arg
1105 1110 1115 1120

Ala Gly Gly Leu Gly Ile Asn Leu Ala Thr Ala Asp Thr Val Ile Ile
1125 1130 1135

Tyr Asp Ser Asp Trp Asn Pro His Asn Asp Ile Gln Ala Phe Ser Arg
1140 1145 1150

Ala His Arg Ile Gly Gln Asn Lys Lys Val Met Ile Tyr Arg Phe Val
1155 1160 1165

Thr Arg Ala Ser Val Glu Glu Arg Ile Thr Gln Val Ala Lys Lys Lys
1170 1175 1180

Met Met Leu Thr His Leu Val Val Arg Pro Gly Leu Gly Ser Lys Thr
1185 1190 1195 1200

Gly Ser Met Ser Lys Gln Glu Leu Asp Asp Ile Leu Lys Phe Gly Thr

1205 1210 1215

Glu Glu Leu Phe Lys Asp Glu Ala Thr Asp Gly Gly Gly Asp Asn Lys
1220 1225 1230

Glu Gly Glu Asp Ser Ser Val Ile His Tyr Asp Asp Lys Ala Ile Glu
1235 1240 1245

Arg Leu Leu Asp Arg Asn Gln Asp Glu Thr Glu Asp Thr Glu Leu Gln
1250 1255 1260
Gly Met Asn Glu Tyr Leu Ser Ser Phe Lys Val Ala Gln Tyr Val Val
1265 1270 1275 1280

Arg Glu Glu Glu Met Gly Glu Glu Glu Glu Val Glu Arg Glu Ile Ile
1285 1290 1295
Lys Gln Glu Glu Ser Val Asp Pro Asp Tyr Trp Glu Lys Leu Leu Arg
1300 1305 1310
His His Tyr Glu Gln Gln Gln Glu Asp Leu Ala Arg Asn Leu Gly Lys
1315 1320 1325
Gly Lys Arg Ile Arg Lys Gln Val Asn Tyr Asn Asp Gly Ser Gln Glu
1330 1335 1340
Asp Arg Asp Trp Gln Asp Asp Gln Ser Asp Asn Gln Ser Asp Tyr Ser

1345 1350 1355 1360
Val Ala Ser Glu Glu Gly Asp Glu Asp Phe Asp Glu Arg Ser Glu Ala
1365 1370 1375
Pro Arg Arg Pro Ser Arg Lys Gly Leu Arg Asn Asp Lys Asp Lys Pro
1380 1385 1390
Leu Pro Pro Leu Leu Ala Arg Val Gly Gly Asn Ile Glu Val Leu Gly
1395 1400 1405
Phe Asn Ala Arg Gln Arg Lys Ala Phe Leu Asn Ala Ile Met Arg Tyr
1410 1415 1420

Gly Met Pro Pro Gln Asp Ala Phe Thr Thr Gln Trp Leu Val Arg Asp
1425 1430 1435 1440
Leu Arg Gly Lys Ser Glu Lys Glu Phe Lys Ala Tyr Val Ser Leu Phe
1445 1450 1455
Met Arg His Leu Cys Glu Pro Gly Ala Asp Gly Ala Glu Thr Phe Ala
1460 1465 1470
Asp Gly Val Pro Arg Glu Gly Leu Ser Arg Gln His Val Leu Thr Arg
1475 1480 1485
Ile Gly Val Met Ser Leu Ile Arg Lys Lys Val Gln Glu Phe Glu His

1490 1495 1500

Val Asn Gly Arg Trp Ser Met Pro Glu Leu Ala Glu Val Glu Glu Asn

1505 1510 1515 1520

Lys Lys Met Ser Gln Pro Gly Ser Pro Ser Pro Lys Thr Pro Thr Pro

1525 1530 1535

Ser Thr Pro Gly Asp Thr Gln Pro Asn Thr Pro Ala Pro Val Pro Pro

1540 1545 1550

Ala Glu Asp Gly Ile Lys Ile Glu Glu Asn Ser Leu Lys Glu Glu Glu

1555 1560 1565

Ser Ile Glu Gly Glu Lys Glu Val Lys Ser Thr Ala Pro Glu Thr Ala

1570 1575 1580

Ile Glu Cys Thr Gln Ala Pro Ala Pro Ala Ser Glu Asp Glu Lys Val

1585 1590 1595 1600

Val Val Glu Pro Pro Glu Gly Glu Glu Lys Val Glu Lys Ala Glu Val

1605 1610 1615

Lys Glu Arg Thr Glu Glu Pro Met Glu Thr Glu Pro Lys Gly Ala Ala

1620 1625 1630

Asp Val Glu Lys Val Glu Glu Lys Ser Ala Ile Asp Leu Thr Pro Ile

1635 1640 1645

Val Val Glu Asp Lys Glu Glu Lys Lys Glu Glu Glu Glu Lys Lys Glu

1650 1655 1660

Val Met Leu Gln Asn Gly Glu Thr Pro Lys Asp Leu Asn Asp Glu Lys

1665 1670 1675 1680

Gln Lys Lys Asn Ile Lys Gln Arg Phe Met Phe Asn Ile Ala Asp Gly

1685 1690 1695

Gly Phe Thr Glu Leu His Ser Leu Trp Gln Asn Glu Glu Arg Ala Ala

1700 1705 1710

Thr Val Thr Lys Lys Thr Tyr Glu Ile Trp His Arg Arg His Asp Tyr

1715 1720 1725

Trp Leu Leu Ala Gly Ile Ile Asn His Gly Tyr Ala Arg Trp Gln Asp

1730 1735 1740

Ile Gln Asn Asp Pro Arg Tyr Ala Ile Leu Asn Glu Pro Phe Lys Gly

1745 1750 1755 1760

Glu Met Asn Arg Gly Asn Phe Leu Glu Ile Lys Asn Lys Phe Leu Ala

1765 1770 1775

Arg Arg Phe Lys Leu Leu Glu Gln Ala Leu Val Ile Glu Glu Gln Leu

1780 1785 1790

Arg Arg Ala Ala Tyr Leu Asn Met Ser Glu Asp Pro Ser His Pro Ser

1795 1800 1805

Met Ala Leu Asn Thr Arg Phe Ala Glu Val Glu Cys Leu Ala Glu Ser

1810 1815 1820

His Gln His Leu Ser Lys Glu Ser Met Ala Gly Asn Lys Pro Ala Asn

1825 1830 1835 1840

Ala Val Leu His Lys Val Leu Lys Gln Leu Glu Glu Leu Leu Ser Asp

1845 1850 1855

Met Lys Ala Asp Val Thr Arg Leu Pro Ala Thr Ile Ala Arg Ile Pro

1860 1865 1870

Pro Val Ala Val Arg Leu Gln Met Ser Glu Arg Asn Ile Leu Ser Arg

1875 1880 1885

Leu Ala Asn Arg Ala Pro Glu Pro Thr Pro Gln Gln Val Ala Gln Gln

1890 1895 1900

Gln

190

<210> 94

<211> 1902

<212> PRT

<213> Homo sapiens

<400> 94

Met Ala Ser Gly Leu Gly Ser Pro Ser Pro Cys Ser Ala Gly Ser Glu

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Glu Glu Asp Met Asp Ala Leu Leu Asn Asn Ser Leu Pro Pro Pro His

20 25 30

Pro Glu Asn Glu Glu Asp Pro Glu Glu Asp Leu Ser Glu Thr Glu Thr

35 40 45

Pro Lys Leu Lys Lys Lys Lys Lys Pro Lys Lys Pro Arg Asp Pro Lys
50 55 60
Ile Pro Lys Ser Lys Arg Gln Lys Lys Glu Arg Met Leu Leu Cys Arg
65 70 75 80

Gln Leu Gly Asp Ser Ser Gly Glu Gly Pro Glu Phe Val Glu Glu Glu
85 90 95
Glu Glu Val Ala Leu Arg Ser Asp Ser Glu Gly Ser Asp Tyr Thr Pro
100 105 110
Gly Lys Lys Lys Lys Lys Lys Leu Gly Pro Lys Lys Glu Lys Lys Ser
115 120 125
Lys Ser Lys Arg Lys Glu Glu Glu Glu Glu Glu Asp Asp Asp Asp Asp
130 135 140
Ser Lys Glu Pro Lys Ser Ser Ala Gln Leu Leu Glu Asp Trp Gly Met

145 150 155 160
Glu Asp Ile Asp His Val Phe Ser Glu Glu Asp Tyr Arg Thr Leu Thr
165 170 175
Asn Tyr Lys Ala Phe Ser Gln Phe Val Arg Pro Leu Ile Ala Ala Lys
180 185 190
Asn Pro Lys Ile Ala Val Ser Lys Met Met Met Val Leu Gly Ala Lys
195 200 205
Trp Arg Glu Phe Ser Thr Asn Asn Pro Phe Lys Gly Ser Ser Gly Ala
210 215 220

Ser Val Ala Ala Ala Ala Ala Ala Ala Val Ala Val Val Glu Ser Met
225 230 235 240
Val Thr Ala Thr Glu Val Ala Pro Pro Pro Pro Pro Val Glu Val Pro
245 250 255
Ile Arg Lys Ala Lys Thr Lys Glu Gly Lys Gly Pro Asn Ala Arg Arg
260 265 270
Lys Pro Lys Gly Ser Pro Arg Val Pro Asp Ala Lys Lys Pro Lys Pro
275 280 285
Lys Lys Val Ala Pro Leu Lys Ile Lys Leu Gly Gly Phe Gly Ser Lys

290 295 300

Arg Lys Arg Ser Ser Ser Glu Asp Asp Asp Leu Asp Val Glu Ser Asp

305 310 315 320

Phe Asp Asp Ala Ser Ile Asn Ser Tyr Ser Val Ser Asp Gly Ser Thr

325 330 335

Ser Arg Ser Ser Arg Ser Arg Lys Lys Leu Arg Thr Thr Lys Lys Lys

340 345 350

Lys Lys Asp His Gln Asp Tyr Cys Glu Val Cys Gln Gln Gly Gly Glu

355 360 365

Ile Ile Leu Cys Asp Thr Cys Pro Arg Ala Tyr His Met Val Cys Leu

370 375 380

Asp Pro Asp Met Glu Lys Ala Pro Glu Gly Lys Trp Ser Cys Pro His

385 390 395 400

Cys Glu Lys Glu Gly Ile Gln Trp Glu Ala Lys Glu Asp Asn Ser Glu

405 410 415

Gly Glu Glu Ile Leu Glu Glu Val Gly Gly Asp Leu Glu Glu Glu Asp

420 425 430

Asp His His Met Glu Phe Cys Arg Val Cys Lys Asp Gly Gly Glu Leu

435 440 445

Leu Cys Cys Asp Thr Cys Pro Ser Ser Tyr His Ile His Cys Leu Asn

450 455 460

Pro Pro Leu Pro Glu Ile Pro Asn Gly Glu Trp Leu Cys Pro Arg Cys

465 470 475 480

Thr Cys Pro Ala Leu Lys Gly Lys Val Gln Lys Ile Leu Ile Trp Lys

485 490 495

Trp Gly Gln Pro Pro Ser Pro Thr Pro Val Pro Arg Pro Pro Asp Ala

500 505 510

Asp Pro Asn Thr Pro Ser Pro Lys Pro Leu Glu Gly Arg Pro Glu Arg

515 520 525

Gln Phe Phe Val Lys Trp Gln Gly Met Ser Tyr Trp His Cys Ser Trp

530 535 540

Val Ser Glu Leu Gln Leu Glu Leu His Cys Gln Val Met Phe Arg Asn

545 550 555 560

Tyr Gln Arg Lys Asn Asp Met Asp Glu Pro Pro Ser Gly Asp Phe Gly

565 570 575

Gly Asp Glu Glu Lys Ser Arg Lys Arg Lys Asn Lys Asp Pro Lys Phe

580 585 590

Ala Glu Met Glu Glu Arg Phe Tyr Arg Tyr Gly Ile Lys Pro Glu Trp

595 600 605

Met Met Ile His Arg Ile Leu Asn His Ser Val Asp Lys Lys Gly His

610 615 620

Val His Tyr Leu Ile Lys Trp Arg Asp Leu Pro Tyr Asp Gln Ala Ser

625 630 635 640

Trp Glu Ser Glu Asp Val Glu Ile Gln Asp Tyr Asp Leu Phe Lys Gln

645 650 655

Ser Tyr Trp Asn His Arg Glu Leu Met Arg Gly Glu Glu Gly Arg Pro

660 665 670

Gly Lys Lys Leu Lys Lys Val Lys Leu Arg Lys Leu Glu Arg Pro Pro

675 680 685

Glu Thr Pro Thr Val Asp Pro Thr Val Lys Tyr Glu Arg Gln Pro Glu

690 695 700

Tyr Leu Asp Ala Thr Gly Gly Thr Leu His Pro Tyr Gln Met Glu Gly

705 710 715 720

Leu Asn Trp Leu Arg Phe Ser Trp Ala Gln Gly Thr Asp Thr Ile Leu

725 730 735

Ala Asp Glu Met Gly Leu Gly Lys Thr Val Gln Thr Ala Val Phe Leu

740 745 750

Tyr Ser Leu Tyr Lys Glu Gly His Ser Lys Gly Pro Phe Leu Val Ser

755 760 765

Ala Pro Leu Ser Thr Ile Ile Asn Trp Glu Arg Glu Phe Glu Met Trp

770 775 780

Ala Pro Asp Met Tyr Val Val Thr Tyr Val Gly Asp Lys Asp Ser Arg

785 790 795 800

Ala Ile Ile Arg Glu Asn Glu Phe Ser Phe Glu Asp Asn Ala Ile Arg
805 810 815
Gly Gly Lys Lys Ala Ser Arg Met Lys Lys Glu Ala Ser Val Lys Phe
820 825 830
His Val Leu Leu Thr Ser Tyr Glu Leu Ile Thr Ile Asp Met Ala Ile
835 840 845
Leu Gly Ser Ile Asp Trp Ala Cys Leu Ile Val Asp Glu Ala His Arg
850 855 860
Leu Lys Asn Asn Gln Ser Lys Phe Phe Arg Val Leu Asn Gly Tyr Ser

865 870 875 880
Leu Gln His Lys Leu Leu Leu Thr Gly Thr Pro Leu Gln Asn Asn Leu
885 890 895
Glu Glu Leu Phe His Leu Leu Asn Phe Leu Thr Pro Glu Arg Phe His
900 905 910
Asn Leu Glu Gly Phe Leu Glu Glu Phe Ala Asp Ile Ala Lys Glu Asp
915 920 925
Gln Ile Lys Lys Leu His Asp Met Leu Gly Pro His Met Leu Arg Arg
930 935 940

Leu Lys Ala Asp Val Phe Lys Asn Met Pro Ser Lys Thr Glu Leu Ile
945 950 955 960
Val Arg Val Glu Leu Ser Pro Met Gln Lys Lys Tyr Tyr Lys Tyr Ile
965 970 975
Leu Thr Arg Asn Phe Glu Ala Leu Asn Ala Arg Gly Gly Gly Asn Gln
980 985 990
Val Ser Leu Leu Asn Val Val Met Asp Leu Lys Lys Cys Cys Asn His
995 1000 1005
Pro Tyr Leu Phe Pro Val Ala Ala Met Glu Ala Pro Lys Met Pro Asn

1010 1015 1020
Gly Met Tyr Asp Gly Ser Ala Leu Ile Arg Ala Ser Gly Lys Leu Leu
1025 1030 1035 1040
Leu Leu Gln Lys Met Leu Lys Asn Leu Lys Glu Gly Gly His Arg Val
1045 1050 1055

Leu Ile Phe Ser Gln Met Thr Lys Met Leu Asp Leu Leu Glu Asp Phe
1060 1065 1070
Leu Glu His Glu Gly Tyr Lys Tyr Glu Arg Ile Asp Gly Gly Ile Thr
1075 1080 1085

Gly Asn Met Arg Gln Glu Ala Ile Asp Arg Phe Asn Ala Pro Gly Ala
1090 1095 1100
Gln Gln Phe Cys Phe Leu Leu Ser Thr Arg Ala Gly Gly Leu Gly Ile
1105 1110 1115 1120
Asn Leu Ala Thr Ala Asp Thr Val Ile Ile Tyr Asp Ser Asp Trp Asn
1125 1130 1135
Pro His Asn Asp Ile Gln Ala Phe Ser Arg Ala His Arg Ile Gly Gln
1140 1145 1150
Asn Lys Lys Val Met Ile Tyr Arg Phe Val Thr Arg Ala Ser Val Glu

1155 1160 1165
Glu Arg Ile Thr Gln Val Ala Lys Lys Lys Met Met Leu Thr His Leu
1170 1175 1180
Val Val Arg Pro Gly Leu Gly Ser Lys Thr Gly Ser Met Ser Lys Gln
1185 1190 1195 1200
Glu Leu Asp Asp Ile Leu Lys Phe Gly Thr Glu Glu Leu Phe Lys Asp
1205 1210 1215
Glu Ala Thr Asp Gly Gly Gly Asp Asn Lys Glu Gly Glu Asp Ser Ser
1220 1225 1230

Val Ile His Tyr Asp Asp Lys Ala Ile Glu Arg Leu Leu Asp Arg Asn
1235 1240 1245
Gln Asp Glu Thr Glu Asp Thr Glu Leu Gln Gly Met Asn Glu Tyr Leu
1250 1255 1260
Ser Ser Phe Lys Val Ala Gln Tyr Val Val Arg Glu Glu Glu Met Gly
1265 1270 1275 1280
Glu Glu Glu Glu Val Glu Arg Glu Ile Ile Lys Gln Glu Glu Ser Val
1285 1290 1295
Asp Pro Asp Tyr Trp Glu Lys Leu Leu Arg His His Tyr Glu Gln Gln

1300 1305 1310

Gln Glu Asp Leu Ala Arg Asn Leu Gly Lys Gly Lys Arg Ile Arg Lys

1315 1320 1325

Gln Val Asn Tyr Asn Asp Gly Ser Gln Glu Asp Arg Asp Trp Gln Asp

1330 1335 1340

Asp Gln Ser Asp Asn Gln Ser Asp Tyr Ser Val Ala Ser Glu Glu Gly

1345 1350 1355 1360

Asp Glu Asp Phe Asp Glu Arg Ser Glu Ala Pro Arg Arg Pro Ser Arg

1365 1370 1375

Lys Gly Leu Arg Asn Asp Lys Asp Lys Pro Leu Pro Pro Leu Leu Ala

1380 1385 1390

Arg Val Gly Gly Asn Ile Glu Val Leu Gly Phe Asn Ala Arg Gln Arg

1395 1400 1405

Lys Ala Phe Leu Asn Ala Ile Met Arg Tyr Gly Met Pro Pro Gln Asp

1410 1415 1420

Ala Phe Thr Thr Gln Trp Leu Val Arg Asp Leu Arg Gly Lys Ser Glu

1425 1430 1435 1440

Lys Glu Phe Lys Ala Tyr Val Ser Leu Phe Met Arg His Leu Cys Glu

1445 1450 1455

Pro Gly Ala Asp Gly Ala Glu Thr Phe Ala Asp Gly Val Pro Arg Glu

1460 1465 1470

Gly Leu Ser Arg Gln His Val Leu Thr Arg Ile Gly Val Met Ser Leu

1475 1480 1485

Ile Arg Lys Lys Val Gln Glu Phe Glu His Val Asn Gly Arg Trp Ser

1490 1495 1500

Met Pro Glu Leu Ala Glu Val Glu Glu Asn Lys Lys Met Ser Gln Pro

1505 1510 1515 1520

Gly Ser Pro Ser Pro Lys Thr Pro Thr Pro Ser Thr Pro Gly Asp Thr

1525 1530 1535

Gln Pro Asn Thr Pro Ala Pro Val Pro Pro Ala Glu Asp Gly Ile Lys

1540 1545 1550

Ile Glu Glu Asn Ser Leu Lys Glu Glu Glu Ser Ile Glu Gly Glu Lys

1555 1560 1565

Glu Val Lys Ser Thr Ala Pro Glu Thr Ala Ile Glu Cys Thr Gln Ala

1570 1575 1580

Pro Ala Pro Ala Ser Glu Asp Glu Lys Val Val Val Glu Pro Pro Glu

1585 1590 1595 1600

Gly Glu Glu Lys Val Glu Lys Ala Glu Val Lys Glu Arg Thr Glu Glu

1605 1610 1615

Pro Met Glu Thr Glu Pro Lys Gly Lys Gly Ala Ala Asp Val Glu Lys

1620 1625 1630

Val Glu Glu Lys Ser Ala Ile Asp Leu Thr Pro Ile Val Val Glu Asp

1635 1640 1645

Lys Glu Glu Lys Lys Glu Glu Glu Glu Lys Lys Glu Val Met Leu Gln

1650 1655 1660

Asn Gly Glu Thr Pro Lys Asp Leu Asn Asp Glu Lys Gln Lys Lys Asn

1665 1670 1675 1680

Ile Lys Gln Arg Phe Met Phe Asn Ile Ala Asp Gly Gly Phe Thr Glu

1685 1690 1695

Leu His Ser Leu Trp Gln Asn Glu Glu Arg Ala Ala Thr Val Thr Lys

1700 1705 1710

Lys Thr Tyr Glu Ile Trp His Arg Arg His Asp Tyr Trp Leu Leu Ala

1715 1720 1725

Gly Ile Ile Asn His Gly Tyr Ala Arg Trp Gln Asp Ile Gln Asn Asp

1730 1735 1740

Pro Arg Tyr Ala Ile Leu Asn Glu Pro Phe Lys Gly Glu Met Asn Arg

1745 1750 1755 1760

Gly Asn Phe Leu Glu Ile Lys Asn Lys Phe Leu Ala Arg Arg Phe Lys

1765 1770 1775

Leu Leu Glu Gln Ala Leu Val Ile Glu Glu Gln Leu Arg Arg Ala Ala

1780 1785 1790

Tyr Leu Asn Met Ser Glu Asp Pro Ser His Pro Ser Met Ala Leu Asn

1795 1800 1805

Thr Arg Phe Ala Glu Val Glu Cys Leu Ala Glu Ser His Gln His Leu
1810 1815 1820

Ser Lys Glu Ser Met Ala Gly Asn Lys Pro Ala Asn Ala Val Leu His
1825 1830 1835 1840

Lys Gly Ile Leu Lys Gln Leu Glu Glu Leu Leu Ser Asp Met Lys Ala
1845 1850 1855

Asp Val Thr Arg Leu Pro Ala Thr Ile Ala Arg Ile Pro Pro Val Ala
1860 1865 1870

Val Arg Leu Gln Met Ser Glu Arg Asn Ile Leu Ser Arg Leu Ala Asn

1875 1880 1885

Arg Ala Pro Glu Pro Thr Pro Gln Gln Val Ala Gln Gln Gln
1890 1895 1900

<210> 95

<211> 1912

<212> PRT

<213> Homo sapiens

<400> 95

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Glu Glu Asp Met Asp Ala Leu Leu Asn Asn Ser Leu Pro Pro Pro His
20 25 30

Pro Glu Asn Glu Glu Asp Pro Glu Glu Asp Leu Ser Glu Thr Glu Thr

35 40 45

Pro Lys Leu Lys Lys Lys Lys Lys Pro Lys Lys Pro Arg Asp Pro Lys
50 55 60

Ile Pro Lys Ser Lys Arg Gln Lys Lys Glu Arg Met Leu Leu Cys Arg
65 70 75 80

Gln Leu Gly Asp Ser Ser Gly Glu Gly Pro Glu Phe Val Glu Glu Glu
85 90 95

Glu Glu Val Ala Leu Arg Ser Asp Ser Glu Gly Ser Asp Tyr Thr Pro
100 105 110

Gly Lys Lys Lys Lys Lys Lys Leu Gly Pro Lys Lys Glu Lys Lys Ser

115 120 125

Lys Ser Lys Arg Lys Glu Glu Glu Glu Glu Asp Asp Asp Asp Asp

130 135 140

Ser Lys Glu Pro Lys Ser Ser Ala Gln Leu Leu Glu Asp Trp Gly Met

145 150 155 160

Glu Asp Ile Asp His Val Phe Ser Glu Glu Asp Tyr Arg Thr Leu Thr

165 170 175

Asn Tyr Lys Ala Phe Ser Gln Phe Val Arg Pro Leu Ile Ala Ala Lys

180 185 190

Asn Pro Lys Ile Ala Val Ser Lys Met Met Met Val Leu Gly Ala Lys

195 200 205

Trp Arg Glu Phe Ser Thr Asn Asn Pro Phe Lys Gly Ser Ser Gly Ala

210 215 220

Ser Val Ala Ala Ala Ala Ala Ala Ala Val Ala Val Val Glu Ser Met

225 230 235 240

Val Thr Ala Thr Glu Val Ala Pro Pro Pro Pro Pro Val Glu Val Pro

245 250 255

Ile Arg Lys Ala Lys Thr Lys Glu Gly Lys Gly Pro Asn Ala Arg Arg

260 265 270

Lys Pro Lys Gly Ser Pro Arg Val Pro Asp Ala Lys Lys Pro Lys Pro

275 280 285

Lys Lys Val Ala Pro Leu Lys Ile Lys Leu Gly Gly Phe Gly Ser Lys

290 295 300

Arg Lys Arg Ser Ser Ser Glu Asp Asp Asp Leu Asp Val Glu Ser Asp

305 310 315 320

Phe Asp Asp Ala Ser Ile Asn Ser Tyr Ser Val Ser Asp Gly Ser Thr

325 330 335

Ser Arg Ser Ser Arg Ser Arg Lys Lys Leu Arg Thr Thr Lys Lys Lys

340 345 350

Lys Lys Gly Glu Glu Glu Val Thr Ala Val Asp Gly Tyr Glu Thr Asp

355 360 365

His Gln Asp Tyr Cys Glu Val Cys Gln Gln Gly Gly Glu Ile Ile Leu

370 375 380

Cys Asp Thr Cys Pro Arg Ala Tyr His Met Val Cys Leu Asp Pro Asp

385 390 395 400

Met Glu Lys Ala Pro Glu Gly Lys Trp Ser Cys Pro His Cys Glu Lys

405 410 415

Glu Gly Ile Gln Trp Glu Ala Lys Glu Asp Asn Ser Glu Gly Glu Glu

420 425 430

Ile Leu Glu Glu Val Gly Gly Asp Leu Glu Glu Glu Asp Asp His His

435 440 445

Met Glu Phe Cys Arg Val Cys Lys Asp Gly Gly Glu Leu Leu Cys Cys

450 455 460

Asp Thr Cys Pro Ser Ser Tyr His Ile His Cys Leu Asn Pro Pro Leu

465 470 475 480

Pro Glu Ile Pro Asn Gly Glu Trp Leu Cys Pro Arg Cys Thr Cys Pro

485 490 495

Ala Leu Lys Gly Lys Val Gln Lys Ile Leu Ile Trp Lys Trp Gly Gln

500 505 510

Pro Pro Ser Pro Thr Pro Val Pro Arg Pro Pro Asp Ala Asp Pro Asn

515 520 525

Thr Pro Ser Pro Lys Pro Leu Glu Gly Arg Pro Glu Arg Gln Phe Phe

530 535 540

Val Lys Trp Gln Gly Met Ser Tyr Trp His Cys Ser Trp Val Ser Glu

545 550 555 560

Leu Gln Leu Glu Leu His Cys Gln Val Met Phe Arg Asn Tyr Gln Arg

565 570 575

Lys Asn Asp Met Asp Glu Pro Pro Ser Gly Asp Phe Gly Gly Asp Glu

580 585 590

Glu Lys Ser Arg Lys Arg Lys Asn Lys Asp Pro Lys Phe Ala Glu Met

595 600 605

Glu Glu Arg Phe Tyr Arg Tyr Gly Ile Lys Pro Glu Trp Met Met Ile

610 615 620

His Arg Ile Leu Asn His Ser Val Asp Lys Lys Gly His Val His Tyr
625 630 635 640
Leu Ile Lys Trp Arg Asp Leu Pro Tyr Asp Gln Ala Ser Trp Glu Ser
645 650 655
Glu Asp Val Glu Ile Gln Asp Tyr Asp Leu Phe Lys Gln Ser Tyr Trp
660 665 670
Asn His Arg Glu Leu Met Arg Gly Glu Glu Gly Arg Pro Gly Lys Lys
675 680 685

Leu Lys Lys Val Lys Leu Arg Lys Leu Glu Arg Pro Pro Glu Thr Pro
690 695 700
Thr Val Asp Pro Thr Val Lys Tyr Glu Arg Gln Pro Glu Tyr Leu Asp
705 710 715 720
Ala Thr Gly Gly Thr Leu His Pro Tyr Gln Met Glu Gly Leu Asn Trp
725 730 735
Leu Arg Phe Ser Trp Ala Gln Gly Thr Asp Thr Ile Leu Ala Asp Glu
740 745 750
Met Gly Leu Gly Lys Thr Val Gln Thr Ala Val Phe Leu Tyr Ser Leu

755 760 765
Tyr Lys Glu Gly His Ser Lys Gly Pro Phe Leu Val Ser Ala Pro Leu
770 775 780
Ser Thr Ile Ile Asn Trp Glu Arg Glu Phe Glu Met Trp Ala Pro Asp
785 790 795 800
Met Tyr Val Val Thr Tyr Val Gly Asp Lys Asp Ser Arg Ala Ile Ile
805 810 815
Arg Glu Asn Glu Phe Ser Phe Glu Asp Asn Ala Ile Arg Gly Gly Lys
820 825 830

Lys Ala Ser Arg Met Lys Lys Glu Ala Ser Val Lys Phe His Val Leu
835 840 845
Leu Thr Ser Tyr Glu Leu Ile Thr Ile Asp Met Ala Ile Leu Gly Ser
850 855 860
Ile Asp Trp Ala Cys Leu Ile Val Asp Glu Ala His Arg Leu Lys Asn
865 870 875 880

Asn Gln Ser Lys Phe Phe Arg Val Leu Asn Gly Tyr Ser Leu Gln His
885 890 895
Lys Leu Leu Leu Thr Gly Thr Pro Leu Gln Asn Asn Leu Glu Glu Leu

900 905 910
Phe His Leu Leu Asn Phe Leu Thr Pro Glu Arg Phe His Asn Leu Glu
915 920 925
Gly Phe Leu Glu Glu Phe Ala Asp Ile Ala Lys Glu Asp Gln Ile Lys
930 935 940
Lys Leu His Asp Met Leu Gly Pro His Met Leu Arg Arg Leu Lys Ala
945 950 955 960
Asp Val Phe Lys Asn Met Pro Ser Lys Thr Glu Leu Ile Val Arg Val
965 970 975

Glu Leu Ser Pro Met Gln Lys Lys Tyr Tyr Lys Tyr Ile Leu Thr Arg
980 985 990
Asn Phe Glu Ala Leu Asn Ala Arg Gly Gly Gly Asn Gln Val Ser Leu
995 1000 1005
Leu Asn Val Val Met Asp Leu Lys Lys Cys Cys Asn His Pro Tyr Leu
1010 1015 1020
Phe Pro Val Ala Ala Met Glu Ala Pro Lys Met Pro Asn Gly Met Tyr
1025 1030 1035 1040
Asp Gly Ser Ala Leu Ile Arg Ala Ser Gly Lys Leu Leu Leu Leu Gln

1045 1050 1055
Lys Met Leu Lys Asn Leu Lys Glu Gly Gly His Arg Val Leu Ile Phe
1060 1065 1070
Ser Gln Met Thr Lys Met Leu Asp Leu Leu Glu Asp Phe Leu Glu His
1075 1080 1085
Glu Gly Tyr Lys Tyr Glu Arg Ile Asp Gly Gly Ile Thr Gly Asn Met
1090 1095 1100
Arg Gln Glu Ala Ile Asp Arg Phe Asn Ala Pro Gly Ala Gln Gln Phe
1105 1110 1115 1120

Cys Phe Leu Leu Ser Thr Arg Ala Gly Gly Leu Gly Ile Asn Leu Ala

1125 1130 1135

Thr Ala Asp Thr Val Ile Ile Tyr Asp Ser Asp Trp Asn Pro His Asn

1140 1145 1150

Asp Ile Gln Ala Phe Ser Arg Ala His Arg Ile Gly Gln Asn Lys Lys

1155 1160 1165

Val Met Ile Tyr Arg Phe Val Thr Arg Ala Ser Val Glu Glu Arg Ile

1170 1175 1180

Thr Gln Val Ala Lys Lys Lys Met Met Leu Thr His Leu Val Val Arg

1185 1190 1195 1200

Pro Gly Leu Gly Ser Lys Thr Gly Ser Met Ser Lys Gln Glu Leu Asp

1205 1210 1215

Asp Ile Leu Lys Phe Gly Thr Glu Glu Leu Phe Lys Asp Glu Ala Thr

1220 1225 1230

Asp Gly Gly Gly Asp Asn Lys Glu Gly Glu Asp Ser Ser Val Ile His

1235 1240 1245

Tyr Asp Asp Lys Ala Ile Glu Arg Leu Leu Asp Arg Asn Gln Asp Glu

1250 1255 1260

Thr Glu Asp Thr Glu Leu Gln Gly Met Asn Glu Tyr Leu Ser Ser Phe

1265 1270 1275 1280

Lys Val Ala Gln Tyr Val Val Arg Glu Glu Glu Met Gly Glu Glu Glu

1285 1290 1295

Glu Val Glu Arg Glu Ile Ile Lys Gln Glu Glu Ser Val Asp Pro Asp

1300 1305 1310

Tyr Trp Glu Lys Leu Leu Arg His His Tyr Glu Gln Gln Gln Glu Asp

1315 1320 1325

Leu Ala Arg Asn Leu Gly Lys Gly Lys Arg Ile Arg Lys Gln Val Asn

1330 1335 1340

Tyr Asn Asp Gly Ser Gln Glu Asp Arg Asp Trp Gln Asp Asp Gln Ser

1345 1350 1355 1360

Asp Asn Gln Ser Asp Tyr Ser Val Ala Ser Glu Glu Gly Asp Glu Asp

1365 1370 1375

Phe Asp Glu Arg Ser Glu Ala Pro Arg Arg Pro Ser Arg Lys Gly Leu

1380 1385 1390

Arg Asn Asp Lys Asp Lys Pro Leu Pro Pro Leu Leu Ala Arg Val Gly

1395 1400 1405

Gly Asn Ile Glu Val Leu Gly Phe Asn Ala Arg Gln Arg Lys Ala Phe

1410 1415 1420

Leu Asn Ala Ile Met Arg Tyr Gly Met Pro Pro Gln Asp Ala Phe Thr

1425 1430 1435 1440

Thr Gln Trp Leu Val Arg Asp Leu Arg Gly Lys Ser Glu Lys Glu Phe

1445 1450 1455

Lys Ala Tyr Val Ser Leu Phe Met Arg His Leu Cys Glu Pro Gly Ala

1460 1465 1470

Asp Gly Ala Glu Thr Phe Ala Asp Gly Val Pro Arg Glu Gly Leu Ser

1475 1480 1485

Arg Gln His Val Leu Thr Arg Ile Gly Val Met Ser Leu Ile Arg Lys

1490 1495 1500

Lys Val Gln Glu Phe Glu His Val Asn Gly Arg Trp Ser Met Pro Glu

1505 1510 1515 1520

Leu Ala Glu Val Glu Glu Asn Lys Lys Met Ser Gln Pro Gly Ser Pro

1525 1530 1535

Ser Pro Lys Thr Pro Thr Pro Ser Thr Pro Gly Asp Thr Gln Pro Asn

1540 1545 1550

Thr Pro Ala Pro Val Pro Pro Ala Glu Asp Gly Ile Lys Ile Glu Glu

1555 1560 1565

Asn Ser Leu Lys Glu Glu Glu Ser Ile Glu Gly Glu Lys Glu Val Lys

1570 1575 1580

Ser Thr Ala Pro Glu Thr Ala Ile Glu Cys Thr Gln Ala Pro Ala Pro

1585 1590 1595 1600

Ala Ser Glu Asp Glu Lys Val Val Val Glu Pro Pro Glu Gly Glu Glu

1605 1610 1615

Lys Val Glu Lys Ala Glu Val Lys Glu Arg Thr Glu Glu Pro Met Glu

1620 1625 1630

Thr Glu Pro Lys Gly Ala Ala Asp Val Glu Lys Val Glu Glu Lys Ser
1635 1640 1645

Ala Ile Asp Leu Thr Pro Ile Val Val Glu Asp Lys Glu Glu Lys Lys
1650 1655 1660

Glu Glu Glu Glu Lys Lys Glu Val Met Leu Gln Asn Gly Glu Thr Pro
1665 1670 1675 1680

Lys Asp Leu Asn Asp Glu Lys Gln Lys Lys Asn Ile Lys Gln Arg Phe
1685 1690 1695

Met Phe Asn Ile Ala Asp Gly Gly Phe Thr Glu Leu His Ser Leu Trp
1700 1705 1710

Gln Asn Glu Glu Arg Ala Ala Thr Val Thr Lys Lys Thr Tyr Glu Ile
1715 1720 1725

Trp His Arg Arg His Asp Tyr Trp Leu Leu Ala Gly Ile Ile Asn His
1730 1735 1740

Gly Tyr Ala Arg Trp Gln Asp Ile Gln Asn Asp Pro Arg Tyr Ala Ile
1745 1750 1755 1760

Leu Asn Glu Pro Phe Lys Gly Glu Met Asn Arg Gly Asn Phe Leu Glu

1765 1770 1775

Ile Lys Asn Lys Phe Leu Ala Arg Arg Phe Lys Leu Leu Glu Gln Ala
1780 1785 1790

Leu Val Ile Glu Glu Gln Leu Arg Arg Ala Ala Tyr Leu Asn Met Ser
1795 1800 1805

Glu Asp Pro Ser His Pro Ser Met Ala Leu Asn Thr Arg Phe Ala Glu
1810 1815 1820

Val Glu Cys Leu Ala Glu Ser His Gln His Leu Ser Lys Glu Ser Met
1825 1830 1835 1840

Ala Gly Asn Lys Pro Ala Asn Ala Val Leu His Lys Val Leu Lys Gln
1845 1850 1855

Leu Glu Glu Leu Leu Ser Asp Met Lys Ala Asp Val Thr Arg Leu Pro
1860 1865 1870

Ala Thr Ile Ala Arg Ile Pro Pro Val Ala Val Arg Leu Gln Met Ser
1875 1880 1885

Glu Arg Asn Ile Leu Ser Arg Leu Ala Asn Arg Ala Pro Glu Pro Thr

1890 1895 1900

Pro Gln Gln Val Ala Gln Gln Gln

1905 1910

<210> 96

<211> 2357

<212> PRT

<213> Homo sapiens

<400> 96

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

1 5 10 15

Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510
Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540
Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575
Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605
Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620
Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750
Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
820 825 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895
Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro
1445 1450 1455
Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln
1460 1465 1470
Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr
1475 1480 1485
Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500
Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met
1505 1510 1515 1520
Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu
1525 1530 1535
Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val
1540 1545 1550
Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp
1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn
1570 1575 1580
Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu
1585 1590 1595 1600
Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg
1605 1610 1615
Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp
1620 1625 1630
Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645
Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg
1650 1655 1660
Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln
1665 1670 1675 1680
Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu
1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu
1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp
1715 1720 1725
Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu
1730 1735 1740
Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu
1745 1750 1755 1760
Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr
1765 1770 1775
Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790
Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile
1795 1800 1805
Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His
1810 1815 1820
Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr
1825 1830 1835 1840
Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg
1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala
1860 1865 1870
Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys
1875 1880 1885
Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys
1890 1895 1900
Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu
1905 1910 1915 1920
Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935
Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Asp Ala Glu Glu Pro Gln Leu Pro

2225 2230 2235 2240

Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly Leu Ala Asn

2245 2250 2255

Pro Glu Pro Ala Pro Glu Pro Lys Val Leu Ser Ser Ala Ala Ser Leu

2260 2265 2270

Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro Glu Gly Ser Gln Gly Gly

2275 2280 2285

Glu Leu Ser Arg Cys Ser Ser Met Ser Ser Leu Ser Arg Glu Val Ser

2290 2295 2300

Gln His Phe Asn Gln Ala Pro Gly Asp Leu Pro Ala Ala Gly Gly Pro

2305 2310 2315 2320

Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala Gln Ala

2325 2330 2335

Cys Ala Thr Ser Gly Ser Ser Arg Leu Gly Arg Ile Gly Gln Arg Lys

2340 2345 2350

His Leu Val Leu Asn

2355

<210> 97

<211> 2334

<212> PRT

<213> Homo sapiens

<400> 97

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575
Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605
Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620
Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685
Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750
Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro
915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His
1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr
1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg
1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala
1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys
1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys
1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu
1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser
1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val
1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro
1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly
1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu
2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala
2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly
2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala
2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

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Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

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2225 2230 2235 2240

Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala

2245 2250 2255

Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala

2260 2265 2270

Ala Arg Gly Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Ala Pro

2275 2280 2285

Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro Phe

2290 2295 2300

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35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205
Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240
Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255
His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro
325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990
Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005
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Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
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Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
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Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu
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Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

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Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
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His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
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Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala
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Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405
Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro
1410 1415 1420
Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr
1425 1430 1435 1440
Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

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1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val
1955 1960 1965
Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro
1970 1975 1980
Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly
1985 1990 1995 2000
Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu
2005 2010 2015
Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030
Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly
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Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala
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Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu
2065 2070 2075 2080
Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys
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Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp
2100 2105 2110
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Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

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Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala
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2305 2310 2315 2320
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Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln
290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro
325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365
Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
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Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp
1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn
1570 1575 1580
Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu
1585 1590 1595 1600
Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg
1605 1610 1615
Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp
1620 1625 1630
Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645
Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg
1650 1655 1660
Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln
1665 1670 1675 1680
Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu
1685 1690 1695
Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu
1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp
1715 1720 1725
Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu
1730 1735 1740
Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu
1745 1750 1755 1760
Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr
1765 1770 1775
Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790
Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Val Arg Pro Gln Gly Arg Ser Gly

2225 2230 2235 2240

Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala Glu Glu Pro

2245 2250 2255

Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly

2260 2265 2270

Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Val Leu Ser Ser Ala

2275 2280 2285

Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro Glu Gly Ser

2290 2295 2300

Gln Gly Gly Glu Leu Ser Arg Cys Ser Ser Met Ser Ser Leu Ser Arg

2305 2310 2315 2320

Glu Val Ser Gln His Phe Asn Gln Ala Pro Gly Asp Leu Pro Ala Ala

2325 2330 2335

Gly Gly Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu

2340 2345 2350

Ala Gln Ala Cys Ala Thr Ser Gly Ser Ser Arg Leu Gly Arg Ile Gly

2355 2360 2365

Gln Arg Lys His Leu Val Leu Asn

2370 2375

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<211> 2374

<212> PRT

<213> Homo sapiens

<400> 100

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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510
Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575
Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605
Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620
Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val
625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700
Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750
Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845
Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg
1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln
1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu
1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu
1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp
1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu
1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu
1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr
1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu
1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile
1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His
1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr
1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg
1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala
1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys
1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys
1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Val Ser Ser Val Arg Pro Gln Gly

2225 2230 2235 2240

Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala

2245 2250 2255

Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala

2260 2265 2270

Ala Arg Gly Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Val Leu

2275 2280 2285

Ser Ser Ala Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro

2290 2295 2300

Glu Gly Ser Gln Gly Gly Glu Leu Ser Arg Cys Ser Ser Met Ser Ser

2305 2310 2315 2320

Leu Ser Arg Glu Val Ser Gln His Phe Asn Gln Ala Pro Gly Asp Leu

2325 2330 2335

Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro

2340 2345 2350

Ala Gln Leu Ala Gln Ala Leu Arg Gly Ser Lys Ser Gly Cys Leu His

2355 2360 2365

Trp Pro Ala Val Cys Asn

2370

<210> 101

<211> 2359

<212> PRT

<213> Homo sapiens

<400> 101

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro
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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg
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Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu
35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly
65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845
Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro
915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln
1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro
1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser
1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr
1765 1770 1775
Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu
1780 1785 1790
Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile
1795 1800 1805
Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His
1810 1815 1820
Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840
Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg
1845 1850 1855
Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala
1860 1865 1870
Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys
1875 1880 1885
Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys
1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu
1905 1910 1915 1920
Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro
1925 1930 1935
Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser
1940 1945 1950
Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val
1955 1960 1965
Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980
Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly
1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu
2005 2010 2015
Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala
2020 2025 2030
Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly
2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala
2050 2055 2060
Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu
2065 2070 2075 2080
Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys
2085 2090 2095
Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp
2100 2105 2110
Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125
Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn
2130 2135 2140
Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met
2145 2150 2155 2160
Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly
2165 2170 2175
Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg
2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala
2195 2200 2205
Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro
2210 2215 2220
Ser Asn Leu Phe Val Pro Thr Pro Val Ser Ser Val Arg Pro Gln Gly
2225 2230 2235 2240
Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala
2245 2250 2255

Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala

2260 2265 2270

Ala Arg Gly Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Val Leu

2275 2280 2285

Ser Ser Ala Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro

2290 2295 2300

Glu Gly Ser Gln Gly Gly Glu Ala Pro Gly Asp Leu Pro Ala Ala Gly

2305 2310 2315 2320

Gly Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala

2325 2330 2335

Gln Ala Cys Ala Thr Ser Gly Ser Ser Arg Leu Gly Arg Ile Gly Gln

2340 2345 2350

Arg Lys His Leu Val Leu Asn

2355

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<211> 2357

<212> PRT

<213> Homo sapiens

<400> 102

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620
Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val
625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685
Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700
Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro
915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990
Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005
Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020
Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
1045 1050 1055
Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln
1060 1065 1070
Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro
1075 1080 1085
Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala
1860 1865 1870
Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys
1875 1880 1885
Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys
1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu
1905 1910 1915 1920
Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro
1925 1930 1935
Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser
1940 1945 1950
Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val
1955 1960 1965
Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980
Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly
1985 1990 1995 2000
Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu
2005 2010 2015
Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala
2020 2025 2030
Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly
2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala
2050 2055 2060
Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu
2065 2070 2075 2080
Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys
2085 2090 2095
Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp
2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Asp Ala Glu Glu Pro Gln Leu Pro

2225 2230 2235 2240

Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly Leu Ala Asn

2245 2250 2255

Pro Glu Pro Ala Pro Glu Pro Lys Val Leu Ser Ser Ala Ala Ser Leu

2260 2265 2270

Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro Glu Gly Ser Gln Gly Gly

2275 2280 2285

Glu Leu Ser Arg Cys Ser Ser Met Ser Ser Leu Ser Arg Glu Val Ser

2290 2295 2300

Gln His Phe Asn Gln Ala Pro Gly Asp Leu Pro Ala Ala Gly Gly Pro

2305 2310 2315 2320

Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala Gln Ala

2325 2330 2335

Cys Ala Thr Ser Gly Ser Ser Arg Leu Gly Arg Ile Gly Gln Arg Lys

2340 2345 2350

His Leu Val Leu Asn

2355

<210> 103

<211> 2356

<212> PRT

<213> Homo sapiens

<400> 103

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro
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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg
20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly
65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220
Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240
Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln
290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365
Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230
Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245
Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg
1265 1270 1275 1280
Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu
1285 1290 1295
Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu
1300 1305 1310
Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe
1315 1320 1325
Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340
Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
1345 1350 1355 1360
His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
1365 1370 1375
Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala
1380 1385 1390
Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro
1410 1415 1420
Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr
1425 1430 1435 1440
Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro
1445 1450 1455
Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln
1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

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Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly
1985 1990 1995 2000
Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu
2005 2010 2015
Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala
2020 2025 2030
Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly
2035 2040 2045
Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060
Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu
2065 2070 2075 2080
Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys
2085 2090 2095
Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp
2100 2105 2110
Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn
2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn
2130 2135 2140
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2145 2150 2155 2160
Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly
2165 2170 2175
Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg
2180 2185 2190
Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205
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2225 2230 2235 2240
Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala Glu Glu Pro
2245 2250 2255
Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly
2260 2265 2270

Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Val Leu Ser Ser Ala
2275 2280 2285
Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro Glu Gly Ser
2290 2295 2300
Gln Gly Gly Glu Ala Pro Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro
2305 2310 2315 2320
Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala Gln Ala Cys
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Leu Val Leu Asn
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20 25 30
Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu
35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
50 55 60
Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365
Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510
Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540
Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605
Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val
625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685
Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700
Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750
Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

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Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

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Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
1345 1350 1355 1360
His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
1365 1370 1375
Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala
1380 1385 1390
Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405
Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

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Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr
1425 1430 1435 1440
Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro
1445 1450 1455
Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln
1460 1465 1470
Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr
1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp
1490 1495 1500
Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met
1505 1510 1515 1520
Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu
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Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val
1540 1545 1550
Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565
Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn
1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu
1585 1590 1595 1600
Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg
1605 1610 1615
Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp
1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu
1635 1640 1645
Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg
1650 1655 1660
Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln
1665 1670 1675 1680
Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu
1685 1690 1695
Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710
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1715 1720 1725
Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu
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Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu
1745 1750 1755 1760
Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr
1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu
1780 1785 1790
Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile
1795 1800 1805
Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His
1810 1815 1820
Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr
1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

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Ser Asn Leu Phe Val Pro Thr Pro Val Ser Ser Val Arg Pro Gln Gly

2225 2230 2235 2240

Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala

2245 2250 2255

Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala

2260 2265 2270

Ala Arg Gly Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Leu Ser

2275 2280 2285

Arg Cys Ser Ser Met Ser Ser Leu Ser Arg Glu Val Ser Gln His Phe

2290 2295 2300

Asn Gln Ala Pro Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly

2305 2310 2315 2320

Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala Gln Ala Cys Ala Thr

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2340 2345 2350

Leu Asn

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<213> Homo sapiens

<400> 105

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Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu
35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly
65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750
Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
820 825 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895
Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005
Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020
Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
1025 1030 1035 1040
Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
1045 1050 1055
Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070
Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro
1075 1080 1085
Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100
Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
1105 1110 1115 1120
Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser
1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150
Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
1155 1160 1165
Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
1170 1175 1180
Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val
1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro
1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly
1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu
2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala
2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly
2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala
2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080
Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys
2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp
2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn
2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn
2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met
2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly
2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg
2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala
2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Asp Ala Glu Glu Pro Gln Leu Pro

2225 2230 2235 2240

Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly Leu Ala Asn

2245 2250 2255

Pro Glu Pro Ala Pro Glu Pro Lys Val Leu Ser Ser Ala Ala Ser Leu

2260 2265 2270

Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro Glu Gly Ser Gln Gly Gly

2275 2280 2285

Glu Ala Pro Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala

2290 2295 2300

Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala Gln Ala Cys Ala Thr Ser

2305 2310 2315 2320

Gly Ser Ser Arg Leu Gly Arg Ile Gly Gln Arg Lys His Leu Val Leu

2325 2330 2335

Asn

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<211> 2334

<212> PRT

<213> Homo sapiens

<400> 106

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95
Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110
Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125
Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140
Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160
Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175
Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190
Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205
Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240
Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255
His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro
325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540
Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100
Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
1105 1110 1115 1120
Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser
1125 1130 1135
Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150
Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165
Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
1170 1175 1180
Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
1185 1190 1195 1200
Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
1205 1210 1215
Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245
Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260
Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg
1265 1270 1275 1280
Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu
1285 1290 1295
Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310
Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe
1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp
1330 1335 1340
Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
1345 1350 1355 1360
His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala
1380 1385 1390
Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405
Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro
1410 1415 1420
Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr
1425 1430 1435 1440
Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455
Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln
1460 1465 1470
Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr
1475 1480 1485
Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp
1490 1495 1500
Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met
1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu
1525 1530 1535
Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val
1540 1545 1550
Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp
1555 1560 1565
Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn
1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Val Ser Ser Val Arg Pro Gln Gly

2225 2230 2235 2240

Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala

2245 2250 2255

Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala

2260 2265 2270

Ala Arg Gly Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Ala Pro

2275 2280 2285

Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro Phe

2290 2295 2300

Tyr Asn Pro Ala Gln Leu Ala Gln Ala Cys Ala Thr Ser Gly Ser Ser

2305 2310 2315 2320

Arg Leu Gly Arg Ile Gly Gln Arg Lys His Leu Val Leu Asn

2325 2330

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<213> Homo sapiens

<400> 107

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro
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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg
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Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu
35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly
65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510
Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540
Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575
Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620
Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val
625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685
Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700
Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845
Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro
915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser

1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser

1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro

1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg

1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr
1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp
1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met
1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu
1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val
1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp
1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn
1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu
1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg
1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp
1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu
1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg
1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln
1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu
1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu
1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp
1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu
1730 1735 1740
Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu
1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr
1765 1770 1775
Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu
1780 1785 1790
Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile
1795 1800 1805
Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His
1810 1815 1820
Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840
Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg
1845 1850 1855
Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala
1860 1865 1870
Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys
1875 1880 1885
Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys
1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu
1905 1910 1915 1920
Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro
1925 1930 1935
Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser
1940 1945 1950
Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val
1955 1960 1965
Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Asp Ala Glu Glu Pro Gln Leu Pro

2225 2230 2235 2240

Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly Leu Ala Asn

2245 2250 2255

Pro Glu Pro Ala Pro Glu Pro Lys Leu Ser Arg Cys Ser Ser Met Ser

2260 2265 2270

Ser Leu Ser Arg Glu Val Ser Gln His Phe Asn Gln Ala Pro Gly Asp

2275 2280 2285

Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn

2290 2295 2300

Pro Ala Gln Leu Ala Gln Ala Cys Ala Thr Ser Gly Ser Ser Arg Leu

2305 2310 2315 2320

Gly Arg Ile Gly Gln Arg Lys His Leu Val Leu Asn

2325 2330

<210> 108

<211> 2332

<212> PRT

<213> Homo sapiens

<400> 108

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140
Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160
Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175
Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190
Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205
Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220
Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240
Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255
His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln
290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro
325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895
Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005
Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020
Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
1025 1030 1035 1040
Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
1045 1050 1055
Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070
Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro
1075 1080 1085
Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100
Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser
1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150
Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
1155 1160 1165
Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
1170 1175 1180
Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
1185 1190 1195 1200
Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro

1205 1210 1215
Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230
Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245
Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260
Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg
1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu
1285 1290 1295
Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu
1300 1305 1310
Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe
1315 1320 1325
Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp
1330 1335 1340
Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360
His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Met Ala Ser Gln Leu

1795 1800 1805

Arg Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu

1810 1815 1820

Ala Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile

1825 1830 1835 1840

Lys Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln

1845 1850 1855

Cys Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly

1860 1865 1870

Leu Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val

1875 1880 1885

Pro Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro

1890 1895 1900

Ser Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg

1905 1910 1915 1920

Val Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly

1925 1930 1935

Pro Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser

1940 1945 1950

Gly Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His

1955 1960 1965

Leu Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu

1970 1975 1980

Ala Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp

1985 1990 1995 2000

Gly Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu

2005 2010 2015

Ala Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro

2020 2025 2030

Leu Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala

2035 2040 2045

Lys Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg

2050 2055 2060

Trp Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys

2065 2070 2075 2080

Asn Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu

2085 2090 2095

Asn Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser

2100 2105 2110

Met Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro

2115 2120 2125

Gly Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala
2130 2135 2140

Arg Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro
2145 2150 2155 2160
Ala Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile
2165 2170 2175
Pro Ser Asn Leu Phe Val Pro Thr Pro Val Ser Ser Val Arg Pro Gln
2180 2185 2190
Gly Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp
2195 2200 2205
Ala Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala

2210 2215 2220
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2225 2230 2235 2240
Leu Ser Ser Ala Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser Ser Arg
2245 2250 2255
Pro Glu Gly Ser Gln Gly Gly Glu Leu Ser Arg Cys Ser Ser Met Ser
2260 2265 2270
Ser Leu Ser Arg Glu Val Ser Gln His Phe Asn Gln Ala Pro Gly Asp
2275 2280 2285

Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn
2290 2295 2300
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2325 2330

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35 40 45
Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
50 55 60
Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly
65 70 75 80
Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95
Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110
Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125
Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140
Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175
Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190
Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205
Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220
Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240
Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln
290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro
325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365
Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
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Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

```
        755                 760                 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
    770                 775                 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785                 790                 795                 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

                805                 810                 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
            820                 825                 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
        835                 840                 845
Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
    850                 855                 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865                 870                 875                 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
                885                 890                 895
Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
            900                 905                 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro
        915                 920                 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
    930                 935                 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945                 950                 955                 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
                965                 970                 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
            980                 985                 990
Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
        995                1000                1005
Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
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Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
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Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
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Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln
1060 1065 1070
Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro
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Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val

1090 1095 1100
Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
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1125 1130 1135
Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150
Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
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Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
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Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
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Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
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Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230
Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245
Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg
1265 1270 1275 1280
Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu
1285 1290 1295
Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu
1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe
1315 1320 1325
Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp
1330 1335 1340
Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
1345 1350 1355 1360
His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
1365 1370 1375
Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390
Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405
Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro
1410 1415 1420
Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr
1425 1430 1435 1440
Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro
1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln
1460 1465 1470
Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr
1475 1480 1485
Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp
1490 1495 1500
Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met
1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg

2180 2185 2190

Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala

2195 2200 2205

Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro

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Ser Asn Leu Phe Val Pro Thr Pro Asp Ala Glu Glu Pro Gln Leu Pro

2225 2230 2235 2240

Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly Leu Ala Asn

2245 2250 2255

Pro Glu Pro Ala Pro Glu Pro Lys Ala Pro Gly Asp Leu Pro Ala Ala

2260 2265 2270

Gly Gly Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu
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Gln Arg Lys His Leu Val Leu Asn
2305 2310

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35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
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Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly
65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990
Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005
Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020
Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
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Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
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Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
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Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
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Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
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Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230
Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245
Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260
Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg
1265 1270 1275 1280
Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295
Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu
1300 1305 1310
Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe
1315 1320 1325
Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp
1330 1335 1340
Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
1365 1370 1375
Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala
1380 1385 1390
Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405
Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro
1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro

1970 1975 1980

Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly

1985 1990 1995 2000

Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu

2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala

2020 2025 2030

Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly

2035 2040 2045

Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala

2050 2055 2060

Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu

2065 2070 2075 2080

Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095

Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp

2100 2105 2110

Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn

2115 2120 2125

Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn

2130 2135 2140

Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met

2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly

2165 2170 2175

Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg
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Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala
2195 2200 2205
Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro
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Ser Asn Leu Phe Val Pro Thr Pro Val Ser Ser Val Arg Pro Gln Gly
2225 2230 2235 2240
Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala
2245 2250 2255
Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala
2260 2265 2270
Ala Arg Gly Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Val Leu
2275 2280 2285
Ser Ser Ala Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro

2290 2295 2300
Glu Gly Ser Gln Gly Gly Glu Leu Ser Arg Cys Ser Ser Met Ser Ser
2305 2310 2315 2320
Leu Ser Arg Glu Val Ser Gln His Phe Asn Gln Ala Pro Gly Asp Leu
2325 2330 2335
Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro
2340 2345 2350
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Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly

195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
820 825 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845
Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860
Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895
Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro
915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp
930 935 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960
Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990
Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020
Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
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Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln
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1075 1080 1085
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1090 1095 1100
Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
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1125 1130 1135
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1140 1145 1150
Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
1155 1160 1165
Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
1170 1175 1180
Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
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Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
1205 1210 1215
Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230
Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245
Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Asp Ala Leu Glu Ser Ala

1475 1480 1485

Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu Leu Ala Ser Lys Met

1490 1495 1500

Asp Ser Arg Thr His Ala Arg Val Met Thr Arg Phe Ala Asn Ser Leu

1505 1510 1515 1520

Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln Leu Met Ser Gly Arg

1525 1530 1535

Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu Lys Trp Gly Asp Trp

1540 1545 1550

Arg Pro His Leu Ala Met Val Leu Ser Asn Leu Asn Asn Asn Met Asp

1555 1560 1565

Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp Thr Leu Ala Ser Arg

1570 1575 1580

Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu Met Ala Gln Ala Gly

1585 1590 1595 1600

Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu Val Leu Ile Gly Ser

1605 1610 1615

Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr Asn Glu Ala Ile Gln

1620 1625 1630

Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu Gly Ala Glu Thr Cys

1635 1640 1645

Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile Tyr Ser Cys Arg Leu

1650 1655 1660

Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His Tyr Cys Glu Ala Ile

1665 1670 1675 1680

Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr Ser Pro Val Leu Ile

1685 1690 1695

Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg Leu Phe Asp Pro Gln

1700 1705 1710

Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala Ala Pro Thr Trp Leu

1715 1720 1725

Val His Leu Gln Gln Val Glu Arg Gln Ile Lys Glu Gly Ala Gly Val

1730 1735 1740

Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys Pro Gly Thr Pro Ser

1745 1750 1755 1760

Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu Ser Gln Pro Gly Ala

1765 1770 1775

Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro Ala Pro Ser Pro Glu

1780 1785 1790

His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser Ala Pro Gln Thr Leu

1795 1800 1805

Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val Pro Met Phe Pro Val

1810 1815 1820

Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro Gly Cys Val Thr Pro

1825 1830 1835 1840

Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly Pro Gly Leu Pro Pro

1845 1850 1855

Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu Leu Gln Glu Ala Arg

1860 1865 1870

Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala Pro Val Gly Asn Ser

1875 1880 1885

Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly Lys Phe Ala Asn Leu

1890 1895 1900

Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala Pro Pro Gly Trp Asp

1905 1910 1915 1920

Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu Ser Leu Ser Pro Ala

1925 1930 1935

Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys Lys Glu Thr Lys Glu

1940 1945 1950

Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp Leu Pro Gly Lys Lys

1955 1960 1965

Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn Lys Ser Ile Val Trp

1970 1975 1980

Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn Glu Pro Glu Glu Glu

1985 1990 1995 2000

Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met Pro Lys Thr Val Gln

2005 2010 2015

Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly Ala Pro Val Asn Met
2020 2025 2030
Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg Tyr Val Asp Val Leu
2035 2040 2045
Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala Leu Ala Pro Ala Asp
2050 2055 2060

Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro Ser Asn Leu Phe Val
2065 2070 2075 2080
Pro Thr Pro Val Ser Ser Val Arg Pro Gln Gly Arg Ser Gly Arg Asn
2085 2090 2095
Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala Glu Glu Pro Gln Leu
2100 2105 2110
Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly Leu Ala
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Asn Pro Glu Pro Ala Pro Glu Pro Lys Val Leu Ser Ser Ala Ala Ser

2130 2135 2140
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Gly Glu Leu Ser Arg Cys Ser Ser Met Ser Ser Leu Ser Arg Glu Val
2165 2170 2175
Ser Gln His Phe Asn Gln Ala Pro Gly Asp Leu Pro Ala Ala Gly Gly
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Pro Pro Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala Gln
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Ala Cys Ala Thr Ser Gly Ser Ser Arg Leu Gly Arg Ile Gly Gln Arg
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Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro
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Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu
35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly
65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln
290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365
Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
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Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
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Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510
Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575
Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605
Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620
Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val
625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700
Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly

805 810 815

Leu Glu Arg Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser

820 825 830

Pro Pro Gln Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu

835 840 845

Ser Leu Pro Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala

850 855 860

Ser Leu Val Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro

865 870 875 880

Gln Ser Ser Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala

885 890 895

Val Pro Ser Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro

900 905 910

Gly Pro Pro Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu

915 920 925

Tyr Asp Ala Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro

930 935 940

Gly Ala Ala Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro

945 950 955 960

Arg Tyr Arg Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr

965 970 975

Arg Tyr Pro Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser

980 985 990

Glu Arg Pro Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser

995 1000 1005

Lys Ser Gly Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser

1010 1015 1020

Ser Gln Tyr Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr

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Ser Ala Arg Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys

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Asp Ala Glu Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp

1060 1065 1070

Arg Pro Glu Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr

1075 1080 1085

Gly Ser Phe Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu

1090 1095 1100

Glu Val Asp Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu

1105 1110 1115 1120

His Ser Ala His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His

1125 1130 1135

Ser His Gln Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser

1140 1145 1150

Tyr Glu Ala Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr

1155 1160 1165

Gly Thr Tyr Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr

1170 1175 1180

Gly Tyr Pro Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser

1185 1190 1195 1200

Arg Pro Thr Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg

1205 1210 1215

Phe Gly Pro Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser

1220 1225 1230

Glu Gly Gln Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu

1235 1240 1245

Gln His Thr Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu

1250 1255 1260

Ala Lys Asp Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn
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Lys Ala Met Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser
1285 1290 1295
Ala Ser Leu Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly
1300 1305 1310
Thr Val Val Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg
1315 1320 1325
Thr Val Trp Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp

1330 1335 1340
Phe Thr Asn Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu
1345 1350 1355 1360
Ala Gln Leu Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser
1365 1370 1375
Leu Glu Arg Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg
1380 1385 1390
Lys Lys Asp Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His
1395 1400 1405

Ala Leu Leu Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val
1410 1415 1420
Met Thr Arg Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr
1425 1430 1435 1440
Val Tyr Gln Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys
1445 1450 1455
Gly Asp Glu Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu
1460 1465 1470
Ser Asn Leu Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr

1475 1480 1485
Met Gly Asp Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe
1490 1495 1500

Cys Tyr Leu Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr
1505 1510 1515 1520
Thr Lys Leu Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys
1525 1530 1535
Phe Ala Thr Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala
1540 1545 1550

Gln Ser Leu Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe
1555 1560 1565
Lys Phe Ile Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln
1570 1575 1580
Ala Phe His Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro
1585 1590 1595 1600
His Leu Tyr Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser
1605 1610 1615
Gln Leu Arg Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu

1620 1625 1630
Ser Leu Ala Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg
1635 1640 1645
Gln Ile Lys Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro
1650 1655 1660
Gln Gln Cys Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg
1665 1670 1675 1680
Pro Gly Leu Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu
1685 1690 1695

Ala Val Pro Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu
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Leu Pro Ser Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro
1715 1720 1725
Ala Arg Val Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu
1730 1735 1740
Pro Gly Pro Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu
1745 1750 1755 1760

Pro Ser Gly Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg

1765 1770 1775

Arg His Leu Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro

1780 1785 1790

Gln Glu Ala Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn

1795 1800 1805

Phe Asp Gly Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp

1810 1815 1820

Ser Glu Ala Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln

1825 1830 1835 1840

Pro Pro Leu Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln

1845 1850 1855

Ala Ala Lys Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe

1860 1865 1870

Phe Arg Trp Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp

1875 1880 1885

Asp Lys Asn Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val

1890 1895 1900

Asn Leu Asn Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro

1905 1910 1915 1920

Thr Ser Met Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly

1925 1930 1935

Pro Pro Gly Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr

1940 1945 1950

Arg Ala Arg Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser

1955 1960 1965

Glu Pro Ala Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu

1970 1975 1980

Pro Ile Pro Ser Asn Leu Phe Val Pro Thr Pro Val Ser Ser Val Arg

1985 1990 1995 2000

Pro Gln Gly Arg Ser Gly Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser

2005 2010 2015

Pro Asp Ala Glu Glu Pro Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly

2020 2025 2030

Pro Ala Ala Ala Arg Gly Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro

2035 2040 2045

Lys Val Leu Ser Ser Ala Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser

2050 2055 2060

Ser Arg Pro Glu Gly Ser Gln Gly Gly Glu Leu Ser Arg Cys Ser Ser

2065 2070 2075 2080

Met Ser Ser Leu Ser Arg Glu Val Ser Gln His Phe Asn Gln Ala Pro

2085 2090 2095

Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro Phe

2100 2105 2110

Tyr Asn Pro Ala Gln Leu Ala Gln Ala Cys Ala Thr Ser Gly Ser Ser

2115 2120 2125

Arg Leu Gly Arg Ile Gly Gln Arg Lys His Leu Val Leu Asn

2130 2135 2140

<210> 113

<211> 2100

<212> PRT

<213> Homo sapiens

<400> 113

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

1 5 10 15

Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95
Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110
Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125
Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140
Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160
Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175
Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205
Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220
Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240
Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255
His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln
290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365
Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510
Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540
Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn
595 600 605
Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val
625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670
Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685
Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro
690 695 700
Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser
705 710 715 720
Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750
Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu
785 790 795 800
Glu Ala Leu Gln Ser Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly
805 810 815
Leu Glu Arg Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser
820 825 830

Pro Pro Gln Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu

835 840 845

Ser Leu Pro Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala

850 855 860

Ser Leu Val Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro

865 870 875 880

Gln Ser Ser Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala

885 890 895

Val Pro Ser Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro

900 905 910

Gly Pro Pro Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu

915 920 925

Tyr Asp Ala Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro

930 935 940

Gly Ala Ala Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro

945 950 955 960

Arg Tyr Arg Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr

965 970 975

Arg Tyr Pro Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser

980 985 990

Glu Arg Pro Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser

995 1000 1005

Lys Ser Gly Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser

1010 1015 1020

Ser Gln Tyr Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr

1025 1030 1035 1040

Ser Ala Arg Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys

1045 1050 1055

Asp Ala Glu Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp

1060 1065 1070

Arg Pro Glu Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr

1075 1080 1085

Gly Ser Phe Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu

1090 1095 1100

Glu Val Asp Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu

1105 1110 1115 1120

His Ser Ala His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His

1125 1130 1135

Ser His Gln Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser

1140 1145 1150

Tyr Glu Ala Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr

1155 1160 1165

Gly Thr Tyr Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr

1170 1175 1180

Gly Tyr Pro Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser

1185 1190 1195 1200

Arg Pro Thr Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg

1205 1210 1215

Phe Gly Pro Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser

1220 1225 1230

Glu Gly Gln Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu

1235 1240 1245

Gln His Thr Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu

1250 1255 1260

Ala Lys Asp Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn

1265 1270 1275 1280

Lys Ala Met Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser

1285 1290 1295

Ala Ser Leu Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly

1300 1305 1310

Thr Val Val Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg

1315 1320 1325

Thr Val Trp Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp

1330 1335 1340

Phe Thr Asn Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu
1345 1350 1355 1360
Ala Gln Leu Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser
1365 1370 1375
Leu Glu Arg Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg
1380 1385 1390
Lys Lys Asp Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His
1395 1400 1405
Ala Leu Leu Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val

1410 1415 1420
Met Thr Arg Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr
1425 1430 1435 1440
Val Tyr Gln Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys
1445 1450 1455
Gly Asp Glu Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu
1460 1465 1470
Ser Asn Leu Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr
1475 1480 1485

Met Gly Asp Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe
1490 1495 1500
Cys Tyr Leu Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr
1505 1510 1515 1520
Thr Lys Leu Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys
1525 1530 1535
Phe Ala Thr Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala
1540 1545 1550
Gln Ser Leu Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe

1555 1560 1565
Lys Phe Ile Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln
1570 1575 1580

Ala Phe His Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro
1585 1590 1595 1600
His Leu Tyr Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser
1605 1610 1615
Gln Leu Arg Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu
1620 1625 1630

Ser Leu Ala Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg
1635 1640 1645
Gln Ile Lys Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro
1650 1655 1660
Gln Gln Cys Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg
1665 1670 1675 1680
Pro Gly Leu Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu
1685 1690 1695
Ala Val Pro Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu

1700 1705 1710
Leu Pro Ser Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro
1715 1720 1725
Ala Arg Val Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu
1730 1735 1740
Pro Gly Pro Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu
1745 1750 1755 1760
Pro Ser Gly Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg
1765 1770 1775

Arg His Leu Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro
1780 1785 1790
Gln Glu Ala Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn
1795 1800 1805
Phe Asp Gly Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp
1810 1815 1820
Ser Glu Ala Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln
1825 1830 1835 1840

Pro Pro Leu Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln

1845 1850 1855

Ala Ala Lys Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe

1860 1865 1870

Phe Arg Trp Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp

1875 1880 1885

Asp Lys Asn Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val

1890 1895 1900

Asn Leu Asn Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro

1905 1910 1915 1920

Thr Ser Met Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly

1925 1930 1935

Pro Pro Gly Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr

1940 1945 1950

Arg Ala Arg Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser

1955 1960 1965

Glu Pro Ala Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu

1970 1975 1980

Pro Ile Pro Ser Asn Leu Phe Val Pro Thr Pro Asp Ala Glu Glu Pro

1985 1990 1995 2000

Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly

2005 2010 2015

Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Val Leu Ser Ser Ala

2020 2025 2030

Ala Ser Leu Pro Gly Ser Glu Leu Pro Ser Ser Arg Pro Glu Gly Ser

2035 2040 2045

Gln Gly Gly Glu Ala Pro Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro

2050 2055 2060

Ser Gly Ala Met Pro Phe Tyr Asn Pro Ala Gln Leu Ala Gln Ala Cys

2065 2070 2075 2080

Ala Thr Ser Gly Ser Ser Arg Leu Gly Arg Ile Gly Gln Arg Lys His

2085 2090 2095

Leu Val Leu Asn

2100

<210> 114

<211> 1953

<212> PRT

<213> Homo sapiens

<400> 114

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

1 5 10 15

Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His

85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly

100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu

115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val

130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His

165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His

180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205
Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220
Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255
His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln
290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro
325 330 335
Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365
Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val
435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510
Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540
Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575
Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser
580 585 590
Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605
Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe
610 615 620
Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val
625 630 635 640
Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro
645 650 655
Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro
660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met
675 680 685
Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990
Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005
Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020
Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040
Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
1045 1050 1055
Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln
1060 1065 1070
Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro
1075 1080 1085
Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
1105 1110 1115 1120
Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser
1125 1130 1135
Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150
Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
1155 1160 1165
Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala

1170 1175 1180
Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
1205 1210 1215
Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230
Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260
Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg
1265 1270 1275 1280
Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu
1285 1290 1295
Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu
1300 1305 1310
Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325
Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp
1330 1335 1340
Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
1345 1350 1355 1360
His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
1365 1370 1375
Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala
1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405
Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro
1410 1415 1420
Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr
1425 1430 1435 1440
Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro
1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Gly

<210> 115

<211> 2351

<212> PRT

<213> Homo sapiens

<400> 115

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro
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Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg
20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu
35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser
50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95

Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110

Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125

Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140

Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His
145 150 155 160

Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175

Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190

Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205

Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro

210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly

225 230 235 240

Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu

245 250 255

His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro

260 265 270

Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser

275 280 285

Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300

Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn

305 310 315 320

Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro

325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly

340 345 350

Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala

355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu

370 375 380

Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe

385 390 395 400

Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr

405 410 415

His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser

420 425 430

Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445

Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe

450 455 460

Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro

465 470 475 480

Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala

485 490 495

Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr

500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg

515 520 525

Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly

530 535 540

Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly

545 550 555 560

Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp

565 570 575

Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly
725 730 735
Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys
740 745 750
Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln
755 760 765
Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly
770 775 780
Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800
Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser
805 810 815
Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln
820 825 830
Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser
835 840 845
Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val
850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly
865 870 875 880
Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu
885 890 895
Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly
900 905 910
Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro
915 920 925
Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940
Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly
945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro
965 970 975
Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly
980 985 990
Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val
995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala
1010 1015 1020
Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe
1025 1030 1035 1040
Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg
1045 1050 1055
Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln
1060 1065 1070
Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085
Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100
Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
1105 1110 1115 1120
Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser
1125 1130 1135
Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala
1155 1160 1165
Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
1170 1175 1180
Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
1185 1190 1195 1200
Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro

1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly

1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr

1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg

1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu

1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe

1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp

1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala

1345 1350 1355 1360

His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln

1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala

1380 1385 1390

Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr

1395 1400 1405

Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro

1410 1415 1420

Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr

1425 1430 1435 1440

Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455

Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln

1460 1465 1470

Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr

1475 1480 1485

Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Asp

1490 1495 1500

Asp Thr His Lys Val Asp Val Ile Asn Phe Ala Gln Asn Lys Ala Met

1505 1510 1515 1520

Lys Cys Leu Gln Asn Glu Asn Leu Ile Asp Lys Glu Ser Ala Ser Leu

1525 1530 1535

Leu Trp Asn Phe Ile Val Leu Leu Cys Arg Gln Asn Gly Thr Val Val

1540 1545 1550

Gly Thr Asp Ile Ala Glu Leu Leu Leu Arg Asp His Arg Thr Val Trp

1555 1560 1565

Leu Pro Gly Lys Ser Pro Asn Glu Ala Asn Leu Ile Asp Phe Thr Asn

1570 1575 1580

Glu Ala Val Glu Gln Val Glu Glu Glu Glu Ser Gly Glu Ala Gln Leu

1585 1590 1595 1600

Ser Phe Leu Thr Gly Gly Pro Ala Ala Ala Ala Ser Ser Leu Glu Arg

1605 1610 1615

Glu Thr Glu Arg Phe Arg Glu Leu Leu Leu Tyr Gly Arg Lys Lys Asp

1620 1625 1630

Ala Leu Glu Ser Ala Met Lys Asn Gly Leu Trp Gly His Ala Leu Leu

1635 1640 1645

Leu Ala Ser Lys Met Asp Ser Arg Thr His Ala Arg Val Met Thr Arg

1650 1655 1660

Phe Ala Asn Ser Leu Pro Ile Asn Asp Pro Leu Gln Thr Val Tyr Gln

1665 1670 1675 1680

Leu Met Ser Gly Arg Met Pro Ala Ala Ser Thr Cys Cys Gly Asp Glu

1685 1690 1695

Lys Trp Gly Asp Trp Arg Pro His Leu Ala Met Val Leu Ser Asn Leu

1700 1705 1710

Asn Asn Asn Met Asp Val Glu Ser Arg Thr Met Ala Thr Met Gly Asp

1715 1720 1725

Thr Leu Ala Ser Arg Gly Leu Leu Asp Ala Ala His Phe Cys Tyr Leu

1730 1735 1740

Met Ala Gln Ala Gly Phe Gly Val Tyr Thr Lys Lys Thr Thr Lys Leu

1745 1750 1755 1760

Val Leu Ile Gly Ser Asn His Ser Leu Pro Phe Leu Lys Phe Ala Thr

1765 1770 1775

Asn Glu Ala Ile Gln Arg Thr Glu Ala Tyr Glu Tyr Ala Gln Ser Leu

1780 1785 1790

Gly Ala Glu Thr Cys Pro Leu Pro Ser Phe Gln Val Phe Lys Phe Ile

1795 1800 1805

Tyr Ser Cys Arg Leu Ala Glu Met Gly Leu Ala Thr Gln Ala Phe His

1810 1815 1820

Tyr Cys Glu Ala Ile Ala Lys Ser Ile Leu Thr Gln Pro His Leu Tyr

1825 1830 1835 1840

Ser Pro Val Leu Ile Ser Gln Leu Val Gln Met Ala Ser Gln Leu Arg

1845 1850 1855

Leu Phe Asp Pro Gln Leu Lys Glu Lys Pro Glu Glu Glu Ser Leu Ala

1860 1865 1870

Ala Pro Thr Trp Leu Val His Leu Gln Gln Val Glu Arg Gln Ile Lys

1875 1880 1885

Glu Gly Ala Gly Val Trp His Gln Asp Gly Ala Leu Pro Gln Gln Cys

1890 1895 1900

Pro Gly Thr Pro Ser Ser Glu Met Glu Gln Leu Asp Arg Pro Gly Leu

1905 1910 1915 1920

Ser Gln Pro Gly Ala Leu Gly Ile Ala Asn Pro Leu Leu Ala Val Pro

1925 1930 1935

Ala Pro Ser Pro Glu His Ser Ser Pro Ser Val Arg Leu Leu Pro Ser

1940 1945 1950

Ala Pro Gln Thr Leu Pro Asp Gly Pro Leu Ala Ser Pro Ala Arg Val

1955 1960 1965

Pro Met Phe Pro Val Pro Leu Pro Pro Gly Pro Leu Glu Pro Gly Pro
1970 1975 1980
Gly Cys Val Thr Pro Gly Pro Ala Leu Gly Phe Leu Glu Pro Ser Gly
1985 1990 1995 2000
Pro Gly Leu Pro Pro Gly Val Pro Pro Leu Gln Glu Arg Arg His Leu
2005 2010 2015

Leu Gln Glu Ala Arg Ser Pro Asp Pro Gly Ile Val Pro Gln Glu Ala
2020 2025 2030
Pro Val Gly Asn Ser Leu Ser Glu Leu Ser Glu Glu Asn Phe Asp Gly
2035 2040 2045
Lys Phe Ala Asn Leu Thr Pro Ser Arg Thr Val Pro Asp Ser Glu Ala
2050 2055 2060
Pro Pro Gly Trp Asp Arg Ala Asp Ser Gly Pro Thr Gln Pro Pro Leu
2065 2070 2075 2080
Ser Leu Ser Pro Ala Pro Glu Thr Lys Arg Pro Gly Gln Ala Ala Lys

2085 2090 2095
Lys Glu Thr Lys Glu Pro Lys Lys Gly Glu Ser Trp Phe Phe Arg Trp
2100 2105 2110
Leu Pro Gly Lys Lys Lys Thr Glu Ala Tyr Leu Pro Asp Asp Lys Asn
2115 2120 2125
Lys Ser Ile Val Trp Asp Glu Lys Lys Asn Gln Trp Val Asn Leu Asn
2130 2135 2140
Glu Pro Glu Glu Glu Lys Lys Ala Pro Pro Pro Pro Pro Thr Ser Met
2145 2150 2155 2160

Pro Lys Thr Val Gln Ala Ala Pro Pro Ala Leu Pro Gly Pro Pro Gly
2165 2170 2175
Ala Pro Val Asn Met Tyr Ser Arg Arg Ala Ala Gly Thr Arg Ala Arg
2180 2185 2190
Tyr Val Asp Val Leu Asn Pro Ser Gly Thr Gln Arg Ser Glu Pro Ala
2195 2200 2205
Leu Ala Pro Ala Asp Phe Val Ala Pro Leu Ala Pro Leu Pro Ile Pro
2210 2215 2220

Ser Asn Leu Phe Val Pro Thr Pro Val Arg Pro Gln Gly Arg Ser Gly

2225 2230 2235 2240

Arg Asn Asp Gly Leu Leu Ala Leu Ser Ser Pro Asp Ala Glu Glu Pro

2245 2250 2255

Gln Leu Pro Asp Gly Thr Gly Arg Glu Gly Pro Ala Ala Ala Arg Gly

2260 2265 2270

Leu Ala Asn Pro Glu Pro Ala Pro Glu Pro Lys Leu Ser Arg Cys Ser

2275 2280 2285

Ser Met Ser Ser Leu Ser Arg Glu Val Ser Gln His Phe Asn Gln Ala

2290 2295 2300

Pro Gly Asp Leu Pro Ala Ala Gly Gly Pro Pro Ser Gly Ala Met Pro

2305 2310 2315 2320

Phe Tyr Asn Pro Ala Gln Leu Ala Gln Ala Cys Ala Thr Ser Gly Ser

2325 2330 2335

Ser Arg Leu Gly Arg Ile Gly Gln Arg Lys His Leu Val Leu Asn

2340 2345 2350

<210> 116

<211> 1546

<212> PRT

<213> Homo sapiens

<400> 116

Met Gln Pro Pro Pro Gln Thr Val Pro Ser Gly Met Ala Gly Pro Pro

1 5 10 15

Pro Ala Gly Asn Pro Arg Ser Val Phe Trp Ala Ser Ser Pro Tyr Arg

20 25 30

Arg Arg Ala Asn Asn Asn Ala Ala Val Ala Pro Thr Thr Cys Pro Leu

35 40 45

Gln Pro Val Thr Asp Pro Phe Ala Phe Ser Arg Gln Ala Leu Gln Ser

50 55 60

Thr Pro Leu Gly Ser Ser Ser Lys Ser Ser Pro Pro Val Leu Gln Gly

65 70 75 80

Pro Ala Pro Ala Gly Phe Ser Gln His Pro Gly Leu Leu Val Pro His
85 90 95
Thr His Ala Arg Asp Ser Ser Gln Gly Pro Cys Glu Pro Leu Pro Gly
100 105 110
Pro Leu Thr Gln Pro Arg Ala His Ala Ser Pro Phe Ser Gly Ala Leu
115 120 125
Thr Pro Ser Ala Pro Pro Gly Pro Glu Met Asn Arg Ser Ala Glu Val
130 135 140
Gly Pro Ser Ser Glu Pro Glu Val Gln Thr Leu Pro Tyr Leu Pro His

145 150 155 160
Tyr Ile Pro Gly Val Asp Pro Glu Thr Ser His Gly Gly His Pro His
165 170 175
Gly Asn Met Pro Gly Leu Asp Arg Pro Leu Ser Arg Gln Asn Pro His
180 185 190
Asp Gly Val Val Thr Pro Ala Ala Ser Pro Ser Leu Pro Gln Pro Gly
195 200 205
Leu Gln Met Pro Gly Gln Trp Gly Pro Val Gln Gly Gly Pro Gln Pro
210 215 220

Ser Gly Gln His Arg Ser Pro Cys Pro Glu Gly Pro Val Pro Ser Gly
225 230 235 240
Val Pro Cys Ala Thr Ser Val Pro His Phe Pro Thr Pro Ser Ile Leu
245 250 255
His Gln Gly Pro Gly His Glu Gln His Ser Pro Leu Val Ala Pro Pro
260 265 270
Ala Ala Leu Pro Ser Asp Gly Arg Asp Glu Val Ser His Leu Gln Ser
275 280 285
Gly Ser His Leu Ala Asn Asn Ser Asp Pro Glu Ser Thr Phe Arg Gln

290 295 300
Asn Pro Arg Ile Val Asn His Trp Ala Ser Pro Glu Leu Arg Gln Asn
305 310 315 320
Pro Gly Val Lys Asn Glu His Arg Pro Ala Ser Ala Leu Val Asn Pro
325 330 335

Leu Ala Arg Gly Asp Ser Pro Glu Asn Arg Thr His His Pro Leu Gly
340 345 350
Ala Gly Ala Gly Ser Gly Cys Ala Pro Leu Glu Ala Asp Ser Gly Ala
355 360 365

Ser Gly Ala Leu Ala Met Phe Phe Gln Gly Gly Glu Thr Glu Asn Glu
370 375 380
Glu Asn Leu Ser Ser Glu Lys Ala Gly Leu Ser Gly Gln Ala Asp Phe
385 390 395 400
Asp Asp Phe Cys Ser Ser Pro Gly Leu Gly Arg Pro Pro Ala Pro Thr
405 410 415
His Val Gly Ala Gly Ser Leu Cys Gln Ala Leu Leu Pro Gly Pro Ser
420 425 430
Asn Glu Ala Ala Gly Asp Val Trp Gly Asp Thr Ala Ser Thr Gly Val

435 440 445
Pro Asp Ala Ser Gly Ser Gln Tyr Glu Asn Val Glu Asn Leu Glu Phe
450 455 460
Val Gln Asn Gln Glu Val Leu Pro Ser Glu Pro Leu Asn Leu Asp Pro
465 470 475 480
Ser Ser Pro Ser Asp Gln Phe Arg Tyr Gly Pro Leu Pro Gly Pro Ala
485 490 495
Val Pro Arg His Gly Ala Val Cys His Thr Gly Ala Pro Asp Ala Thr
500 505 510

Leu His Thr Val His Pro Asp Ser Val Ser Ser Ser Tyr Ser Ser Arg
515 520 525
Ser His Gly Arg Leu Ser Gly Ser Ala Arg Pro Gln Glu Leu Val Gly
530 535 540
Thr Phe Ile Gln Gln Glu Val Gly Lys Pro Glu Asp Glu Ala Ser Gly
545 550 555 560
Ser Phe Phe Lys Gln Ile Asp Ser Ser Pro Val Gly Gly Glu Thr Asp
565 570 575
Glu Thr Thr Val Ser Gln Asn Tyr Arg Gly Ser Val Ser Gln Pro Ser

580 585 590

Thr Pro Ser Pro Pro Lys Pro Thr Gly Ile Phe Gln Thr Ser Ala Asn

595 600 605

Ser Ser Phe Glu Pro Val Lys Ser His Leu Val Gly Val Lys Pro Phe

610 615 620

Glu Ala Asp Arg Ala Asn Val Val Gly Glu Val Arg Glu Thr Cys Val

625 630 635 640

Arg Gln Lys Gln Cys Arg Pro Ala Ala Ala Leu Pro Asp Ala Ser Pro

645 650 655

Gly Asn Leu Glu Gln Pro Pro Asp Asn Met Glu Thr Leu Cys Ala Pro

660 665 670

Gln Val Cys Pro Leu Pro Leu Asn Ser Thr Thr Glu Ala Val His Met

675 680 685

Leu Pro His Ala Gly Ala Pro Pro Leu Asp Thr Val Tyr Pro Ala Pro

690 695 700

Glu Lys Arg Pro Ser Ala Arg Thr Gln Gly Pro Val Lys Cys Glu Ser

705 710 715 720

Pro Ala Thr Thr Leu Trp Ala Gln Ser Glu Leu Pro Asp Phe Gly Gly

725 730 735

Asn Val Leu Leu Ala Pro Ala Ala Pro Ala Leu Tyr Val Cys Ala Lys

740 745 750

Pro Gln Pro Pro Val Val Gln Pro Pro Glu Glu Ala Met Ser Gly Gln

755 760 765

Gln Ser Arg Asn Pro Ser Ser Ala Ala Pro Val Gln Ser Arg Gly Gly

770 775 780

Ile Gly Ala Ser Glu Asn Leu Glu Asn Pro Pro Lys Met Gly Glu Glu

785 790 795 800

Glu Ala Leu Gln Ser Gln Ala Ser Ser Gly Tyr Ala Ser Leu Leu Ser

805 810 815

Ser Pro Pro Thr Glu Ser Leu Gln Asn Pro Pro Val Leu Ile Ala Gln

820 825 830

Pro Asp His Ser Tyr Asn Leu Ala Gln Pro Ile Asn Phe Ser Val Ser

835 840 845

Leu Ser Asn Ser His Glu Lys Asn Gln Ser Trp Arg Glu Ala Leu Val

850 855 860

Gly Asp Arg Pro Ala Val Ser Ser Trp Ala Leu Gly Gly Asp Ser Gly

865 870 875 880

Glu Asn Thr Ser Leu Ser Gly Ile Pro Thr Ser Ser Val Leu Ser Leu

885 890 895

Ser Leu Pro Ser Ser Val Ala Gln Ser Asn Phe Pro Gln Gly Ser Gly

900 905 910

Ala Ser Glu Met Val Ser Asn Gln Pro Ala Asn Leu Leu Val Gln Pro

915 920 925

Pro Ser Gln Pro Val Pro Glu Asn Leu Val Pro Glu Ser Gln Lys Asp

930 935 940

Arg Lys Ala Gly Ser Ala Leu Pro Gly Phe Ala Asn Ser Pro Ala Gly

945 950 955 960

Ser Thr Ser Val Val Leu Val Pro Pro Ala His Gly Thr Leu Val Pro

965 970 975

Asp Gly Asn Lys Ala Asn His Ser Ser His Gln Glu Asp Thr Tyr Gly

980 985 990

Ala Leu Asp Phe Thr Leu Ser Arg Thr Leu Glu Asn Pro Val Asn Val

995 1000 1005

Tyr Asn Pro Ser His Ser Asp Ser Leu Ala Ser Gln Gln Ser Val Ala

1010 1015 1020

Ser His Pro Arg Gln Ser Gly Pro Gly Ala Pro Asn Leu Asp Arg Phe

1025 1030 1035 1040

Tyr Gln Gln Val Thr Lys Asp Ala Gln Gly Gln Pro Gly Leu Glu Arg

1045 1050 1055

Ala Gln Gln Glu Leu Val Pro Pro Gln Gln Gln Ala Ser Pro Pro Gln

1060 1065 1070

Leu Pro Lys Ala Met Phe Ser Glu Leu Ser Asn Pro Glu Ser Leu Pro

1075 1080 1085

Ala Gln Gly Gln Ala Gln Asn Ser Ala Gln Ser Pro Ala Ser Leu Val
1090 1095 1100

Leu Val Asp Ala Gly Gln Gln Leu Pro Pro Arg Pro Pro Gln Ser Ser
1105 1110 1115 1120

Ser Val Ser Leu Val Ser Ser Gly Ser Gly Gln Ala Ala Val Pro Ser
1125 1130 1135

Glu Gln Pro Trp Pro Gln Pro Val Pro Ala Leu Ala Pro Gly Pro Pro
1140 1145 1150

Pro Gln Asp Leu Ala Ala Tyr Tyr Tyr Tyr Arg Pro Leu Tyr Asp Ala

1155 1160 1165

Tyr Gln Pro Gln Tyr Ser Leu Pro Tyr Pro Pro Glu Pro Gly Ala Ala
1170 1175 1180

Ser Leu Tyr Tyr Gln Asp Val Tyr Ser Leu Tyr Glu Pro Arg Tyr Arg
1185 1190 1195 1200

Pro Tyr Asp Gly Ala Ala Ser Ala Tyr Ala Gln Asn Tyr Arg Tyr Pro
1205 1210 1215

Glu Pro Glu Arg Pro Ser Ser Arg Ala Ser His Ser Ser Glu Arg Pro
1220 1225 1230

Pro Pro Arg Gln Gly Tyr Pro Glu Gly Tyr Tyr Ser Ser Lys Ser Gly
1235 1240 1245

Trp Ser Ser Gln Ser Asp Tyr Tyr Ala Ser Tyr Tyr Ser Ser Gln Tyr
1250 1255 1260

Asp Tyr Gly Asp Pro Gly His Trp Asp Arg Tyr His Tyr Ser Ala Arg
1265 1270 1275 1280

Val Arg Asp Pro Arg Thr Tyr Asp Arg Arg Tyr Trp Cys Asp Ala Glu
1285 1290 1295

Tyr Asp Ala Tyr Arg Arg Glu His Ser Ala Phe Gly Asp Arg Pro Glu

1300 1305 1310

Lys Arg Asp Asn Asn Trp Arg Tyr Asp Pro Arg Phe Thr Gly Ser Phe
1315 1320 1325

Asp Asp Asp Pro Asp Pro His Arg Asp Pro Tyr Gly Glu Glu Val Asp
1330 1335 1340

Arg Arg Ser Val His Ser Glu His Ser Ala Arg Ser Leu His Ser Ala
1345 1350 1355 1360
His Ser Leu Ala Ser Arg Arg Ser Ser Leu Ser Ser His Ser His Gln
1365 1370 1375

Ser Gln Ile Tyr Arg Ser His Asn Val Ala Ala Gly Ser Tyr Glu Ala
1380 1385 1390
Pro Leu Pro Pro Gly Ser Phe His Gly Asp Phe Ala Tyr Gly Thr Tyr
1395 1400 1405
Arg Ser Asn Phe Ser Ser Gly Pro Gly Phe Pro Glu Tyr Gly Tyr Pro
1410 1415 1420
Ala Asp Thr Val Trp Pro Ala Met Glu Gln Val Ser Ser Arg Pro Thr
1425 1430 1435 1440
Ser Pro Glu Lys Phe Ser Val Pro His Val Cys Ala Arg Phe Gly Pro

1445 1450 1455
Gly Gly Gln Leu Ile Lys Val Ile Pro Asn Leu Pro Ser Glu Gly Gln
1460 1465 1470
Pro Ala Leu Val Glu Val His Ser Met Glu Ala Leu Leu Gln His Thr
1475 1480 1485
Ser Glu Gln Glu Glu Met Arg Ala Phe Pro Gly Pro Leu Ala Lys Val
1490 1495 1500
Phe Leu Leu Ala Gly Leu His Phe Val Leu Gly Met Leu Ser Leu Pro
1505 1510 1515 1520

Lys Glu Gln Gly Gly Ile Arg Val Ala Ser Tyr Gly Ser Leu Glu Gly
1525 1530 1535
Pro Leu Arg Lys His Thr Val Val Ala Gly
1540 1545

<210> 117
<211> 201
<212> PRT
<213> Homo sapiens
<400> 117
Met Ala Leu Ser Trp Val Leu Thr Val Leu Ser Leu Leu Pro Leu Leu

1 5 10 15

Glu Ala Gln Ile Pro Leu Cys Ala Asn Leu Val Pro Val Pro Ile Thr

20 25 30

Asn Ala Thr Leu Asp Arg Ile Thr Gly Lys Trp Phe Tyr Ile Ala Ser

35 40 45

Ala Phe Arg Asn Glu Glu Tyr Asn Lys Ser Val Gln Glu Ile Gln Ala

50 55 60

Thr Phe Phe Tyr Phe Thr Pro Asn Lys Thr Glu Asp Thr Ile Phe Leu

65 70 75 80

Arg Glu Tyr Gln Thr Arg Gln Asp Gln Cys Ile Tyr Asn Thr Thr Tyr

85 90 95

Leu Asn Val Gln Arg Glu Asn Gly Thr Ile Ser Arg Tyr Val Gly Gly

100 105 110

Gln Glu His Phe Ala His Leu Leu Ile Leu Arg Asp Thr Lys Thr Tyr

115 120 125

Met Leu Ala Phe Asp Val Asn Asp Glu Lys Asn Trp Gly Leu Ser Val

130 135 140

Tyr Ala Asp Lys Pro Glu Thr Thr Lys Glu Gln Leu Gly Glu Phe Tyr

145 150 155 160

Glu Ala Leu Asp Cys Leu Arg Ile Pro Lys Ser Asp Val Val Tyr Thr

165 170 175

Asp Trp Lys Lys Asp Lys Cys Glu Pro Leu Glu Lys Gln His Glu Lys

180 185 190

Glu Arg Lys Gln Glu Glu Gly Glu Ser

195 200

<210> 118

<211> 152

<212> PRT

<213> Homo sapiens

<400> 118

Met Leu Gly Arg Gly Ala Asp Leu Ala Glu Val Glu Gln Lys Lys Lys

1 5 10 15

Arg Thr Phe Arg Lys Phe Thr Tyr Arg Gly Val Asp Leu Asp Gln Leu
20 25 30

Leu Asp Met Ser Tyr Glu Gln Leu Met Gln Leu Tyr Ser Ala Arg Gln
35 40 45

Arg Arg Arg Leu Asn Arg Gly Leu Arg Arg Lys Gln His Ser Leu Leu
50 55 60

Lys Arg Leu Arg Lys Ala Lys Lys Glu Ala Pro Pro Met Glu Lys Pro
65 70 75 80

Glu Val Val Lys Thr His Leu Arg Asp Met Ile Ile Leu Pro Glu Met
85 90 95

Val Gly Ser Met Val Gly Val Tyr Asn Gly Lys Thr Phe Asn Gln Val

100 105 110

Glu Ile Lys Pro Glu Met Ile Gly His Tyr Leu Gly Glu Phe Ser Ile
115 120 125

Thr Tyr Lys Pro Val Lys His Gly Arg Pro Gly Ile Gly Ala Thr His
130 135 140

Ser Ser Arg Phe Ile Pro Leu Lys
145 150

<210> 119

<211> 145

<212> PRT

<213> Homo sapiens

<400> 119

Met Ala Glu Val Glu Gln Lys Lys Lys Arg Thr Phe Arg Lys Phe Thr
1 5 10 15

Tyr Arg Gly Val Asp Leu Asp Gln Leu Leu Asp Met Ser Tyr Glu Gln
20 25 30

Leu Met Gln Leu Tyr Ser Ala Arg Gln Arg Arg Arg Leu Asn Arg Gly
35 40 45

Leu Arg Arg Lys Gln His Ser Leu Leu Lys Arg Leu Arg Lys Ala Lys
50 55 60

Lys Glu Ala Pro Pro Met Glu Lys Pro Glu Val Val Lys Thr His Leu

65 70 75 80

Arg Asp Met Ile Ile Leu Pro Glu Met Val Gly Ser Met Val Gly Val

85 90 95

Tyr Asn Gly Lys Thr Phe Asn Gln Val Glu Ile Lys Pro Glu Met Ile

100 105 110

Gly His Tyr Leu Gly Glu Phe Ser Ile Thr Tyr Lys Pro Val Lys His

115 120 125

Gly Arg Pro Gly Ile Gly Ala Thr His Ser Ser Arg Phe Ile Pro Leu

130 135 140

Lys

145

<210> 120

<211> 360

<212> PRT

<213> Homo sapiens

<400> 120

Met Phe Thr Phe Pro Leu Ala Gly Gln Ser Gly Ala Gly Asn Asn Trp

1 5 10 15

Ala Lys Gly His Tyr Thr Glu Gly Ala Glu Leu Val Asp Ser Val Leu

20 25 30

Asp Val Val Arg Lys Glu Ser Glu Ser Cys Asp Cys Leu Gln Gly Phe

35 40 45

Gln Leu Thr His Ser Leu Gly Gly Gly Thr Gly Ser Gly Met Gly Thr

50 55 60

Leu Leu Ile Ser Lys Ile Arg Glu Glu Tyr Pro Asp Arg Ile Met Asn

65 70 75 80

Thr Phe Ser Val Met Pro Ser Pro Lys Val Ser Asp Thr Val Val Glu

85 90 95

Pro Tyr Asn Ala Thr Leu Ser Val His Gln Leu Val Glu Asn Thr Asp

100 105 110

Glu Thr Tyr Ser Ile Asp Asn Glu Ala Leu Tyr Asp Ile Cys Phe Arg

115 120 125

Thr Leu Lys Leu Thr Thr Pro Thr Tyr Gly Asp Leu Asn His Leu Val
130 135 140

Ser Ala Thr Met Ser Gly Val Thr Thr Cys Leu Arg Phe Pro Gly Gln
145 150 155 160
Leu Asn Ala Asp Leu Arg Lys Leu Ala Val Asn Met Val Pro Phe Pro
165 170 175
Arg Leu His Phe Phe Met Pro Gly Phe Ala Pro Leu Thr Ser Arg Gly
180 185 190
Ser Gln Gln Tyr Arg Ala Leu Thr Val Pro Glu Leu Thr Gln Gln Met
195 200 205
Phe Asp Ser Lys Asn Met Met Ala Ala Cys Asp Pro Arg His Gly Arg

210 215 220
Tyr Leu Thr Val Ala Ala Ile Phe Arg Gly Arg Met Ser Met Lys Glu
225 230 235 240
Val Asp Glu Gln Met Leu Asn Val Gln Asn Lys Asn Ser Ser Tyr Phe
245 250 255
Val Glu Trp Ile Pro Asn Asn Val Lys Thr Ala Val Cys Asp Ile Pro
260 265 270
Pro Arg Gly Leu Lys Met Ser Ala Thr Phe Ile Gly Asn Ser Thr Ala
275 280 285

Ile Gln Glu Leu Phe Lys Arg Ile Ser Glu Gln Phe Thr Ala Met Phe
290 295 300
Arg Arg Lys Ala Phe Leu His Trp Tyr Thr Gly Glu Gly Met Asp Glu
305 310 315 320
Met Glu Phe Thr Glu Ala Glu Ser Asn Met Asn Asp Leu Val Ser Glu
325 330 335
Tyr Gln Gln Tyr Gln Asp Ala Thr Ala Asp Glu Gln Gly Glu Phe Glu
340 345 350
Glu Glu Glu Gly Glu Asp Glu Ala

355 360
<210> 121

<211> 445

<212> PRT

<213> Homo sapiens

<400> 121

Met Arg Glu Ile Val His Ile Gln Ala Gly Gln Cys Gly Asn Gln Ile
1 5 10 15

Gly Ala Lys Phe Trp Glu Val Ile Ser Asp Glu His Gly Ile Asp Pro
20 25 30

Thr Gly Ser Tyr His Gly Asp Ser Asp Leu Gln Leu Glu Arg Ile Asn
35 40 45

Val Tyr Tyr Asn Glu Ala Ala Gly Asn Lys Tyr Val Pro Arg Ala Ile

50 55 60

Leu Val Asp Leu Glu Pro Gly Thr Met Asp Ser Val Arg Ser Gly Pro
65 70 75 80

Phe Gly Gln Ile Phe Arg Pro Asp Asn Phe Val Phe Gly Gln Ser Gly
85 90 95

Ala Gly Asn Asn Trp Ala Lys Gly His Tyr Thr Glu Gly Ala Glu Leu
100 105 110

Val Asp Ser Val Leu Asp Val Val Arg Lys Glu Ser Glu Ser Cys Asp
115 120 125

Cys Leu Gln Gly Phe Gln Leu Thr His Ser Leu Gly Gly Gly Thr Gly
130 135 140

Ser Gly Met Gly Thr Leu Leu Ile Ser Lys Ile Arg Glu Glu Tyr Pro
145 150 155 160

Asp Arg Ile Met Asn Thr Phe Ser Val Met Pro Ser Pro Lys Val Ser
165 170 175

Asp Thr Val Val Glu Pro Tyr Asn Ala Thr Leu Ser Val His Gln Leu
180 185 190

Val Glu Asn Thr Asp Glu Thr Tyr Ser Ile Asp Asn Glu Ala Leu Tyr

195 200 205

Asp Ile Cys Phe Arg Thr Leu Lys Leu Thr Thr Pro Thr Tyr Gly Asp
210 215 220

Leu Asn His Leu Val Ser Ala Thr Met Ser Gly Val Thr Thr Cys Leu
225 230 235 240
Arg Phe Pro Gly Gln Leu Asn Ala Asp Leu Arg Lys Leu Ala Val Asn
245 250 255
Met Val Pro Phe Pro Arg Leu His Phe Phe Met Pro Gly Phe Ala Pro
260 265 270

Leu Thr Ser Arg Gly Ser Gln Gln Tyr Arg Ala Leu Thr Val Pro Glu
275 280 285
Leu Thr Gln Gln Met Phe Asp Ser Lys Asn Met Met Ala Ala Cys Asp
290 295 300
Pro Arg His Gly Arg Tyr Leu Thr Val Ala Ala Ile Phe Arg Gly Arg
305 310 315 320
Met Ser Met Lys Glu Val Asp Glu Gln Met Leu Asn Val Gln Asn Lys
325 330 335
Asn Ser Ser Tyr Phe Val Glu Trp Ile Pro Asn Asn Val Lys Thr Ala

340 345 350
Val Cys Asp Ile Pro Pro Arg Gly Leu Lys Met Ser Ala Thr Phe Ile
355 360 365
Gly Asn Ser Thr Ala Ile Gln Glu Leu Phe Lys Arg Ile Ser Glu Gln
370 375 380
Phe Thr Ala Met Phe Arg Arg Lys Ala Phe Leu His Trp Tyr Thr Gly
385 390 395 400
Glu Gly Met Asp Glu Met Glu Phe Thr Glu Ala Glu Ser Asn Met Asn
405 410 415

Asp Leu Val Ser Glu Tyr Gln Gln Tyr Gln Asp Ala Thr Ala Asp Glu
420 425 430
Gln Gly Glu Phe Glu Glu Glu Glu Gly Glu Asp Glu Ala
435 440 445

<210> 122
<211> 2325
<212> PRT
<213> Homo sapiens

<400> 122

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro
1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser
20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser
35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met
50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val
65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn
85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr
225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr

245 250 255

Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val

260 265 270

Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu

275 280 285

Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300

Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys

325 330 335

Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu

340 345 350

Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu

355 360 365

Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu

370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr

385 390 395 400

Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met

405 410 415

Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His

420 425 430

Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala

435 440 445

Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu

450 455 460

Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala

465 470 475 480

Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys

485 490 495

Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala

500 505 510

Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly

515 520 525

Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp

530 535 540

Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys

545 550 555 560

Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser

565 570 575

Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile

580 585 590

Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu

595 600 605

Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr

610 615 620

Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg

625 630 635 640

Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val

645 650 655

Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn

660 665 670

Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His

675 680 685

Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr

690 695 700

Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn

705 710 715 720

Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu

725 730 735

Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys

740 745 750

Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn
755 760 765
Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu
770 775 780
Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val
785 790 795 800
Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu
805 810 815
Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro

820 825 830
Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser
835 840 845
Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg
850 855 860
Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala
865 870 875 880
Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala
885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met
900 905 910
Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu
915 920 925
Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys
930 935 940
Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu
945 950 955 960
Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu

965 970 975
Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala
980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val
995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg
1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu
1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln
1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser
1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg
1075 1080 1085

Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp
1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg

1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro
1125 1130 1135

Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser
1140 1145 1150

Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly
1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln
1170 1175 1180

Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp
1185 1190 1195 1200

Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg
1205 1210 1215

Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp
1220 1225 1230

Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr
1235 1240 1245

Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala

1250 1255 1260

Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr

1265 1270 1275 1280

Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro

1285 1290 1295

Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His

1300 1305 1310

Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu

1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp

1330 1335 1340

Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His

1345 1350 1355 1360

His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu

1365 1370 1375

Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp

1380 1385 1390

Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu

1395 1400 1405

Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile

1410 1415 1420

Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg

1425 1430 1435 1440

Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr

1445 1450 1455

Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln

1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala

1475 1480 1485

Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp

1490 1495 1500

Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys

1505 1510 1515 1520

Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu

1525 1530 1535

Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys

1540 1545 1550

Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu

1555 1560 1565

Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys

1570 1575 1580

Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp

1585 1590 1595 1600

Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser

1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu

1620 1625 1630

Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu

1635 1640 1645

Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser

1650 1655 1660

Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu

1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr

1685 1690 1695

Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu

1700 1705 1710

Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys

1715 1720 1725

Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln

1730 1735 1740

Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu

1745 1750 1755 1760

Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg
1765 1770 1775
Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu
1780 1785 1790
Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg
1795 1800 1805
Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu
1810 1815 1820
Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln

1825 1830 1835 1840
Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln
1845 1850 1855
Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu
1860 1865 1870
Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu
1875 1880 1885
His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu
1890 1895 1900

Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys
1905 1910 1915 1920
Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile
1925 1930 1935
Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg
1940 1945 1950
Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys
1955 1960 1965
Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp

1970 1975 1980
Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu
1985 1990 1995 2000

Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu
2005 2010 2015
Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln
2020 2025 2030
Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala
2035 2040 2045

Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr
2050 2055 2060
Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu
2065 2070 2075 2080
Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Glu Gln Lys Gln
2085 2090 2095
Glu Asn Ser Cys Ile Gln Lys Glu Met Ala Thr Ile Glu Leu Val Ala
2100 2105 2110
Gln Asp Asn His Glu Arg Ala Arg Arg Leu Met Lys Glu Leu Asn Gln

2115 2120 2125
Met Gln Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Met Ala Asn Gln Lys
2130 2135 2140
Asp Leu Glu Arg Arg Gln Met Glu Ile Ser Asp Ala Met Arg Thr Leu
2145 2150 2155 2160
Lys Ser Glu Val Lys Asp Glu Ile Arg Thr Ser Leu Lys Asn Leu Asn
2165 2170 2175
Gln Phe Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu Arg
2180 2185 2190

Asn Glu Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu Pro
2195 2200 2205
Phe Thr Met Asn Glu Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser Gln
2210 2215 2220
Val His Ile Met Asp Glu His Trp Arg Gly Glu Ala Leu Arg Glu Lys
2225 2230 2235 2240
Leu Arg His Arg Glu Asp Arg Leu Lys Ala Gln Leu Arg His Cys Met
2245 2250 2255

Ser Lys Gln Ala Glu Val Leu Ile Lys Gly Lys Arg Gln Thr Glu Gly

2260 2265 2270

Thr Leu His Ser Leu Arg Arg Gln Val Asp Ala Leu Gly Glu Leu Val

2275 2280 2285

Thr Ser Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln Leu

2290 2295 2300

Glu Ser Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu Lys

2305 2310 2315 2320

Asn Ala Ser Ala Arg

2325

<210> 123

<211> 1773

<212> PRT

<213> Homo sapiens

<400> 123

Met Lys Ala Gln Lys Ser Gly Lys Glu Gln Gln Leu Asp Ile Met Asn

1 5 10 15

Lys Gln Tyr Gln Gln Leu Glu Ser Arg Leu Asp Glu Ile Leu Ser Arg

20 25 30

Ile Ala Lys Glu Thr Glu Glu Ile Lys Asp Leu Glu Glu Gln Leu Thr

35 40 45

Glu Gly Gln Ile Ala Ala Asn Glu Ala Leu Lys Lys Asp Leu Glu Gly

50 55 60

Val Ile Ser Gly Leu Gln Glu Tyr Leu Gly Thr Ile Lys Gly Gln Ala

65 70 75 80

Thr Gln Ala Gln Asn Glu Cys Arg Lys Leu Arg Asp Glu Lys Glu Thr

85 90 95

Leu Leu Gln Arg Leu Thr Glu Val Glu Gln Glu Arg Asp Gln Leu Glu

100 105 110

Ile Val Ala Met Asp Ala Glu Asn Met Arg Lys Glu Leu Ala Glu Leu

115 120 125

Glu Ser Ala Leu Gln Glu Gln His Glu Val Asn Ala Ser Leu Gln Gln

130 135 140

Thr Gln Gly Asp Leu Ser Ala Tyr Glu Ala Glu Leu Glu Ala Arg Leu
145 150 155 160
Asn Leu Arg Asp Ala Glu Ala Asn Gln Leu Lys Glu Glu Leu Glu Lys
165 170 175
Val Thr Arg Leu Thr Gln Leu Glu Gln Ser Ala Leu Gln Ala Glu Leu
180 185 190
Glu Lys Glu Arg Gln Ala Leu Lys Asn Ala Leu Gly Lys Ala Gln Phe
195 200 205

Ser Glu Glu Lys Glu Gln Glu Asn Ser Glu Leu His Ala Lys Leu Lys
210 215 220
His Leu Gln Asp Asp Asn Asn Leu Leu Lys Gln Gln Leu Lys Asp Phe
225 230 235 240
Gln Asn His Leu Asn His Val Val Asp Gly Leu Val Arg Pro Glu Glu
245 250 255
Val Ala Ala Arg Val Asp Glu Leu Arg Arg Lys Leu Lys Leu Gly Thr
260 265 270
Gly Glu Met Asn Ile His Ser Pro Ser Asp Val Leu Gly Lys Ser Leu

275 280 285

Ala Asp Leu Gln Lys Gln Phe Ser Glu Ile Leu Ala Arg Ser Lys Trp
290 295 300
Glu Arg Asp Glu Ala Gln Val Arg Glu Arg Lys Leu Gln Glu Glu Met
305 310 315 320
Ala Leu Gln Gln Glu Lys Leu Ala Thr Gly Gln Glu Glu Phe Arg Gln
325 330 335
Ala Cys Glu Arg Ala Leu Glu Ala Arg Met Asn Phe Asp Lys Arg Gln
340 345 350

His Glu Ala Arg Ile Gln Gln Met Glu Asn Glu Ile His Tyr Leu Gln

355 360 365

Glu Asn Leu Lys Ser Met Glu Glu Ile Gln Gly Leu Thr Asp Leu Gln

370 375 380

Leu Gln Glu Ala Asp Glu Glu Lys Glu Arg Ile Leu Ala Gln Leu Arg

385 390 395 400

Glu Leu Glu Lys Lys Lys Lys Leu Glu Asp Ala Lys Ser Gln Glu Gln

405 410 415

Val Phe Gly Leu Asp Lys Glu Leu Lys Lys Leu Lys Lys Ala Val Ala

420 425 430

Thr Ser Asp Lys Leu Ala Thr Ala Glu Leu Thr Ile Ala Lys Asp Gln

435 440 445

Leu Lys Ser Leu His Gly Thr Val Met Lys Ile Asn Gln Glu Arg Ala

450 455 460

Glu Glu Leu Gln Glu Ala Glu Arg Phe Ser Arg Lys Ala Ala Gln Ala

465 470 475 480

Ala Arg Asp Leu Thr Arg Ala Glu Ala Glu Ile Glu Leu Leu Gln Asn

485 490 495

Leu Leu Arg Gln Lys Gly Glu Gln Phe Arg Leu Glu Met Glu Lys Thr

500 505 510

Gly Val Gly Thr Gly Ala Asn Ser Gln Val Leu Glu Ile Glu Lys Leu

515 520 525

Asn Glu Thr Met Glu Arg Gln Arg Thr Glu Ile Ala Arg Leu Gln Asn

530 535 540

Val Leu Asp Leu Thr Gly Ser Asp Asn Lys Gly Gly Phe Glu Asn Val

545 550 555 560

Leu Glu Glu Ile Ala Glu Leu Arg Arg Glu Val Ser Tyr Gln Asn Asp

565 570 575

Tyr Ile Ser Ser Met Ala Asp Pro Phe Lys Arg Arg Gly Tyr Trp Tyr

580 585 590

Phe Met Pro Pro Pro Pro Ser Ser Lys Val Ser Ser His Ser Ser Gln

595 600 605

Ala Thr Lys Asp Ser Gly Val Gly Leu Lys Tyr Ser Ala Ser Thr Pro

610 615 620

Val Arg Lys Pro Arg Pro Gly Gln Gln Asp Gly Lys Glu Gly Ser Gln

625 630 635 640

Pro Pro Pro Ala Ser Gly Tyr Trp Val Tyr Ser Pro Ile Arg Ser Gly
645 650 655
Leu His Lys Leu Phe Pro Ser Arg Asp Ala Asp Ser Gly Gly Asp Ser
660 665 670
Gln Glu Glu Ser Glu Leu Asp Asp Gln Glu Glu Pro Pro Phe Val Pro
675 680 685
Pro Pro Gly Tyr Met Met Tyr Thr Val Leu Pro Asp Gly Ser Pro Val
690 695 700
Pro Gln Gly Met Ala Leu Tyr Ala Pro Pro Pro Pro Leu Pro Asn Asn

705 710 715 720
Ser Arg Pro Leu Thr Pro Gly Thr Val Val Tyr Gly Pro Pro Pro Ala
725 730 735
Gly Ala Pro Met Val Tyr Gly Pro Pro Pro Pro Asn Phe Ser Ile Pro
740 745 750
Phe Ile Pro Met Gly Val Leu His Cys Asn Val Pro Glu His His Asn
755 760 765
Leu Glu Asn Glu Val Ser Arg Leu Glu Asp Ile Met Gln His Leu Lys
770 775 780

Ser Lys Lys Arg Glu Glu Arg Trp Met Arg Ala Ser Lys Arg Gln Ser
785 790 795 800
Glu Lys Glu Met Glu Glu Leu His His Asn Ile Asp Asp Leu Leu Gln
805 810 815
Glu Lys Lys Ser Leu Glu Cys Glu Val Glu Glu Leu His Arg Thr Val
820 825 830
Gln Lys Arg Gln Gln Gln Lys Asp Phe Ile Asp Gly Asn Val Glu Ser
835 840 845
Leu Met Thr Glu Leu Glu Ile Glu Lys Ser Leu Lys His His Glu Asp

850 855 860
Ile Val Asp Glu Ile Glu Cys Ile Glu Lys Thr Leu Leu Lys Arg Arg
865 870 875 880

Ser Glu Leu Arg Glu Ala Asp Arg Leu Leu Ala Glu Ala Glu Ser Glu
885 890 895
Leu Ser Cys Thr Lys Glu Lys Thr Lys Asn Ala Val Glu Lys Phe Thr
900 905 910
Asp Ala Lys Arg Ser Leu Leu Gln Thr Glu Ser Asp Ala Glu Glu Leu
915 920 925

Glu Arg Arg Ala Gln Glu Thr Ala Val Asn Leu Val Lys Ala Asp Gln
930 935 940
Gln Leu Arg Ser Leu Gln Ala Asp Ala Lys Asp Leu Glu Gln His Lys
945 950 955 960
Ile Lys Gln Glu Glu Ile Leu Lys Glu Ile Asn Lys Ile Val Ala Ala
965 970 975
Lys Asp Ser Asp Phe Gln Cys Leu Ser Lys Lys Lys Glu Lys Leu Thr
980 985 990
Glu Glu Leu Gln Lys Leu Gln Lys Asp Ile Glu Met Ala Glu Arg Asn

995 1000 1005
Glu Asp His His Leu Gln Val Leu Lys Glu Ser Glu Val Leu Leu Gln
1010 1015 1020
Ala Lys Arg Ala Glu Leu Glu Lys Leu Lys Ser Gln Val Thr Ser Gln
1025 1030 1035 1040
Gln Gln Glu Met Ala Val Leu Asp Arg Gln Leu Gly His Lys Lys Glu
1045 1050 1055
Glu Leu His Leu Leu Gln Gly Ser Met Val Gln Ala Lys Ala Asp Leu
1060 1065 1070

Gln Glu Ala Leu Arg Leu Gly Glu Thr Glu Val Thr Glu Lys Cys Asn
1075 1080 1085
His Ile Arg Glu Val Lys Ser Leu Leu Glu Glu Leu Ser Phe Gln Lys
1090 1095 1100
Gly Glu Leu Asn Val Gln Ile Ser Glu Arg Lys Thr Gln Leu Thr Leu
1105 1110 1115 1120
Ile Lys Gln Glu Ile Glu Lys Glu Glu Glu Asn Leu Gln Val Val Leu
1125 1130 1135

Arg Gln Met Ser Lys His Lys Thr Glu Leu Lys Asn Ile Leu Asp Met

1140 1145 1150

Leu Gln Leu Glu Asn His Glu Leu Gln Gly Leu Lys Leu Gln His Asp

1155 1160 1165

Gln Arg Val Ser Glu Leu Glu Lys Thr Gln Val Ala Val Leu Glu Glu

1170 1175 1180

Lys Leu Glu Leu Glu Asn Leu Gln Gln Ile Ser Gln Gln Gln Lys Gly

1185 1190 1195 1200

Glu Ile Glu Trp Gln Lys Gln Leu Leu Glu Arg Asp Lys Arg Glu Ile

1205 1210 1215

Glu Arg Met Thr Ala Glu Ser Arg Ala Leu Gln Ser Cys Val Glu Cys

1220 1225 1230

Leu Ser Lys Glu Lys Glu Asp Leu Gln Glu Lys Cys Asp Ile Trp Glu

1235 1240 1245

Lys Lys Leu Ala Gln Thr Lys Arg Val Leu Ala Ala Ala Glu Glu Asn

1250 1255 1260

Ser Lys Met Glu Gln Ser Asn Leu Glu Lys Leu Glu Leu Asn Val Arg

1265 1270 1275 1280

Lys Leu Gln Gln Glu Leu Asp Gln Leu Asn Arg Asp Lys Leu Ser Leu

1285 1290 1295

His Asn Asp Ile Ser Ala Met Gln Gln Gln Leu Gln Glu Lys Arg Glu

1300 1305 1310

Ala Val Asn Ser Leu Gln Glu Glu Leu Ala Asn Val Gln Asp His Leu

1315 1320 1325

Asn Leu Ala Lys Gln Asp Leu Leu His Thr Thr Lys His Gln Asp Val

1330 1335 1340

Leu Leu Ser Glu Gln Thr Arg Leu Gln Lys Asp Ile Ser Glu Trp Ala

1345 1350 1355 1360

Asn Arg Phe Glu Asp Cys Gln Lys Glu Glu Glu Thr Lys Gln Gln Gln

1365 1370 1375

Leu Gln Val Leu Gln Asn Glu Ile Glu Glu Asn Lys Leu Lys Leu Val

1380 1385 1390

Gln Gln Glu Met Met Phe Gln Arg Leu Gln Lys Glu Arg Glu Ser Glu

1395 1400 1405

Glu Ser Lys Leu Glu Thr Ser Lys Val Thr Leu Lys Glu Gln Gln His

1410 1415 1420

Gln Leu Glu Lys Glu Leu Thr Asp Gln Lys Ser Lys Leu Asp Gln Val

1425 1430 1435 1440

Leu Ser Lys Val Leu Ala Ala Glu Glu Arg Val Arg Thr Leu Gln Glu

1445 1450 1455

Glu Glu Arg Trp Cys Glu Ser Leu Glu Lys Thr Leu Ser Gln Thr Lys

1460 1465 1470

Arg Gln Leu Ser Glu Arg Glu Gln Gln Leu Val Glu Lys Ser Gly Glu

1475 1480 1485

Leu Leu Ala Leu Gln Lys Glu Ala Asp Ser Met Arg Ala Asp Phe Ser

1490 1495 1500

Leu Leu Arg Asn Gln Phe Leu Thr Glu Arg Lys Lys Ala Glu Lys Gln

1505 1510 1515 1520

Val Ala Ser Leu Lys Glu Ala Leu Lys Ile Gln Arg Ser Gln Leu Glu

1525 1530 1535

Lys Asn Leu Leu Glu Gln Lys Gln Glu Asn Ser Cys Ile Gln Lys Glu

1540 1545 1550

Met Ala Thr Ile Glu Leu Val Ala Gln Asp Asn His Glu Arg Ala Arg

1555 1560 1565

Arg Leu Met Lys Glu Leu Asn Gln Met Gln Tyr Glu Tyr Thr Glu Leu

1570 1575 1580

Lys Lys Gln Met Ala Asn Gln Lys Asp Leu Glu Arg Arg Gln Met Glu

1585 1590 1595 1600

Ile Ser Asp Ala Met Arg Thr Leu Lys Ser Glu Val Lys Asp Glu Ile

1605 1610 1615

Arg Thr Ser Leu Lys Asn Leu Asn Gln Phe Leu Pro Glu Leu Pro Ala

1620 1625 1630

Asp Leu Glu Ala Ile Leu Glu Arg Asn Glu Asn Leu Glu Gly Glu Leu

1635 1640 1645

Glu Ser Leu Lys Glu Asn Leu Pro Phe Thr Met Asn Glu Gly Pro Phe

1650 1655 1660

Glu Glu Lys Leu Asn Phe Ser Gln Val His Ile Met Asp Glu His Trp

1665 1670 1675 1680

Arg Gly Glu Ala Leu Arg Glu Lys Leu Arg His Arg Glu Asp Arg Leu

1685 1690 1695

Lys Ala Gln Leu Arg His Cys Met Ser Lys Gln Ala Glu Val Leu Ile

1700 1705 1710

Lys Gly Lys Arg Gln Thr Glu Gly Thr Leu His Ser Leu Arg Arg Gln

1715 1720 1725

Val Asp Ala Leu Gly Glu Leu Val Thr Ser Thr Ser Ala Asp Ser Ala

1730 1735 1740

Ser Ser Pro Ser Leu Ser Gln Leu Glu Ser Ser Leu Thr Glu Asp Ser

1745 1750 1755 1760

Gln Leu Gly Gln Asn Gln Glu Lys Asn Ala Ser Ala Arg

1765 1770

<210> 124

<211> 1726

<212> PRT

<213> Homo sapiens

<400> 124

Met Lys Ala Gln Lys Ser Gly Lys Glu Gln Gln Leu Asp Ile Met Asn

1 5 10 15

Lys Gln Tyr Gln Gln Leu Glu Ser Arg Leu Asp Glu Ile Leu Ser Arg

20 25 30

Ile Ala Lys Glu Thr Glu Glu Ile Lys Asp Leu Glu Glu Gln Leu Thr

35 40 45

Glu Gly Gln Ile Ala Ala Asn Glu Ala Leu Lys Lys Asp Leu Glu Gly

50 55 60

Val Ile Ser Gly Leu Gln Glu Tyr Leu Gly Thr Ile Lys Gly Gln Ala

65 70 75 80

Thr Gln Ala Gln Asn Glu Cys Arg Lys Leu Arg Asp Glu Lys Glu Thr
85 90 95
Leu Leu Gln Arg Leu Thr Glu Val Glu Gln Glu Arg Asp Gln Leu Glu
100 105 110
Ile Val Ala Met Asp Ala Glu Asn Met Arg Lys Glu Leu Ala Glu Leu
115 120 125
Glu Ser Ala Leu Gln Glu Gln His Glu Val Asn Ala Ser Leu Gln Gln
130 135 140
Thr Gln Gly Asp Leu Ser Ala Tyr Glu Ala Glu Leu Glu Ala Arg Leu

145 150 155 160
Asn Leu Arg Asp Ala Glu Ala Asn Gln Leu Lys Glu Glu Leu Glu Lys
165 170 175
Val Thr Arg Leu Thr Gln Leu Glu Gln Ser Ala Leu Gln Ala Glu Leu
180 185 190
Glu Lys Glu Arg Gln Ala Leu Lys Asn Ala Leu Gly Lys Ala Gln Phe
195 200 205
Ser Glu Glu Lys Glu Gln Glu Asn Ser Glu Leu His Ala Lys Leu Lys
210 215 220

His Leu Gln Asp Asp Asn Asn Leu Leu Lys Gln Gln Leu Lys Asp Phe
225 230 235 240
Gln Asn His Leu Asn His Val Val Asp Gly Leu Val Arg Pro Glu Glu
245 250 255
Val Ala Ala Arg Val Asp Glu Leu Arg Arg Lys Leu Lys Leu Gly Thr
260 265 270
Gly Glu Met Asn Ile His Ser Pro Ser Asp Val Leu Gly Lys Ser Leu
275 280 285
Ala Asp Leu Gln Lys Gln Phe Ser Glu Ile Leu Ala Arg Ser Lys Trp

290 295 300
Glu Arg Asp Glu Ala Gln Val Arg Glu Arg Lys Leu Gln Glu Glu Met
305 310 315 320

Ala Leu Gln Gln Glu Lys Leu Ala Thr Gly Gln Glu Glu Phe Arg Gln
325 330 335
Ala Cys Glu Arg Ala Leu Glu Ala Arg Met Asn Phe Asp Lys Arg Gln
340 345 350
His Glu Ala Arg Ile Gln Gln Met Glu Asn Glu Ile His Tyr Leu Gln
355 360 365

Glu Asn Leu Lys Ser Met Glu Glu Ile Gln Gly Leu Thr Asp Leu Gln
370 375 380
Leu Gln Glu Ala Asp Glu Glu Lys Glu Arg Ile Leu Ala Gln Leu Arg
385 390 395 400
Glu Leu Glu Lys Lys Lys Lys Leu Glu Asp Ala Lys Ser Gln Glu Gln
405 410 415
Val Phe Gly Leu Asp Lys Glu Leu Lys Lys Leu Lys Lys Ala Val Ala
420 425 430
Thr Ser Asp Lys Leu Ala Thr Ala Glu Leu Thr Ile Ala Lys Asp Gln

435 440 445
Leu Lys Ser Leu His Gly Thr Val Met Lys Ile Asn Gln Glu Arg Ala
450 455 460
Glu Glu Leu Gln Glu Ala Glu Arg Phe Ser Arg Lys Ala Ala Gln Ala
465 470 475 480
Ala Arg Asp Leu Thr Arg Ala Glu Ala Glu Ile Glu Leu Leu Gln Asn
485 490 495
Leu Leu Arg Gln Lys Gly Glu Gln Phe Arg Leu Glu Met Glu Lys Thr
500 505 510

Gly Val Gly Thr Gly Ala Asn Ser Gln Val Leu Glu Ile Glu Lys Leu
515 520 525
Asn Glu Thr Met Glu Arg Gln Arg Thr Glu Ile Ala Arg Leu Gln Asn
530 535 540
Val Leu Asp Leu Thr Gly Ser Asp Asn Lys Gly Gly Phe Glu Asn Val
545 550 555 560
Leu Glu Glu Ile Ala Glu Leu Arg Arg Glu Val Ser Tyr Gln Asn Asp
565 570 575

Tyr Ile Ser Ser Met Ala Asp Pro Phe Lys Arg Arg Gly Tyr Trp Tyr

580 585 590

Phe Met Pro Pro Pro Pro Ser Ser Lys Val Ser Ser His Ser Ser Gln

595 600 605

Ala Thr Lys Asp Ser Gly Val Gly Leu Lys Tyr Ser Ala Ser Thr Pro

610 615 620

Val Arg Lys Pro Arg Pro Gly Gln Gln Asp Gly Lys Glu Gly Ser Gln

625 630 635 640

Pro Pro Pro Ala Ser Gly Tyr Trp Val Tyr Ser Pro Ile Arg Ser Gly

645 650 655

Leu His Lys Leu Phe Pro Ser Arg Asp Ala Asp Ser Gly Gly Asp Ser

660 665 670

Gln Glu Glu Ser Glu Leu Asp Asp Gln Glu Glu Pro Pro Phe Val Pro

675 680 685

Pro Pro Gly Tyr Met Met Tyr Thr Val Leu Pro Asp Gly Ser Pro Val

690 695 700

Pro Gln Gly Met Ala Leu Tyr Ala Pro Pro Pro Pro Leu Pro Asn Asn

705 710 715 720

Ser Arg Pro Leu Thr Pro Gly Thr Val Val Tyr Gly Pro Pro Pro Ala

725 730 735

Gly Ala Pro Met Val Tyr Gly Pro Pro Pro Pro Asn Phe Ser Ile Pro

740 745 750

Phe Ile Pro Met Gly Val Leu His Cys Asn Val Pro Glu His His Asn

755 760 765

Leu Glu Asn Glu Val Ser Arg Leu Glu Asp Ile Met Gln His Leu Lys

770 775 780

Ser Lys Lys Arg Glu Glu Arg Trp Met Arg Ala Ser Lys Arg Gln Ser

785 790 795 800

Glu Lys Glu Met Glu Glu Leu His His Asn Ile Asp Asp Leu Leu Gln

805 810 815

Glu Lys Lys Ser Leu Glu Cys Glu Val Glu Glu Leu His Arg Thr Val

820 825 830

Gln Lys Arg Gln Gln Gln Lys Asp Phe Ile Asp Gly Asn Val Glu Ser

835 840 845

Leu Met Thr Glu Leu Glu Ile Glu Lys Ser Leu Lys His His Glu Asp

850 855 860

Ile Val Asp Glu Ile Glu Cys Ile Glu Lys Thr Leu Leu Lys Arg Arg

865 870 875 880

Ser Glu Leu Arg Glu Ala Asp Arg Leu Leu Ala Glu Ala Glu Ser Glu

885 890 895

Leu Ser Cys Thr Lys Glu Lys Thr Lys Asn Ala Val Glu Lys Phe Thr

900 905 910

Asp Ala Lys Arg Ser Leu Leu Gln Thr Glu Ser Asp Ala Glu Glu Leu

915 920 925

Glu Arg Arg Ala Gln Glu Thr Ala Val Asn Leu Val Lys Ala Asp Gln

930 935 940

Gln Leu Arg Ser Leu Gln Ala Asp Ala Lys Asp Leu Glu Gln His Lys

945 950 955 960

Ile Lys Gln Glu Glu Ile Leu Lys Glu Ile Asn Lys Ile Val Ala Ala

965 970 975

Lys Asp Ser Asp Phe Gln Cys Leu Ser Lys Lys Lys Glu Lys Leu Thr

980 985 990

Glu Glu Leu Gln Lys Leu Gln Lys Asp Ile Glu Met Ala Glu Arg Asn

995 1000 1005

Glu Asp His His Leu Gln Val Leu Lys Glu Ser Glu Val Leu Leu Gln

1010 1015 1020

Ala Lys Arg Ala Glu Leu Glu Lys Leu Lys Ser Gln Val Thr Ser Gln

1025 1030 1035 1040

Gln Gln Glu Met Ala Val Leu Asp Arg Gln Leu Gly His Lys Lys Glu

1045 1050 1055

Glu Leu His Leu Leu Gln Gly Ser Met Val Gln Ala Lys Ala Asp Leu

1060 1065 1070

Gln Glu Ala Leu Arg Leu Gly Glu Thr Glu Val Thr Glu Lys Cys Asn

1075 1080 1085

His Ile Arg Glu Val Lys Ser Leu Leu Glu Glu Leu Ser Phe Gln Lys
1090 1095 1100
Gly Glu Leu Asn Val Gln Ile Ser Glu Arg Lys Thr Gln Leu Thr Leu
1105 1110 1115 1120
Ile Lys Gln Glu Ile Glu Lys Glu Glu Glu Asn Leu Gln Val Val Leu
1125 1130 1135
Arg Gln Met Ser Lys His Lys Thr Glu Leu Lys Asn Ile Leu Asp Met
1140 1145 1150
Leu Gln Leu Glu Asn His Glu Leu Gln Gly Leu Lys Leu Gln His Asp

1155 1160 1165
Gln Arg Val Ser Glu Leu Glu Lys Thr Gln Val Ala Val Leu Glu Glu
1170 1175 1180
Lys Leu Glu Leu Glu Asn Leu Gln Gln Ile Ser Gln Gln Gln Lys Gly
1185 1190 1195 1200
Glu Ile Glu Trp Gln Lys Gln Leu Leu Glu Arg Asp Lys Arg Glu Ile
1205 1210 1215
Glu Arg Met Thr Ala Glu Ser Arg Ala Leu Gln Ser Cys Val Glu Cys
1220 1225 1230

Leu Ser Lys Glu Lys Glu Asp Leu Gln Glu Lys Cys Asp Ile Trp Glu
1235 1240 1245
Lys Lys Leu Ala Gln Thr Lys Arg Val Leu Ala Ala Ala Glu Glu Asn
1250 1255 1260
Ser Lys Met Glu Gln Ser Asn Leu Glu Lys Leu Glu Leu Asn Val Arg
1265 1270 1275 1280
Lys Leu Gln Gln Glu Leu Asp Gln Leu Asn Arg Asp Lys Leu Ser Leu
1285 1290 1295
His Asn Asp Ile Ser Ala Met Gln Gln Gln Leu Gln Glu Lys Arg Glu

1300 1305 1310
Ala Val Asn Ser Leu Gln Glu Glu Leu Ala Asn Val Gln Asp His Leu
1315 1320 1325

Asn Leu Ala Lys Gln Asp Leu Leu His Thr Thr Lys His Gln Asp Val
1330 1335 1340

Leu Leu Ser Glu Gln Thr Arg Leu Gln Lys Asp Ile Ser Glu Trp Ala
1345 1350 1355 1360

Asn Arg Phe Glu Asp Cys Gln Lys Glu Glu Glu Thr Lys Gln Gln Gln
1365 1370 1375

Leu Gln Val Leu Gln Asn Glu Ile Glu Glu Asn Lys Leu Lys Leu Val
1380 1385 1390

Gln Gln Glu Met Met Phe Gln Arg Leu Gln Lys Glu Arg Glu Ser Glu
1395 1400 1405

Glu Ser Lys Leu Glu Thr Ser Lys Val Thr Leu Lys Glu Gln Gln His
1410 1415 1420

Gln Leu Glu Lys Glu Leu Thr Asp Gln Lys Ser Lys Leu Asp Gln Val
1425 1430 1435 1440

Leu Ser Lys Val Leu Ala Ala Glu Glu Arg Val Arg Thr Leu Gln Glu
1445 1450 1455

Glu Glu Arg Trp Cys Glu Ser Leu Glu Lys Thr Leu Ser Gln Thr Lys
1460 1465 1470

Arg Gln Leu Ser Glu Arg Glu Gln Gln Leu Val Glu Lys Ser Gly Glu
1475 1480 1485

Leu Leu Ala Leu Gln Lys Glu Ala Asp Ser Met Arg Ala Asp Phe Ser
1490 1495 1500

Leu Leu Arg Asn Gln Phe Leu Thr Glu Arg Lys Lys Ala Glu Lys Gln
1505 1510 1515 1520

Val Ala Ser Leu Lys Glu Ala Leu Lys Ile Gln Arg Ser Gln Leu Glu
1525 1530 1535

Lys Asn Leu Leu Met Ala Asn Gln Lys Asp Leu Glu Arg Arg Gln Met
1540 1545 1550

Glu Ile Ser Asp Ala Met Arg Thr Leu Lys Ser Glu Val Lys Asp Glu
1555 1560 1565

Ile Arg Thr Ser Leu Lys Asn Leu Asn Gln Phe Leu Pro Glu Leu Pro
1570 1575 1580

Ala Asp Leu Glu Ala Ile Leu Glu Arg Asn Glu Asn Leu Glu Gly Glu

1585 1590 1595 1600

Leu Glu Ser Leu Lys Glu Asn Leu Pro Phe Thr Met Asn Glu Gly Pro

1605 1610 1615

Phe Glu Glu Lys Leu Asn Phe Ser Gln Val His Ile Met Asp Glu His

1620 1625 1630

Trp Arg Gly Glu Ala Leu Arg Glu Lys Leu Arg His Arg Glu Asp Arg

1635 1640 1645

Leu Lys Ala Gln Leu Arg His Cys Met Ser Lys Gln Ala Glu Val Leu

1650 1655 1660

Ile Lys Gly Lys Arg Gln Thr Glu Gly Thr Leu His Ser Leu Arg Arg

1665 1670 1675 1680

Gln Val Asp Ala Leu Gly Glu Leu Val Thr Ser Thr Ser Ala Asp Ser

1685 1690 1695

Ala Ser Ser Pro Ser Leu Ser Gln Leu Glu Ser Ser Leu Thr Glu Asp

1700 1705 1710

Ser Gln Leu Gly Gln Asn Gln Glu Lys Asn Ala Ser Ala Arg

1715 1720 1725

<210> 125

<211

> 1700

<212> PRT

<213> Homo sapiens

<400> 125

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val
65 70 75 80
Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn
85 90 95
Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly
100 105 110
Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125
Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp

130 135 140
Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160
Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175
Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190
Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220
Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr
225 230 235 240
Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr
245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu

275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp
290 295 300
Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser
305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys
325 330 335
Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350

Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu
355 360 365
Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu
370 375 380
Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr
385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met
405 410 415
Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His

420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala
435 440 445
Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu
450 455 460
Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480
Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495

Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525
Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser

565 570 575

Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile

580 585 590

Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu

595 600 605

Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr

610 615 620

Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg

625 630 635 640

Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val

645 650 655

Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn

660 665 670

Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His

675 680 685

Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr

690 695 700

Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn

705 710 715 720

Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu

725 730 735

Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys

740 745 750

Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn

755 760 765

Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu

770 775 780

Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val

785 790 795 800

Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu

805 810 815

Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro

820 825 830

Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser

835 840 845

Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg

850 855 860

Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala

865 870 875 880

Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala

885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met

900 905 910

Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu

915 920 925

Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys

930 935 940

Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu

945 950 955 960

Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu

965 970 975

Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala

980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val

995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg

1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln

1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser

1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg
1075 1080 1085
Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp
1090 1095 1100
Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg
1105 1110 1115 1120
Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro
1125 1130 1135
Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser

1140 1145 1150
Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly
1155 1160 1165
Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln
1170 1175 1180
Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp
1185 1190 1195 1200
Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg
1205 1210 1215

Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp
1220 1225 1230
Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr
1235 1240 1245
Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala
1250 1255 1260
Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr
1265 1270 1275 1280
Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro

1285 1290 1295
Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His
1300 1305 1310
Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu
1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp
1330 1335 1340
Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His
1345 1350 1355 1360

His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu
1365 1370 1375
Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp
1380 1385 1390
Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu
1395 1400 1405
Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile
1410 1415 1420
Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg

1425 1430 1435 1440
Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr
1445 1450 1455
Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln
1460 1465 1470
Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala
1475 1480 1485
Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp
1490 1495 1500

Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys
1505 1510 1515 1520
Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu
1525 1530 1535
Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys
1540 1545 1550
Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu
1555 1560 1565
Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys

1570 1575 1580

Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp

1585 1590 1595 1600

Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser

1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu

1620 1625 1630

Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu

1635 1640 1645

Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser

1650 1655 1660

Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu

1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr

1685 1690 1695

Ala Phe Leu Gln

1700

<210> 126

<211> 1610

<212> PRT

<213> Homo sapiens

<400> 126

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn
85 90 95
Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly
100 105 110
Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125
Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140
Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser

145 150 155 160
Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175
Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190
Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205
Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr
225 230 235 240
Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr
245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu
275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300
Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser
305 310 315 320
Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Pro Leu
325 330 335

Ser Trp Phe Leu Ala Gly Pro Phe Leu Leu Ile Leu Tyr Ser Ser Leu
340 345 350
Lys Leu Lys Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln
355 360 365

Tyr Glu Leu Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe
370 375 380
Glu Pro Leu Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala
385 390 395 400
Pro Asp Glu Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met
405 410 415
Phe Ala Thr Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile
420 425 430
Lys Lys Met Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu

435 440 445
Arg Gly His Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys
450 455 460
Ile Ser Ala Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu
465 470 475 480
Lys Ala Glu Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu
485 490 495
Glu Glu Ala Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu
500 505 510

Leu Tyr Lys Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg
515 520 525
Gln Glu Ala Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu
530 535 540
Ile Ala Gly Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp
545 550 555 560
Ser Leu Asp Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys
565 570 575
Ser Gly Lys Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln

580 585 590

Leu Glu Ser Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr

595 600 605

Glu Glu Ile Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala

610 615 620

Ala Asn Glu Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu

625 630 635 640

Gln Glu Tyr Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn

645 650 655

Glu Cys Arg Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu

660 665 670

Thr Glu Val Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp

675 680 685

Ala Glu Asn Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln

690 695 700

Glu Gln His Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu

705 710 715 720

Ser Ala Tyr Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala

725 730 735

Glu Ala Asn Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr

740 745 750

Gln Leu Glu Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln

755 760 765

Ala Leu Lys Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu

770 775 780

Gln Glu Asn Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp

785 790 795 800

Asn Asn Leu Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn

805 810 815

His Val Val Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val

820 825 830

Asp Glu Leu Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile

835 840 845

His Ser Pro Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys

850 855 860

Gln Phe Ser Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala

865 870 875 880

Gln Val Arg Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu

885 890 895

Lys Leu Ala Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala

900 905 910

Leu Glu Ala Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile

915 920 925

Gln Gln Met Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser

930 935 940

Met Glu Glu Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp

945 950 955 960

Glu Glu Lys Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys

965 970 975

Lys Lys Leu Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp

980 985 990

Lys Glu Leu Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu

995 1000 1005

Ala Thr Ala Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His

1010 1015 1020

Gly Thr Val Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu

1025 1030 1035 1040

Ala Glu Arg Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr

1045 1050 1055

Arg Ala Glu Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys

1060 1065 1070

Gly Glu Gln Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly

1075 1080 1085

Ala Asn Ser Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu
1090 1095 1100
Arg Gln Arg Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr
1105 1110 1115 1120
Gly Ser Asp Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala
1125 1130 1135
Glu Leu Arg Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met
1140 1145 1150
Ala Asp Pro Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro

1155 1160 1165
Pro Ser Ser Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser
1170 1175 1180
Gly Val Gly Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg
1185 1190 1195 1200
Pro Gly Gln Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser
1205 1210 1215
Gly Tyr Trp Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe
1220 1225 1230

Pro Ser Arg Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu
1235 1240 1245
Leu Asp Asp Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met
1250 1255 1260
Met Tyr Thr Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala
1265 1270 1275 1280
Leu Tyr Ala Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr
1285 1290 1295
Pro Gly Thr Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val

1300 1305 1310
Tyr Gly Pro Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly
1315 1320 1325
Val Leu His Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val
1330 1335 1340

Ser Arg Leu Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu
1345 1350 1355 1360
Glu Arg Trp Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu
1365 1370 1375

Glu Leu His His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu
1380 1385 1390
Glu Cys Glu Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln
1395 1400 1405
Gln Lys Asp Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu
1410 1415 1420
Glu Ile Glu Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile
1425 1430 1435 1440
Glu Cys Ile Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu

1445 1450 1455
Ala Asp Arg Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys
1460 1465 1470
Glu Lys Thr Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser
1475 1480 1485
Leu Leu Gln Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln
1490 1495 1500
Glu Thr Ala Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu
1505 1510 1515 1520

Gln Ala Asp Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu
1525 1530 1535
Ile Leu Lys Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe
1540 1545 1550
Gln Cys Leu Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys
1555 1560 1565
Leu Gln Lys Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu
1570 1575 1580
Gln Val Leu Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu

1585 1590 1595 1600

Leu Glu Lys Leu Lys Ser Gln Val Trp Gln

1605 1610

<210> 127

<211> 1533

<212> PRT

<213> Homo sapiens

<400> 127

Met Cys Asn Leu Gln Lys Leu Asn Leu Ala Gly Asn Glu Ile Glu His

1 5 10 15

Ile Pro Val Trp Leu Gly Lys Lys Leu Lys Ser Leu Arg Val Leu Asn

20 25 30

Leu Lys Gly Asn Lys Ile Ser Ser Leu Gln Asp Ile Ser Lys Leu Lys

35 40 45

Pro Leu Gln Asp Leu Ile Ser Leu Ile Leu Val Glu Asn Pro Val Val

50 55 60

Thr Leu Pro His Tyr Leu Gln Phe Thr Ile Phe His Leu Arg Ser Leu

65 70 75 80

Glu Ser Leu Glu Gly Gln Pro Val Thr Thr Gln Asp Arg Gln Glu Ala

85 90 95

Phe Glu Arg Phe Ser Leu Glu Glu Val Glu Arg Leu Glu Arg Asp Leu

100 105 110

Glu Lys Lys Met Ile Glu Thr Glu Glu Leu Lys Ser Lys Gln Thr Arg

115 120 125

Phe Leu Glu Glu Ile Lys Asn Gln Asp Lys Leu Asn Lys Ser Leu Lys

130 135 140

Glu Glu Ala Met Leu Gln Lys Gln Ser Cys Glu Glu Leu Lys Ser Asp

145 150 155 160

Leu Asn Thr Lys Asn Glu Leu Leu Lys Gln Lys Thr Ile Glu Leu Thr

165 170 175

Arg Ala Cys Gln Lys Gln Tyr Glu Leu Glu Gln Glu Leu Ala Phe Tyr

180 185 190

Lys Ile Asp Ala Lys Phe Glu Pro Leu Asn Tyr Tyr Pro Ser Glu Tyr
195 200 205
Ala Glu Ile Asp Lys Ala Pro Asp Glu Ser Pro Tyr Ile Gly Lys Ser
210 215 220
Arg Tyr Lys Arg Asn Met Phe Ala Thr Glu Ser Tyr Ile Ile Asp Ser
225 230 235 240
Ala Gln Ala Val Gln Ile Lys Lys Met Glu Pro Asp Glu Gln Leu Arg
245 250 255

Asn Asp His Met Asn Leu Arg Gly His Thr Pro Leu Asp Thr Gln Leu
260 265 270
Glu Asp Lys Glu Lys Lys Ile Ser Ala Ala Gln Thr Arg Leu Ser Glu
275 280 285
Leu His Asp Glu Ile Glu Lys Ala Glu Gln Gln Ile Leu Arg Ala Thr
290 295 300
Glu Glu Phe Lys Gln Leu Glu Glu Ala Ile Gln Leu Lys Lys Ile Ser
305 310 315 320
Glu Ala Gly Lys Asp Leu Leu Tyr Lys Gln Leu Ser Gly Arg Leu Gln

325 330 335
Leu Val Asn Lys Leu Arg Gln Glu Ala Leu Asp Leu Glu Leu Gln Met
340 345 350
Glu Lys Gln Lys Gln Glu Ile Ala Gly Lys Gln Lys Glu Ile Lys Asp
355 360 365
Leu Gln Ile Ala Ile Asp Ser Leu Asp Ser Lys Asp Pro Lys His Ser
370 375 380
His Met Lys Ala Gln Lys Ser Gly Lys Glu Gln Gln Leu Asp Ile Met
385 390 395 400

Asn Lys Gln Tyr Gln Gln Leu Glu Ser Arg Leu Asp Glu Ile Leu Ser
405 410 415
Arg Ile Ala Lys Glu Thr Glu Glu Ile Lys Asp Leu Glu Glu Gln Leu
420 425 430
Thr Glu Gly Gln Ile Ala Ala Asn Glu Ala Leu Lys Lys Asp Leu Glu
435 440 445

Gly Val Ile Ser Gly Leu Gln Glu Tyr Leu Gly Thr Ile Lys Gly Gln
450 455 460
Ala Thr Gln Ala Gln Asn Glu Cys Arg Lys Leu Arg Asp Glu Lys Glu

465 470 475 480
Thr Leu Leu Gln Arg Leu Thr Glu Val Glu Gln Glu Arg Asp Gln Leu
485 490 495
Glu Ile Val Ala Met Asp Ala Glu Asn Met Arg Lys Glu Leu Ala Glu
500 505 510
Leu Glu Ser Ala Leu Gln Glu Gln His Glu Val Asn Ala Ser Leu Gln
515 520 525
Gln Thr Gln Gly Asp Leu Ser Ala Tyr Glu Ala Glu Leu Glu Ala Arg
530 535 540

Leu Asn Leu Arg Asp Ala Glu Ala Asn Gln Leu Lys Glu Glu Leu Glu
545 550 555 560
Lys Val Thr Arg Leu Thr Gln Leu Glu Gln Ser Ala Leu Gln Ala Glu
565 570 575
Leu Glu Lys Glu Arg Gln Ala Leu Lys Asn Ala Leu Gly Lys Ala Gln
580 585 590
Phe Ser Glu Glu Lys Glu Gln Glu Asn Ser Glu Leu His Ala Lys Leu
595 600 605
Lys His Leu Gln Asp Asp Asn Asn Leu Leu Lys Gln Gln Leu Lys Asp

610 615 620
Phe Gln Asn His Leu Asn His Val Val Asp Gly Leu Val Arg Pro Glu
625 630 635 640
Glu Val Ala Ala Arg Val Asp Glu Leu Arg Arg Lys Leu Lys Leu Gly
645 650 655
Thr Gly Glu Met Asn Ile His Ser Pro Ser Asp Val Leu Gly Lys Ser
660 665 670
Leu Ala Asp Leu Gln Lys Gln Phe Ser Glu Ile Leu Ala Arg Ser Lys
675 680 685

Trp Glu Arg Asp Glu Ala Gln Val Arg Glu Arg Lys Leu Gln Glu Glu

690 695 700

Met Ala Leu Gln Gln Glu Lys Leu Ala Thr Gly Gln Glu Glu Phe Arg

705 710 715 720

Gln Ala Cys Glu Arg Ala Leu Glu Ala Arg Met Asn Phe Asp Lys Arg

725 730 735

Gln His Glu Ala Arg Ile Gln Gln Met Glu Asn Glu Ile His Tyr Leu

740 745 750

Gln Glu Asn Leu Lys Ser Met Glu Glu Ile Gln Gly Leu Thr Asp Leu

755 760 765

Gln Leu Gln Glu Ala Asp Glu Glu Lys Glu Arg Ile Leu Ala Gln Leu

770 775 780

Arg Glu Leu Glu Lys Lys Lys Lys Leu Glu Asp Ala Lys Ser Gln Glu

785 790 795 800

Gln Val Phe Gly Leu Asp Lys Glu Leu Lys Lys Leu Lys Lys Ala Val

805 810 815

Ala Thr Ser Asp Lys Leu Ala Thr Ala Glu Leu Thr Ile Ala Lys Asp

820 825 830

Gln Leu Lys Ser Leu His Gly Thr Val Met Lys Ile Asn Gln Glu Arg

835 840 845

Ala Glu Glu Leu Gln Glu Ala Glu Arg Phe Ser Arg Lys Ala Ala Gln

850 855 860

Ala Ala Arg Asp Leu Thr Arg Ala Glu Ala Glu Ile Glu Leu Leu Gln

865 870 875 880

Asn Leu Leu Arg Gln Lys Gly Glu Gln Phe Arg Leu Glu Met Glu Lys

885 890 895

Thr Gly Val Gly Thr Gly Ala Asn Ser Gln Val Leu Glu Ile Glu Lys

900 905 910

Leu Asn Glu Thr Met Glu Arg Gln Arg Thr Glu Ile Ala Arg Leu Gln

915 920 925

Asn Val Leu Asp Leu Thr Gly Ser Asp Asn Lys Gly Gly Phe Glu Asn

930 935 940

Val Leu Glu Glu Ile Ala Glu Leu Arg Arg Glu Val Ser Tyr Gln Asn

945 950 955 960

Asp Tyr Ile Ser Ser Met Ala Asp Pro Phe Lys Arg Arg Gly Tyr Trp

965 970 975

Tyr Phe Met Pro Pro Pro Pro Ser Ser Lys Val Ser Ser His Ser Ser

980 985 990

Gln Ala Thr Lys Asp Ser Gly Val Gly Leu Lys Tyr Ser Ala Ser Thr

995 1000 1005

Pro Val Arg Lys Pro Arg Pro Gly Gln Gln Asp Gly Lys Glu Gly Ser

1010 1015 1020

Gln Pro Pro Pro Ala Ser Gly Tyr Trp Val Tyr Ser Pro Ile Arg Ser

1025 1030 1035 1040

Gly Leu His Lys Leu Phe Pro Ser Arg Asp Ala Asp Ser Gly Gly Asp

1045 1050 1055

Ser Gln Glu Glu Ser Glu Leu Asp Asp Gln Glu Glu Pro Pro Phe Val

1060 1065 1070

Pro Pro Pro Gly Tyr Met Met Tyr Thr Val Leu Pro Asp Gly Ser Pro

1075 1080 1085

Val Pro Gln Gly Met Ala Leu Tyr Ala Pro Pro Pro Pro Leu Pro Asn

1090 1095 1100

Asn Ser Arg Pro Leu Thr Pro Gly Thr Val Val Tyr Gly Pro Pro Pro

1105 1110 1115 1120

Ala Gly Ala Pro Met Val Tyr Gly Pro Pro Pro Pro Asn Phe Ser Ile

1125 1130 1135

Pro Phe Ile Pro Met Gly Val Leu His Cys Asn Val Pro Glu His His

1140 1145 1150

Asn Leu Glu Asn Glu Val Ser Arg Leu Glu Asp Ile Met Gln His Leu

1155 1160 1165

Lys Ser Lys Lys Arg Glu Glu Arg Trp Met Arg Ala Ser Lys Arg Gln

1170 1175 1180

Ser Glu Lys Glu Met Glu Glu Leu His His Asn Ile Asp Asp Leu Leu

1185 1190 1195 1200

Gln Glu Lys Lys Ser Leu Glu Cys Glu Val Glu Glu Leu His Arg Thr
1205 1210 1215
Val Gln Lys Arg Gln Gln Gln Lys Asp Phe Ile Asp Gly Asn Val Glu
1220 1225 1230
Ser Leu Met Thr Glu Leu Glu Ile Glu Lys Ser Leu Lys His His Glu
1235 1240 1245
Asp Ile Val Asp Glu Ile Glu Cys Ile Glu Lys Thr Leu Leu Lys Arg
1250 1255 1260

Arg Ser Glu Leu Arg Glu Ala Asp Arg Leu Leu Ala Glu Ala Glu Ser
1265 1270 1275 1280
Glu Leu Ser Cys Thr Lys Glu Lys Thr Lys Asn Ala Val Glu Lys Phe
1285 1290 1295
Thr Asp Ala Lys Arg Ser Leu Leu Gln Thr Glu Ser Asp Ala Glu Glu
1300 1305 1310
Leu Glu Arg Arg Ala Gln Glu Thr Ala Val Asn Leu Val Lys Ala Asp
1315 1320 1325
Gln Gln Leu Arg Ser Leu Gln Ala Asp Ala Lys Asp Leu Glu Gln His

1330 1335 1340
Lys Ile Lys Gln Glu Glu Ile Leu Lys Glu Ile Asn Lys Ile Val Ala
1345 1350 1355 1360
Ala Lys Asp Ser Asp Phe Gln Cys Leu Ser Lys Lys Lys Glu Lys Leu
1365 1370 1375
Thr Glu Glu Leu Gln Lys Leu Gln Lys Asp Ile Glu Met Ala Glu Arg
1380 1385 1390
Asn Glu Asp His His Leu Gln Val Leu Lys Glu Ser Glu Val Leu Leu
1395 1400 1405

Gln Ala Lys Arg Ala Glu Leu Glu Lys Leu Lys Ser Gln Val Thr Ser
1410 1415 1420
Gln Gln Gln Glu Met Ala Val Leu Asp Arg Gln Leu Gly His Lys Lys
1425 1430 1435 1440
Glu Glu Leu His Leu Leu Gln Gly Ser Met Val Gln Ala Lys Ala Asp
1445 1450 1455

Leu Gln Glu Ala Leu Arg Leu Gly Glu Thr Glu Val Thr Glu Lys Cys

1460 1465 1470

Asn His Ile Arg Glu Val Lys Ser Leu Leu Glu Glu Leu Ser Phe Gln

1475 1480 1485

Lys Gly Glu Leu Asn Val Gln Ile Ser Glu Arg Lys Thr Gln Leu Thr

1490 1495 1500

Leu Ile Lys Gln Glu Ile Glu Lys Glu Glu Glu Asn Leu Gln Val Val

1505 1510 1515 1520

Leu Arg Gln Met Ser Lys His Lys Thr Ala Phe Leu Gln

1525 1530

<210> 128

<211> 379

<212> PRT

<213> Homo sapiens

<400> 128

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn

85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu

115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp

130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser

145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu

165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu

180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu

195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile

210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr

245 250 255

Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val

260 265 270

Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu

275 280 285

Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300

Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Val Ser

325 330 335

Ser Tyr Phe Thr Leu Leu Trp Leu Tyr Ser His Lys Thr Asp Asn Ser

340 345 350

Leu Pro Leu Gly Leu Lys Ile Gln Leu Pro Asp His Ile Met Gly Lys

355 360 365

Met Trp Phe Asn Arg Asn Met Trp Lys Gly Leu

370 375

<210> 129

<211> 2325

<212> PRT

<213> Homo sapiens

<400> 129

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro
1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser
20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser
35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met
50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val
65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn
85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly
100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu

115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu

195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile

210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr

245 250 255

Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val

260 265 270

Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu

275 280 285

Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300

Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys

325 330 335

Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu

340 345 350

Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu

355 360 365

Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu

370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr

385 390 395 400

Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met

405 410 415

Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His

420 425 430

Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala

435 440 445

Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu

450 455 460

Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala

465 470 475 480

Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525
Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys

545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu
595 600 605
Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620

Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655
Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670
Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His
675 680 685
Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr

690 695 700
Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn
705 710 715 720

Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu
725 730 735
Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys
740 745 750
Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn
755 760 765

Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu
770 775 780
Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val
785 790 795 800
Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu
805 810 815
Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro
820 825 830
Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser
835 840 845
Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg
850 855 860
Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala
865 870 875 880
Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala
885 890 895
Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met
900 905 910

Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu
915 920 925
Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys
930 935 940
Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu
945 950 955 960
Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu
965 970 975

Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala

980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val

995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg

1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln

1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser

1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg

1075 1080 1085

Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp

1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg

1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro

1125 1130 1135

Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser

1140 1145 1150

Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly

1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln

1170 1175 1180

Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp

1185 1190 1195 1200

Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg

1205 1210 1215

Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp

1220 1225 1230

Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr

1235 1240 1245

Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala

1250 1255 1260

Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr

1265 1270 1275 1280

Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro

1285 1290 1295

Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His

1300 1305 1310

Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu

1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp

1330 1335 1340

Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His

1345 1350 1355 1360

His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu

1365 1370 1375

Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp

1380 1385 1390

Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu

1395 1400 1405

Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile

1410 1415 1420

Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg

1425 1430 1435 1440

Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr

1445 1450 1455

Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln

1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala

1475 1480 1485

Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp

1490 1495 1500

Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys

1505 1510 1515 1520

Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu

1525 1530 1535

Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys

1540 1545 1550

Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu

1555 1560 1565

Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys

1570 1575 1580

Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp

1585 1590 1595 1600

Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser

1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu

1620 1625 1630

Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu

1635 1640 1645

Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser

1650 1655 1660

Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu

1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr

1685 1690 1695

Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu

1700 1705 1710

Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys

1715 1720 1725

Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln
1730 1735 1740
Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu
1745 1750 1755 1760
Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg
1765 1770 1775

Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu
1780 1785 1790
Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg
1795 1800 1805
Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu
1810 1815 1820
Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln
1825 1830 1835 1840
Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln

1845 1850 1855
Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu
1860 1865 1870
Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu
1875 1880 1885
His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu
1890 1895 1900
Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys
1905 1910 1915 1920

Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile
1925 1930 1935
Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg
1940 1945 1950
Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys
1955 1960 1965
Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp
1970 1975 1980

Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu

1985 1990 1995 2000

Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu

2005 2010 2015

Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln

2020 2025 2030

Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala

2035 2040 2045

Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr

2050 2055 2060

Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu

2065 2070 2075 2080

Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Glu Gln Lys Gln

2085 2090 2095

Glu Asn Ser Cys Ile Gln Lys Glu Met Ala Thr Ile Glu Leu Val Ala

2100 2105 2110

Gln Asp Asn His Glu Arg Ala Arg Arg Leu Met Lys Glu Leu Asn Gln

2115 2120 2125

Met Gln Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Met Ala Asn Gln Lys

2130 2135 2140

Asp Leu Glu Arg Arg Gln Met Glu Ile Ser Asp Ala Met Arg Thr Leu

2145 2150 2155 2160

Lys Ser Glu Val Lys Asp Glu Ile Arg Thr Ser Leu Lys Asn Leu Asn

2165 2170 2175

Gln Phe Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu Arg

2180 2185 2190

Asn Glu Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu Pro

2195 2200 2205

Phe Thr Met Asn Glu Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser Gln

2210 2215 2220

Val His Ile Met Asp Glu His Trp Arg Gly Glu Ala Leu Arg Glu Lys

2225 2230 2235 2240

Leu Arg His Arg Glu Asp Arg Leu Lys Ala Gln Leu Arg His Cys Met

2245 2250 2255

Ser Lys Gln Ala Glu Val Leu Ile Lys Gly Lys Arg Gln Thr Glu Gly

2260 2265 2270

Thr Leu His Ser Leu Arg Arg Gln Val Asp Ala Leu Gly Glu Leu Val

2275 2280 2285

Thr Ser Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln Leu

2290 2295 2300

Glu Ser Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu Lys

2305 2310 2315 2320

Asn Ala Ser Ala Arg

2325

<210> 130

<211> 2278

<212> PRT

<213> Homo sapiens

<400> 130

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

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Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn

85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125
Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140
Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175
Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190
Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205
Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220
Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240
Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr
245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu
275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp
290 295 300

Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser
305 310 315 320
Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys
325 330 335
Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350
Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu
355 360 365

Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu

370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr
385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met
405 410 415
Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His
420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala
435 440 445

Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu
450 455 460
Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480
Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly

515 520 525

Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590

Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu

595 600 605

Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr

610 615 620

Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg

625 630 635 640

Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val

645 650 655

Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn

660 665 670

Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His

675 680 685

Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr

690 695 700

Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn

705 710 715 720

Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu

725 730 735

Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys

740 745 750

Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn

755 760 765

Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu

770 775 780

Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val

785 790 795 800

Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu

805 810 815

Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro

820 825 830

Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser

835 840 845

Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg

850 855 860

Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala

865 870 875 880

Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala
885 890 895
Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met
900 905 910
Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu
915 920 925
Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys
930 935 940
Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu

945 950 955 960
Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu
965 970 975
Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala
980 985 990
Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val
995 1000 1005
Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg
1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu
1025 1030 1035 1040
Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln
1045 1050 1055
Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser
1060 1065 1070
Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg
1075 1080 1085
Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp

1090 1095 1100
Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg
1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro
1125 1130 1135
Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser
1140 1145 1150
Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly
1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln
1170 1175 1180
Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp
1185 1190 1195 1200
Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg
1205 1210 1215
Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp
1220 1225 1230
Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr

1235 1240 1245
Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala
1250 1255 1260
Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr
1265 1270 1275 1280
Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro
1285 1290 1295
Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His
1300 1305 1310

Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu
1315 1320 1325
Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp
1330 1335 1340
Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His
1345 1350 1355 1360
His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu
1365 1370 1375

Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp

1380 1385 1390

Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu

1395 1400 1405

Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile

1410 1415 1420

Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg

1425 1430 1435 1440

Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr

1445 1450 1455

Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln

1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala

1475 1480 1485

Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp

1490 1495 1500

Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys

1505 1510 1515 1520

Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu

1525 1530 1535

Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys

1540 1545 1550

Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu

1555 1560 1565

Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys

1570 1575 1580

Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp

1585 1590 1595 1600

Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser

1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu

1620 1625 1630

Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu

1635 1640 1645

Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser

1650 1655 1660

Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu

1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr

1685 1690 1695

Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu

1700 1705 1710

Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys

1715 1720 1725

Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln

1730 1735 1740

Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu

1745 1750 1755 1760

Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg

1765 1770 1775

Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu

1780 1785 1790

Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg

1795 1800 1805

Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu

1810 1815 1820

Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln

1825 1830 1835 1840

Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln

1845 1850 1855

Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu

1860 1865 1870

Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu

1875 1880 1885

His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu

1890 1895 1900

Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys

1905 1910 1915 1920

Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile

1925 1930 1935

Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg

1940 1945 1950

Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys

1955 1960 1965

Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp

1970 1975 1980

Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu

1985 1990 1995 2000

Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu

2005 2010 2015

Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln

2020 2025 2030

Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala

2035 2040 2045

Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr

2050 2055 2060

Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu

2065 2070 2075 2080

Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Met Ala Asn Gln

2085 2090 2095

Lys Asp Leu Glu Arg Arg Gln Met Glu Ile Ser Asp Ala Met Arg Thr

2100 2105 2110

Leu Lys Ser Glu Val Lys Asp Glu Ile Arg Thr Ser Leu Lys Asn Leu

2115 2120 2125

Asn Gln Phe Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu

2130 2135 2140

Arg Asn Glu Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu

2145 2150 2155 2160

Pro Phe Thr Met Asn Glu Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser

2165 2170 2175

Gln Val His Ile Met Asp Glu His Trp Arg Gly Glu Ala Leu Arg Glu

2180 2185 2190

Lys Leu Arg His Arg Glu Asp Arg Leu Lys Ala Gln Leu Arg His Cys

2195 2200 2205

Met Ser Lys Gln Ala Glu Val Leu Ile Lys Gly Lys Arg Gln Thr Glu

2210 2215 2220

Gly Thr Leu His Ser Leu Arg Arg Gln Val Asp Ala Leu Gly Glu Leu

2225 2230 2235 2240

Val Thr Ser Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln

2245 2250 2255

Leu Glu Ser Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu

2260 2265 2270

Lys Asn Ala Ser Ala Arg

2275

<210> 131

<211> 1788

<212> PRT

<213> Homo sapiens

<400> 131

Met Lys Ala Gln Lys Ser Gly Lys Glu Gln Gln Leu Asp Ile Met Asn

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Ile Ala Lys Glu Thr Glu Glu Ile Lys Asp Leu Glu Glu Gln Leu Thr

35 40 45

Glu Gly Gln Ile Ala Ala Asn Glu Ala Leu Lys Lys Asp Leu Glu Gly

50 55 60

Val Ile Ser Gly Leu Gln Glu Tyr Leu Gly Thr Ile Lys Gly Gln Ala

65 70 75 80

Thr Gln Ala Gln Asn Glu Cys Arg Lys Leu Arg Asp Glu Lys Glu Thr

85 90 95

Leu Leu Gln Arg Leu Thr Glu Val Glu Gln Glu Arg Asp Gln Leu Glu

100 105 110

Ile Val Ala Met Asp Ala Glu Asn Met Arg Lys Glu Leu Ala Glu Leu

115 120 125

Glu Ser Ala Leu Gln Glu Gln His Glu Val Asn Ala Ser Leu Gln Gln

130 135 140

Thr Gln Gly Asp Leu Ser Ala Tyr Glu Ala Glu Leu Glu Ala Arg Leu

145 150 155 160

Asn Leu Arg Asp Ala Glu Ala Asn Gln Leu Lys Glu Glu Leu Glu Lys

165 170 175

Val Thr Arg Leu Thr Gln Leu Glu Gln Ser Ala Leu Gln Ala Glu Leu

180 185 190

Glu Lys Glu Arg Gln Ala Leu Lys Asn Ala Leu Gly Lys Ala Gln Phe

195 200 205

Ser Glu Glu Lys Glu Gln Glu Asn Ser Glu Leu His Ala Lys Leu Lys

210 215 220

His Leu Gln Asp Asp Asn Asn Leu Leu Lys Gln Gln Leu Lys Asp Phe

225 230 235 240

Gln Asn His Leu Asn His Val Val Asp Gly Leu Val Arg Pro Glu Glu

245 250 255

Val Ala Ala Arg Val Asp Glu Leu Arg Arg Lys Leu Lys Leu Gly Thr

260 265 270

Gly Glu Met Asn Ile His Ser Pro Ser Asp Val Leu Gly Lys Ser Leu

275 280 285

Ala Asp Leu Gln Lys Gln Phe Ser Glu Ile Leu Ala Arg Ser Lys Trp

290 295 300

Glu Arg Asp Glu Ala Gln Val Arg Glu Arg Lys Leu Gln Glu Glu Met

305 310 315 320

Ala Leu Gln Gln Glu Lys Leu Ala Thr Gly Gln Glu Glu Phe Arg Gln

325 330 335

Ala Cys Glu Arg Ala Leu Glu Ala Arg Met Asn Phe Asp Lys Arg Gln

340 345 350

His Glu Ala Arg Ile Gln Gln Met Glu Asn Glu Ile His Tyr Leu Gln

355 360 365

Glu Asn Leu Lys Ser Met Glu Glu Ile Gln Gly Leu Thr Asp Leu Gln

370 375 380

Leu Gln Glu Ala Asp Glu Glu Lys Glu Arg Ile Leu Ala Gln Leu Arg

385 390 395 400

Glu Leu Glu Lys Lys Lys Lys Leu Glu Asp Ala Lys Ser Gln Glu Gln

405 410 415

Val Phe Gly Leu Asp Lys Glu Leu Lys Lys Leu Lys Lys Ala Val Ala

420 425 430

Thr Ser Asp Lys Leu Ala Thr Ala Glu Leu Thr Ile Ala Lys Asp Gln

435 440 445

Leu Lys Ser Leu His Gly Thr Val Met Lys Ile Asn Gln Glu Arg Ala

450 455 460

Glu Glu Leu Gln Glu Ala Glu Arg Phe Ser Arg Lys Ala Ala Gln Ala

465 470 475 480

Ala Arg Asp Leu Thr Arg Ala Glu Ala Glu Ile Glu Leu Leu Gln Asn

485 490 495

Leu Leu Arg Gln Lys Gly Glu Gln Phe Arg Leu Glu Met Glu Lys Thr

500 505 510

Gly Val Gly Thr Gly Ala Asn Ser Gln Val Leu Glu Ile Glu Lys Leu

515 520 525

Asn Glu Thr Met Glu Arg Gln Arg Thr Glu Ile Ala Arg Leu Gln Asn

530 535 540

Val Leu Asp Leu Thr Gly Ser Asp Asn Lys Gly Gly Phe Glu Asn Val

545 550 555 560

Leu Glu Glu Ile Ala Glu Leu Arg Arg Glu Val Ser Tyr Gln Asn Asp

565 570 575

Tyr Ile Ser Ser Met Ala Asp Pro Phe Lys Arg Arg Gly Tyr Trp Tyr

580 585 590

Phe Met Pro Pro Pro Pro Ser Ser Lys Val Ser Ser His Ser Ser Gln

595 600 605

Ala Thr Lys Asp Ser Gly Val Gly Leu Lys Tyr Ser Ala Ser Thr Pro

610 615 620

Val Arg Lys Pro Arg Pro Gly Gln Gln Asp Gly Lys Glu Gly Ser Gln

625 630 635 640

Pro Pro Pro Ala Ser Gly Tyr Trp Val Tyr Ser Pro Ile Arg Ser Gly

645 650 655

Leu His Lys Leu Phe Pro Ser Arg Asp Ala Asp Ser Gly Gly Asp Ser

660 665 670

Gln Glu Glu Ser Glu Leu Asp Asp Gln Glu Glu Pro Pro Phe Val Pro

675 680 685

Pro Pro Gly Tyr Met Met Tyr Thr Val Leu Pro Asp Gly Ser Pro Val

690 695 700

Pro Gln Gly Met Ala Leu Tyr Ala Pro Pro Pro Pro Leu Pro Asn Asn

705 710 715 720

Ser Arg Pro Leu Thr Pro Gly Thr Val Val Tyr Gly Pro Pro Pro Ala

725 730 735

Gly Ala Pro Met Val Tyr Gly Pro Pro Pro Pro Asn Phe Ser Ile Pro

740 745 750

Phe Ile Pro Met Gly Val Leu His Cys Asn Val Pro Glu His His Asn

755 760 765

Leu Glu Asn Glu Val Ser Arg Leu Glu Asp Ile Met Gln His Leu Lys

770 775 780

Ser Lys Lys Arg Glu Glu Arg Trp Met Arg Ala Ser Lys Arg Gln Ser

785 790 795 800

Glu Lys Glu Met Glu Glu Leu His His Asn Ile Asp Asp Leu Leu Gln

805 810 815

Glu Lys Lys Ser Leu Glu Cys Glu Val Glu Glu Leu His Arg Thr Val
820 825 830
Gln Lys Arg Gln Gln Gln Lys Asp Phe Ile Asp Gly Asn Val Glu Ser
835 840 845
Leu Met Thr Glu Leu Glu Ile Glu Lys Ser Leu Lys His His Glu Asp
850 855 860
Ile Val Asp Glu Ile Glu Cys Ile Glu Lys Thr Leu Leu Lys Arg Arg
865 870 875 880
Ser Glu Leu Arg Glu Ala Asp Arg Leu Leu Ala Glu Ala Glu Ser Glu

885 890 895
Leu Ser Cys Thr Lys Glu Lys Thr Lys Asn Ala Val Glu Lys Phe Thr
900 905 910
Asp Ala Lys Arg Ser Leu Leu Gln Thr Glu Ser Asp Ala Glu Glu Leu
915 920 925
Glu Arg Arg Ala Gln Glu Thr Ala Val Asn Leu Val Lys Ala Asp Gln
930 935 940
Gln Leu Arg Ser Leu Gln Ala Asp Ala Lys Asp Leu Glu Gln His Lys
945 950 955 960

Ile Lys Gln Glu Glu Ile Leu Lys Glu Ile Asn Lys Ile Val Ala Ala
965 970 975
Lys Asp Ser Asp Phe Gln Cys Leu Ser Lys Lys Lys Glu Lys Leu Thr
980 985 990
Glu Glu Leu Gln Lys Leu Gln Lys Asp Ile Glu Met Ala Glu Arg Asn
995 1000 1005
Glu Asp His His Leu Gln Val Leu Lys Glu Ser Glu Val Leu Leu Gln
1010 1015 1020
Ala Lys Arg Ala Glu Leu Glu Lys Leu Lys Ser Gln Val Thr Ser Gln

1025 1030 1035 1040
Gln Gln Glu Met Ala Val Leu Asp Arg Gln Leu Gly His Lys Lys Glu
1045 1050 1055

Glu Leu His Leu Leu Gln Gly Ser Met Val Gln Ala Lys Ala Asp Leu
1060 1065 1070
Gln Glu Ala Leu Arg Leu Gly Glu Thr Glu Val Thr Glu Lys Cys Asn
1075 1080 1085
His Ile Arg Glu Val Lys Ser Leu Leu Glu Glu Leu Ser Phe Gln Lys
1090 1095 1100

Gly Glu Leu Asn Val Gln Ile Ser Glu Arg Lys Thr Gln Leu Thr Leu
1105 1110 1115 1120
Ile Lys Gln Glu Ile Glu Lys Glu Glu Glu Asn Leu Gln Val Val Leu
1125 1130 1135
Arg Gln Met Ser Lys His Lys Thr Glu Leu Lys Asn Ile Leu Asp Met
1140 1145 1150
Leu Gln Leu Glu Asn His Glu Leu Gln Gly Leu Lys Leu Gln His Asp
1155 1160 1165
Gln Arg Val Ser Glu Leu Glu Lys Thr Gln Val Ala Val Leu Glu Glu

1170 1175 1180
Lys Leu Glu Leu Glu Asn Leu Gln Gln Ile Ser Gln Gln Gln Lys Gly
1185 1190 1195 1200
Glu Ile Glu Trp Gln Lys Gln Leu Leu Glu Arg Asp Lys Arg Glu Ile
1205 1210 1215
Glu Arg Met Thr Ala Glu Ser Arg Ala Leu Gln Ser Cys Val Glu Cys
1220 1225 1230
Leu Ser Lys Glu Lys Glu Asp Leu Gln Glu Lys Cys Asp Ile Trp Glu
1235 1240 1245

Lys Lys Leu Ala Gln Thr Lys Arg Val Leu Ala Ala Ala Glu Glu Asn
1250 1255 1260
Ser Lys Met Glu Gln Ser Asn Leu Glu Lys Leu Glu Leu Asn Val Arg
1265 1270 1275 1280
Lys Leu Gln Gln Glu Leu Asp Gln Leu Asn Arg Asp Lys Leu Ser Leu
1285 1290 1295
His Asn Asp Ile Ser Ala Met Gln Gln Gln Leu Gln Glu Lys Arg Glu
1300 1305 1310

Ala Val Asn Ser Leu Gln Glu Glu Leu Ala Asn Val Gln Asp His Leu

1315 1320 1325

Asn Leu Ala Lys Gln Asp Leu Leu His Thr Thr Lys His Gln Asp Val

1330 1335 1340

Leu Leu Ser Glu Gln Thr Arg Leu Gln Lys Asp Ile Ser Glu Trp Ala

1345 1350 1355 1360

Asn Arg Phe Glu Asp Cys Gln Lys Glu Glu Glu Thr Lys Gln Gln Gln

1365 1370 1375

Leu Gln Val Leu Gln Asn Glu Ile Glu Glu Asn Lys Leu Lys Leu Val

1380 1385 1390

Gln Gln Glu Met Met Phe Gln Arg Leu Gln Lys Glu Arg Glu Ser Glu

1395 1400 1405

Glu Ser Lys Leu Glu Thr Ser Lys Val Thr Leu Lys Glu Gln Gln His

1410 1415 1420

Gln Leu Glu Lys Glu Leu Thr Asp Gln Lys Ser Lys Leu Asp Gln Val

1425 1430 1435 1440

Leu Ser Lys Val Leu Ala Ala Glu Glu Arg Val Arg Thr Leu Gln Glu

1445 1450 1455

Glu Glu Arg Trp Cys Glu Ser Leu Glu Lys Thr Leu Ser Gln Thr Lys

1460 1465 1470

Arg Gln Leu Ser Glu Arg Glu Gln Gln Leu Val Glu Lys Ser Gly Glu

1475 1480 1485

Leu Leu Ala Leu Gln Lys Glu Ala Asp Ser Met Arg Ala Asp Phe Ser

1490 1495 1500

Leu Leu Arg Asn Gln Phe Leu Thr Glu Arg Lys Lys Ala Glu Lys Gln

1505 1510 1515 1520

Val Ala Ser Leu Lys Glu Ala Leu Lys Ile Gln Arg Ser Gln Leu Glu

1525 1530 1535

Lys Asn Leu Leu Thr Ile Asn Glu Asp Ser Glu Arg Asp Ser Ser Leu

1540 1545 1550

Leu Ser Lys Glu Gln Lys Gln Glu Asn Ser Cys Ile Gln Lys Glu Met

1555 1560 1565

Ala Thr Ile Glu Leu Val Ala Gln Asp Asn His Glu Arg Ala Arg Arg

1570 1575 1580

Leu Met Lys Glu Leu Asn Gln Met Gln Tyr Glu Tyr Thr Glu Leu Lys

1585 1590 1595 1600

Lys Gln Met Ala Asn Gln Lys Asp Leu Glu Arg Arg Gln Met Glu Ile

1605 1610 1615

Ser Asp Ala Met Arg Thr Leu Lys Ser Glu Val Lys Asp Glu Ile Arg

1620 1625 1630

Thr Ser Leu Lys Asn Leu Asn Gln Phe Leu Pro Glu Leu Pro Ala Asp

1635 1640 1645

Leu Glu Ala Ile Leu Glu Arg Asn Glu Asn Leu Glu Gly Glu Leu Glu

1650 1655 1660

Ser Leu Lys Glu Asn Leu Pro Phe Thr Met Asn Glu Gly Pro Phe Glu

1665 1670 1675 1680

Glu Lys Leu Asn Phe Ser Gln Val His Ile Met Asp Glu His Trp Arg

1685 1690 1695

Gly Glu Ala Leu Arg Glu Lys Leu Arg His Arg Glu Asp Arg Leu Lys

1700 1705 1710

Ala Gln Leu Arg His Cys Met Ser Lys Gln Ala Glu Val Leu Ile Lys

1715 1720 1725

Gly Lys Arg Gln Thr Glu Gly Thr Leu His Ser Leu Arg Arg Gln Val

1730 1735 1740

Asp Ala Leu Gly Glu Leu Val Thr Ser Thr Ser Ala Asp Ser Ala Ser

1745 1750 1755 1760

Ser Pro Ser Leu Ser Gln Leu Glu Ser Ser Leu Thr Glu Asp Ser Gln

1765 1770 1775

Leu Gly Gln Asn Gln Glu Lys Asn Ala Ser Ala Arg

1780 1785

<210> 132

<211> 1499

<212> PRT

<213> Homo sapiens

<400> 132

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro
1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser
20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser
35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met
50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val
65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn
85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly
100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr
245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu
275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp
290 295 300
Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320
Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys
325 330 335
Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350
Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu
355 360 365
Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu
370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr
385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met
405 410 415
Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His
420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala
435 440 445
Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu

450 455 460
Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480

Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525

Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu

595 600 605
Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620
Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655
Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670

Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His
675 680 685
Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr
690 695 700
Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn
705 710 715 720
Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu
725 730 735

Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys

740 745 750

Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn

755 760 765

Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu

770 775 780

Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val

785 790 795 800

Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu

805 810 815

Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro

820 825 830

Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser

835 840 845

Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg

850 855 860

Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala

865 870 875 880

Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala

885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met

900 905 910

Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu

915 920 925

Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys

930 935 940

Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu

945 950 955 960

Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu

965 970 975

Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala

980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val

995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg

1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln

1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser

1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg

1075 1080 1085

Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp

1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg

1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro

1125 1130 1135

Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser

1140 1145 1150

Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly

1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln

1170 1175 1180

Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp

1185 1190 1195 1200

Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg

1205 1210 1215

Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp

1220 1225 1230

Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr

1235 1240 1245

Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala

1250 1255 1260

Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr

1265 1270 1275 1280

Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro

1285 1290 1295

Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His

1300 1305 1310

Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu

1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp

1330 1335 1340

Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His

1345 1350 1355 1360

His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu

1365 1370 1375

Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp

1380 1385 1390

Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu

1395 1400 1405

Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile

1410 1415 1420

Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg

1425 1430 1435 1440

Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr

1445 1450 1455

Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln

1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala

1475 1480 1485

Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg

1490 1495

<210> 133

<211> 2340

<212> PRT

<213> Homo sapiens

<400> 133

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn

85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu

115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp

130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser

145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu

165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu

180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu

195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile

210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr

245 250 255

Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val

260 265 270

Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu

275 280 285

Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300

Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys

325 330 335

Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu

340 345 350

Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu

355 360 365

Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu

370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr

385 390 395 400

Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met

405 410 415

Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His

420 425 430

Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala

435 440 445

Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu

450 455 460

Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480
Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525

Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu

595 600 605

Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620
Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655
Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670

Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His
675 680 685
Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr

690 695 700

Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn

705 710 715 720

Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu

725 730 735

Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys

740 745 750

Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn

755 760 765

Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu

770 775 780

Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val

785 790 795 800

Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu

805 810 815

Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro

820 825 830

Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser

835 840 845

Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg

850 855 860

Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala

865 870 875 880

Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala

885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met

900 905 910

Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu

915 920 925

Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys

930 935 940

Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu

945 950 955 960

Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu
965 970 975
Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala
980 985 990
Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val
995 1000 1005
Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg
1010 1015 1020
Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040
Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln
1045 1050 1055
Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser
1060 1065 1070
Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg
1075 1080 1085
Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp
1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg
1105 1110 1115 1120
Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro
1125 1130 1135
Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser
1140 1145 1150
Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly
1155 1160 1165
Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln

1170 1175 1180
Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp
1185 1190 1195 1200

Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg
1205 1210 1215
Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp
1220 1225 1230
Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr
1235 1240 1245

Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala
1250 1255 1260
Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr
1265 1270 1275 1280
Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro
1285 1290 1295
Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His
1300 1305 1310
Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu

1315 1320 1325
Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp
1330 1335 1340
Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His
1345 1350 1355 1360
His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu
1365 1370 1375
Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp
1380 1385 1390

Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu
1395 1400 1405
Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile
1410 1415 1420
Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg
1425 1430 1435 1440
Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr
1445 1450 1455

Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln

1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala

1475 1480 1485

Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp

1490 1495 1500

Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys

1505 1510 1515 1520

Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu

1525 1530 1535

Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys

1540 1545 1550

Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu

1555 1560 1565

Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys

1570 1575 1580

Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp

1585 1590 1595 1600

Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser

1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu

1620 1625 1630

Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu

1635 1640 1645

Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser

1650 1655 1660

Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu

1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr

1685 1690 1695

Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu

1700 1705 1710

Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys

1715 1720 1725

Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln

1730 1735 1740

Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu

1745 1750 1755 1760

Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg

1765 1770 1775

Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu

1780 1785 1790

Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg

1795 1800 1805

Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu

1810 1815 1820

Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln

1825 1830 1835 1840

Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln

1845 1850 1855

Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu

1860 1865 1870

Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu

1875 1880 1885

His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu

1890 1895 1900

Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys

1905 1910 1915 1920

Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile

1925 1930 1935

Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg

1940 1945 1950

Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys

1955 1960 1965

Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp
1970 1975 1980
Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu
1985 1990 1995 2000
Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu
2005 2010 2015
Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln
2020 2025 2030
Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala

2035 2040 2045
Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr
2050 2055 2060
Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu
2065 2070 2075 2080
Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Thr Ile Asn Glu
2085 2090 2095
Asp Ser Glu Arg Asp Ser Ser Leu Leu Ser Lys Glu Gln Lys Gln Glu
2100 2105 2110

Asn Ser Cys Ile Gln Lys Glu Met Ala Thr Ile Glu Leu Val Ala Gln
2115 2120 2125
Asp Asn His Glu Arg Ala Arg Arg Leu Met Lys Glu Leu Asn Gln Met
2130 2135 2140
Gln Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Met Ala Asn Gln Lys Asp
2145 2150 2155 2160
Leu Glu Arg Arg Gln Met Glu Ile Ser Asp Ala Met Arg Thr Leu Lys
2165 2170 2175
Ser Glu Val Lys Asp Glu Ile Arg Thr Ser Leu Lys Asn Leu Asn Gln

2180 2185 2190
Phe Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu Arg Asn
2195 2200 2205

Glu Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu Pro Phe
2210 2215 2220
Thr Met Asn Glu Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser Gln Val
2225 2230 2235 2240
His Ile Met Asp Glu His Trp Arg Gly Glu Ala Leu Arg Glu Lys Leu
2245 2250 2255

Arg His Arg Glu Asp Arg Leu Lys Ala Gln Leu Arg His Cys Met Ser
2260 2265 2270
Lys Gln Ala Glu Val Leu Ile Lys Gly Lys Arg Gln Thr Glu Gly Thr
2275 2280 2285
Leu His Ser Leu Arg Arg Gln Val Asp Ala Leu Gly Glu Leu Val Thr
2290 2295 2300
Ser Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln Leu Glu
2305 2310 2315 2320
Ser Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu Lys Asn

2325 2330 2335
Ala Ser Ala Arg
2340

<210> 134
<211> 2315
<212> PRT
<213> Homo sapiens
<400> 134
Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro
1 5 10 15
Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser
20 25 30
Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser
35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met
50 55 60
Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn

85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu

115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp

130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser

145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu

165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu

180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu

195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile

210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr

245 250 255

Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val

260 265 270

Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu

275 280 285

Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300

Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys

325 330 335

Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350
Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu
355 360 365
Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu
370 375 380
Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr
385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met

405 410 415
Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His
420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala
435 440 445
Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu
450 455 460
Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480

Ile Gln Leu Lys Lys Glu Ala Leu Asp Leu Glu Leu Gln Met Glu Lys
485 490 495
Gln Lys Gln Glu Ile Ala Gly Lys Gln Lys Glu Ile Lys Asp Leu Gln
500 505 510
Ile Ala Ile Asp Ser Leu Asp Ser Lys Asp Pro Lys His Ser His Met
515 520 525
Lys Ala Gln Lys Ser Gly Lys Glu Gln Gln Leu Asp Ile Met Asn Lys
530 535 540
Gln Tyr Gln Gln Leu Glu Ser Arg Leu Asp Glu Ile Leu Ser Arg Ile

545 550 555 560
Ala Lys Glu Thr Glu Glu Ile Lys Asp Leu Glu Glu Gln Leu Thr Glu
565 570 575

Gly Gln Ile Ala Ala Asn Glu Ala Leu Lys Lys Asp Leu Glu Gly Val
580 585 590
Ile Ser Gly Leu Gln Glu Tyr Leu Gly Thr Ile Lys Gly Gln Ala Thr
595 600 605
Gln Ala Gln Asn Glu Cys Arg Lys Leu Arg Asp Glu Lys Glu Thr Leu
610 615 620

Leu Gln Arg Leu Thr Glu Val Glu Gln Glu Arg Asp Gln Leu Glu Ile
625 630 635 640
Val Ala Met Asp Ala Glu Asn Met Arg Lys Glu Leu Ala Glu Leu Glu
645 650 655
Ser Ala Leu Gln Glu Gln His Glu Val Asn Ala Ser Leu Gln Gln Thr
660 665 670
Gln Gly Asp Leu Ser Ala Tyr Glu Ala Glu Leu Glu Ala Arg Leu Asn
675 680 685
Leu Arg Asp Ala Glu Ala Asn Gln Leu Lys Glu Glu Leu Glu Lys Val

690 695 700
Thr Arg Leu Thr Gln Leu Glu Gln Ser Ala Leu Gln Ala Glu Leu Glu
705 710 715 720
Lys Glu Arg Gln Ala Leu Lys Asn Ala Leu Gly Lys Ala Gln Phe Ser
725 730 735
Glu Glu Lys Glu Gln Glu Asn Ser Glu Leu His Ala Lys Leu Lys His
740 745 750
Leu Gln Asp Asp Asn Asn Leu Leu Lys Gln Gln Leu Lys Asp Phe Gln
755 760 765

Asn His Leu Asn His Val Val Asp Gly Leu Val Arg Pro Glu Glu Val
770 775 780
Ala Ala Arg Val Asp Glu Leu Arg Arg Lys Leu Lys Leu Gly Thr Gly
785 790 795 800
Glu Met Asn Ile His Ser Pro Ser Asp Val Leu Gly Lys Ser Leu Ala
805 810 815
Asp Leu Gln Lys Gln Phe Ser Glu Ile Leu Ala Arg Ser Lys Trp Glu
820 825 830

Arg Asp Glu Ala Gln Val Arg Glu Arg Lys Leu Gln Glu Glu Met Ala

835 840 845

Leu Gln Gln Glu Lys Leu Ala Thr Gly Gln Glu Glu Phe Arg Gln Ala

850 855 860

Cys Glu Arg Ala Leu Glu Ala Arg Met Asn Phe Asp Lys Arg Gln His

865 870 875 880

Glu Ala Arg Ile Gln Gln Met Glu Asn Glu Ile His Tyr Leu Gln Glu

885 890 895

Asn Leu Lys Ser Met Glu Glu Ile Gln Gly Leu Thr Asp Leu Gln Leu

900 905 910

Gln Glu Ala Asp Glu Glu Lys Glu Arg Ile Leu Ala Gln Leu Arg Glu

915 920 925

Leu Glu Lys Lys Lys Lys Leu Glu Asp Ala Lys Ser Gln Glu Gln Val

930 935 940

Phe Gly Leu Asp Lys Glu Leu Lys Lys Leu Lys Lys Ala Val Ala Thr

945 950 955 960

Ser Asp Lys Leu Ala Thr Ala Glu Leu Thr Ile Ala Lys Asp Gln Leu

965 970 975

Lys Ser Leu His Gly Thr Val Met Lys Ile Asn Gln Glu Arg Ala Glu

980 985 990

Glu Leu Gln Glu Ala Glu Arg Phe Ser Arg Lys Ala Ala Gln Ala Ala

995 1000 1005

Arg Asp Leu Thr Arg Ala Glu Ala Glu Ile Glu Leu Leu Gln Asn Leu

1010 1015 1020

Leu Arg Gln Lys Gly Glu Gln Phe Arg Leu Glu Met Glu Lys Thr Gly

1025 1030 1035 1040

Val Gly Thr Gly Ala Asn Ser Gln Val Leu Glu Ile Glu Lys Leu Asn

1045 1050 1055

Glu Thr Met Glu Arg Gln Arg Thr Glu Ile Ala Arg Leu Gln Asn Val

1060 1065 1070

Leu Asp Leu Thr Gly Ser Asp Asn Lys Gly Gly Phe Glu Asn Val Leu

1075 1080 1085

Glu Glu Ile Ala Glu Leu Arg Arg Glu Val Ser Tyr Gln Asn Asp Tyr

1090 1095 1100

Ile Ser Ser Met Ala Asp Pro Phe Lys Arg Arg Gly Tyr Trp Tyr Phe

1105 1110 1115 1120

Met Pro Pro Pro Pro Ser Ser Lys Val Ser Ser His Ser Ser Gln Ala

1125 1130 1135

Thr Lys Asp Ser Gly Val Gly Leu Lys Tyr Ser Ala Ser Thr Pro Val

1140 1145 1150

Arg Lys Pro Arg Pro Gly Gln Gln Asp Gly Lys Glu Gly Ser Gln Pro

1155 1160 1165

Pro Pro Ala Ser Gly Tyr Trp Val Tyr Ser Pro Ile Arg Ser Gly Leu

1170 1175 1180

His Lys Leu Phe Pro Ser Arg Asp Ala Asp Ser Gly Gly Asp Ser Gln

1185 1190 1195 1200

Glu Glu Ser Glu Leu Asp Asp Gln Glu Glu Pro Pro Phe Val Pro Pro

1205 1210 1215

Pro Gly Tyr Met Met Tyr Thr Val Leu Pro Asp Gly Ser Pro Val Pro

1220 1225 1230

Gln Gly Met Ala Leu Tyr Ala Pro Pro Pro Pro Leu Pro Asn Asn Ser

1235 1240 1245

Arg Pro Leu Thr Pro Gly Thr Val Val Tyr Gly Pro Pro Pro Ala Gly

1250 1255 1260

Ala Pro Met Val Tyr Gly Pro Pro Pro Pro Asn Phe Ser Ile Pro Phe

1265 1270 1275 1280

Ile Pro Met Gly Val Leu His Cys Asn Val Pro Glu His His Asn Leu

1285 1290 1295

Glu Asn Glu Val Ser Arg Leu Glu Asp Ile Met Gln His Leu Lys Ser

1300 1305 1310

Lys Lys Arg Glu Glu Arg Trp Met Arg Ala Ser Lys Arg Gln Ser Glu

1315 1320 1325

Lys Glu Met Glu Glu Leu His His Asn Ile Asp Asp Leu Leu Gln Glu

1330 1335 1340

Lys Lys Ser Leu Glu Cys Glu Val Glu Glu Leu His Arg Thr Val Gln
1345 1350 1355 1360
Lys Arg Gln Gln Gln Lys Asp Phe Ile Asp Gly Asn Val Glu Ser Leu
1365 1370 1375
Met Thr Glu Leu Glu Ile Glu Lys Ser Leu Lys His His Glu Asp Ile
1380 1385 1390
Val Asp Glu Ile Glu Cys Ile Glu Lys Thr Leu Leu Lys Arg Arg Ser
1395 1400 1405
Glu Leu Arg Glu Ala Asp Arg Leu Leu Ala Glu Ala Glu Ser Glu Leu

1410 1415 1420
Ser Cys Thr Lys Glu Lys Thr Lys Asn Ala Val Glu Lys Phe Thr Asp
1425 1430 1435 1440
Ala Lys Arg Ser Leu Leu Gln Thr Glu Ser Asp Ala Glu Glu Leu Glu
1445 1450 1455
Arg Arg Ala Gln Glu Thr Ala Val Asn Leu Val Lys Ala Asp Gln Gln
1460 1465 1470
Leu Arg Ser Leu Gln Ala Asp Ala Lys Asp Leu Glu Gln His Lys Ile
1475 1480 1485

Lys Gln Glu Glu Ile Leu Lys Glu Ile Asn Lys Ile Val Ala Ala Lys
1490 1495 1500
Asp Ser Asp Phe Gln Cys Leu Ser Lys Lys Lys Glu Lys Leu Thr Glu
1505 1510 1515 1520
Glu Leu Gln Lys Leu Gln Lys Asp Ile Glu Met Ala Glu Arg Asn Glu
1525 1530 1535
Asp His His Leu Gln Val Leu Lys Glu Ser Glu Val Leu Leu Gln Ala
1540 1545 1550
Lys Arg Ala Glu Leu Glu Lys Leu Lys Ser Gln Val Thr Ser Gln Gln

1555 1560 1565
Gln Glu Met Ala Val Leu Asp Arg Gln Leu Gly His Lys Lys Glu Glu
1570 1575 1580

Leu His Leu Leu Gln Gly Ser Met Val Gln Ala Lys Ala Asp Leu Gln
1585 1590 1595 1600
Glu Ala Leu Arg Leu Gly Glu Thr Glu Val Thr Glu Lys Cys Asn His
1605 1610 1615
Ile Arg Glu Val Lys Ser Leu Leu Glu Glu Leu Ser Phe Gln Lys Gly
1620 1625 1630

Glu Leu Asn Val Gln Ile Ser Glu Arg Lys Thr Gln Leu Thr Leu Ile
1635 1640 1645
Lys Gln Glu Ile Glu Lys Glu Glu Glu Asn Leu Gln Val Val Leu Arg
1650 1655 1660
Gln Met Ser Lys His Lys Thr Glu Leu Lys Asn Ile Leu Asp Met Leu
1665 1670 1675 1680
Gln Leu Glu Asn His Glu Leu Gln Gly Leu Lys Leu Gln His Asp Gln
1685 1690 1695
Arg Val Ser Glu Leu Glu Lys Thr Gln Val Ala Val Leu Glu Glu Lys

1700 1705 1710
Leu Glu Leu Glu Asn Leu Gln Gln Ile Ser Gln Gln Gln Lys Gly Glu
1715 1720 1725
Ile Glu Trp Gln Lys Gln Leu Leu Glu Arg Asp Lys Arg Glu Ile Glu
1730 1735 1740
Arg Met Thr Ala Glu Ser Arg Ala Leu Gln Ser Cys Val Glu Cys Leu
1745 1750 1755 1760
Ser Lys Glu Lys Glu Asp Leu Gln Glu Lys Cys Asp Ile Trp Glu Lys
1765 1770 1775

Lys Leu Ala Gln Thr Lys Arg Val Leu Ala Ala Ala Glu Glu Asn Ser
1780 1785 1790
Lys Met Glu Gln Ser Asn Leu Glu Lys Leu Glu Leu Asn Val Arg Lys
1795 1800 1805
Leu Gln Gln Glu Leu Asp Gln Leu Asn Arg Asp Lys Leu Ser Leu His
1810 1815 1820
Asn Asp Ile Ser Ala Met Gln Gln Gln Leu Gln Glu Lys Arg Glu Ala
1825 1830 1835 1840

Val Asn Ser Leu Gln Glu Glu Leu Ala Asn Val Gln Asp His Leu Asn

1845 1850 1855

Leu Ala Lys Gln Asp Leu Leu His Thr Thr Lys His Gln Asp Val Leu

1860 1865 1870

Leu Ser Glu Gln Thr Arg Leu Gln Lys Asp Ile Ser Glu Trp Ala Asn

1875 1880 1885

Arg Phe Glu Asp Cys Gln Lys Glu Glu Glu Thr Lys Gln Gln Gln Leu

1890 1895 1900

Gln Val Leu Gln Asn Glu Ile Glu Glu Asn Lys Leu Lys Leu Val Gln

1905 1910 1915 1920

Gln Glu Met Met Phe Gln Arg Leu Gln Lys Glu Arg Glu Ser Glu Glu

1925 1930 1935

Ser Lys Leu Glu Thr Ser Lys Val Thr Leu Lys Glu Gln Gln His Gln

1940 1945 1950

Leu Glu Lys Glu Leu Thr Asp Gln Lys Ser Lys Leu Asp Gln Val Leu

1955 1960 1965

Ser Lys Val Leu Ala Ala Glu Glu Arg Val Arg Thr Leu Gln Glu Glu

1970 1975 1980

Glu Arg Trp Cys Glu Ser Leu Glu Lys Thr Leu Ser Gln Thr Lys Arg

1985 1990 1995 2000

Gln Leu Ser Glu Arg Glu Gln Gln Leu Val Glu Lys Ser Gly Glu Leu

2005 2010 2015

Leu Ala Leu Gln Lys Glu Ala Asp Ser Met Arg Ala Asp Phe Ser Leu

2020 2025 2030

Leu Arg Asn Gln Phe Leu Thr Glu Arg Lys Lys Ala Glu Lys Gln Val

2035 2040 2045

Ala Ser Leu Lys Glu Ala Leu Lys Ile Gln Arg Ser Gln Leu Glu Lys

2050 2055 2060

Asn Leu Leu Thr Ile Asn Glu Asp Ser Glu Arg Asp Ser Ser Leu Leu

2065 2070 2075 2080

Ser Lys Glu Gln Lys Gln Glu Asn Ser Cys Ile Gln Lys Glu Met Ala

2085 2090 2095

Thr Ile Glu Leu Val Ala Gln Asp Asn His Glu Arg Ala Arg Arg Leu

2100 2105 2110

Met Lys Glu Leu Asn Gln Met Gln Tyr Glu Tyr Thr Glu Leu Lys Lys

2115 2120 2125

Gln Met Ala Asn Gln Lys Asp Leu Glu Arg Arg Gln Met Glu Ile Ser

2130 2135 2140

Asp Ala Met Arg Thr Leu Lys Ser Glu Val Lys Asp Glu Ile Arg Thr

2145 2150 2155 2160

Ser Leu Lys Asn Leu Asn Gln Phe Leu Pro Glu Leu Pro Ala Asp Leu

2165 2170 2175

Glu Ala Ile Leu Glu Arg Asn Glu Asn Leu Glu Gly Glu Leu Glu Ser

2180 2185 2190

Leu Lys Glu Asn Leu Pro Phe Thr Met Asn Glu Gly Pro Phe Glu Glu

2195 2200 2205

Lys Leu Asn Phe Ser Gln Val His Ile Met Asp Glu His Trp Arg Gly

2210 2215 2220

Glu Ala Leu Arg Glu Lys Leu Arg His Arg Glu Asp Arg Leu Lys Ala

2225 2230 2235 2240

Gln Leu Arg His Cys Met Ser Lys Gln Ala Glu Val Leu Ile Lys Gly

2245 2250 2255

Lys Arg Gln Thr Glu Gly Thr Leu His Ser Leu Arg Arg Gln Val Asp

2260 2265 2270

Ala Leu Gly Glu Leu Val Thr Ser Thr Ser Ala Asp Ser Ala Ser Ser

2275 2280 2285

Pro Ser Leu Ser Gln Leu Glu Ser Ser Leu Thr Glu Asp Ser Gln Leu

2290 2295 2300

Gly Gln Asn Gln Glu Lys Asn Ala Ser Ala Arg

2305 2310 2315

<210> 135

<211> 2281

<212> PRT

<213> Homo sapiens

<400> 135

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro
1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser
20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser
35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met
50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val
65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn
85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly
100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr
245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu
275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp
290 295 300
Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320
Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys
325 330 335
Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350
Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu
355 360 365
Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu
370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr
385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met
405 410 415
Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His
420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala
435 440 445
Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu

450 455 460
Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480

Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525

Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu
595 600 605
Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620
Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655
Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670

Met Arg Lys Leu Glu Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu
675 680 685
Arg Gln Ala Leu Lys Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu
690 695 700
Lys Glu Gln Glu Asn Ser Glu Leu His Ala Lys Leu Lys His Leu Gln
705 710 715 720
Asp Asp Asn Asn Leu Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His
725 730 735

Leu Asn His Val Val Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala

740 745 750

Arg Val Asp Glu Leu Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met

755 760 765

Asn Ile His Ser Pro Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu

770 775 780

Gln Lys Gln Phe Ser Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp

785 790 795 800

Glu Ala Gln Val Arg Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln

805 810 815

Gln Glu Lys Leu Ala Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu

820 825 830

Arg Ala Leu Glu Ala Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala

835 840 845

Arg Ile Gln Gln Met Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu

850 855 860

Lys Ser Met Glu Glu Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu

865 870 875 880

Ala Asp Glu Glu Lys Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu

885 890 895

Lys Lys Lys Lys Leu Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly

900 905 910

Leu Asp Lys Glu Leu Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp

915 920 925

Lys Leu Ala Thr Ala Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser

930 935 940

Leu His Gly Thr Val Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu

945 950 955 960

Gln Glu Ala Glu Arg Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp

965 970 975

Leu Thr Arg Ala Glu Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg

980 985 990

Gln Lys Gly Glu Gln Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly

995 1000 1005

Thr Gly Ala Asn Ser Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr

1010 1015 1020

Met Glu Arg Gln Arg Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp

1025 1030 1035 1040

Leu Thr Gly Ser Asp Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu

1045 1050 1055

Ile Ala Glu Leu Arg Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser

1060 1065 1070

Ser Met Ala Asp Pro Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro

1075 1080 1085

Pro Pro Pro Ser Ser Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys

1090 1095 1100

Asp Ser Gly Val Gly Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys

1105 1110 1115 1120

Pro Arg Pro Gly Gln Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro

1125 1130 1135

Ala Ser Gly Tyr Trp Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys

1140 1145 1150

Leu Phe Pro Ser Arg Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu

1155 1160 1165

Ser Glu Leu Asp Asp Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly

1170 1175 1180

Tyr Met Met Tyr Thr Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly

1185 1190 1195 1200

Met Ala Leu Tyr Ala Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro

1205 1210 1215

Leu Thr Pro Gly Thr Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro

1220 1225 1230

Met Val Tyr Gly Pro Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro

1235 1240 1245

Met Gly Val Leu His Cys Asn Val Pro Glu His His Asn Leu Glu Asn
1250 1255 1260
Glu Val Ser Arg Leu Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys
1265 1270 1275 1280
Arg Glu Glu Arg Trp Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu
1285 1290 1295
Met Glu Glu Leu His His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys
1300 1305 1310
Ser Leu Glu Cys Glu Val Glu Glu Leu His Arg Thr Val Gln Lys Arg

1315 1320 1325
Gln Gln Gln Lys Asp Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr
1330 1335 1340
Glu Leu Glu Ile Glu Lys Ser Leu Lys His His Glu Asp Ile Val Asp
1345 1350 1355 1360
Glu Ile Glu Cys Ile Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu
1365 1370 1375
Arg Glu Ala Asp Arg Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys
1380 1385 1390

Thr Lys Glu Lys Thr Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys
1395 1400 1405
Arg Ser Leu Leu Gln Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg
1410 1415 1420
Ala Gln Glu Thr Ala Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg
1425 1430 1435 1440
Ser Leu Gln Ala Asp Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln
1445 1450 1455
Glu Glu Ile Leu Lys Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser

1460 1465 1470
Asp Phe Gln Cys Leu Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu
1475 1480 1485

Gln Lys Leu Gln Lys Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His
1490 1495 1500
His Leu Gln Val Leu Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg
1505 1510 1515 1520
Ala Glu Leu Glu Lys Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu
1525 1530 1535

Met Ala Val Leu Asp Arg Gln Leu Gly His Lys Lys Glu Glu Leu His
1540 1545 1550
Leu Leu Gln Gly Ser Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala
1555 1560 1565
Leu Arg Leu Gly Glu Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg
1570 1575 1580
Glu Val Lys Ser Leu Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu
1585 1590 1595 1600
Asn Val Gln Ile Ser Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln

1605 1610 1615
Glu Ile Glu Lys Glu Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met
1620 1625 1630
Ser Lys His Lys Thr Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu
1635 1640 1645
Glu Asn His Glu Leu Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val
1650 1655 1660
Ser Glu Leu Glu Lys Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu
1665 1670 1675 1680

Leu Glu Asn Leu Gln Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu
1685 1690 1695
Trp Gln Lys Gln Leu Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met
1700 1705 1710
Thr Ala Glu Ser Arg Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys
1715 1720 1725
Glu Lys Glu Asp Leu Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu
1730 1735 1740

Ala Gln Thr Lys Arg Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met

1745 1750 1755 1760

Glu Gln Ser Asn Leu Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln

1765 1770 1775

Gln Glu Leu Asp Gln Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp

1780 1785 1790

Ile Ser Ala Met Gln Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn

1795 1800 1805

Ser Leu Gln Glu Glu Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala

1810 1815 1820

Lys Gln Asp Leu Leu His Thr Thr Lys His Gln Asp Val Leu Leu Ser

1825 1830 1835 1840

Glu Gln Thr Arg Leu Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe

1845 1850 1855

Glu Asp Cys Gln Lys Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val

1860 1865 1870

Leu Gln Asn Glu Ile Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu

1875 1880 1885

Met Met Phe Gln Arg Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys

1890 1895 1900

Leu Glu Thr Ser Lys Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu

1905 1910 1915 1920

Lys Glu Leu Thr Asp Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys

1925 1930 1935

Val Leu Ala Ala Glu Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg

1940 1945 1950

Trp Cys Glu Ser Leu Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu

1955 1960 1965

Ser Glu Arg Glu Gln Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala

1970 1975 1980

Leu Gln Lys Glu Ala Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg

1985 1990 1995 2000

Asn Gln Phe Leu Thr Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser

2005 2010 2015

Leu Lys Glu Ala Leu Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu

2020 2025 2030

Leu Thr Ile Asn Glu Asp Ser Glu Arg Asp Ser Ser Leu Leu Ser Lys

2035 2040 2045

Glu Gln Lys Gln Glu Asn Ser Cys Ile Gln Lys Glu Met Ala Thr Ile

2050 2055 2060

Glu Leu Val Ala Gln Asp Asn His Glu Arg Ala Arg Arg Leu Met Lys

2065 2070 2075 2080

Glu Leu Asn Gln Met Gln Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Met

2085 2090 2095

Ala Asn Gln Lys Asp Leu Glu Arg Arg Gln Met Glu Ile Ser Asp Ala

2100 2105 2110

Met Arg Thr Leu Lys Ser Glu Val Lys Asp Glu Ile Arg Thr Ser Leu

2115 2120 2125

Lys Asn Leu Asn Gln Phe Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala

2130 2135 2140

Ile Leu Glu Arg Asn Glu Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys

2145 2150 2155 2160

Glu Asn Leu Pro Phe Thr Met Asn Glu Gly Pro Phe Glu Glu Lys Leu

2165 2170 2175

Asn Phe Ser Gln Val His Ile Met Asp Glu His Trp Arg Gly Glu Ala

2180 2185 2190

Leu Arg Glu Lys Leu Arg His Arg Glu Asp Arg Leu Lys Ala Gln Leu

2195 2200 2205

Arg His Cys Met Ser Lys Gln Ala Glu Val Leu Ile Lys Gly Lys Arg

2210 2215 2220

Gln Thr Glu Gly Thr Leu His Ser Leu Arg Arg Gln Val Asp Ala Leu

2225 2230 2235 2240

Gly Glu Leu Val Thr Ser Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser

2245 2250 2255

Leu Ser Gln Leu Glu Ser Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln

2260 2265 2270

Asn Gln Glu Lys Asn Ala Ser Ala Arg

2275 2280

<210> 136

<211> 1700

<212> PRT

<213> Homo sapiens

<400> 136

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn

85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu

115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp

130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser

145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu

165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190
Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205
Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220
Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr
225 230 235 240
Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr

245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu
275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp
290 295 300
Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser
305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys
325 330 335
Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350
Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu
355 360 365
Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu
370 375 380
Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr

385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met
405 410 415

Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His
420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala
435 440 445
Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu
450 455 460

Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480
Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525
Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp

530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu
595 600 605

Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620
Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655
Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670

Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His

675 680 685

Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr

690 695 700

Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn

705 710 715 720

Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu

725 730 735

Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys

740 745 750

Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn

755 760 765

Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu

770 775 780

Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val

785 790 795 800

Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu

805 810 815

Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro

820 825 830

Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser

835 840 845

Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg

850 855 860

Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala

865 870 875 880

Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala

885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met

900 905 910

Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu

915 920 925

Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys

930 935 940

Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu

945 950 955 960

Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu

965 970 975

Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala

980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val

995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg

1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln

1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser

1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg

1075 1080 1085

Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp

1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg

1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro

1125 1130 1135

Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser

1140 1145 1150

Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly

1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln

1170 1175 1180

Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp
1185 1190 1195 1200
Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg
1205 1210 1215
Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp
1220 1225 1230
Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr
1235 1240 1245
Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala

1250 1255 1260

Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr
1265 1270 1275 1280
Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro
1285 1290 1295
Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His
1300 1305 1310
Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu
1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp
1330 1335 1340
Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His
1345 1350 1355 1360
His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu
1365 1370 1375
Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp
1380 1385 1390
Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu

1395 1400 1405
Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile
1410 1415 1420

Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg
1425 1430 1435 1440
Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr
1445 1450 1455
Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln
1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala
1475 1480 1485
Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp
1490 1495 1500
Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys
1505 1510 1515 1520
Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu
1525 1530 1535
Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys

1540 1545 1550
Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu
1555 1560 1565
Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys
1570 1575 1580
Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp
1585 1590 1595 1600
Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser
1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu
1620 1625 1630
Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu
1635 1640 1645
Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser
1650 1655 1660
Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu
1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr

1685 1690 1695

Ala Phe Leu Gln

1700

<210> 137

<211> 1443

<212> PRT

<213> Homo sapiens

<400> 137

Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met Glu
1 5 10 15

Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu Ile
20 25 30

Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys Glu
35 40 45

Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu Glu
50 55 60

Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu Lys
65 70 75 80

Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala Glu
85 90 95

Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val Met
100 105 110

Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg Phe

115 120 125

Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu Ala
130 135 140

Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln Phe
145 150 155 160

Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser Gln
165 170 175

Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg Thr

180 185 190

Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp Asn
195 200 205
Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg Arg
210 215 220
Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro Phe
225 230 235 240
Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser Lys
245 250 255
Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly Leu

260 265 270
Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln Gln
275 280 285
Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp Val
290 295 300
Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg Asp
305 310 315 320
Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp Gln
325 330 335

Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr Val
340 345 350
Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala Pro
355 360 365
Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr Val
370 375 380
Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro Pro
385 390 395 400
Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His Cys

405 410 415
Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu Glu
420 425 430

Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp Met
435 440 445
Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His His
450 455 460
Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu Val
465 470 475 480

Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp Phe
485 490 495
Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu Lys
500 505 510
Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile Glu
515 520 525
Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg Leu
530 535 540
Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr Lys

545 550 555 560
Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln Thr
565 570 575
Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala Val
580 585 590
Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp Ala
595 600 605
Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys Glu
610 615 620

Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu Ser
625 630 635 640
Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys Asp
645 650 655
Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu Lys
660 665 670
Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys Leu
675 680 685

Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp Arg

690 695 700

Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser Met
705 710 715 720
Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu Thr
725 730 735
Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu Leu
740 745 750
Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser Glu
755 760 765

Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu Glu
770 775 780
Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr Glu
785 790 795 800
Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu Gln
805 810 815
Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys Thr
820 825 830
Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln Gln

835 840 845
Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu Leu
850 855 860
Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg Ala
865 870 875 880
Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu Gln
885 890 895
Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg Val
900 905 910

Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu Glu
915 920 925
Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln Leu

930 935 940

Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln Gln

945 950 955 960

Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu Leu

965 970 975

Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu His

980 985 990

Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu Gln

995 1000 1005

Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys Glu

1010 1015 1020

Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile Glu

1025 1030 1035 1040

Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg Leu

1045 1050 1055

Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys Val

1060 1065 1070

Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp Gln

1075 1080 1085

Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu Glu

1090 1095 1100

Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu Glu

1105 1110 1115 1120

Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln Gln

1125 1130 1135

Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala Asp

1140 1145 1150

Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr Glu

1155 1160 1165

Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu Lys

1170 1175 1180

Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Thr Ile Asn Glu Asp

1185 1190 1195 1200

Ser Glu Arg Asp Ser Ser Leu Leu Ser Lys Glu Gln Lys Gln Glu Asn
1205 1210 1215
Ser Cys Ile Gln Lys Glu Met Ala Thr Ile Glu Leu Val Ala Gln Asp
1220 1225 1230
Asn His Glu Arg Ala Arg Arg Leu Met Lys Glu Leu Asn Gln Met Gln
1235 1240 1245
Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Met Ala Asn Gln Lys Asp Leu
1250 1255 1260
Glu Arg Arg Gln Met Glu Ile Ser Asp Ala Met Arg Thr Leu Lys Ser

1265 1270 1275 1280
Glu Val Lys Asp Glu Ile Arg Thr Ser Leu Lys Asn Leu Asn Gln Phe
1285 1290 1295
Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu Arg Asn Glu
1300 1305 1310
Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu Pro Phe Thr
1315 1320 1325
Met Asn Glu Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser Gln Val His
1330 1335 1340

Ile Met Asp Glu His Trp Arg Gly Glu Ala Leu Arg Glu Lys Leu Arg
1345 1350 1355 1360
His Arg Glu Asp Arg Leu Lys Ala Gln Leu Arg His Cys Met Ser Lys
1365 1370 1375
Gln Ala Glu Val Leu Ile Lys Gly Lys Arg Gln Thr Glu Gly Thr Leu
1380 1385 1390
His Ser Leu Arg Arg Gln Val Asp Ala Leu Gly Glu Leu Val Thr Ser
1395 1400 1405
Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln Leu Glu Ser

1410 1415 1420
Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu Lys Asn Ala
1425 1430 1435 1440

Ser Ala Arg

<210> 138

<211> 2302

<212> PRT

<213> Homo sapiens

<400> 138

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro
1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser
20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser
35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met
50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val
65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn
85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140

Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160

Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175

Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190

Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu

195 200 205

Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile

210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr

225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr

245 250 255

Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val

260 265 270

Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu

275 280 285

Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300

Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320

Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys

325 330 335

Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu

340 345 350

Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu

355 360 365

Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu

370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr

385 390 395 400

Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met

405 410 415

Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His

420 425 430

Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala

435 440 445

Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu

450 455 460

Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480
Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525
Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp

530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu
595 600 605

Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620
Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655
Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670
Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His

675 680 685
Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr
690 695 700

Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn
705 710 715 720
Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu
725 730 735
Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys
740 745 750

Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn
755 760 765
Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu
770 775 780
Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val
785 790 795 800
Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu
805 810 815
Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro

820 825 830
Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser
835 840 845
Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg
850 855 860
Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala
865 870 875 880
Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala
885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met
900 905 910
Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu
915 920 925
Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys
930 935 940
Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu
945 950 955 960

Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu

965 970 975

Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala

980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val

995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg

1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln

1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser

1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg

1075 1080 1085

Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp

1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg

1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro

1125 1130 1135

Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser

1140 1145 1150

Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly

1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln

1170 1175 1180

Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp

1185 1190 1195 1200

Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg

1205 1210 1215

Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp

1220 1225 1230

Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr

1235 1240 1245

Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala

1250 1255 1260

Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr

1265 1270 1275 1280

Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro

1285 1290 1295

Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His

1300 1305 1310

Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu

1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp

1330 1335 1340

Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His

1345 1350 1355 1360

His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu

1365 1370 1375

Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp

1380 1385 1390

Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu

1395 1400 1405

Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile

1410 1415 1420

Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg

1425 1430 1435 1440

Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr

1445 1450 1455

Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln

1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala

1475 1480 1485

Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp

1490 1495 1500

Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys

1505 1510 1515 1520

Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu

1525 1530 1535

Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys

1540 1545 1550

Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu

1555 1560 1565

Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys

1570 1575 1580

Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp

1585 1590 1595 1600

Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser

1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu

1620 1625 1630

Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu

1635 1640 1645

Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser

1650 1655 1660

Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu

1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr

1685 1690 1695

Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu

1700 1705 1710

Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys
1715 1720 1725
Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln
1730 1735 1740
Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu
1745 1750 1755 1760

Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg
1765 1770 1775
Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu
1780 1785 1790
Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg
1795 1800 1805
Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu
1810 1815 1820
Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln

1825 1830 1835 1840
Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln
1845 1850 1855
Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu
1860 1865 1870
Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu
1875 1880 1885
His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu
1890 1895 1900

Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys
1905 1910 1915 1920
Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile
1925 1930 1935
Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg
1940 1945 1950
Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys
1955 1960 1965

Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp

1970 1975 1980

Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu

1985 1990 1995 2000

Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu

2005 2010 2015

Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln

2020 2025 2030

Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala

2035 2040 2045

Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr

2050 2055 2060

Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu

2065 2070 2075 2080

Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Thr Ile Asn Glu

2085 2090 2095

Asp Ser Glu Arg Asp Ser Ser Leu Leu Ser Lys Glu Gln Lys Gln Glu

2100 2105 2110

Asn Ser Cys Ile Gln Lys Glu Met Ala Thr Ile Glu Leu Val Ala Gln

2115 2120 2125

Asp Asn His Glu Arg Ala Arg Arg Leu Met Lys Glu Leu Asn Gln Met

2130 2135 2140

Gln Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Phe Leu Pro Glu Leu Pro

2145 2150 2155 2160

Ala Asp Leu Glu Ala Ile Leu Glu Arg Asn Glu Asn Leu Glu Gly Glu

2165 2170 2175

Leu Glu Ser Leu Lys Glu Asn Leu Pro Phe Thr Met Asn Glu Gly Pro

2180 2185 2190

Phe Glu Glu Lys Leu Asn Phe Ser Gln Val His Ile Met Asp Glu His

2195 2200 2205

Trp Arg Gly Glu Ala Leu Arg Glu Lys Leu Arg His Arg Glu Asp Arg

2210 2215 2220

Leu Lys Ala Gln Leu Arg His Cys Met Ser Lys Gln Ala Glu Val Leu

2225 2230 2235 2240

Ile Lys Gly Lys Arg Gln Thr Glu Gly Thr Leu His Ser Leu Arg Arg

2245 2250 2255

Gln Val Asp Ala Leu Gly Glu Leu Val Thr Ser Thr Ser Ala Asp Ser

2260 2265 2270

Ala Ser Ser Pro Ser Leu Ser Gln Leu Glu Ser Ser Leu Thr Glu Asp

2275 2280 2285

Ser Gln Leu Gly Gln Asn Gln Glu Lys Asn Ala Ser Ala Arg

2290 2295 2300

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<211> 2240

<212> PRT

<213> Homo sapiens

<400> 139

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

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Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn

85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu

115 120 125

Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140
Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser
145 150 155 160
Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu

165 170 175
Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190
Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205
Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220
Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr
225 230 235 240

Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr
245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu
275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp
290 295 300
Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser

305 310 315 320
Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys
325 330 335
Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350
Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu
355 360 365
Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu

370 375 380

Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr
385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met
405 410 415
Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His
420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala
435 440 445
Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu

450 455 460
Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480
Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510
Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525

Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile
580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu

595 600 605
Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620

Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655
Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670

Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His
675 680 685
Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr
690 695 700
Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn
705 710 715 720
Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu
725 730 735
Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys

740 745 750
Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn
755 760 765
Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu
770 775 780
Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val
785 790 795 800
Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu
805 810 815

Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro
820 825 830
Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser
835 840 845
Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg
850 855 860
Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala
865 870 875 880

Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala

885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met

900 905 910

Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu

915 920 925

Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys

930 935 940

Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu

945 950 955 960

Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu

965 970 975

Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala

980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val

995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg

1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln

1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser

1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg

1075 1080 1085

Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp

1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg

1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro

1125 1130 1135

Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser

1140 1145 1150

Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly

1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln

1170 1175 1180

Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp

1185 1190 1195 1200

Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg

1205 1210 1215

Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp

1220 1225 1230

Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr

1235 1240 1245

Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala

1250 1255 1260

Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr

1265 1270 1275 1280

Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro

1285 1290 1295

Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His

1300 1305 1310

Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu

1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp

1330 1335 1340

Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His

1345 1350 1355 1360

His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu

1365 1370 1375

Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp

1380 1385 1390

Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu

1395 1400 1405

Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile

1410 1415 1420

Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg

1425 1430 1435 1440

Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Thr

1445 1450 1455

Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu Gln

1460 1465 1470

Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr Ala

1475 1480 1485

Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala Asp

1490 1495 1500

Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu Lys

1505 1510 1515 1520

Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys Leu

1525 1530 1535

Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln Lys

1540 1545 1550

Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val Leu

1555 1560 1565

Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu Lys

1570 1575 1580

Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu Asp

1585 1590 1595 1600

Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly Ser

1605 1610 1615

Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly Glu

1620 1625 1630

Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser Leu
1635 1640 1645

Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile Ser
1650 1655 1660

Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys Glu
1665 1670 1675 1680

Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys Thr
1685 1690 1695

Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu Leu
1700 1705 1710

Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu Lys
1715 1720 1725

Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu Gln
1730 1735 1740

Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln Leu

1745 1750 1755 1760

Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser Arg
1765 1770 1775

Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp Leu
1780 1785 1790

Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys Arg
1795 1800 1805

Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn Leu
1810 1815 1820

Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp Gln
1825 1830 1835 1840

Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met Gln
1845 1850 1855

Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu Glu
1860 1865 1870

Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu Leu
1875 1880 1885

His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg Leu

1890 1895 1900

Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln Lys

1905 1910 1915 1920

Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu Ile

1925 1930 1935

Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln Arg

1940 1945 1950

Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser Lys

1955 1960 1965

Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr Asp

1970 1975 1980

Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala Glu

1985 1990 1995 2000

Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser Leu

2005 2010 2015

Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu Gln

2020 2025 2030

Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu Ala

2035 2040 2045

Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu Thr

2050 2055 2060

Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala Leu

2065 2070 2075 2080

Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Phe Leu Pro Glu

2085 2090 2095

Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu Arg Asn Glu Asn Leu Glu

2100 2105 2110

Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu Pro Phe Thr Met Asn Glu

2115 2120 2125

Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser Gln Val His Ile Met Asp

2130 2135 2140

Glu His Trp Arg Gly Glu Ala Leu Arg Glu Lys Leu Arg His Arg Glu

2145 2150 2155 2160

Asp Arg Leu Lys Ala Gln Leu Arg His Cys Met Ser Lys Gln Ala Glu

2165 2170 2175

Val Leu Ile Lys Gly Lys Arg Gln Thr Glu Gly Thr Leu His Ser Leu

2180 2185 2190

Arg Arg Gln Val Asp Ala Leu Gly Glu Leu Val Thr Ser Thr Ser Ala

2195 2200 2205

Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln Leu Glu Ser Ser Leu Thr

2210 2215 2220

Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu Lys Asn Ala Ser Ala Arg

2225 2230 2235 2240

<210> 140

<211> 1458

<212> PRT

<213> Homo sapiens

<400> 140

Met Lys Lys Gly Ser Gln Gln Lys Ile Phe Ser Lys Ala Lys Ile Pro

1 5 10 15

Ser Ser Ser His Ser Pro Ile Pro Ser Ser Met Ser Asn Met Arg Ser

20 25 30

Arg Ser Leu Ser Pro Leu Ile Gly Ser Glu Thr Leu Pro Phe His Ser

35 40 45

Gly Gly Gln Trp Cys Glu Gln Val Glu Ile Ala Asp Glu Asn Asn Met

50 55 60

Leu Leu Asp Tyr Gln Asp His Lys Gly Ala Asp Ser His Ala Gly Val

65 70 75 80

Arg Tyr Ile Thr Glu Ala Leu Ile Lys Lys Leu Thr Lys Gln Asp Asn

85 90 95

Leu Ala Leu Ile Lys Ser Leu Asn Leu Ser Leu Ser Lys Asp Gly Gly

100 105 110

Lys Lys Phe Lys Tyr Ile Glu Asn Leu Glu Lys Cys Val Lys Leu Glu
115 120 125
Val Leu Asn Leu Ser Tyr Asn Leu Ile Gly Lys Ile Glu Lys Leu Asp
130 135 140
Lys Leu Leu Lys Leu Arg Glu Leu Asn Leu Ser Tyr Asn Lys Ile Ser

145 150 155 160
Lys Ile Glu Gly Ile Glu Asn Met Cys Asn Leu Gln Lys Leu Asn Leu
165 170 175
Ala Gly Asn Glu Ile Glu His Ile Pro Val Trp Leu Gly Lys Lys Leu
180 185 190
Lys Ser Leu Arg Val Leu Asn Leu Lys Gly Asn Lys Ile Ser Ser Leu
195 200 205
Gln Asp Ile Ser Lys Leu Lys Pro Leu Gln Asp Leu Ile Ser Leu Ile
210 215 220

Leu Val Glu Asn Pro Val Val Thr Leu Pro His Tyr Leu Gln Phe Thr
225 230 235 240
Ile Phe His Leu Arg Ser Leu Glu Ser Leu Glu Gly Gln Pro Val Thr
245 250 255
Thr Gln Asp Arg Gln Glu Ala Phe Glu Arg Phe Ser Leu Glu Glu Val
260 265 270
Glu Arg Leu Glu Arg Asp Leu Glu Lys Lys Met Ile Glu Thr Glu Glu
275 280 285
Leu Lys Ser Lys Gln Thr Arg Phe Leu Glu Glu Ile Lys Asn Gln Asp

290 295 300
Lys Leu Asn Lys Ser Leu Lys Glu Glu Ala Met Leu Gln Lys Gln Ser
305 310 315 320
Cys Glu Glu Leu Lys Ser Asp Leu Asn Thr Lys Asn Glu Leu Leu Lys
325 330 335
Gln Lys Thr Ile Glu Leu Thr Arg Ala Cys Gln Lys Gln Tyr Glu Leu
340 345 350
Glu Gln Glu Leu Ala Phe Tyr Lys Ile Asp Ala Lys Phe Glu Pro Leu

355 360 365

Asn Tyr Tyr Pro Ser Glu Tyr Ala Glu Ile Asp Lys Ala Pro Asp Glu
370 375 380
Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala Thr
385 390 395 400
Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys Met
405 410 415
Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly His
420 425 430
Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser Ala

435 440 445
Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala Glu
450 455 460
Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu Ala
465 470 475 480
Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr Lys
485 490 495
Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu Ala
500 505 510

Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala Gly
515 520 525
Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu Asp
530 535 540
Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly Lys
545 550 555 560
Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu Ser
565 570 575
Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu Ile

580 585 590
Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn Glu
595 600 605

Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu Tyr
610 615 620
Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys Arg
625 630 635 640
Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu Val
645 650 655

Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu Asn
660 665 670
Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln His
675 680 685
Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala Tyr
690 695 700
Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala Asn
705 710 715 720
Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu Glu
725 730 735
Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu Lys
740 745 750
Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu Asn
755 760 765
Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn Leu
770 775 780
Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val Val
785 790 795 800

Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu Leu
805 810 815
Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser Pro
820 825 830
Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe Ser
835 840 845
Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val Arg
850 855 860

Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu Ala

865 870 875 880

Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu Ala

885 890 895

Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln Met

900 905 910

Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu Glu

915 920 925

Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu Lys

930 935 940

Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys Leu

945 950 955 960

Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu Leu

965 970 975

Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr Ala

980 985 990

Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr Val

995 1000 1005

Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu Arg

1010 1015 1020

Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala Glu

1025 1030 1035 1040

Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu Gln

1045 1050 1055

Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn Ser

1060 1065 1070

Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln Arg

1075 1080 1085

Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser Asp

1090 1095 1100

Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu Arg

1105 1110 1115 1120

Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp Pro

1125 1130 1135

Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser Ser

1140 1145 1150

Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val Gly

1155 1160 1165

Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly Gln

1170 1175 1180

Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr Trp

1185 1190 1195 1200

Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser Arg

1205 1210 1215

Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp Asp

1220 1225 1230

Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr Thr

1235 1240 1245

Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr Ala

1250 1255 1260

Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly Thr

1265 1270 1275 1280

Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly Pro

1285 1290 1295

Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu His

1300 1305 1310

Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg Leu

1315 1320 1325

Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg Trp

1330 1335 1340

Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu His

1345 1350 1355 1360

His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys Glu

1365 1370 1375

Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys Asp
1380 1385 1390
Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile Glu
1395 1400 1405
Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys Ile
1410 1415 1420
Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp Arg
1425 1430 1435 1440
Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys Phe

1445 1450 1455
Leu Phe

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<211> 2133
<212> PRT
<213> Homo sapiens
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Met Cys Asn Leu Gln Lys Leu Asn Leu Ala Gly Asn Glu Ile Glu His
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Ile Pro Val Trp Leu Gly Lys Lys Leu Lys Ser Leu Arg Val Leu Asn
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Leu Lys Gly Asn Lys Ile Ser Ser Leu Gln Asp Ile Ser Lys Leu Lys
35 40 45

Pro Leu Gln Asp Leu Ile Ser Leu Ile Leu Val Glu Asn Pro Val Val
50 55 60
Thr Leu Pro His Tyr Leu Gln Phe Thr Ile Phe His Leu Arg Ser Leu
65 70 75 80
Glu Ser Leu Glu Gly Gln Pro Val Thr Thr Gln Asp Arg Gln Glu Ala
85 90 95
Phe Glu Arg Phe Ser Leu Glu Glu Val Glu Arg Leu Glu Arg Asp Leu
100 105 110

Glu Lys Lys Met Ile Glu Thr Glu Glu Leu Lys Ser Lys Gln Thr Arg

115 120 125

Phe Leu Glu Glu Ile Lys Asn Gln Asp Lys Leu Asn Lys Ser Leu Lys

130 135 140

Glu Glu Ala Met Leu Gln Lys Gln Ser Cys Glu Glu Leu Lys Ser Asp

145 150 155 160

Leu Asn Thr Lys Asn Glu Leu Tyr Ala Glu Ile Asp Lys Ala Pro Asp

165 170 175

Glu Ser Pro Tyr Ile Gly Lys Ser Arg Tyr Lys Arg Asn Met Phe Ala

180 185 190

Thr Glu Ser Tyr Ile Ile Asp Ser Ala Gln Ala Val Gln Ile Lys Lys

195 200 205

Met Glu Pro Asp Glu Gln Leu Arg Asn Asp His Met Asn Leu Arg Gly

210 215 220

His Thr Pro Leu Asp Thr Gln Leu Glu Asp Lys Glu Lys Lys Ile Ser

225 230 235 240

Ala Ala Gln Thr Arg Leu Ser Glu Leu His Asp Glu Ile Glu Lys Ala

245 250 255

Glu Gln Gln Ile Leu Arg Ala Thr Glu Glu Phe Lys Gln Leu Glu Glu

260 265 270

Ala Ile Gln Leu Lys Lys Ile Ser Glu Ala Gly Lys Asp Leu Leu Tyr

275 280 285

Lys Gln Leu Ser Gly Arg Leu Gln Leu Val Asn Lys Leu Arg Gln Glu

290 295 300

Ala Leu Asp Leu Glu Leu Gln Met Glu Lys Gln Lys Gln Glu Ile Ala

305 310 315 320

Gly Lys Gln Lys Glu Ile Lys Asp Leu Gln Ile Ala Ile Asp Ser Leu

325 330 335

Asp Ser Lys Asp Pro Lys His Ser His Met Lys Ala Gln Lys Ser Gly

340 345 350

Lys Glu Gln Gln Leu Asp Ile Met Asn Lys Gln Tyr Gln Gln Leu Glu

355 360 365

Ser Arg Leu Asp Glu Ile Leu Ser Arg Ile Ala Lys Glu Thr Glu Glu

370 375 380

Ile Lys Asp Leu Glu Glu Gln Leu Thr Glu Gly Gln Ile Ala Ala Asn

385 390 395 400

Glu Ala Leu Lys Lys Asp Leu Glu Gly Val Ile Ser Gly Leu Gln Glu

405 410 415

Tyr Leu Gly Thr Ile Lys Gly Gln Ala Thr Gln Ala Gln Asn Glu Cys

420 425 430

Arg Lys Leu Arg Asp Glu Lys Glu Thr Leu Leu Gln Arg Leu Thr Glu

435 440 445

Val Glu Gln Glu Arg Asp Gln Leu Glu Ile Val Ala Met Asp Ala Glu

450 455 460

Asn Met Arg Lys Glu Leu Ala Glu Leu Glu Ser Ala Leu Gln Glu Gln

465 470 475 480

His Glu Val Asn Ala Ser Leu Gln Gln Thr Gln Gly Asp Leu Ser Ala

485 490 495

Tyr Glu Ala Glu Leu Glu Ala Arg Leu Asn Leu Arg Asp Ala Glu Ala

500 505 510

Asn Gln Leu Lys Glu Glu Leu Glu Lys Val Thr Arg Leu Thr Gln Leu

515 520 525

Glu Gln Ser Ala Leu Gln Ala Glu Leu Glu Lys Glu Arg Gln Ala Leu

530 535 540

Lys Asn Ala Leu Gly Lys Ala Gln Phe Ser Glu Glu Lys Glu Gln Glu

545 550 555 560

Asn Ser Glu Leu His Ala Lys Leu Lys His Leu Gln Asp Asp Asn Asn

565 570 575

Leu Leu Lys Gln Gln Leu Lys Asp Phe Gln Asn His Leu Asn His Val

580 585 590

Val Asp Gly Leu Val Arg Pro Glu Glu Val Ala Ala Arg Val Asp Glu

595 600 605

Leu Arg Arg Lys Leu Lys Leu Gly Thr Gly Glu Met Asn Ile His Ser

610 615 620

Pro Ser Asp Val Leu Gly Lys Ser Leu Ala Asp Leu Gln Lys Gln Phe
625 630 635 640
Ser Glu Ile Leu Ala Arg Ser Lys Trp Glu Arg Asp Glu Ala Gln Val
645 650 655
Arg Glu Arg Lys Leu Gln Glu Glu Met Ala Leu Gln Gln Glu Lys Leu
660 665 670
Ala Thr Gly Gln Glu Glu Phe Arg Gln Ala Cys Glu Arg Ala Leu Glu
675 680 685
Ala Arg Met Asn Phe Asp Lys Arg Gln His Glu Ala Arg Ile Gln Gln

690 695 700
Met Glu Asn Glu Ile His Tyr Leu Gln Glu Asn Leu Lys Ser Met Glu
705 710 715 720
Glu Ile Gln Gly Leu Thr Asp Leu Gln Leu Gln Glu Ala Asp Glu Glu
725 730 735
Lys Glu Arg Ile Leu Ala Gln Leu Arg Glu Leu Glu Lys Lys Lys Lys
740 745 750
Leu Glu Asp Ala Lys Ser Gln Glu Gln Val Phe Gly Leu Asp Lys Glu
755 760 765

Leu Lys Lys Leu Lys Lys Ala Val Ala Thr Ser Asp Lys Leu Ala Thr
770 775 780
Ala Glu Leu Thr Ile Ala Lys Asp Gln Leu Lys Ser Leu His Gly Thr
785 790 795 800
Val Met Lys Ile Asn Gln Glu Arg Ala Glu Glu Leu Gln Glu Ala Glu
805 810 815
Arg Phe Ser Arg Lys Ala Ala Gln Ala Ala Arg Asp Leu Thr Arg Ala
820 825 830
Glu Ala Glu Ile Glu Leu Leu Gln Asn Leu Leu Arg Gln Lys Gly Glu

835 840 845
Gln Phe Arg Leu Glu Met Glu Lys Thr Gly Val Gly Thr Gly Ala Asn
850 855 860

Ser Gln Val Leu Glu Ile Glu Lys Leu Asn Glu Thr Met Glu Arg Gln
865 870 875 880
Arg Thr Glu Ile Ala Arg Leu Gln Asn Val Leu Asp Leu Thr Gly Ser
885 890 895
Asp Asn Lys Gly Gly Phe Glu Asn Val Leu Glu Glu Ile Ala Glu Leu
900 905 910

Arg Arg Glu Val Ser Tyr Gln Asn Asp Tyr Ile Ser Ser Met Ala Asp
915 920 925
Pro Phe Lys Arg Arg Gly Tyr Trp Tyr Phe Met Pro Pro Pro Pro Ser
930 935 940
Ser Lys Val Ser Ser His Ser Ser Gln Ala Thr Lys Asp Ser Gly Val
945 950 955 960
Gly Leu Lys Tyr Ser Ala Ser Thr Pro Val Arg Lys Pro Arg Pro Gly
965 970 975
Gln Gln Asp Gly Lys Glu Gly Ser Gln Pro Pro Pro Ala Ser Gly Tyr

980 985 990
Trp Val Tyr Ser Pro Ile Arg Ser Gly Leu His Lys Leu Phe Pro Ser
995 1000 1005
Arg Asp Ala Asp Ser Gly Gly Asp Ser Gln Glu Glu Ser Glu Leu Asp
1010 1015 1020
Asp Gln Glu Glu Pro Pro Phe Val Pro Pro Pro Gly Tyr Met Met Tyr
1025 1030 1035 1040
Thr Val Leu Pro Asp Gly Ser Pro Val Pro Gln Gly Met Ala Leu Tyr
1045 1050 1055

Ala Pro Pro Pro Pro Leu Pro Asn Asn Ser Arg Pro Leu Thr Pro Gly
1060 1065 1070
Thr Val Val Tyr Gly Pro Pro Pro Ala Gly Ala Pro Met Val Tyr Gly
1075 1080 1085
Pro Pro Pro Pro Asn Phe Ser Ile Pro Phe Ile Pro Met Gly Val Leu
1090 1095 1100
His Cys Asn Val Pro Glu His His Asn Leu Glu Asn Glu Val Ser Arg
1105 1110 1115 1120

Leu Glu Asp Ile Met Gln His Leu Lys Ser Lys Lys Arg Glu Glu Arg

1125 1130 1135

Trp Met Arg Ala Ser Lys Arg Gln Ser Glu Lys Glu Met Glu Glu Leu

1140 1145 1150

His His Asn Ile Asp Asp Leu Leu Gln Glu Lys Lys Ser Leu Glu Cys

1155 1160 1165

Glu Val Glu Glu Leu His Arg Thr Val Gln Lys Arg Gln Gln Gln Lys

1170 1175 1180

Asp Phe Ile Asp Gly Asn Val Glu Ser Leu Met Thr Glu Leu Glu Ile

1185 1190 1195 1200

Glu Lys Ser Leu Lys His His Glu Asp Ile Val Asp Glu Ile Glu Cys

1205 1210 1215

Ile Glu Lys Thr Leu Leu Lys Arg Arg Ser Glu Leu Arg Glu Ala Asp

1220 1225 1230

Arg Leu Leu Ala Glu Ala Glu Ser Glu Leu Ser Cys Thr Lys Glu Lys

1235 1240 1245

Thr Lys Asn Ala Val Glu Lys Phe Thr Asp Ala Lys Arg Ser Leu Leu

1250 1255 1260

Gln Thr Glu Ser Asp Ala Glu Glu Leu Glu Arg Arg Ala Gln Glu Thr

1265 1270 1275 1280

Ala Val Asn Leu Val Lys Ala Asp Gln Gln Leu Arg Ser Leu Gln Ala

1285 1290 1295

Asp Ala Lys Asp Leu Glu Gln His Lys Ile Lys Gln Glu Glu Ile Leu

1300 1305 1310

Lys Glu Ile Asn Lys Ile Val Ala Ala Lys Asp Ser Asp Phe Gln Cys

1315 1320 1325

Leu Ser Lys Lys Lys Glu Lys Leu Thr Glu Glu Leu Gln Lys Leu Gln

1330 1335 1340

Lys Asp Ile Glu Met Ala Glu Arg Asn Glu Asp His His Leu Gln Val

1345 1350 1355 1360

Leu Lys Glu Ser Glu Val Leu Leu Gln Ala Lys Arg Ala Glu Leu Glu

1365 1370 1375

Lys Leu Lys Ser Gln Val Thr Ser Gln Gln Gln Glu Met Ala Val Leu

1380 1385 1390

Asp Arg Gln Leu Gly His Lys Lys Glu Glu Leu His Leu Leu Gln Gly

1395 1400 1405

Ser Met Val Gln Ala Lys Ala Asp Leu Gln Glu Ala Leu Arg Leu Gly

1410 1415 1420

Glu Thr Glu Val Thr Glu Lys Cys Asn His Ile Arg Glu Val Lys Ser

1425 1430 1435 1440

Leu Leu Glu Glu Leu Ser Phe Gln Lys Gly Glu Leu Asn Val Gln Ile

1445 1450 1455

Ser Glu Arg Lys Thr Gln Leu Thr Leu Ile Lys Gln Glu Ile Glu Lys

1460 1465 1470

Glu Glu Glu Asn Leu Gln Val Val Leu Arg Gln Met Ser Lys His Lys

1475 1480 1485

Thr Glu Leu Lys Asn Ile Leu Asp Met Leu Gln Leu Glu Asn His Glu

1490 1495 1500

Leu Gln Gly Leu Lys Leu Gln His Asp Gln Arg Val Ser Glu Leu Glu

1505 1510 1515 1520

Lys Thr Gln Val Ala Val Leu Glu Glu Lys Leu Glu Leu Glu Asn Leu

1525 1530 1535

Gln Gln Ile Ser Gln Gln Gln Lys Gly Glu Ile Glu Trp Gln Lys Gln

1540 1545 1550

Leu Leu Glu Arg Asp Lys Arg Glu Ile Glu Arg Met Thr Ala Glu Ser

1555 1560 1565

Arg Ala Leu Gln Ser Cys Val Glu Cys Leu Ser Lys Glu Lys Glu Asp

1570 1575 1580

Leu Gln Glu Lys Cys Asp Ile Trp Glu Lys Lys Leu Ala Gln Thr Lys

1585 1590 1595 1600

Arg Val Leu Ala Ala Ala Glu Glu Asn Ser Lys Met Glu Gln Ser Asn

1605 1610 1615

Leu Glu Lys Leu Glu Leu Asn Val Arg Lys Leu Gln Gln Glu Leu Asp

1620 1625 1630

Gln Leu Asn Arg Asp Lys Leu Ser Leu His Asn Asp Ile Ser Ala Met

1635 1640 1645

Gln Gln Gln Leu Gln Glu Lys Arg Glu Ala Val Asn Ser Leu Gln Glu

1650 1655 1660

Glu Leu Ala Asn Val Gln Asp His Leu Asn Leu Ala Lys Gln Asp Leu

1665 1670 1675 1680

Leu His Thr Thr Lys His Gln Asp Val Leu Leu Ser Glu Gln Thr Arg

1685 1690 1695

Leu Gln Lys Asp Ile Ser Glu Trp Ala Asn Arg Phe Glu Asp Cys Gln

1700 1705 1710

Lys Glu Glu Glu Thr Lys Gln Gln Gln Leu Gln Val Leu Gln Asn Glu

1715 1720 1725

Ile Glu Glu Asn Lys Leu Lys Leu Val Gln Gln Glu Met Met Phe Gln

1730 1735 1740

Arg Leu Gln Lys Glu Arg Glu Ser Glu Glu Ser Lys Leu Glu Thr Ser

1745 1750 1755 1760

Lys Val Thr Leu Lys Glu Gln Gln His Gln Leu Glu Lys Glu Leu Thr

1765 1770 1775

Asp Gln Lys Ser Lys Leu Asp Gln Val Leu Ser Lys Val Leu Ala Ala

1780 1785 1790

Glu Glu Arg Val Arg Thr Leu Gln Glu Glu Glu Arg Trp Cys Glu Ser

1795 1800 1805

Leu Glu Lys Thr Leu Ser Gln Thr Lys Arg Gln Leu Ser Glu Arg Glu

1810 1815 1820

Gln Gln Leu Val Glu Lys Ser Gly Glu Leu Leu Ala Leu Gln Lys Glu

1825 1830 1835 1840

Ala Asp Ser Met Arg Ala Asp Phe Ser Leu Leu Arg Asn Gln Phe Leu

1845 1850 1855

Thr Glu Arg Lys Lys Ala Glu Lys Gln Val Ala Ser Leu Lys Glu Ala

1860 1865 1870

Leu Lys Ile Gln Arg Ser Gln Leu Glu Lys Asn Leu Leu Thr Ile Asn
1875 1880 1885

Glu Asp Ser Glu Arg Asp Ser Ser Leu Leu Ser Lys Glu Gln Lys Gln
1890 1895 1900

Glu Asn Ser Cys Ile Gln Lys Glu Met Ala Thr Ile Glu Leu Val Ala
1905 1910 1915 1920

Gln Asp Asn His Glu Arg Ala Arg Arg Leu Met Lys Glu Leu Asn Gln
1925 1930 1935

Met Gln Tyr Glu Tyr Thr Glu Leu Lys Lys Gln Met Ala Asn Gln Lys
1940 1945 1950

Asp Leu Glu Arg Arg Gln Met Glu Ile Ser Asp Ala Met Arg Thr Leu
1955 1960 1965

Lys Ser Glu Val Lys Asp Glu Ile Arg Thr Ser Leu Lys Asn Leu Asn
1970 1975 1980

Gln Phe Leu Pro Glu Leu Pro Ala Asp Leu Glu Ala Ile Leu Glu Arg

1985 1990 1995 2000

Asn Glu Asn Leu Glu Gly Glu Leu Glu Ser Leu Lys Glu Asn Leu Pro
2005 2010 2015

Phe Thr Met Asn Glu Gly Pro Phe Glu Glu Lys Leu Asn Phe Ser Gln
2020 2025 2030

Val His Ile Met Asp Glu His Trp Arg Gly Glu Ala Leu Arg Glu Lys
2035 2040 2045

Leu Arg His Arg Glu Asp Arg Leu Lys Ala Gln Leu Arg His Cys Met
2050 2055 2060

Ser Lys Gln Ala Glu Val Leu Ile Lys Gly Lys Arg Gln Thr Glu Gly
2065 2070 2075 2080

Thr Leu His Ser Leu Arg Arg Gln Val Asp Ala Leu Gly Glu Leu Val
2085 2090 2095

Thr Ser Thr Ser Ala Asp Ser Ala Ser Ser Pro Ser Leu Ser Gln Leu
2100 2105 2110

Glu Ser Ser Leu Thr Glu Asp Ser Gln Leu Gly Gln Asn Gln Glu Lys
2115 2120 2125

Asn Ala Ser Ala Arg

2130

<210> 142

<211> 178

<212> PRT

<213> Homo sapiens

<400> 142

Met Pro Ala Tyr His Ser Ser Leu Met Asp Pro Asp Thr Lys Leu Ile
1 5 10 15

Gly Asn Met Ala Leu Leu Pro Ile Arg Ser Gln Phe Lys Gly Pro Ala
20 25 30

Pro Arg Glu Thr Lys Asp Thr Asp Ile Val Asp Glu Ala Ile Tyr Tyr
35 40 45

Phe Lys Ala Asn Val Phe Phe Lys Asn Tyr Glu Ile Lys Asn Glu Ala

50 55 60

Asp Arg Thr Leu Ile Tyr Ile Thr Leu Tyr Ile Ser Glu Cys Leu Lys
65 70 75 80

Lys Leu Gln Lys Cys Asn Ser Lys Ser Gln Gly Glu Lys Glu Met Tyr
85 90 95

Thr Leu Gly Ile Thr Asn Phe Pro Ile Pro Gly Glu Pro Gly Phe Pro
100 105 110

Leu Asn Ala Ile Tyr Ala Lys Pro Ala Asn Lys Gln Glu Asp Glu Val
115 120 125

Met Arg Ala Tyr Leu Gln Gln Leu Arg Gln Glu Thr Gly Leu Arg Leu
130 135 140

Cys Glu Lys Val Phe Asp Pro Gln Asn Asp Lys Pro Ser Lys Trp Trp
145 150 155 160

Thr Cys Phe Val Lys Arg Gln Phe Met Asn Lys Ser Leu Ser Gly Pro
165 170 175

Gly Gln

<210> 143

<211> 177

<212> PRT

<213> Homo sapiens

<400> 143

Met Pro Ala Tyr His Ser Ser Leu Met Asp Pro Asp Thr Lys Leu Ile

1 5 10 15

Gly Asn Met Ala Leu Leu Pro Ile Arg Ser Gln Phe Lys Gly Pro Ala

20 25 30

Pro Arg Glu Thr Lys Asp Thr Asp Ile Val Asp Glu Ala Ile Tyr Tyr

35 40 45

Phe Lys Ala Asn Val Phe Phe Lys Asn Tyr Glu Ile Lys Asn Glu Ala

50 55 60

Asp Arg Thr Leu Ile Tyr Ile Thr Leu Tyr Ile Ser Glu Cys Leu Lys

65 70 75 80

Lys Leu Gln Lys Cys Asn Ser Lys Ser Gln Gly Glu Lys Glu Met Tyr

85 90 95

Thr Leu Gly Ile Thr Asn Phe Pro Ile Pro Gly Glu Pro Gly Phe Pro

100 105 110

Leu Asn Ala Ile Tyr Ala Lys Pro Ala Asn Lys Gln Glu Asp Val Met

115 120 125

Arg Ala Tyr Leu Gln Gln Leu Arg Gln Glu Thr Gly Leu Arg Leu Cys

130 135 140

Glu Lys Val Phe Asp Pro Gln Asn Asp Lys Pro Ser Lys Trp Trp Thr

145 150 155 160

Cys Phe Val Lys Arg Gln Phe Met Asn Lys Ser Leu Ser Gly Pro Gly

165 170 175

Gln

<210> 144

<211> 275

<212> PRT

<213> Homo sapiens

<400> 144

Met Trp Arg Ala Gly Ser Met Ser Ala Glu Leu Gly Val Gly Cys Ala
1 5 10 15

Leu Arg Ala Val Asn Glu Arg Val Gln Gln Ala Val Ala Arg Arg Pro
20 25 30

Arg Asp Leu Pro Ala Ile Gln Pro Arg Leu Val Ala Val Ser Lys Thr
35 40 45

Lys Pro Ala Asp Met Val Ile Glu Ala Tyr Gly His Gly Gln Arg Thr
50 55 60

Phe Gly Glu Asn Tyr Val Gln Glu Leu Leu Glu Lys Ala Ser Asn Pro
65 70 75 80

Lys Ile Leu Ser Leu Cys Pro Glu Ile Lys Trp His Phe Ile Gly His
85 90 95

Leu Gln Lys Gln Asn Val Asn Lys Leu Met Ala Val Pro Asn Leu Phe
100 105 110

Met Leu Glu Thr Val Asp Ser Val Lys Leu Ala Asp Lys Val Asn Ser
115 120 125

Ser Trp Gln Arg Lys Gly Ser Pro Glu Arg Leu Lys Val Met Val Gln
130 135 140

Ile Asn Thr Ser Gly Glu Glu Ser Lys His Gly Leu Pro Pro Ser Glu
145 150 155 160

Thr Ile Ala Ile Val Glu His Ile Asn Ala Lys Cys Pro Asn Leu Glu
165 170 175

Phe Val Gly Leu Met Thr Ile Gly Ser Phe Gly His Asp Leu Ser Gln
180 185 190

Gly Pro Asn Pro Asp Phe Gln Leu Leu Leu Ser Leu Arg Glu Glu Leu
195 200 205

Cys Lys Lys Leu Asn Ile Pro Ala Asp Gln Val Glu Leu Ser Met Gly
210 215 220

Met Ser Ala Asp Phe Gln His Ala Val Glu Val Gly Ser Thr Asn Val
225 230 235 240

Arg Ile Gly Ser Thr Ile Phe Gly Glu Arg Asp Tyr Ser Lys Lys Pro

245 250 255

Thr Pro Asp Lys Cys Ala Ala Asp Val Lys Ala Pro Leu Glu Val Ala

260 265 270

Gln Glu His

275

<210> 145

<211> 285

<212> PRT

<213> Homo sapiens

<400> 145

Met Trp Arg Ala Gly Ser Met Ser Ala Glu Leu Gly Val Gly Cys Ala

1 5 10 15

Leu Arg Ala Val Asn Glu Arg Val Gln Gln Ala Val Ala Arg Arg Pro

20 25 30

Arg Asp Leu Pro Ala Ile Gln Pro Arg Leu Val Ala Val Ser Lys Thr

35 40 45

Lys Pro Ala Asp Met Val Ile Glu Ala Tyr Gly His Gly Gln Arg Thr

50 55 60

Phe Gly Glu Asn Tyr Val Gln Glu Leu Leu Glu Lys Ala Ser Asn Pro

65 70 75 80

Lys Ile Leu Ser Leu Cys Pro Glu Ile Lys Trp His Phe Ile Gly His

85 90 95

Leu Gln Lys Gln Asn Val Asn Lys Leu Met Ala Val Pro Asn Leu Phe

100 105 110

Met Leu Glu Thr Val Asp Ser Val Lys Leu Ala Asp Lys Val Asn Ser

115 120 125

Ser Trp Gln Arg Lys Gly Ser Pro Glu Arg Leu Lys Val Met Val Gln

130 135 140

Ile Asn Thr Ser Gly Glu Glu Ile Tyr Leu Phe Ser Val Ser Phe Leu

145 150 155 160

Glu Gly Lys His Gly Leu Pro Pro Ser Glu Thr Ile Ala Ile Val Glu

165 170 175

His Ile Asn Ala Lys Cys Pro Asn Leu Glu Phe Val Gly Leu Met Thr

180 185 190

Ile Gly Ser Phe Gly His Asp Leu Ser Gln Gly Pro Asn Pro Asp Phe

195 200 205

Gln Leu Leu Leu Ser Leu Arg Glu Glu Leu Cys Lys Lys Leu Asn Ile

210 215 220

Pro Ala Asp Gln Val Glu Leu Ser Met Gly Met Ser Ala Asp Phe Gln

225 230 235 240

His Ala Val Glu Val Gly Ser Thr Asn Val Arg Ile Gly Ser Thr Ile

245 250 255

Phe Gly Glu Arg Asp Tyr Ser Lys Lys Pro Thr Pro Asp Lys Cys Ala

260 265 270

Ala Asp Val Lys Ala Pro Leu Glu Val Ala Gln Glu His

275 280 285

<210> 146

<211> 273

<212> PRT

<213> Homo sapiens

<400> 146

Met Trp Arg Ala Gly Ser Met Ser Ala Glu Leu Gly Val Gly Cys Ala

1 5 10 15

Leu Arg Ala Val Asn Glu Arg Val Gln Gln Ala Val Ala Arg Arg Pro

20 25 30

Arg Asp Leu Pro Ala Ile Gln Pro Arg Leu Val Ala Val Ser Lys Thr

35 40 45

Lys Pro Ala Asp Met Val Ile Glu Ala Tyr Gly His Gly Gln Arg Thr

50 55 60

Phe Gly Glu Asn Tyr Glu Leu Leu Glu Lys Ala Ser Asn Pro Lys Ile

65 70 75 80

Leu Ser Leu Cys Pro Glu Ile Lys Trp His Phe Ile Gly His Leu Gln

85 90 95

Lys Gln Asn Val Asn Lys Leu Met Ala Val Pro Asn Leu Phe Met Leu
100 105 110
Glu Thr Val Asp Ser Val Lys Leu Ala Asp Lys Val Asn Ser Ser Trp
115 120 125
Gln Arg Lys Gly Ser Pro Glu Arg Leu Lys Val Met Val Gln Ile Asn
130 135 140
Thr Ser Gly Glu Glu Ser Lys His Gly Leu Pro Pro Ser Glu Thr Ile
145 150 155 160
Ala Ile Val Glu His Ile Asn Ala Lys Cys Pro Asn Leu Glu Phe Val

165 170 175
Gly Leu Met Thr Ile Gly Ser Phe Gly His Asp Leu Ser Gln Gly Pro
180 185 190
Asn Pro Asp Phe Gln Leu Leu Leu Ser Leu Arg Glu Glu Leu Cys Lys
195 200 205
Lys Leu Asn Ile Pro Ala Asp Gln Val Glu Leu Ser Met Gly Met Ser
210 215 220
Ala Asp Phe Gln His Ala Val Glu Val Gly Ser Thr Asn Val Arg Ile
225 230 235 240

Gly Ser Thr Ile Phe Gly Glu Arg Asp Tyr Ser Lys Lys Pro Thr Pro
245 250 255
Asp Lys Cys Ala Ala Asp Val Lys Ala Pro Leu Glu Val Ala Gln Glu
260 265 270
His

<210> 147
<211> 223
<212> PRT
<213> Homo sapiens
<400> 147
Met Val Ile Glu Ala Tyr Gly His Gly Gln Arg Thr Phe Gly Glu Asn
1 5 10 15

Tyr Val Gln Glu Leu Leu Glu Lys Ala Ser Asn Pro Lys Ile Leu Ser

20 25 30

Leu Cys Pro Glu Ile Lys Trp His Phe Ile Gly His Leu Gln Lys Gln

35 40 45

Asn Val Asn Lys Leu Met Ala Val Pro Asn Leu Phe Met Leu Glu Thr

50 55 60

Val Asp Ser Val Lys Leu Ala Asp Lys Val Asn Ser Ser Trp Gln Arg

65 70 75 80

Lys Gly Ser Pro Glu Arg Leu Lys Val Met Val Gln Ile Asn Thr Ser

85 90 95

Gly Glu Glu Ser Lys His Gly Leu Pro Pro Ser Glu Thr Ile Ala Ile

100 105 110

Val Glu His Ile Asn Ala Lys Cys Pro Asn Leu Glu Phe Val Gly Leu

115 120 125

Met Thr Ile Gly Ser Phe Gly His Asp Leu Ser Gln Gly Pro Asn Pro

130 135 140

Asp Phe Gln Leu Leu Leu Ser Leu Arg Glu Glu Leu Cys Lys Lys Leu

145 150 155 160

Asn Ile Pro Ala Asp Gln Val Glu Leu Ser Met Gly Met Ser Ala Asp

165 170 175

Phe Gln His Ala Val Glu Val Gly Ser Thr Asn Val Arg Ile Gly Ser

180 185 190

Thr Ile Phe Gly Glu Arg Asp Tyr Ser Lys Lys Pro Thr Pro Asp Lys

195 200 205

Cys Ala Ala Asp Val Lys Ala Pro Leu Glu Val Ala Gln Glu His

210 215 220

<210> 148

<211> 158

<212> PRT

<213> Homo sapiens

<400> 148

Met Met Ser Asn Asp Trp Phe Thr Arg Arg Lys Leu Gly Gly Thr Gly

1 5 10 15

Arg Trp Cys Glu Pro Arg Ala Ala Gly Gly Leu Gly Leu Gly Val Gly

20 25 30

Pro Arg Gly Met Trp Arg Ala Gly Ser Met Ser Ala Glu Leu Gly Val

35 40 45

Gly Cys Ala Leu Arg Ala Val Asn Glu Arg Val Gln Gln Ala Val Ala

50 55 60

Arg Arg Pro Arg Asp Leu Pro Ala Ile Gln Pro Arg Leu Val Ala Val

65 70 75 80

Ser Lys Thr Lys Pro Ala Asp Met Val Ile Glu Ala Tyr Gly His Gly

85 90 95

Gln Arg Thr Phe Gly Glu Asn Tyr Val Gln Glu Leu Leu Glu Lys Ala

100 105 110

Ser Asn Pro Lys Ile Leu Ser Leu Cys Pro Glu Ile Lys Trp His Phe

115 120 125

Ile Gly His Leu Gln Lys Gln Asn Val Asn Lys Leu Met Gly Lys Ser

130 135 140

Glu Phe Leu Ile Lys Arg Glu Asn Ile Met Pro Arg Thr Glu

145 150 155

<210> 149

<211> 526

<212> PRT

<213> Homo sapiens

<400> 149

Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile Thr Cys Asp Asn Glu Leu

1 5 10 15

Ser Pro Glu Arg Glu His Ser Asn Met Ala Ile Asp Leu Thr Ser Ser

20 25 30

Thr Pro Asn Gly Gln His Ala Ser Pro Ser His Met Thr Ser Thr Asn

35 40 45

Ser Val Lys Leu Glu Met Gln Ser Asp Glu Glu Cys Asp Arg Lys Pro
50 55 60
Leu Ser Arg Glu Asp Glu Ile Arg Gly His Asp Glu Gly Ser Ser Leu
65 70 75 80
Glu Glu Pro Leu Ile Glu Ser Ser Glu Val Ala Asp Asn Arg Lys Val
85 90 95
Gln Glu Leu Gln Gly Glu Gly Gly Ile Arg Leu Pro Asn Gly Lys Leu
100 105 110
Lys Cys Asp Val Cys Gly Met Val Cys Ile Gly Pro Asn Val Leu Met

115 120 125
Val His Lys Arg Ser His Thr Gly Glu Arg Pro Phe His Cys Asn Gln
130 135 140
Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys
145 150 155 160
Leu His Ser Gly Glu Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala
165 170 175
Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val
180 185 190

Gly Lys Pro His Lys Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg
195 200 205
Ser Ser Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn
210 215 220
Val Ser Met Glu Ala Ala Gly Gln Val Met Ser His His Val Pro Pro
225 230 235 240
Met Glu Asp Cys Lys Glu Gln Glu Pro Ile Met Asp Asn Asn Ile Ser
245 250 255
Leu Val Pro Phe Glu Arg Pro Ala Val Ile Glu Lys Leu Thr Gly Asn

260 265 270
Met Gly Lys Arg Lys Ser Ser Thr Pro Gln Lys Phe Val Gly Glu Lys
275 280 285
Leu Met Arg Phe Ser Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr
290 295 300

Tyr Glu Lys Glu Ala Glu Leu Met Gln Ser His Met Met Asp Gln Ala
305 310 315 320
Ile Asn Asn Ala Ile Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu
325 330 335

Met Gln His Pro Pro Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser
340 345 350
Ser Ala Tyr Ser Gln Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile
355 360 365
Ser Arg Glu Thr Ala Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile
370 375 380
Ser Leu Ile Arg Pro Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro
385 390 395 400
Ser Asn Ser Cys Leu Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp

405 410 415
His Gln Ser Tyr Gln Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln
420 425 430
Ser Pro Ala Tyr Met Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys
435 440 445
Ala Pro Lys Gly Ser Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu
450 455 460
Gly Glu Gln Ile Arg Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe
465 470 475 480

Leu Asp His Val Met Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg
485 490 495
Asp Pro Leu Glu Cys Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr
500 505 510
Glu Phe Ser Ser His Ile Val Arg Gly Glu His Thr Phe His
515 520 525
<210> 150
<211> 500
<212> PRT
<213> Homo sapiens

<400> 150

Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile Thr Cys Asp Asn Glu Leu

1 5 10 15

Ser Pro Glu Arg Glu His Ser Asn Met Ala Ile Asp Leu Thr Ser Ser

20 25 30

Thr Pro Asn Gly Gln His Ala Ser Pro Ser His Met Thr Ser Thr Asn

35 40 45

Ser Val Lys Leu Glu Met Gln Ser Asp Glu Glu Cys Asp Arg Lys Pro

50 55 60

Leu Ser Arg Glu Asp Glu Ile Arg Gly His Asp Glu Gly Ser Ser Leu

65 70 75 80

Glu Glu Pro Leu Ile Glu Ser Ser Glu Val Ala Asp Asn Arg Lys Val

85 90 95

Gln Glu Leu Gln Gly Glu Gly Gly Ile Arg Leu Pro Asn Gly Glu Arg

100 105 110

Pro Phe His Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn

115 120 125

Leu Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys

130 135 140

Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His

145 150 155 160

Leu Arg Thr His Ser Val Gly Lys Pro His Lys Cys Asn Tyr Cys Gly

165 170 175

Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys

180 185 190

His Asn Tyr Leu Gln Asn Val Ser Met Glu Ala Ala Gly Gln Val Met

195 200 205

Ser His His Val Pro Pro Met Glu Asp Cys Lys Glu Gln Glu Pro Ile

210 215 220

Met Asp Asn Asn Ile Ser Leu Val Pro Phe Glu Arg Pro Ala Val Ile

225 230 235 240

Glu Lys Leu Thr Gly Asn Met Gly Lys Arg Lys Ser Ser Thr Pro Gln
245 250 255
Lys Phe Val Gly Glu Lys Leu Met Arg Phe Ser Tyr Pro Asp Ile His
260 265 270
Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu Ala Glu Leu Met Gln Ser
275 280 285
His Met Met Asp Gln Ala Ile Asn Asn Ala Ile Thr Tyr Leu Gly Ala

290 295 300
Glu Ala Leu His Pro Leu Met Gln His Pro Pro Ser Thr Ile Ala Glu
305 310 315 320
Val Ala Pro Val Ile Ser Ser Ala Tyr Ser Gln Val Tyr His Pro Asn
325 330 335
Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr Ala Asp Ser His Glu Asn
340 345 350
Asn Met Asp Gly Pro Ile Ser Leu Ile Arg Pro Lys Ser Arg Pro Gln
355 360 365

Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Leu Asp Ser Thr Asp Ser
370 375 380
Glu Ser Ser His Asp Asp His Gln Ser Tyr Gln Gly His Pro Ala Leu
385 390 395 400
Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr Met Lys Glu Asp Val Lys
405 410 415
Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly Ser Leu Lys Asp Ile Tyr
420 425 430
Lys Val Phe Asn Gly Glu Gly Glu Gln Ile Arg Ala Phe Lys Cys Glu

435 440 445
His Cys Arg Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met
450 455 460
Gly Cys His Gly Tyr Arg Asp Pro Leu Glu Cys Asn Ile Cys Gly Tyr
465 470 475 480
Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Val Arg Gly Glu
485 490 495

His Thr Phe His

500

<210> 151

<211> 451

<212> PRT

<213

> Homo sapiens

<400> 151

Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile Thr Cys Asp Asn Glu Leu

1 5 10 15

Ser Pro Glu Arg Glu His Ser Asn Met Ala Ile Asp Leu Thr Ser Ser

20 25 30

Thr Pro Asn Gly Gln His Ala Ser Pro Ser His Met Thr Thr Asn Ser

35 40 45

Val Lys Leu Glu Met Gln Ser Asp Glu Glu Cys Asp Arg Lys Pro Leu

50 55 60

Ser Arg Glu Asp Glu Ile Arg Gly His Asp Glu Gly Ser Ser Leu Glu

65 70 75 80

Glu Pro Leu Ile Glu Ser Ser Glu Val Ala Asp Asn Arg Lys Val Gln

85 90 95

Glu Leu Gln Gly Glu Gly Gly Ile Arg Leu Pro Asn Gly Glu Arg Pro

100 105 110

Phe His Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu

115 120 125

Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys Pro

130 135 140

Phe Cys Ser Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu

145 150 155 160

Arg Thr His Ser Val Gly Lys Pro His Lys Cys Asn Tyr Cys Gly Arg

165 170 175

Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys His

180 185 190

Asn Tyr Leu Gln Asn Val Ser Met Glu Ala Ala Gly Gln Val Met Ser

195 200 205

His His Gly Glu Lys Leu Met Arg Phe Ser Tyr Pro Asp Ile His Phe
210 215 220
Asp Met Asn Leu Thr Tyr Glu Lys Glu Ala Glu Leu Met Gln Ser His
225 230 235 240
Met Met Asp Gln Ala Ile Asn Asn Ala Ile Thr Tyr Leu Gly Ala Glu
245 250 255
Ala Leu His Pro Leu Met Gln His Pro Pro Ser Thr Ile Ala Glu Val
260 265 270
Ala Pro Val Ile Ser Ser Ala Tyr Ser Gln Val Tyr His Pro Asn Arg

275 280 285
Ile Glu Arg Pro Ile Ser Arg Glu Thr Ala Asp Ser His Glu Asn Asn
290 295 300
Met Asp Gly Pro Ile Ser Leu Ile Arg Pro Lys Ser Arg Pro Gln Glu
305 310 315 320
Arg Glu Ala Ser Pro Ser Asn Ser Cys Leu Asp Ser Thr Asp Ser Glu
325 330 335
Ser Ser His Asp Asp His Gln Ser Tyr Gln Gly His Pro Ala Leu Asn
340 345 350

Pro Lys Arg Lys Gln Ser Pro Ala Tyr Met Lys Glu Asp Val Lys Ala
355 360 365
Leu Asp Thr Thr Lys Ala Pro Lys Gly Ser Leu Lys Asp Ile Tyr Lys
370 375 380
Val Phe Asn Gly Glu Gly Glu Gln Ile Arg Ala Phe Lys Cys Glu His
385 390 395 400
Cys Arg Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met Gly
405 410 415
Cys His Gly Tyr Arg Asp Pro Leu Glu Cys Asn Ile Cys Gly Tyr Arg

420 425 430
Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Val Arg Gly Glu His
435 440 445

Thr Phe His

450

<210> 152

<211> 526

<212> PRT

<213> Homo sapiens

<400> 152

Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile Thr Cys Asp Asn Glu Leu

1 5 10 15

Ser Pro Glu Arg Glu His Ser Asn Met Ala Ile Asp Leu Thr Ser Ser

20 25 30

Thr Pro Asn Gly Gln His Ala Ser Pro Ser His Met Thr Ser Thr Asn

35 40 45

Ser Val Lys Leu Glu Met Gln Ser Asp Glu Glu Cys Asp Arg Lys Pro

50 55 60

Leu Ser Arg Glu Asp Glu Ile Arg Gly His Asp Glu Gly Ser Ser Leu

65 70 75 80

Glu Glu Pro Leu Ile Glu Ser Ser Glu Val Ala Asp Asn Arg Lys Val

85 90 95

Gln Glu Leu Gln Gly Glu Gly Gly Ile Arg Leu Pro Asn Gly Lys Leu

100 105 110

Lys Cys Asp Val Cys Gly Met Val Cys Ile Gly Pro Asn Val Leu Met

115 120 125

Val His Lys Arg Ser His Thr Gly Glu Arg Pro Phe His Cys Asn Gln

130 135 140

Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys

145 150 155 160

Leu His Ser Gly Glu Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala

165 170 175

Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val

180 185 190

Gly Lys Pro His Lys Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg

195 200 205

Ser Ser Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn

210 215 220

Val Ser Met Glu Ala Ala Gly Gln Val Met Ser His His Val Pro Pro

225 230 235 240

Met Glu Asp Cys Lys Glu Gln Glu Pro Ile Met Asp Asn Asn Ile Ser

245 250 255

Leu Val Pro Phe Glu Arg Pro Ala Val Ile Glu Lys Leu Thr Gly Asn

260 265 270

Met Gly Lys Arg Lys Ser Ser Thr Pro Gln Lys Phe Val Gly Glu Lys

275 280 285

Leu Met Arg Phe Ser Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr

290 295 300

Tyr Glu Lys Glu Ala Glu Leu Met Gln Ser His Met Met Asp Gln Ala

305 310 315 320

Ile Asn Asn Ala Ile Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu

325 330 335

Met Gln His Pro Pro Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser

340 345 350

Ser Ala Tyr Ser Gln Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile

355 360 365

Ser Arg Glu Thr Ala Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile

370 375 380

Ser Leu Ile Arg Pro Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro

385 390 395 400

Ser Asn Ser Cys Leu Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp

405 410 415

His Gln Ser Tyr Gln Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln

420 425 430

Ser Pro Ala Tyr Met Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys

435 440 445

Ala Pro Lys Gly Ser Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu

450 455 460

Gly Glu Gln Ile Arg Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe
465 470 475 480
Leu Asp His Val Met Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg
485 490 495
Asp Pro Leu Glu Cys Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr
500 505 510
Glu Phe Ser Ser His Ile Val Arg Gly Glu His Thr Phe His
515 520 525

<210> 153

<211> 506

<212> PRT

<213> Homo sapiens

<400> 153

Met His Cys Thr Leu Thr Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile
1 5 10 15
Thr Cys Asp Asn Glu Leu Ser Pro Glu Arg Glu His Ser Asn Met Ala
20 25 30
Ile Asp Leu Thr Ser Ser Thr Pro Asn Gly Gln His Ala Ser Pro Ser
35 40 45
His Met Thr Ser Thr Asn Ser Val Lys Leu Glu Met Gln Ser Asp Glu
50 55 60

Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp Glu Ile Arg Gly His
65 70 75 80
Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile Glu Ser Ser Glu Val
85 90 95
Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly Glu Gly Gly Ile Arg
100 105 110
Leu Pro Asn Gly Glu Arg Pro Phe His Cys Asn Gln Cys Gly Ala Ser
115 120 125
Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser Gly

130 135 140

Glu Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg

145 150 155 160

Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys Pro His

165 170 175

Lys Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu

180 185 190

Glu His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn Val Ser Met Glu

195 200 205

Ala Ala Gly Gln Val Met Ser His His Val Pro Pro Met Glu Asp Cys

210 215 220

Lys Glu Gln Glu Pro Ile Met Asp Asn Asn Ile Ser Leu Val Pro Phe

225 230 235 240

Glu Arg Pro Ala Val Ile Glu Lys Leu Thr Gly Asn Met Gly Lys Arg

245 250 255

Lys Ser Ser Thr Pro Gln Lys Phe Val Gly Glu Lys Leu Met Arg Phe

260 265 270

Ser Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu

275 280 285

Ala Glu Leu Met Gln Ser His Met Met Asp Gln Ala Ile Asn Asn Ala

290 295 300

Ile Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu Met Gln His Pro

305 310 315 320

Pro Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser Ser Ala Tyr Ser

325 330 335

Gln Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr

340 345 350

Ala Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile Ser Leu Ile Arg

355 360 365

Pro Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys

370 375 380

Leu Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp His Gln Ser Tyr

385 390 395 400

Gln Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr

405 410 415

Met Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly

420 425 430

Ser Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln Ile

435 440 445

Arg Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His Val

450 455 460

Met Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg Asp Pro Leu Glu

465 470 475 480

Cys Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser

485 490 495

His Ile Val Arg Gly Glu His Thr Phe His

500 505

<210> 154

<211> 533

<212> PRT

<213> Homo sapiens

<400> 154

Met His Cys Thr Leu Thr Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile

1 5 10 15

Thr Ser Gly Asp Asn Glu Leu Ser Pro Glu Arg Glu His Ser Asn Met

20 25 30

Ala Ile Asp Leu Thr Ser Ser Thr Pro Asn Gly Gln His Ala Ser Pro

35 40 45

Ser His Met Thr Ser Thr Asn Ser Val Lys Leu Glu Met Gln Ser Asp

50 55 60

Glu Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp Glu Ile Arg Gly

65 70 75 80

His Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile Glu Ser Ser Glu

85 90 95

Val Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly Glu Gly Gly Ile
100 105 110
Arg Leu Pro Asn Gly Lys Leu Lys Cys Asp Val Cys Gly Met Val Cys

115 120 125
Ile Gly Pro Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu
130 135 140
Arg Pro Phe His Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly
145 150 155 160
Asn Leu Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys
165 170 175
Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly
180 185 190

His Leu Arg Thr His Ser Val Gly Lys Pro His Lys Cys Asn Tyr Cys
195 200 205
Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg
210 215 220
Cys His Asn Tyr Leu Gln Asn Val Ser Met Glu Ala Ala Gly Gln Val
225 230 235 240
Met Ser His His Val Pro Pro Met Glu Asp Cys Lys Glu Gln Glu Pro
245 250 255
Ile Met Asp Asn Asn Ile Ser Leu Val Pro Phe Glu Arg Pro Ala Val

260 265 270
Ile Glu Lys Leu Thr Gly Asn Met Gly Lys Arg Lys Ser Ser Thr Pro
275 280 285
Gln Lys Phe Val Gly Glu Lys Leu Met Arg Phe Ser Tyr Pro Asp Ile
290 295 300
His Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu Ala Glu Leu Met Gln
305 310 315 320
Ser His Met Met Asp Gln Ala Ile Asn Asn Ala Ile Thr Tyr Leu Gly
325 330 335

Ala Glu Ala Leu His Pro Leu Met Gln His Pro Pro Ser Thr Ile Ala

340 345 350

Glu Val Ala Pro Val Ile Ser Ser Ala Tyr Ser Gln Val Tyr His Pro

355 360 365

Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr Ala Asp Ser His Glu

370 375 380

Asn Asn Met Asp Gly Pro Ile Ser Leu Ile Arg Pro Lys Ser Arg Pro

385 390 395 400

Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Leu Asp Ser Thr Asp

405 410 415

Ser Glu Ser Ser His Asp Asp His Gln Ser Tyr Gln Gly His Pro Ala

420 425 430

Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr Met Lys Glu Asp Val

435 440 445

Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly Ser Leu Lys Asp Ile

450 455 460

Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln Ile Arg Ala Phe Lys Cys

465 470 475 480

Glu His Cys Arg Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His

485 490 495

Met Gly Cys His Gly Tyr Arg Asp Pro Leu Glu Cys Asn Ile Cys Gly

500 505 510

Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Val Arg Gly

515 520 525

Glu His Thr Phe His

530

<210> 155

<211> 527

<212> PRT

<213> Homo sapiens

<400> 155

Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile Thr Ser Gly Asp Asn Glu

1 5 10 15

Leu Ser Pro Glu Arg Glu His Ser Asn Met Ala Ile Asp Leu Thr Ser
20 25 30
Ser Thr Pro Asn Gly Gln His Ala Ser Pro Ser His Met Thr Ser Thr
35 40 45
Asn Ser Val Lys Leu Glu Met Gln Ser Asp Glu Glu Cys Asp Arg Lys
50 55 60
Pro Leu Ser Arg Glu Asp Glu Ile Arg Gly His Asp Glu Gly Ser Ser
65 70 75 80

Leu Glu Glu Pro Leu Ile Glu Ser Ser Glu Val Ala Asp Asn Arg Lys
85 90 95
Val Gln Glu Leu Gln Gly Glu Gly Gly Ile Arg Leu Pro Asn Gly Lys
100 105 110
Leu Lys Cys Asp Val Cys Gly Met Val Cys Ile Gly Pro Asn Val Leu
115 120 125
Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro Phe His Cys Asn
130 135 140
Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile

145 150 155 160
Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr
165 170 175
Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser
180 185 190
Val Gly Lys Pro His Lys Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln
195 200 205
Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Gln
210 215 220

Asn Val Ser Met Glu Ala Ala Gly Gln Val Met Ser His His Val Pro
225 230 235 240
Pro Met Glu Asp Cys Lys Glu Gln Glu Pro Ile Met Asp Asn Asn Ile
245 250 255
Ser Leu Val Pro Phe Glu Arg Pro Ala Val Ile Glu Lys Leu Thr Gly
260 265 270

Asn Met Gly Lys Arg Lys Ser Ser Thr Pro Gln Lys Phe Val Gly Glu
275 280 285
Lys Leu Met Arg Phe Ser Tyr Pro Asp Ile His Phe Asp Met Asn Leu

290 295 300
Thr Tyr Glu Lys Glu Ala Glu Leu Met Gln Ser His Met Met Asp Gln
305 310 315 320
Ala Ile Asn Asn Ala Ile Thr Tyr Leu Gly Ala Glu Ala Leu His Pro
325 330 335
Leu Met Gln His Pro Pro Ser Thr Ile Ala Glu Val Ala Pro Val Ile
340 345 350
Ser Ser Ala Tyr Ser Gln Val Tyr His Pro Asn Arg Ile Glu Arg Pro
355 360 365

Ile Ser Arg Glu Thr Ala Asp Ser His Glu Asn Asn Met Asp Gly Pro
370 375 380
Ile Ser Leu Ile Arg Pro Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser
385 390 395 400
Pro Ser Asn Ser Cys Leu Asp Ser Thr Asp Ser Glu Ser Ser His Asp
405 410 415
Asp His Gln Ser Tyr Gln Gly His Pro Ala Leu Asn Pro Lys Arg Lys
420 425 430
Gln Ser Pro Ala Tyr Met Lys Glu Asp Val Lys Ala Leu Asp Thr Thr

435 440 445
Lys Ala Pro Lys Gly Ser Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly
450 455 460
Glu Gly Glu Gln Ile Arg Ala Phe Lys Cys Glu His Cys Arg Val Leu
465 470 475 480
Phe Leu Asp His Val Met Tyr Thr Ile His Met Gly Cys His Gly Tyr
485 490 495
Arg Asp Pro Leu Glu Cys Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg
500 505 510

Tyr Glu Phe Ser Ser His Ile Val Arg Gly Glu His Thr Phe His

515 520 525

<210> 156

<211> 507

<212> PRT

<213> Homo sapiens

<400> 156

Met His Cys Thr Leu Thr Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile
1 5 10 15

Thr Ser Gly Asp Asn Glu Leu Ser Pro Glu Arg Glu His Ser Asn Met
20 25 30

Ala Ile Asp Leu Thr Ser Ser Thr Pro Asn Gly Gln His Ala Ser Pro

35 40 45

Ser His Met Thr Ser Thr Asn Ser Val Lys Leu Glu Met Gln Ser Asp
50 55 60

Glu Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp Glu Ile Arg Gly
65 70 75 80

His Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile Glu Ser Ser Glu
85 90 95

Val Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly Glu Gly Gly Ile
100 105 110

Arg Leu Pro Asn Gly Glu Arg Pro Phe His Cys Asn Gln Cys Gly Ala
115 120 125

Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser
130 135 140

Gly Glu Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg
145 150 155 160

Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys Pro
165 170 175

His Lys Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu

180 185 190

Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn Val Ser Met
195 200 205

Glu Ala Ala Gly Gln Val Met Ser His His Val Pro Pro Met Glu Asp
210 215 220
Cys Lys Glu Gln Glu Pro Ile Met Asp Asn Asn Ile Ser Leu Val Pro
225 230 235 240
Phe Glu Arg Pro Ala Val Ile Glu Lys Leu Thr Gly Asn Met Gly Lys
245 250 255

Arg Lys Ser Ser Thr Pro Gln Lys Phe Val Gly Glu Lys Leu Met Arg
260 265 270
Phe Ser Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr Tyr Glu Lys
275 280 285
Glu Ala Glu Leu Met Gln Ser His Met Met Asp Gln Ala Ile Asn Asn
290 295 300
Ala Ile Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu Met Gln His
305 310 315 320
Pro Pro Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser Ser Ala Tyr
325 330 335
Ser Gln Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu
340 345 350
Thr Ala Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile Ser Leu Ile
355 360 365
Arg Pro Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser
370 375 380
Cys Leu Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp His Gln Ser
385 390 395 400

Tyr Gln Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala
405 410 415
Tyr Met Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys
420 425 430
Gly Ser Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln
435 440 445
Ile Arg Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His
450 455 460

Val Met Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg Asp Pro Leu

465 470 475 480

Glu Cys Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser

485 490 495

Ser His Ile Val Arg Gly Glu His Thr Phe His

500 505

<210> 157

<211> 502

<212> PRT

<213> Homo sapiens

<400> 157

Met Ser Leu Leu Thr Ser Leu Asn Tyr Pro Lys Val Ala Phe Gly Ser

1 5 10 15

Trp Cys Leu Pro Val Ser Ala Asn Ser Val Lys Leu Glu Met Gln Ser

20 25 30

Asp Glu Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp Glu Ile Arg

35 40 45

Gly His Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile Glu Ser Ser

50 55 60

Glu Val Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly Glu Gly Gly

65 70 75 80

Ile Arg Leu Pro Asn Gly Lys Leu Lys Cys Asp Val Cys Gly Met Val

85 90 95

Cys Ile Gly Pro Asn Val Leu Met Val His Lys Arg Ser His Thr Gly

100 105 110

Glu Arg Pro Phe His Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys

115 120 125

Gly Asn Leu Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe

130 135 140

Lys Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr

145 150 155 160

Gly His Leu Arg Thr His Ser Val Gly Lys Pro His Lys Cys Asn Tyr

165 170 175

Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu

180 185 190

Arg Cys His Asn Tyr Leu Gln Asn Val Ser Met Glu Ala Ala Gly Gln

195 200 205

Val Met Ser His His Val Pro Pro Met Glu Asp Cys Lys Glu Gln Glu

210 215 220

Pro Ile Met Asp Asn Asn Ile Ser Leu Val Pro Phe Glu Arg Pro Ala

225 230 235 240

Val Ile Glu Lys Leu Thr Gly Asn Met Gly Lys Arg Lys Ser Ser Thr

245 250 255

Pro Gln Lys Phe Val Gly Glu Lys Leu Met Arg Phe Ser Tyr Pro Asp

260 265 270

Ile His Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu Ala Glu Leu Met

275 280 285

Gln Ser His Met Met Asp Gln Ala Ile Asn Asn Ala Ile Thr Tyr Leu

290 295 300

Gly Ala Glu Ala Leu His Pro Leu Met Gln His Pro Pro Ser Thr Ile

305 310 315 320

Ala Glu Val Ala Pro Val Ile Ser Ser Ala Tyr Ser Gln Val Tyr His

325 330 335

Pro Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr Ala Asp Ser His

340 345 350

Glu Asn Asn Met Asp Gly Pro Ile Ser Leu Ile Arg Pro Lys Ser Arg

355 360 365

Pro Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Leu Asp Ser Thr

370 375 380

Asp Ser Glu Ser Ser His Asp Asp His Gln Ser Tyr Gln Gly His Pro

385 390 395 400

Ala Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr Met Lys Glu Asp

405 410 415

Val Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly Ser Leu Lys Asp

420 425 430

Ile Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln Ile Arg Ala Phe Lys

435 440 445

Cys Glu His Cys Arg Val Leu Phe Leu Asp His Val Met Tyr Thr Ile

450 455 460

His Met Gly Cys His Gly Tyr Arg Asp Pro Leu Glu Cys Asn Ile Cys

465 470 475 480

Gly Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Val Arg

485 490 495

Gly Glu His Thr Phe His

500

<210> 158

<211> 485

<212> PRT

<213> Homo sapiens

<400> 158

Met His Cys Thr Leu Thr Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile

1 5 10 15

Thr Ser Gly Asp Asn Glu Leu Ser Pro Glu Arg Glu His Ser Asn Met

20 25 30

Ala Ile Asp Leu Thr Ser Ser Thr Pro Asn Gly Gln His Ala Ser Pro

35 40 45

Ser His Met Thr Ser Thr Asn Ser Val Lys Leu Glu Met Gln Ser Asp

50 55 60

Glu Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp Glu Ile Arg Gly

65 70 75 80

His Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile Glu Ser Ser Glu

85 90 95

Val Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly Glu Gly Gly Ile

100 105 110

Arg Leu Pro Asn Gly Lys Leu Lys Cys Asp Val Cys Gly Met Val Cys
115 120 125
Ile Gly Pro Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu
130 135 140
Arg Pro Phe His Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly
145 150 155 160

Asn Leu Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys
165 170 175
Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly
180 185 190
His Leu Arg Thr His Ser Val Gly Lys Pro His Lys Cys Asn Tyr Cys
195 200 205
Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg
210 215 220
Cys His Asn Tyr Leu Gln Asn Val Ser Met Glu Ala Ala Gly Gln Val

225 230 235 240
Met Ser His His Gly Glu Lys Leu Met Arg Phe Ser Tyr Pro Asp Ile
245 250 255
His Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu Ala Glu Leu Met Gln
260 265 270
Ser His Met Met Asp Gln Ala Ile Asn Asn Ala Ile Thr Tyr Leu Gly
275 280 285
Ala Glu Ala Leu His Pro Leu Met Gln His Pro Pro Ser Thr Ile Ala
290 295 300

Glu Val Ala Pro Val Ile Ser Ser Ala Tyr Ser Gln Val Tyr His Pro
305 310 315 320
Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr Ala Asp Ser His Glu
325 330 335
Asn Asn Met Asp Gly Pro Ile Ser Leu Ile Arg Pro Lys Ser Arg Pro
340 345 350
Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Leu Asp Ser Thr Asp
355 360 365

Ser Glu Ser Ser His Asp Asp His Gln Ser Tyr Gln Gly His Pro Ala

370 375 380

Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr Met Lys Glu Asp Val

385 390 395 400

Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly Ser Leu Lys Asp Ile

405 410 415

Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln Ile Arg Ala Phe Lys Cys

420 425 430

Glu His Cys Arg Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His

435 440 445

Met Gly Cys His Gly Tyr Arg Asp Pro Leu Glu Cys Asn Ile Cys Gly

450 455 460

Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Val Arg Gly

465 470 475 480

Glu His Thr Phe His

485

<210> 159

<211> 473

<212> PRT

<213> Homo sapiens

<400> 159

Met Gln Ser Asp Glu Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp

1 5 10 15

Glu Ile Arg Gly His Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile

20 25 30

Glu Ser Ser Glu Val Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly

35 40 45

Glu Gly Gly Ile Arg Leu Pro Asn Gly Lys Leu Lys Cys Asp Val Cys

50 55 60

Gly Met Val Cys Ile Gly Pro Asn Val Leu Met Val His Lys Arg Ser

65 70 75 80

His Thr Gly Glu Arg Pro Phe His Cys Asn Gln Cys Gly Ala Ser Phe

85 90 95

Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser Gly Glu
100 105 110
Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg Asp
115 120 125
Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys Pro His Lys
130 135 140
Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu
145 150 155 160
His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn Val Ser Met Glu Ala

165 170 175
Ala Gly Gln Val Met Ser His His Val Pro Pro Met Glu Asp Cys Lys
180 185 190
Glu Gln Glu Pro Ile Met Asp Asn Asn Ile Ser Leu Val Pro Phe Glu
195 200 205
Arg Pro Ala Val Ile Glu Lys Leu Thr Gly Asn Met Gly Lys Arg Lys
210 215 220
Ser Ser Thr Pro Gln Lys Phe Val Gly Glu Lys Leu Met Arg Phe Ser
225 230 235 240

Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu Ala
245 250 255
Glu Leu Met Gln Ser His Met Met Asp Gln Ala Ile Asn Asn Ala Ile
260 265 270
Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu Met Gln His Pro Pro
275 280 285
Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser Ser Ala Tyr Ser Gln
290 295 300
Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr Ala

305 310 315 320
Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile Ser Leu Ile Arg Pro
325 330 335

Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Leu
340 345 350
Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp His Gln Ser Tyr Gln
355 360 365
Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr Met
370 375 380

Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly Ser
385 390 395 400
Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln Ile Arg
405 410 415
Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His Val Met
420 425 430
Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg Asp Pro Leu Glu Cys
435 440 445
Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser His

450 455 460
Ile Val Arg Gly Glu His Thr Phe His
465 470

<210> 160
<211> 458
<212> PRT
<213> Homo sapiens
<400> 160

Met His Cys Thr Leu Thr Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile
1 5 10 15
Thr Cys Asp Asn Glu Leu Ser Pro Glu Arg Glu His Ser Asn Met Ala
20 25 30
Ile Asp Leu Thr Ser Ser Thr Pro Asn Gly Gln His Ala Ser Pro Ser

35 40 45
His Met Thr Ser Thr Asn Ser Val Lys Leu Glu Met Gln Ser Asp Glu
50 55 60
Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp Glu Ile Arg Gly His

65 70 75 80

Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile Glu Ser Ser Glu Val

85 90 95

Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly Glu Gly Gly Ile Arg

100 105 110

Leu Pro Asn Gly Glu Arg Pro Phe His Cys Asn Gln Cys Gly Ala Ser

115 120 125

Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser Gly

130 135 140

Glu Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg

145 150 155 160

Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys Pro His

165 170 175

Lys Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu

180 185 190

Glu His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn Val Ser Met Glu

195 200 205

Ala Ala Gly Gln Val Met Ser His His Gly Glu Lys Leu Met Arg Phe

210 215 220

Ser Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu

225 230 235 240

Ala Glu Leu Met Gln Ser His Met Met Asp Gln Ala Ile Asn Asn Ala

245 250 255

Ile Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu Met Gln His Pro

260 265 270

Pro Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser Ser Ala Tyr Ser

275 280 285

Gln Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr

290 295 300

Ala Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile Ser Leu Ile Arg

305 310 315 320

Pro Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys

325 330 335

Leu Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp His Gln Ser Tyr

340 345 350

Gln Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr

355 360 365

Met Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly

370 375 380

Ser Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln Ile

385 390 395 400

Arg Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His Val

405 410 415

Met Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg Asp Pro Leu Glu

420 425 430

Cys Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser

435 440 445

His Ile Val Arg Gly Glu His Thr Phe His

450 455

<210> 161

<211> 473

<212> PRT

<213> Homo sapiens

<400> 161

Met Gln Ser Asp Glu Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp

1 5 10 15

Glu Ile Arg Gly His Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile

20 25 30

Glu Ser Ser Glu Val Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly

35 40 45

Glu Gly Gly Ile Arg Leu Pro Asn Gly Lys Leu Lys Cys Asp Val Cys

50 55 60

Gly Met Val Cys Ile Gly Pro Asn Val Leu Met Val His Lys Arg Ser

65 70 75 80

His Thr Gly Glu Arg Pro Phe His Cys Asn Gln Cys Gly Ala Ser Phe

85 90 95

Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser Gly Glu

100 105 110

Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg Arg Asp

115 120 125

Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys Pro His Lys

130 135 140

Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu

145 150 155 160

His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn Val Ser Met Glu Ala

165 170 175

Ala Gly Gln Val Met Ser His His Val Pro Pro Met Glu Asp Cys Lys

180 185 190

Glu Gln Glu Pro Ile Met Asp Asn Asn Ile Ser Leu Val Pro Phe Glu

195 200 205

Arg Pro Ala Val Ile Glu Lys Leu Thr Gly Asn Met Gly Lys Arg Lys

210 215 220

Ser Ser Thr Pro Gln Lys Phe Val Gly Glu Lys Leu Met Arg Phe Ser

225 230 235 240

Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr Tyr Glu Lys Glu Ala

245 250 255

Glu Leu Met Gln Ser His Met Met Asp Gln Ala Ile Asn Asn Ala Ile

260 265 270

Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu Met Gln His Pro Pro

275 280 285

Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser Ser Ala Tyr Ser Gln

290 295 300

Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu Thr Ala

305 310 315 320

Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile Ser Leu Ile Arg Pro

325 330 335

Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Leu

340 345 350

Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp His Gln Ser Tyr Gln

355 360 365

Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala Tyr Met

370 375 380

Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys Gly Ser

385 390 395 400

Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln Ile Arg

405 410 415

Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His Val Met

420 425 430

Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg Asp Pro Leu Glu Cys

435 440 445

Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser Ser His

450 455 460

Ile Val Arg Gly Glu His Thr Phe His

465 470

<210> 162

<211> 459

<212> PRT

<213> Homo sapiens

<400> 162

Met His Cys Thr Leu Thr Met Glu Thr Glu Ala Ile Asp Gly Tyr Ile

1 5 10 15

Thr Ser Gly Asp Asn Glu Leu Ser Pro Glu Arg Glu His Ser Asn Met

20 25 30

Ala Ile Asp Leu Thr Ser Ser Thr Pro Asn Gly Gln His Ala Ser Pro

35 40 45

Ser His Met Thr Ser Thr Asn Ser Val Lys Leu Glu Met Gln Ser Asp
50 55 60
Glu Glu Cys Asp Arg Lys Pro Leu Ser Arg Glu Asp Glu Ile Arg Gly
65 70 75 80
His Asp Glu Gly Ser Ser Leu Glu Glu Pro Leu Ile Glu Ser Ser Glu

85 90 95
Val Ala Asp Asn Arg Lys Val Gln Glu Leu Gln Gly Glu Gly Gly Ile
100 105 110
Arg Leu Pro Asn Gly Glu Arg Pro Phe His Cys Asn Gln Cys Gly Ala
115 120 125
Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser
130 135 140
Gly Glu Lys Pro Phe Lys Cys Pro Phe Cys Ser Tyr Ala Cys Arg Arg
145 150 155 160

Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys Pro
165 170 175
His Lys Cys Asn Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu
180 185 190
Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Gln Asn Val Ser Met
195 200 205
Glu Ala Ala Gly Gln Val Met Ser His His Gly Glu Lys Leu Met Arg
210 215 220
Phe Ser Tyr Pro Asp Ile His Phe Asp Met Asn Leu Thr Tyr Glu Lys

225 230 235 240
Glu Ala Glu Leu Met Gln Ser His Met Met Asp Gln Ala Ile Asn Asn
245 250 255
Ala Ile Thr Tyr Leu Gly Ala Glu Ala Leu His Pro Leu Met Gln His
260 265 270
Pro Pro Ser Thr Ile Ala Glu Val Ala Pro Val Ile Ser Ser Ala Tyr
275 280 285
Ser Gln Val Tyr His Pro Asn Arg Ile Glu Arg Pro Ile Ser Arg Glu

290 295 300

Thr Ala Asp Ser His Glu Asn Asn Met Asp Gly Pro Ile Ser Leu Ile
305 310 315 320
Arg Pro Lys Ser Arg Pro Gln Glu Arg Glu Ala Ser Pro Ser Asn Ser
325 330 335
Cys Leu Asp Ser Thr Asp Ser Glu Ser Ser His Asp Asp His Gln Ser
340 345 350
Tyr Gln Gly His Pro Ala Leu Asn Pro Lys Arg Lys Gln Ser Pro Ala
355 360 365
Tyr Met Lys Glu Asp Val Lys Ala Leu Asp Thr Thr Lys Ala Pro Lys

370 375 380
Gly Ser Leu Lys Asp Ile Tyr Lys Val Phe Asn Gly Glu Gly Glu Gln
385 390 395 400
Ile Arg Ala Phe Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His
405 410 415
Val Met Tyr Thr Ile His Met Gly Cys His Gly Tyr Arg Asp Pro Leu
420 425 430
Glu Cys Asn Ile Cys Gly Tyr Arg Ser Gln Asp Arg Tyr Glu Phe Ser
435 440 445

Ser His Ile Val Arg Gly Glu His Thr Phe His
450 455

<210> 163
<211> 597
<212> PRT
<213> Homo sapiens
<400> 163
Met Ala Ala Val Gln Ala Ala Glu Val Lys Val Asp Gly Ser Glu Pro
1 5 10 15
Lys Leu Ser Lys Asn Glu Leu Lys Arg Arg Leu Lys Ala Glu Lys Lys
20 25 30
Val Ala Glu Lys Glu Ala Lys Gln Lys Glu Leu Ser Glu Lys Gln Leu

35 40 45

Ser Gln Ala Thr Ala Ala Ala Thr Asn His Thr Thr Asp Asn Gly Val
50 55 60
Gly Pro Glu Glu Glu Ser Val Asp Pro Asn Gln Tyr Tyr Lys Ile Arg
65 70 75 80
Ser Gln Ala Ile His Gln Leu Lys Val Asn Gly Glu Asp Pro Tyr Pro
85 90 95
His Lys Phe His Val Asp Ile Ser Leu Thr Asp Phe Ile Gln Lys Tyr
100 105 110
Ser His Leu Gln Pro Gly Asp His Leu Thr Asp Ile Thr Leu Lys Val

115 120 125
Ala Gly Arg Ile His Ala Lys Arg Ala Ser Gly Gly Lys Leu Ile Phe
130 135 140
Tyr Asp Leu Arg Gly Glu Gly Val Lys Leu Gln Val Met Ala Asn Ser
145 150 155 160
Arg Asn Tyr Lys Ser Glu Glu Glu Phe Ile His Ile Asn Asn Lys Leu
165 170 175
Arg Arg Gly Asp Ile Ile Gly Val Gln Gly Asn Pro Gly Lys Thr Lys
180 185 190

Lys Gly Glu Leu Ser Ile Ile Pro Tyr Glu Ile Thr Leu Leu Ser Pro
195 200 205
Cys Leu His Met Leu Pro His Leu His Phe Gly Leu Lys Asp Lys Glu
210 215 220
Thr Arg Tyr Arg Gln Arg Tyr Leu Asp Leu Ile Leu Asn Asp Phe Val
225 230 235 240
Arg Gln Lys Phe Ile Ile Arg Ser Lys Ile Ile Thr Tyr Ile Arg Ser
245 250 255
Phe Leu Asp Glu Leu Gly Phe Leu Glu Ile Glu Thr Pro Met Met Asn

260 265 270
Ile Ile Pro Gly Gly Ala Val Ala Lys Pro Phe Ile Thr Tyr His Asn
275 280 285

Glu Leu Asp Met Asn Leu Tyr Met Arg Ile Ala Pro Glu Leu Tyr His
290 295 300
Lys Met Leu Val Val Gly Gly Ile Asp Arg Val Tyr Glu Ile Gly Arg
305 310 315 320
Gln Phe Arg Asn Glu Gly Ile Asp Leu Thr His Asn Pro Glu Phe Thr
325 330 335

Thr Cys Glu Phe Tyr Met Ala Tyr Ala Asp Tyr His Asp Leu Met Glu
340 345 350
Ile Thr Glu Lys Met Val Ser Gly Met Val Lys His Ile Thr Gly Ser
355 360 365
Tyr Lys Val Thr Tyr His Pro Asp Gly Pro Glu Gly Gln Ala Tyr Asp
370 375 380
Val Asp Phe Thr Pro Pro Phe Arg Arg Ile Asn Met Val Glu Glu Leu
385 390 395 400
Glu Lys Ala Leu Gly Met Lys Leu Pro Glu Thr Asn Leu Phe Glu Thr
405 410 415
Glu Glu Thr Arg Lys Ile Leu Asp Asp Ile Cys Val Ala Lys Ala Val
420 425 430
Glu Cys Pro Pro Pro Arg Thr Thr Ala Arg Leu Leu Asp Lys Leu Val
435 440 445
Gly Glu Phe Leu Glu Val Thr Cys Ile Asn Pro Thr Phe Ile Cys Asp
450 455 460
His Pro Gln Ile Met Ser Pro Leu Ala Lys Trp His Arg Ser Lys Glu
465 470 475 480

Gly Leu Thr Glu Arg Phe Glu Leu Phe Val Met Lys Lys Glu Ile Cys
485 490 495
Asn Ala Tyr Thr Glu Leu Asn Asp Pro Met Arg Gln Arg Gln Leu Phe
500 505 510
Glu Glu Gln Ala Lys Ala Lys Ala Ala Gly Asp Asp Glu Ala Met Phe
515 520 525
Ile Asp Glu Asn Phe Cys Thr Ala Leu Glu Tyr Gly Leu Pro Pro Thr
530 535 540

Ala Gly Trp Gly Met Gly Ile Asp Arg Val Ala Met Phe Leu Thr Asp

545 550 555 560

Ser Asn Asn Ile Lys Glu Val Leu Leu Phe Pro Ala Met Lys Pro Glu

565 570 575

Asp Lys Lys Glu Asn Val Ala Thr Thr Asp Thr Leu Glu Ser Thr Thr

580 585 590

Val Gly Thr Ser Val

595

<210> 164

<211> 625

<212> PRT

<213> Homo sapiens

<400> 164

Met Leu Thr Gln Ala Ala Val Arg Leu Val Arg Gly Ser Leu Arg Lys

1 5 10 15

Thr Ser Trp Ala Glu Trp Gly His Arg Glu Leu Arg Leu Gly Gln Leu

20 25 30

Ala Pro Phe Thr Ala Pro His Lys Asp Lys Ser Phe Ser Asp Gln Arg

35 40 45

Ser Glu Leu Lys Arg Arg Leu Lys Ala Glu Lys Lys Val Ala Glu Lys

50 55 60

Glu Ala Lys Gln Lys Glu Leu Ser Glu Lys Gln Leu Ser Gln Ala Thr

65 70 75 80

Ala Ala Ala Thr Asn His Thr Thr Asp Asn Gly Val Gly Pro Glu Glu

85 90 95

Glu Ser Val Asp Pro Asn Gln Tyr Tyr Lys Ile Arg Ser Gln Ala Ile

100 105 110

His Gln Leu Lys Val Asn Gly Glu Asp Pro Tyr Pro His Lys Phe His

115 120 125

Val Asp Ile Ser Leu Thr Asp Phe Ile Gln Lys Tyr Ser His Leu Gln

130 135 140

Pro Gly Asp His Leu Thr Asp Ile Thr Leu Lys Val Ala Gly Arg Ile

145 150 155 160

His Ala Lys Arg Ala Ser Gly Gly Lys Leu Ile Phe Tyr Asp Leu Arg
165 170 175
Gly Glu Gly Val Lys Leu Gln Val Met Ala Asn Ser Arg Asn Tyr Lys
180 185 190
Ser Glu Glu Glu Phe Ile His Ile Asn Asn Lys Leu Arg Arg Gly Asp
195 200 205
Ile Ile Gly Val Gln Gly Asn Pro Gly Lys Thr Lys Lys Gly Glu Leu
210 215 220
Ser Ile Ile Pro Tyr Glu Ile Thr Leu Leu Ser Pro Cys Leu His Met

225 230 235 240
Leu Pro His Leu His Phe Gly Leu Lys Asp Lys Glu Thr Arg Tyr Arg
245 250 255
Gln Arg Tyr Leu Asp Leu Ile Leu Asn Asp Phe Val Arg Gln Lys Phe
260 265 270
Ile Ile Arg Ser Lys Ile Ile Thr Tyr Ile Arg Ser Phe Leu Asp Glu
275 280 285
Leu Gly Phe Leu Glu Ile Glu Thr Pro Met Met Asn Ile Ile Pro Gly
290 295 300

Gly Ala Val Ala Lys Pro Phe Ile Thr Tyr His Asn Glu Leu Asp Met
305 310 315 320
Asn Leu Tyr Met Arg Ile Ala Pro Glu Leu Tyr His Lys Met Leu Val
325 330 335
Val Gly Gly Ile Asp Arg Val Tyr Glu Ile Gly Arg Gln Phe Arg Asn
340 345 350
Glu Gly Ile Asp Leu Thr His Asn Pro Glu Phe Thr Thr Cys Glu Phe
355 360 365
Tyr Met Ala Tyr Ala Asp Tyr His Asp Leu Met Glu Ile Thr Glu Lys

370 375 380
Met Val Ser Gly Met Val Lys His Ile Thr Gly Ser Tyr Lys Val Thr
385 390 395 400

Tyr His Pro Asp Gly Pro Glu Gly Gln Ala Tyr Asp Val Asp Phe Thr
405 410 415
Pro Pro Phe Arg Arg Ile Asn Met Val Glu Glu Leu Glu Lys Ala Leu
420 425 430
Gly Met Lys Leu Pro Glu Thr Asn Leu Phe Glu Thr Glu Glu Thr Arg
435 440 445

Lys Ile Leu Asp Asp Ile Cys Val Ala Lys Ala Val Glu Cys Pro Pro
450 455 460
Pro Arg Thr Thr Ala Arg Leu Leu Asp Lys Leu Val Gly Glu Phe Leu
465 470 475 480
Glu Val Thr Cys Ile Asn Pro Thr Phe Ile Cys Asp His Pro Gln Ile
485 490 495
Met Ser Pro Leu Ala Lys Trp His Arg Ser Lys Glu Gly Leu Thr Glu
500 505 510
Arg Phe Glu Leu Phe Val Met Lys Lys Glu Ile Cys Asn Ala Tyr Thr

515 520 525
Glu Leu Asn Asp Pro Met Arg Gln Arg Gln Leu Phe Glu Glu Gln Ala
530 535 540
Lys Ala Lys Ala Ala Gly Asp Asp Glu Ala Met Phe Ile Asp Glu Asn
545 550 555 560
Phe Cys Thr Ala Leu Glu Tyr Gly Leu Pro Pro Thr Ala Gly Trp Gly
565 570 575
Met Gly Ile Asp Arg Val Ala Met Phe Leu Thr Asp Ser Asn Asn Ile
580 585 590

Lys Glu Val Leu Leu Phe Pro Ala Met Lys Pro Glu Asp Lys Lys Glu
595 600 605
Asn Val Ala Thr Thr Asp Thr Leu Glu Ser Thr Thr Val Gly Thr Ser
610 615 620
Val
625
<210> 165
<211> 441

<212> PRT

<213> Homo sapiens

<400> 165

Met Ala Asn Ser Arg Asn Tyr Lys Ser Glu Glu Glu Phe Ile His Ile
1 5 10 15

Asn Asn Lys Leu Arg Arg Gly Asp Ile Ile Gly Val Gln Gly Asn Pro
20 25 30

Gly Lys Thr Lys Lys Gly Glu Leu Ser Ile Ile Pro Tyr Glu Ile Thr
35 40 45

Leu Leu Ser Pro Cys Leu His Met Leu Pro His Leu His Phe Gly Leu
50 55 60

Lys Asp Lys Glu Thr Arg Tyr Arg Gln Arg Tyr Leu Asp Leu Ile Leu
65 70 75 80

Asn Asp Phe Val Arg Gln Lys Phe Ile Ile Arg Ser Lys Ile Ile Thr
85 90 95

Tyr Ile Arg Ser Phe Leu Asp Glu Leu Gly Phe Leu Glu Ile Glu Thr
100 105 110

Pro Met Met Asn Ile Ile Pro Gly Gly Ala Val Ala Lys Pro Phe Ile
115 120 125

Thr Tyr His Asn Glu Leu Asp Met Asn Leu Tyr Met Arg Ile Ala Pro
130 135 140

Glu Leu Tyr His Lys Met Leu Val Val Gly Gly Ile Asp Arg Val Tyr
145 150 155 160

Glu Ile Gly Arg Gln Phe Arg Asn Glu Gly Ile Asp Leu Thr His Asn
165 170 175

Pro Glu Phe Thr Thr Cys Glu Phe Tyr Met Ala Tyr Ala Asp Tyr His
180 185 190

Asp Leu Met Glu Ile Thr Glu Lys Met Val Ser Gly Met Val Lys His
195 200 205

Ile Thr Gly Ser Tyr Lys Val Thr Tyr His Pro Asp Gly Pro Glu Gly
210 215 220

Gln Ala Tyr Asp Val Asp Phe Thr Pro Pro Phe Arg Arg Ile Asn Met

225 230 235 240

Val Glu Glu Leu Glu Lys Ala Leu Gly Met Lys Leu Pro Glu Thr Asn
245 250 255
Leu Phe Glu Thr Glu Glu Thr Arg Lys Ile Leu Asp Asp Ile Cys Val
260 265 270
Ala Lys Ala Val Glu Cys Pro Pro Pro Arg Thr Thr Ala Arg Leu Leu
275 280 285
Asp Lys Leu Val Gly Glu Phe Leu Glu Val Thr Cys Ile Asn Pro Thr
290 295 300
Phe Ile Cys Asp His Pro Gln Ile Met Ser Pro Leu Ala Lys Trp His

305 310 315 320
Arg Ser Lys Glu Gly Leu Thr Glu Arg Phe Glu Leu Phe Val Met Lys
325 330 335
Lys Glu Ile Cys Asn Ala Tyr Thr Glu Leu Asn Asp Pro Met Arg Gln
340 345 350
Arg Gln Leu Phe Glu Glu Gln Ala Lys Ala Lys Ala Ala Gly Asp Asp
355 360 365
Glu Ala Met Phe Ile Asp Glu Asn Phe Cys Thr Ala Leu Glu Tyr Gly
370 375 380

Leu Pro Pro Thr Ala Gly Trp Gly Met Gly Ile Asp Arg Val Ala Met
385 390 395 400
Phe Leu Thr Asp Ser Asn Asn Ile Lys Glu Val Leu Leu Phe Pro Ala
405 410 415
Met Lys Pro Glu Asp Lys Lys Glu Asn Val Ala Thr Thr Asp Thr Leu
420 425 430
Glu Ser Thr Thr Val Gly Thr Ser Val
435 440

<210> 166
<211> 739
<212> PRT
<213> Homo sapiens

<400> 166

Met Ala Ser Ile Leu Leu Arg Ser Cys Arg Gly Arg Ala Pro Ala Arg
1 5 10 15

Leu Pro Pro Pro Pro Arg Tyr Thr Val Pro Arg Gly Ser Pro Gly Asp
20 25 30

Pro Ala His Leu Ser Cys Ala Ser Thr Leu Gly Leu Arg Asn Cys Leu
35 40 45

Asn Val Pro Phe Gly Cys Cys Thr Pro Ile His Pro Val Tyr Thr Ser
50 55 60

Ser Arg Gly Asp His Leu Gly Cys Trp Ala Leu Arg Pro Glu Cys Leu

65 70 75 80

Arg Ile Val Ser Arg Ala Pro Trp Thr Ser Thr Ser Val Gly Phe Val
85 90 95

Ala Val Gly Pro Gln Cys Leu Pro Val Arg Gly Trp His Ser Ser Arg
100 105 110

Pro Val Arg Asp Asp Ser Val Val Glu Lys Ser Leu Lys Ser Leu Lys
115 120 125

Asp Lys Asn Lys Lys Leu Glu Glu Gly Gly Pro Val Tyr Ser Pro Pro
130 135 140

Ala Glu Val Val Val Lys Lys Ser Leu Gly Gln Arg Val Leu Asp Glu
145 150 155 160

Leu Lys His Tyr Tyr His Gly Phe Arg Leu Leu Trp Ile Asp Thr Lys
165 170 175

Ile Ala Ala Arg Met Leu Trp Arg Ile Leu Asn Gly His Ser Leu Thr
180 185 190

Arg Arg Glu Arg Arg Gln Phe Leu Arg Ile Cys Ala Asp Leu Phe Arg
195 200 205

Leu Val Pro Phe Leu Val Phe Val Val Val Pro Phe Met Glu Phe Leu

210 215 220

Leu Pro Val Ala Val Lys Leu Phe Pro Asn Met Leu Pro Ser Thr Phe
225 230 235 240

Glu Thr Gln Ser Leu Lys Glu Glu Arg Leu Lys Lys Glu Leu Arg Val

245 250 255

Lys Leu Glu Leu Ala Lys Phe Leu Gln Asp Thr Ile Glu Glu Met Ala

260 265 270

Leu Lys Asn Lys Ala Ala Lys Gly Ser Ala Thr Lys Asp Phe Ser Val

275 280 285

Phe Phe Gln Lys Ile Arg Glu Thr Gly Glu Arg Pro Ser Asn Glu Glu

290 295 300

Ile Met Arg Phe Ser Lys Leu Phe Glu Asp Glu Leu Thr Leu Asp Asn

305 310 315 320

Leu Thr Arg Pro Gln Leu Val Ala Leu Cys Lys Leu Leu Glu Leu Gln

325 330 335

Ser Ile Gly Thr Asn Asn Phe Leu Arg Phe Gln Leu Thr Met Arg Leu

340 345 350

Arg Ser Ile Lys Ala Asp Asp Lys Leu Ile Ala Glu Glu Gly Val Asp

355 360 365

Ser Leu Asn Val Lys Glu Leu Gln Ala Ala Cys Arg Ala Arg Gly Met

370 375 380

Arg Ala Leu Gly Val Thr Glu Asp Arg Leu Arg Gly Gln Leu Lys Gln

385 390 395 400

Trp Leu Asp Leu His Leu His Gln Glu Ile Pro Thr Ser Leu Leu Ile

405 410 415

Leu Ser Arg Ala Met Tyr Leu Pro Asp Thr Leu Ser Pro Ala Asp Gln

420 425 430

Leu Lys Ser Thr Leu Gln Thr Leu Pro Glu Ile Val Ala Lys Glu Ala

435 440 445

Gln Val Lys Val Ala Glu Val Glu Gly Glu Gln Val Asp Asn Lys Ala

450 455 460

Lys Leu Glu Ala Thr Leu Gln Glu Glu Ala Ala Ile Gln Gln Glu His

465 470 475 480

Arg Glu Lys Glu Leu Gln Lys Arg Ser Glu Val Ala Lys Asp Phe Glu

485 490 495

Pro Glu Arg Val Val Ala Ala Pro Gln Arg Pro Gly Thr Glu Pro Gln

500 505 510

Pro Glu Met Pro Asp Thr Val Leu Gln Ser Glu Thr Leu Lys Asp Thr

515 520 525

Ala Pro Val Leu Glu Gly Leu Lys Glu Glu Glu Ile Thr Lys Glu Glu

530 535 540

Ile Asp Ile Leu Ser Asp Ala Cys Ser Lys Leu Gln Glu Gln Lys Lys

545 550 555 560

Ser Leu Thr Lys Glu Lys Glu Glu Leu Glu Leu Leu Lys Glu Asp Val

565 570 575

Gln Asp Tyr Ser Glu Asp Leu Gln Glu Ile Lys Lys Glu Leu Ser Lys

580 585 590

Thr Gly Glu Glu Lys Tyr Val Glu Glu Ser Lys Ala Ser Lys Arg Leu

595 600 605

Thr Lys Arg Val Gln Gln Met Ile Gly Gln Ile Asp Gly Leu Ile Ser

610 615 620

Gln Leu Glu Met Asp Gln Gln Ala Gly Lys Leu Ala Pro Ala Asn Gly

625 630 635 640

Met Pro Thr Gly Glu Asn Val Ile Ser Val Ala Glu Leu Ile Asn Ala

645 650 655

Met Lys Gln Val Lys His Ile Pro Glu Ser Lys Leu Thr Ser Leu Ala

660 665 670

Ala Ala Leu Asp Glu Asn Lys Asp Gly Lys Val Asn Ile Asp Asp Leu

675 680 685

Val Lys Val Ile Glu Leu Val Asp Lys Glu Asp Val His Ile Ser Thr

690 695 700

Ser Gln Val Ala Glu Ile Val Ala Thr Leu Glu Lys Glu Glu Lys Val

705 710 715 720

Glu Glu Lys Glu Lys Ala Lys Glu Lys Ala Glu Lys Glu Val Ala Glu

725 730 735

Val Lys Ser

<210> 167

<211> 738

<212> PRT

<213> Homo sapiens

<400> 167

Met Ala Ser Ile Leu Leu Arg Ser Cys Arg Gly Arg Ala Pro Ala Arg
1 5 10 15

Leu Pro Pro Pro Pro Arg Tyr Thr Val Pro Arg Gly Ser Pro Gly Asp
20 25 30

Pro Ala His Leu Ser Cys Ala Ser Thr Leu Gly Leu Arg Asn Cys Leu
35 40 45

Asn Val Pro Phe Gly Cys Cys Thr Pro Ile His Pro Val Tyr Thr Ser
50 55 60

Ser Arg Gly Asp His Leu Gly Cys Trp Ala Leu Arg Pro Glu Cys Leu
65 70 75 80

Arg Ile Val Ser Arg Ala Pro Trp Thr Ser Thr Ser Val Gly Phe Val
85 90 95

Ala Val Gly Pro Gln Cys Leu Pro Val Arg Gly Trp His Ser Ser Arg
100 105 110

Pro Val Arg Asp Asp Ser Val Val Glu Lys Ser Leu Lys Ser Leu Lys
115 120 125

Asp Lys Asn Lys Lys Leu Glu Glu Gly Gly Pro Val Tyr Ser Pro Pro
130 135 140

Ala Glu Val Val Val Lys Lys Ser Leu Gly Gln Arg Val Leu Asp Glu
145 150 155 160

Leu Lys His Tyr Tyr His Gly Phe Arg Leu Leu Trp Ile Asp Thr Lys
165 170 175

Ile Ala Ala Arg Met Leu Trp Arg Ile Leu Asn Gly His Ser Leu Thr
180 185 190

Arg Arg Glu Arg Arg Gln Phe Leu Arg Ile Cys Ala Asp Leu Phe Arg
195 200 205

Leu Val Pro Phe Leu Val Phe Val Val Val Pro Phe Met Glu Phe Leu
210 215 220
Leu Pro Val Ala Val Lys Leu Phe Pro Asn Met Leu Pro Ser Thr Phe
225 230 235 240
Glu Thr Gln Ser Leu Lys Glu Glu Arg Leu Lys Lys Glu Leu Arg Val
245 250 255

Lys Leu Glu Leu Ala Lys Phe Leu Gln Asp Thr Ile Glu Glu Met Ala
260 265 270
Leu Lys Asn Lys Ala Ala Lys Gly Ser Ala Thr Lys Asp Phe Ser Val
275 280 285
Phe Phe Gln Lys Ile Arg Glu Thr Gly Glu Arg Pro Ser Asn Glu Glu
290 295 300
Ile Met Arg Phe Ser Lys Leu Phe Glu Asp Glu Leu Thr Leu Asp Asn
305 310 315 320
Leu Thr Arg Pro Gln Leu Val Ala Leu Cys Lys Leu Leu Glu Leu Gln

325 330 335
Ser Ile Gly Thr Asn Asn Phe Leu Arg Phe Gln Leu Thr Met Arg Leu
340 345 350
Arg Ser Ile Lys Ala Asp Asp Lys Leu Ile Ala Glu Glu Gly Val Asp
355 360 365
Ser Leu Asn Val Lys Glu Leu Gln Ala Ala Cys Arg Ala Arg Gly Met
370 375 380
Arg Ala Leu Gly Val Thr Glu Asp Arg Leu Arg Gly Gln Leu Lys Gln
385 390 395 400

Trp Leu Asp Leu His Leu His Gln Glu Ile Pro Thr Ser Leu Leu Ile
405 410 415
Leu Ser Arg Ala Met Tyr Leu Pro Asp Thr Leu Ser Pro Ala Asp Gln
420 425 430
Leu Lys Ser Thr Leu Gln Thr Leu Pro Glu Ile Val Ala Lys Glu Ala
435 440 445
Gln Val Lys Val Ala Glu Val Glu Gly Glu Gln Val Asp Asn Lys Ala
450 455 460

Lys Leu Glu Ala Thr Leu Gln Glu Glu Ala Ala Ile Gln Gln Glu His

465 470 475 480

Arg Glu Lys Glu Leu Gln Lys Arg Ser Glu Val Ala Asp Phe Glu Pro

485 490 495

Glu Arg Val Val Ala Ala Pro Gln Arg Pro Gly Thr Glu Pro Gln Pro

500 505 510

Glu Met Pro Asp Thr Val Leu Gln Ser Glu Thr Leu Lys Asp Thr Ala

515 520 525

Pro Val Leu Glu Gly Leu Lys Glu Glu Glu Ile Thr Lys Glu Glu Ile

530 535 540

Asp Ile Leu Ser Asp Ala Cys Ser Lys Leu Gln Glu Gln Lys Lys Ser

545 550 555 560

Leu Thr Lys Glu Lys Glu Glu Leu Glu Leu Leu Lys Glu Asp Val Gln

565 570 575

Asp Tyr Ser Glu Asp Leu Gln Glu Ile Lys Lys Glu Leu Ser Lys Thr

580 585 590

Gly Glu Glu Lys Tyr Val Glu Glu Ser Lys Ala Ser Lys Arg Leu Thr

595 600 605

Lys Arg Val Gln Gln Met Ile Gly Gln Ile Asp Gly Leu Ile Ser Gln

610 615 620

Leu Glu Met Asp Gln Gln Ala Gly Lys Leu Ala Pro Ala Asn Gly Met

625 630 635 640

Pro Thr Gly Glu Asn Val Ile Ser Val Ala Glu Leu Ile Asn Ala Met

645 650 655

Lys Gln Val Lys His Ile Pro Glu Ser Lys Leu Thr Ser Leu Ala Ala

660 665 670

Ala Leu Asp Glu Asn Lys Asp Gly Lys Val Asn Ile Asp Asp Leu Val

675 680 685

Lys Val Ile Glu Leu Val Asp Lys Glu Asp Val His Ile Ser Thr Ser

690 695 700

Gln Val Ala Glu Ile Val Ala Thr Leu Glu Lys Glu Glu Lys Val Glu

705 710 715 720

Glu Lys Glu Lys Ala Lys Glu Lys Ala Glu Lys Glu Val Ala Glu Val

725 730 735

Lys Ser

<210> 168

<211> 406

<212> PRT

<213> Homo sapiens

<400> 168

Met Ser Ala Ser Gln Asp Ser Arg Ser Arg Asp Asn Gly Pro Asp Gly

1 5 10 15

Met Glu Pro Glu Gly Val Ile Glu Ser Asn Trp Asn Glu Ile Val Asp

20 25 30

Ser Phe Asp Asp Met Asn Leu Ser Glu Ser Leu Leu Arg Gly Ile Tyr

35 40 45

Ala Tyr Gly Phe Glu Lys Pro Ser Ala Ile Gln Gln Arg Ala Ile Leu

50 55 60

Pro Cys Ile Lys Gly Tyr Asp Val Ile Ala Gln Ala Gln Ser Gly Thr

65 70 75 80

Gly Lys Thr Ala Thr Phe Ala Ile Ser Ile Leu Gln Gln Ile Glu Leu

85 90 95

Asp Leu Lys Ala Thr Gln Ala Leu Val Leu Ala Pro Thr Arg Glu Leu

100 105 110

Ala Gln Gln Ile Gln Lys Val Val Met Ala Leu Gly Asp Tyr Met Gly

115 120 125

Ala Ser Cys His Ala Cys Ile Gly Gly Thr Asn Val Arg Ala Glu Val

130 135 140

Gln Lys Leu Gln Met Glu Ala Pro His Ile Ile Val Gly Thr Pro Gly

145 150 155 160

Arg Val Phe Asp Met Leu Asn Arg Arg Tyr Leu Ser Pro Lys Tyr Ile

165 170 175

Lys Met Phe Val Leu Asp Glu Ala Asp Glu Met Leu Ser Arg Gly Phe
180 185 190
Lys Asp Gln Ile Tyr Asp Ile Phe Gln Lys Leu Asn Ser Asn Thr Gln
195 200 205
Val Val Leu Leu Ser Ala Thr Met Pro Ser Asp Val Leu Glu Val Thr
210 215 220

Lys Lys Phe Met Arg Asp Pro Ile Arg Ile Leu Val Lys Lys Glu Glu
225 230 235 240
Leu Thr Leu Glu Gly Ile Arg Gln Phe Tyr Ile Asn Val Glu Arg Glu
245 250 255
Glu Trp Lys Leu Asp Thr Leu Cys Asp Leu Tyr Glu Thr Leu Thr Ile
260 265 270
Thr Gln Ala Val Ile Phe Ile Asn Thr Arg Arg Lys Val Asp Trp Leu
275 280 285
Thr Glu Lys Met His Ala Arg Asp Phe Thr Val Ser Ala Met His Gly

290 295 300
Asp Met Asp Gln Lys Glu Arg Asp Val Ile Met Arg Glu Phe Arg Ser
305 310 315 320
Gly Ser Ser Arg Val Leu Ile Thr Thr Asp Leu Leu Ala Arg Gly Ile
325 330 335
Asp Val Gln Gln Val Ser Leu Val Ile Asn Tyr Asp Leu Pro Thr Asn
340 345 350
Arg Glu Asn Tyr Ile His Arg Ile Gly Arg Gly Gly Arg Phe Gly Arg
355 360 365

Lys Gly Val Ala Ile Asn Met Val Thr Glu Glu Asp Lys Arg Thr Leu
370 375 380
Arg Asp Ile Glu Thr Phe Tyr Asn Thr Ser Ile Glu Glu Met Pro Leu
385 390 395 400
Asn Val Ala Asp Leu Ile
405
<210> 169
<211> 347

<212> PRT

<213> Homo sapiens

<400> 169

Met Ser Ala Ser Gln Asp Ser Arg Ser Arg Asp Asn Gly Pro Asp Gly
1 5 10 15

Met Glu Pro Glu Gly Val Ile Glu Ser Asn Trp Asn Glu Ile Val Asp
20 25 30

Ser Phe Asp Asp Met Asn Leu Ser Glu Ser Leu Leu Arg Gly Ile Tyr
35 40 45

Ala Tyr Gly Phe Glu Lys Pro Ser Ala Ile Gln Gln Arg Ala Ile Leu
50 55 60

Pro Cys Ile Lys Gly Tyr Asp Val Ile Ala Gln Ala Gln Ser Gly Thr
65 70 75 80

Gly Lys Thr Ala Thr Phe Ala Ile Ser Ile Leu Gln Gln Ile Glu Leu
85 90 95

Asp Leu Lys Ala Thr Gln Ala Leu Val Leu Ala Pro Thr Arg Glu Leu
100 105 110

Ala Gln Gln Ile Gln Lys Val Val Met Ala Leu Gly Asp Tyr Met Gly
115 120 125

Ala Ser Cys His Ala Cys Ile Gly Gly Thr Asn Val Arg Ala Glu Val
130 135 140

Gln Lys Leu Gln Met Glu Ala Pro His Ile Ile Val Gly Thr Pro Gly
145 150 155 160

Arg Val Phe Asp Met Leu Asn Arg Arg Tyr Leu Ser Pro Lys Tyr Ile
165 170 175

Lys Met Phe Val Leu Asp Glu Ala Asp Glu Met Leu Ser Arg Gly Phe
180 185 190

Lys Asp Gln Ile Tyr Asp Ile Phe Gln Lys Leu Asn Ser Asn Thr Gln
195 200 205

Val Val Leu Leu Ser Ala Thr Met Pro Ser Asp Val Leu Glu Val Thr
210 215 220

Lys Lys Phe Met Arg Asp Pro Ile Arg Ile Leu Val Lys Lys Glu Glu

225 230 235 240

Leu Thr Leu Glu Gly Ile Arg Gln Phe Tyr Ile Asn Val Glu Arg Glu
245 250 255
Glu Trp Lys Leu Asp Thr Leu Cys Asp Leu Tyr Glu Thr Leu Thr Ile
260 265 270
Thr Gln Ala Val Ile Phe Ile Asn Thr Arg Arg Lys Val Asp Trp Leu
275 280 285
Thr Glu Lys Met His Ala Arg Asp Phe Thr Val Ser Ala Met His Gly
290 295 300
Asp Met Asp Gln Lys Glu Arg Asp Val Ile Met Arg Glu Phe Arg Ser

305 310 315 320
Gly Ser Ser Arg Val Leu Ile Thr Thr Asp Leu Leu Gly Lys Leu Tyr
325 330 335
Pro Gln Asn Arg Ser Arg Trp Thr Val Trp Pro
340 345

<210> 170
<211> 412
<212> PRT
<213> Homo sapiens
<400> 170

Met Asp Pro Ile Arg Ser Phe Cys Gly Lys Leu Arg Ser Leu Ala Ser
1 5 10 15
Thr Leu Asp Cys Glu Thr Ala Arg Leu Gln Arg Ala Leu Asp Gly Glu

20 25 30
Glu Ser Asp Phe Glu Asp Tyr Pro Met Arg Ile Leu Tyr Asp Leu His
35 40 45
Ser Glu Val Gln Thr Leu Lys Asp Asp Val Asn Ile Leu Leu Asp Lys
50 55 60
Ala Arg Leu Glu Asn Gln Glu Gly Ile Asp Phe Ile Lys Ala Thr Lys
65 70 75 80
Val Leu Met Glu Lys Asn Ser Met Asp Ile Met Lys Ile Arg Glu Tyr

85 90 95

Phe Gln Lys Tyr Gly Tyr Ser Pro Arg Val Lys Lys Asn Ser Val His
100 105 110
Glu Gln Glu Ala Ile Asn Ser Asp Pro Glu Leu Ser Asn Cys Glu Asn
115 120 125
Phe Gln Lys Thr Asp Val Lys Asp Asp Leu Ser Asp Pro Pro Val Ala
130 135 140
Ser Ser Cys Ile Ser Glu Lys Ser Pro Arg Ser Pro Gln Leu Ser Asp
145 150 155 160
Phe Gly Leu Glu Arg Tyr Ile Val Ser Gln Val Leu Pro Asn Pro Pro

165 170 175
Gln Ala Val Asn Asn Tyr Lys Glu Glu Pro Val Ile Val Thr Pro Pro
180 185 190
Thr Lys Gln Ser Leu Val Lys Val Leu Lys Thr Pro Lys Cys Ala Leu
195 200 205
Lys Met Asp Asp Phe Glu Cys Val Thr Pro Lys Leu Glu His Phe Gly
210 215 220
Ile Ser Glu Tyr Thr Met Cys Leu Asn Glu Asp Tyr Thr Met Gly Leu
225 230 235 240

Lys Asn Ala Arg Asn Asn Lys Ser Glu Glu Ala Ile Asp Thr Glu Ser
245 250 255
Arg Leu Asn Asp Asn Val Phe Ala Thr Pro Ser Pro Ile Ile Gln Gln
260 265 270
Leu Glu Lys Ser Asp Ala Glu Tyr Thr Asn Ser Pro Leu Val Pro Thr
275 280 285
Phe Cys Thr Pro Gly Leu Lys Ile Pro Ser Thr Lys Asn Ser Ile Ala
290 295 300
Leu Val Ser Thr Asn Tyr Pro Leu Ser Lys Thr Asn Ser Ser Ser Asn

305 310 315 320
Asp Leu Glu Val Glu Asp Arg Thr Ser Leu Val Leu Asn Ser Asp Thr
325 330 335

Cys Phe Glu Asn Leu Thr Asp Pro Ser Ser Pro Thr Ile Ser Ser Tyr
340 345 350

Glu Asn Leu Leu Arg Thr Pro Thr Pro Pro Glu Val Thr Lys Ile Pro
355 360 365

Glu Asp Ile Leu Gln Leu Leu Ser Lys Tyr Asn Ser Asn Leu Ala Thr
370 375 380

Pro Ile Ala Ile Lys Ala Val Pro Pro Ser Lys Arg Phe Leu Lys His
385 390 395 400

Gly Gln Asn Ile Arg Asp Val Ser Asn Lys Glu Asn
405 410

<210> 171

<211> 388

<212> PRT

<213> Homo sapiens

<400> 171

Met Asp Pro Ile Arg Ser Phe Cys Gly Lys Leu Arg Ser Leu Ala Ser
1 5 10 15

Thr Leu Asp Cys Glu Thr Ala Arg Leu Gln Arg Ala Leu Asp Gly Glu
20 25 30

Glu Ser Asp Phe Glu Asp Tyr Pro Met Arg Ile Leu Tyr Asp Leu His
35 40 45

Ser Glu Val Gln Thr Leu Lys Asp Asp Val Asn Ile Leu Leu Asp Lys
50 55 60

Ala Arg Leu Glu Asn Gln Glu Gly Ile Asp Phe Ile Lys Ala Thr Lys
65 70 75 80

Val Leu Met Glu Lys Asn Ser Met Asp Ile Met Lys Ile Arg Glu Tyr
85 90 95

Phe Gln Lys Tyr Gly Tyr Ser Pro Arg Val Lys Lys Asn Ser Val His

100 105 110

Glu Gln Glu Ala Ile Asn Ser Asp Pro Glu Leu Ser Asn Cys Glu Asn
115 120 125

Phe Gln Lys Thr Asp Val Lys Asp Asp Leu Ser Asp Pro Pro Val Ala

130 135 140

Ser Ser Cys Ile Ser Glu Lys Ser Pro Arg Ser Pro Gln Leu Ser Asp

145 150 155 160

Phe Gly Leu Glu Arg Tyr Ile Val Ser Gln Val Leu Pro Asn Pro Pro

165 170 175

Gln Ala Val Asn Asn Tyr Lys Glu Glu Pro Val Ile Val Thr Pro Pro

180 185 190

Thr Lys Gln Ser Leu Val Lys Val Leu Lys Thr Pro Lys Cys Ala Leu

195 200 205

Lys Met Asp Asp Phe Glu Cys Val Thr Pro Lys Leu Glu His Phe Gly

210 215 220

Ile Ser Glu Tyr Thr Met Cys Leu Asn Glu Asp Tyr Thr Met Gly Leu

225 230 235 240

Lys Asn Ala Arg Asn Asn Lys Ser Glu Glu Ala Ile Asp Thr Glu Ser

245 250 255

Arg Leu Asn Asp Asn Val Phe Ala Thr Pro Ser Pro Ile Ile Gln Gln

260 265 270

Leu Glu Lys Ser Asp Ala Glu Tyr Thr Asn Ser Pro Leu Val Pro Thr

275 280 285

Phe Cys Thr Pro Gly Leu Lys Ile Pro Ser Thr Lys Asn Ser Ile Ala

290 295 300

Leu Val Ser Thr Asn Tyr Pro Leu Ser Lys Thr Asn Ser Ser Ser Asn

305 310 315 320

Asp Leu Glu Val Glu Asp Arg Thr Ser Leu Val Leu Asn Ser Asp Thr

325 330 335

Cys Phe Glu Asn Leu Thr Asp Pro Ser Ser Pro Thr Ile Ser Ser Tyr

340 345 350

Glu Asn Leu Leu Arg Thr Pro Thr Pro Pro Glu Val Thr Lys Ile Pro

355 360 365

Glu Asp Ile Leu Gln Lys Phe Gln Trp Ile Tyr Pro Thr Gln Lys Leu

370 375 380

Asn Lys Met Arg

385

<210> 172

<211> 330

<212> PRT

<213> Homo sapiens

<400> 172

Met Glu Lys Asn Ser Met Asp Ile Met Lys Ile Arg Glu Tyr Phe Gln
1 5 10 15

Lys Tyr Gly Tyr Ser Pro Arg Val Lys Lys Asn Ser Val His Glu Gln
20 25 30

Glu Ala Ile Asn Ser Asp Pro Glu Leu Ser Asn Cys Glu Asn Phe Gln
35 40 45

Lys Thr Asp Val Lys Asp Asp Leu Ser Asp Pro Pro Val Ala Ser Ser

50 55 60

Cys Ile Ser Glu Lys Ser Pro Arg Ser Pro Gln Leu Ser Asp Phe Gly
65 70 75 80

Leu Glu Arg Tyr Ile Val Ser Gln Val Leu Pro Asn Pro Pro Gln Ala
85 90 95

Val Asn Asn Tyr Lys Glu Glu Pro Val Ile Val Thr Pro Pro Thr Lys
100 105 110

Gln Ser Leu Val Lys Val Leu Lys Thr Pro Lys Cys Ala Leu Lys Met
115 120 125

Asp Asp Phe Glu Cys Val Thr Pro Lys Leu Glu His Phe Gly Ile Ser
130 135 140

Glu Tyr Thr Met Cys Leu Asn Glu Asp Tyr Thr Met Gly Leu Lys Asn
145 150 155 160

Ala Arg Asn Asn Lys Ser Glu Glu Ala Ile Asp Thr Glu Ser Arg Leu
165 170 175

Asn Asp Asn Val Phe Ala Thr Pro Ser Pro Ile Ile Gln Gln Leu Glu
180 185 190

Lys Ser Asp Ala Glu Tyr Thr Asn Ser Pro Leu Val Pro Thr Phe Cys

195 200 205

Thr Pro Gly Leu Lys Ile Pro Ser Thr Lys Asn Ser Ile Ala Leu Val

210 215 220

Ser Thr Asn Tyr Pro Leu Ser Lys Thr Asn Ser Ser Ser Asn Asp Leu

225 230 235 240

Glu Val Glu Asp Arg Thr Ser Leu Val Leu Asn Ser Asp Thr Cys Phe

245 250 255

Glu Asn Leu Thr Asp Pro Ser Ser Pro Thr Ile Ser Ser Tyr Glu Asn

260 265 270

Leu Leu Arg Thr Pro Thr Pro Pro Glu Val Thr Lys Ile Pro Glu Asp

275 280 285

Ile Leu Gln Leu Leu Ser Lys Tyr Asn Ser Asn Leu Ala Thr Pro Ile

290 295 300

Ala Ile Lys Ala Val Pro Pro Ser Lys Arg Phe Leu Lys His Gly Gln

305 310 315 320

Asn Ile Arg Asp Val Ser Asn Lys Glu Asn

325 330

<210> 173

<211> 372

<212> PRT

<213> Homo sapiens

<400> 173

Met Arg Ile Leu Tyr Asp Leu His Ser Glu Val Gln Thr Leu Lys Asp

1 5 10 15

Asp Val Asn Ile Leu Leu Asp Lys Ala Arg Leu Glu Asn Gln Glu Gly

20 25 30

Ile Asp Phe Ile Lys Ala Thr Lys Val Leu Met Glu Lys Asn Ser Met

35 40 45

Asp Ile Met Lys Ile Arg Glu Tyr Phe Gln Lys Tyr Gly Tyr Ser Pro

50 55 60

Arg Val Lys Lys Asn Ser Val His Glu Gln Glu Ala Ile Asn Ser Asp

65 70 75 80

Pro Glu Leu Ser Asn Cys Glu Asn Phe Gln Lys Thr Asp Val Lys Asp
85 90 95
Asp Leu Ser Asp Pro Pro Val Ala Ser Ser Cys Ile Ser Glu Lys Ser
100 105 110
Pro Arg Ser Pro Gln Leu Ser Asp Phe Gly Leu Glu Arg Tyr Ile Val
115 120 125
Ser Gln Val Leu Pro Asn Pro Pro Gln Ala Val Asn Asn Tyr Lys Glu
130 135 140

Glu Pro Val Ile Val Thr Pro Pro Thr Lys Gln Ser Leu Val Lys Val
145 150 155 160
Leu Lys Thr Pro Lys Cys Ala Leu Lys Met Asp Asp Phe Glu Cys Val
165 170 175
Thr Pro Lys Leu Glu His Phe Gly Ile Ser Glu Tyr Thr Met Cys Leu
180 185 190
Asn Glu Asp Tyr Thr Met Gly Leu Lys Asn Ala Arg Asn Asn Lys Ser
195 200 205
Glu Glu Ala Ile Asp Thr Glu Ser Arg Leu Asn Asp Asn Val Phe Ala

210 215 220
Thr Pro Ser Pro Ile Ile Gln Gln Leu Glu Lys Ser Asp Ala Glu Tyr
225 230 235 240
Thr Asn Ser Pro Leu Val Pro Thr Phe Cys Thr Pro Gly Leu Lys Ile
245 250 255
Pro Ser Thr Lys Asn Ser Ile Ala Leu Val Ser Thr Asn Tyr Pro Leu
260 265 270
Ser Lys Thr Asn Ser Ser Ser Asn Asp Leu Glu Val Glu Asp Arg Thr
275 280 285

Ser Leu Val Leu Asn Ser Asp Thr Cys Phe Glu Asn Leu Thr Asp Pro
290 295 300
Ser Ser Pro Thr Ile Ser Ser Tyr Glu Asn Leu Leu Arg Thr Pro Thr
305 310 315 320
Pro Pro Glu Val Thr Lys Ile Pro Glu Asp Ile Leu Gln Leu Leu Ser
325 330 335

Lys Tyr Asn Ser Asn Leu Ala Thr Pro Ile Ala Ile Lys Ala Val Pro
340 345 350

Pro Ser Lys Arg Phe Leu Lys His Gly Gln Asn Ile Arg Asp Val Ser

355 360 365

Asn Lys Glu Asn

370

<210> 174

<211> 520

<212> PRT

<213> Homo sapiens

<400> 174

Met Ser Leu Ser Pro Cys Arg Ala Gln Arg Gly Phe Ser Ala Arg Ser
1 5 10 15

Ala Cys Ser Ala Arg Ser Arg Gly Arg Ser Arg Gly Gly Phe Ser Ser
20 25 30

Arg Gly Gly Phe Ser Ser Arg Ser Leu Asn Ser Phe Gly Gly Cys Leu
35 40 45

Glu Gly Ser Arg Gly Ser Thr Trp Gly Ser Gly Gly Arg Leu Gly Val
50 55 60

Arg Phe Gly Glu Trp Ser Gly Gly Pro Gly Leu Ser Leu Cys Pro Pro
65 70 75 80

Gly Gly Ile Gln Glu Val Thr Ile Asn Gln Asn Leu Leu Thr Pro Leu
85 90 95

Lys Ile Glu Ile Asp Pro Gln Phe Gln Val Val Arg Thr Gln Glu Thr
100 105 110

Gln Glu Ile Arg Thr Leu Asn Asn Gln Phe Ala Ser Phe Ile Asp Lys

115 120 125

Val Arg Phe Leu Glu Gln Gln Asn Lys Val Leu Glu Thr Lys Trp His
130 135 140

Leu Leu Gln Gln Gln Gly Leu Ser Gly Ser Gln Gln Gly Leu Glu Pro
145 150 155 160

Val Phe Glu Ala Cys Leu Asp Gln Leu Arg Lys Gln Leu Glu Gln Leu

165 170 175

Gln Gly Glu Arg Gly Ala Leu Asp Ala Glu Leu Lys Ala Cys Arg Asp

180 185 190

Gln Glu Glu Glu Tyr Lys Ser Lys Tyr Glu Glu Glu Ala His Arg Arg

195 200 205

Ala Thr Leu Glu Asn Asp Phe Val Val Leu Lys Lys Asp Val Asp Gly

210 215 220

Val Phe Leu Ser Lys Met Glu Leu Glu Gly Lys Leu Glu Ala Leu Arg

225 230 235 240

Glu Tyr Leu Tyr Phe Leu Lys His Leu Asn Glu Glu Glu Leu Gly Gln

245 250 255

Leu Gln Thr Gln Ala Ser Asp Thr Ser Val Val Leu Ser Met Asp Asn

260 265 270

Asn Arg Tyr Leu Asp Phe Ser Ser Ile Ile Thr Glu Val Arg Ala Arg

275 280 285

Tyr Glu Glu Ile Ala Arg Ser Ser Lys Ala Glu Ala Glu Ala Leu Tyr

290 295 300

Gln Thr Lys Tyr Gln Glu Leu Gln Val Ser Ala Gln Leu His Gly Asp

305 310 315 320

Arg Met Gln Glu Thr Lys Val Gln Ile Ser Gln Leu His Gln Glu Ile

325 330 335

Gln Arg Leu Gln Ser Gln Thr Glu Asn Leu Lys Lys Gln Asn Ala Ser

340 345 350

Leu Gln Ala Ala Ile Thr Asp Ala Glu Gln Arg Gly Glu Leu Ala Leu

355 360 365

Lys Asp Ala Gln Ala Lys Val Asp Glu Leu Glu Ala Ala Leu Arg Met

370 375 380

Ala Lys Gln Asn Leu Ala Arg Leu Leu Cys Glu Tyr Gln Glu Leu Thr

385 390 395 400

Ser Thr Lys Leu Ser Leu Asp Val Glu Ile Ala Thr Tyr Arg Arg Leu

405 410 415

Leu Glu Gly Glu Glu Cys Arg Met Ser Gly Glu Cys Thr Ser Gln Val
420 425 430

Thr Ile Ser Ser Val Gly Gly Ser Ala Val Met Ser Gly Gly Val Gly
435 440 445

Gly Gly Leu Gly Ser Thr Cys Gly Leu Gly Ser Gly Lys Gly Ser Pro
450 455 460

Gly Ser Cys Cys Thr Ser Ile Val Thr Gly Gly Ser Asn Ile Ile Leu
465 470 475 480

Gly Ser Gly Lys Asp Pro Val Leu Asp Ser Cys Ser Val Ser Gly Ser
485 490 495

Ser Ala Gly Ser Ser Cys His Thr Ile Leu Lys Lys Thr Val Glu Ser
500 505 510

Ser Leu Lys Thr Ser Ile Thr Tyr
515 520

<210> 175

<211> 410

<212> PRT

<213> Homo sapiens

<400> 175

Met Glu Gly His Glu Ala Ser Pro Ala Gln Val Gly Gln Gly Asp Arg
1 5 10 15

Gly Lys Val Arg Phe Leu Glu Gln Gln Asn Lys Val Leu Glu Thr Lys
20 25 30

Trp His Leu Leu Gln Gln Gln Gly Leu Ser Gly Ser Gln Gln Gly Leu
35 40 45

Glu Pro Val Phe Glu Ala Cys Leu Asp Gln Leu Arg Lys Gln Leu Glu
50 55 60

Gln Leu Gln Gly Glu Arg Gly Ala Leu Asp Ala Glu Leu Lys Ala Cys
65 70 75 80

Arg Asp Gln Glu Glu Glu Tyr Lys Ser Lys Tyr Glu Glu Glu Ala His
85 90 95

Arg Arg Ala Thr Leu Glu Asn Asp Phe Val Val Leu Lys Lys Asp Val

100 105 110

Asp Gly Val Phe Leu Ser Lys Met Glu Leu Glu Gly Lys Leu Glu Ala

115 120 125

Leu Arg Glu Tyr Leu Tyr Phe Leu Lys His Leu Asn Glu Glu Glu Leu

130 135 140

Gly Gln Leu Gln Thr Gln Ala Ser Asp Thr Ser Val Val Leu Ser Met

145 150 155 160

Asp Asn Asn Arg Tyr Leu Asp Phe Ser Ser Ile Ile Thr Glu Val Arg

165 170 175

Ala Arg Tyr Glu Glu Ile Ala Arg Ser Ser Lys Ala Glu Ala Glu Ala

180 185 190

Leu Tyr Gln Thr Lys Tyr Gln Glu Leu Gln Val Ser Ala Gln Leu His

195 200 205

Gly Asp Arg Met Gln Glu Thr Lys Val Gln Ile Ser Gln Leu His Gln

210 215 220

Glu Ile Gln Arg Leu Gln Ser Gln Thr Glu Asn Leu Lys Lys Gln Asn

225 230 235 240

Ala Ser Leu Gln Ala Ala Ile Thr Asp Ala Glu Gln Arg Gly Glu Leu

245 250 255

Ala Leu Lys Asp Ala Gln Ala Lys Val Asp Glu Leu Glu Ala Ala Leu

260 265 270

Arg Met Ala Lys Gln Asn Leu Ala Arg Leu Leu Cys Glu Tyr Gln Glu

275 280 285

Leu Thr Ser Thr Lys Leu Ser Leu Asp Val Glu Ile Ala Thr Tyr Arg

290 295 300

Arg Leu Leu Glu Gly Glu Glu Cys Arg Met Ser Gly Glu Cys Thr Ser

305 310 315 320

Gln Val Thr Ile Ser Ser Val Gly Gly Ser Ala Val Met Ser Gly Gly

325 330 335

Val Gly Gly Gly Leu Gly Ser Thr Cys Gly Leu Gly Ser Gly Lys Gly

340 345 350

Ser Pro Gly Ser Cys Cys Thr Ser Ile Val Thr Gly Gly Ser Asn Ile

355 360 365

Ile Leu Gly Ser Gly Lys Asp Pro Val Leu Asp Ser Cys Ser Val Ser

370 375 380

Gly Ser Ser Ala Gly Ser Ser Cys His Thr Ile Leu Lys Lys Thr Val

385 390 395 400

Glu Ser Ser Leu Lys Thr Ser Ile Thr Tyr

405 410

<210> 176

<211> 488

<212> PRT

<213> Homo sapiens

<400> 176

Met Ser Leu Ser Pro Cys Arg Ala Gln Arg Gly Phe Ser Ala Arg Ser

1 5 10 15

Ala Cys Ser Ala Arg Ser Arg Gly Arg Ser Arg Gly Gly Phe Ser Ser

20 25 30

Arg Gly Gly Phe Ser Ser Arg Ser Leu Asn Ser Phe Gly Gly Cys Leu

35 40 45

Glu Gly Ser Arg Gly Ser Thr Trp Gly Ser Gly Gly Arg Leu Gly Val

50 55 60

Arg Phe Gly Glu Trp Ser Gly Gly Pro Gly Leu Ser Leu Cys Pro Pro

65 70 75 80

Gly Gly Ile Gln Glu Val Thr Ile Asn Gln Asn Leu Leu Thr Pro Leu

85 90 95

Lys Ile Glu Ile Asp Pro Gln Phe Gln Val Val Arg Thr Gln Glu Thr

100 105 110

Gln Glu Ile Arg Thr Leu Asn Asn Gln Phe Ala Ser Phe Ile Asp Lys

115 120 125

Val Arg Phe Leu Glu Gln Gln Asn Lys Val Leu Glu Thr Lys Trp His

130 135 140

Leu Leu Gln Gln Gln Gly Leu Ser Gly Ser Gln Gln Gly Leu Glu Pro

145 150 155 160

Val Phe Glu Ala Cys Leu Asp Gln Leu Arg Lys Gln Leu Glu Gln Leu

165 170 175

Gln Gly Glu Arg Gly Ala Leu Asp Ala Glu Leu Lys Ala Cys Arg Asp

180 185 190

Gln Glu Glu Glu Tyr Lys Ser Lys Tyr Glu Glu Glu Ala His Arg Arg

195 200 205

Ala Thr Leu Glu Asn Asp Phe Val Val Leu Lys Lys Glu Leu Gly Gln

210 215 220

Leu Gln Thr Gln Ala Ser Asp Thr Ser Val Val Leu Ser Met Asp Asn

225 230 235 240

Asn Arg Tyr Leu Asp Phe Ser Ser Ile Ile Thr Glu Val Arg Ala Arg

245 250 255

Tyr Glu Glu Ile Ala Arg Ser Ser Lys Ala Glu Ala Glu Ala Leu Tyr

260 265 270

Gln Thr Lys Tyr Gln Glu Leu Gln Val Ser Ala Gln Leu His Gly Asp

275 280 285

Arg Met Gln Glu Thr Lys Val Gln Ile Ser Gln Leu His Gln Glu Ile

290 295 300

Gln Arg Leu Gln Ser Gln Thr Glu Asn Leu Lys Lys Gln Asn Ala Ser

305 310 315 320

Leu Gln Ala Ala Ile Thr Asp Ala Glu Gln Arg Gly Glu Leu Ala Leu

325 330 335

Lys Asp Ala Gln Ala Lys Val Asp Glu Leu Glu Ala Ala Leu Arg Met

340 345 350

Ala Lys Gln Asn Leu Ala Arg Leu Leu Cys Glu Tyr Gln Glu Leu Thr

355 360 365

Ser Thr Lys Leu Ser Leu Asp Val Glu Ile Ala Thr Tyr Arg Arg Leu

370 375 380

Leu Glu Gly Glu Glu Cys Arg Met Ser Gly Glu Cys Thr Ser Gln Val

385 390 395 400

Thr Ile Ser Ser Val Gly Gly Ser Ala Val Met Ser Gly Gly Val Gly

405 410 415

Gly Gly Leu Gly Ser Thr Cys Gly Leu Gly Ser Gly Lys Gly Ser Pro

420 425 430

Gly Ser Cys Cys Thr Ser Ile Val Thr Gly Gly Ser Asn Ile Ile Leu

435 440 445

Gly Ser Gly Lys Asp Pro Val Leu Asp Ser Cys Ser Val Ser Gly Ser

450 455 460

Ser Ala Gly Ser Ser Cys His Thr Ile Leu Lys Lys Thr Val Glu Ser

465 470 475 480

Ser Leu Lys Thr Ser Ile Thr Tyr

485

<210> 177

<211> 938

<212> PRT

<213> Homo sapiens

<400> 177

Met Leu Trp Pro Arg Leu Ala Ala Ala Glu Trp Ala Ala Leu Ala Trp

1 5 10 15

Glu Leu Leu Gly Ala Ser Val Leu Leu Ile Ala Val Arg Trp Leu Val

20 25 30

Arg Arg Leu Gly Pro Arg Pro Gly Gly Leu Gly Arg Ser Gly Thr Pro

35 40 45

Val Pro Pro Pro Ser Ala Ala Ala Ala Pro Ala Ser Gly Glu Met Thr

50 55 60

Met Asp Ala Leu Leu Ala Arg Leu Lys Leu Leu Asn Pro Asp Asp Leu

65 70 75 80

Arg Glu Glu Ile Val Lys Ala Gly Leu Lys Cys Gly Pro Ile Thr Ser

85 90 95

Thr Thr Arg Phe Ile Phe Glu Lys Lys Leu Ala Gln Ala Leu Leu Glu

100 105 110

Gln Gly Gly Arg Leu Ser Ser Phe Tyr His His Glu Ala Gly Val Thr

115 120 125

Ala Leu Ser Gln Asp Pro Gln Arg Ile Leu Lys Pro Ala Glu Gly Asn
130 135 140
Pro Thr Asp Gln Ala Gly Phe Ser Glu Asp Arg Asp Phe Gly Tyr Ser
145 150 155 160
Val Gly Leu Asn Pro Pro Glu Glu Glu Ala Val Thr Ser Lys Thr Cys

165 170 175
Ser Val Pro Pro Ser Asp Thr Asp Thr Tyr Arg Ala Gly Ala Thr Ala
180 185 190
Ser Lys Glu Pro Pro Leu Tyr Tyr Gly Val Cys Pro Val Tyr Glu Asp
195 200 205
Val Pro Ala Arg Asn Glu Arg Ile Tyr Val Tyr Glu Asn Lys Lys Glu
210 215 220
Ala Leu Gln Ala Val Lys Met Ile Lys Gly Ser Arg Phe Lys Ala Phe
225 230 235 240

Ser Thr Arg Glu Asp Ala Glu Lys Phe Ala Arg Gly Ile Cys Asp Tyr
245 250 255
Phe Pro Ser Pro Ser Lys Thr Ser Leu Pro Leu Ser Pro Val Lys Thr
260 265 270
Ala Pro Leu Phe Ser Asn Asp Arg Leu Lys Asp Gly Leu Cys Leu Ser
275 280 285
Glu Ser Glu Thr Val Asn Lys Glu Arg Ala Asn Ser Tyr Lys Asn Pro
290 295 300
Arg Thr Gln Asp Leu Thr Ala Lys Leu Arg Lys Ala Val Glu Lys Gly

305 310 315 320
Glu Glu Asp Thr Phe Ser Asp Leu Ile Trp Ser Asn Pro Arg Tyr Leu
325 330 335
Ile Gly Ser Gly Asp Asn Pro Thr Ile Val Gln Glu Gly Cys Arg Tyr
340 345 350
Asn Val Met His Val Ala Ala Lys Glu Asn Gln Ala Ser Ile Cys Gln
355 360 365
Leu Thr Leu Asp Val Leu Glu Asn Pro Asp Phe Met Arg Leu Met Tyr

370 375 380

Pro Asp Asp Asp Glu Ala Met Leu Gln Lys Arg Ile Arg Tyr Val Val
385 390 395 400
Asp Leu Tyr Leu Asn Thr Pro Asp Lys Met Gly Tyr Asp Thr Pro Leu
405 410 415
His Phe Ala Cys Lys Phe Gly Asn Ala Asp Val Val Asn Val Leu Ser
420 425 430
Ser His His Leu Ile Val Lys Asn Ser Arg Asn Lys Tyr Asp Lys Thr
435 440 445
Pro Glu Asp Val Ile Cys Glu Arg Ser Lys Asn Lys Ser Val Glu Leu

450 455 460
Lys Glu Arg Ile Arg Glu Tyr Leu Lys Gly His Tyr Tyr Val Pro Leu
465 470 475 480
Leu Arg Ala Glu Glu Thr Ser Ser Pro Val Ile Gly Glu Leu Trp Ser
485 490 495
Pro Asp Gln Thr Ala Glu Ala Ser His Val Ser Arg Tyr Gly Gly Ser
500 505 510
Pro Arg Asp Pro Val Leu Thr Leu Arg Ala Phe Ala Gly Pro Leu Ser
515 520 525

Pro Ala Lys Ala Glu Asp Phe Arg Lys Leu Trp Lys Thr Pro Pro Arg
530 535 540
Glu Lys Ala Gly Phe Leu His His Val Lys Lys Ser Asp Pro Glu Arg
545 550 555 560
Gly Phe Glu Arg Val Gly Arg Glu Leu Ala His Glu Leu Gly Tyr Pro
565 570 575
Trp Val Glu Tyr Trp Glu Phe Leu Gly Cys Phe Val Asp Leu Ser Ser
580 585 590
Gln Glu Gly Leu Gln Arg Leu Glu Glu Tyr Leu Thr Gln Gln Glu Ile

595 600 605
Gly Lys Lys Ala Gln Gln Glu Thr Gly Glu Arg Glu Ala Ser Cys Arg
610 615 620

Asp Lys Ala Thr Thr Ser Gly Ser Asn Ser Ile Ser Val Arg Ala Phe
625 630 635 640
Leu Asp Glu Asp Asp Met Ser Leu Glu Glu Ile Lys Asn Arg Gln Asn
645 650 655
Ala Ala Arg Asn Asn Ser Pro Pro Thr Val Gly Ala Phe Gly His Thr
660 665 670

Arg Cys Ser Ala Phe Pro Leu Glu Gln Glu Ala Asp Leu Ile Glu Ala
675 680 685
Ala Glu Pro Gly Gly Pro His Ser Ser Arg Asn Gly Leu Cys His Pro
690 695 700
Leu Asn His Ser Arg Thr Leu Ala Gly Lys Arg Pro Lys Ala Pro Arg
705 710 715 720
Gly Glu Glu Ala His Leu Pro Pro Val Ser Asp Leu Thr Val Glu Phe
725 730 735
Asp Lys Leu Asn Leu Gln Asn Ile Gly Arg Ser Val Ser Lys Thr Pro

740 745 750
Asp Glu Ser Thr Lys Thr Lys Asp Gln Ile Leu Thr Ser Arg Ile Asn
755 760 765
Ala Val Glu Arg Asp Leu Leu Glu Pro Ser Pro Ala Asp Gln Leu Gly
770 775 780
Asn Gly His Arg Arg Thr Glu Ser Glu Met Ser Ala Arg Ile Ala Lys
785 790 795 800
Met Ser Leu Ser Pro Ser Ser Pro Arg His Glu Asp Gln Leu Glu Val
805 810 815

Thr Arg Glu Pro Ala Arg Arg Leu Phe Leu Phe Gly Glu Glu Pro Ser
820 825 830
Lys Leu Asp Gln Asp Val Leu Ala Ala Leu Glu Cys Ala Asp Val Asp
835 840 845
Pro His Gln Phe Pro Ala Val His Arg Trp Lys Ser Ala Val Leu Cys
850 855 860
Tyr Ser Pro Ser Asp Arg Gln Ser Trp Pro Ser Pro Ala Val Lys Gly
865 870 875 880

Arg Phe Lys Ser Gln Leu Pro Asp Leu Ser Gly Pro His Ser Tyr Ser

885 890 895

Pro Gly Arg Asn Ser Val Ala Gly Ser Asn Pro Ala Lys Pro Gly Leu

900 905 910

Gly Ser Pro Gly Arg Tyr Ser Pro Val His Gly Ser Gln Leu Arg Arg

915 920 925

Met Ala Arg Leu Ala Glu Leu Ala Ala Leu

930 935

<210> 178

<211> 876

<212> PRT

<213> Homo sapiens

<400> 178

Met Thr Met Asp Ala Leu Leu Ala Arg Leu Lys Leu Leu Asn Pro Asp

1 5 10 15

Asp Leu Arg Glu Glu Ile Val Lys Ala Gly Leu Lys Cys Gly Pro Ile

20 25 30

Thr Ser Thr Thr Arg Phe Ile Phe Glu Lys Lys Leu Ala Gln Ala Leu

35 40 45

Leu Glu Gln Gly Gly Arg Leu Ser Ser Phe Tyr His His Glu Ala Gly

50 55 60

Val Thr Ala Leu Ser Gln Asp Pro Gln Arg Ile Leu Lys Pro Ala Glu

65 70 75 80

Gly Asn Pro Thr Asp Gln Ala Gly Phe Ser Glu Asp Arg Asp Phe Gly

85 90 95

Tyr Ser Val Gly Leu Asn Pro Pro Glu Glu Glu Ala Val Thr Ser Lys

100 105 110

Thr Cys Ser Val Pro Pro Ser Asp Thr Asp Thr Tyr Arg Ala Gly Ala

115 120 125

Thr Ala Ser Lys Glu Pro Pro Leu Tyr Tyr Gly Val Cys Pro Val Tyr

130 135 140

Glu Asp Val Pro Ala Arg Asn Glu Arg Ile Tyr Val Tyr Glu Asn Lys

145 150 155 160

Lys Glu Ala Leu Gln Ala Val Lys Met Ile Lys Gly Ser Arg Phe Lys

165 170 175

Ala Phe Ser Thr Arg Glu Asp Ala Glu Lys Phe Ala Arg Gly Ile Cys

180 185 190

Asp Tyr Phe Pro Ser Pro Ser Lys Thr Ser Leu Pro Leu Ser Pro Val

195 200 205

Lys Thr Ala Pro Leu Phe Ser Asn Asp Arg Leu Lys Asp Gly Leu Cys

210 215 220

Leu Ser Glu Ser Glu Thr Val Asn Lys Glu Arg Ala Asn Ser Tyr Lys

225 230 235 240

Asn Pro Arg Thr Gln Asp Leu Thr Ala Lys Leu Arg Lys Ala Val Glu

245 250 255

Lys Gly Glu Glu Asp Thr Phe Ser Asp Leu Ile Trp Ser Asn Pro Arg

260 265 270

Tyr Leu Ile Gly Ser Gly Asp Asn Pro Thr Ile Val Gln Glu Gly Cys

275 280 285

Arg Tyr Asn Val Met His Val Ala Ala Lys Glu Asn Gln Ala Ser Ile

290 295 300

Cys Gln Leu Thr Leu Asp Val Leu Glu Asn Pro Asp Phe Met Arg Leu

305 310 315 320

Met Tyr Pro Asp Asp Asp Glu Ala Met Leu Gln Lys Arg Ile Arg Tyr

325 330 335

Val Val Asp Leu Tyr Leu Asn Thr Pro Asp Lys Met Gly Tyr Asp Thr

340 345 350

Pro Leu His Phe Ala Cys Lys Phe Gly Asn Ala Asp Val Val Asn Val

355 360 365

Leu Ser Ser His His Leu Ile Val Lys Asn Ser Arg Asn Lys Tyr Asp

370 375 380

Lys Thr Pro Glu Asp Val Ile Cys Glu Arg Ser Lys Asn Lys Ser Val

385 390 395 400

Glu Leu Lys Glu Arg Ile Arg Glu Tyr Leu Lys Gly His Tyr Tyr Val

405 410 415

Pro Leu Leu Arg Ala Glu Glu Thr Ser Ser Pro Val Ile Gly Glu Leu

420 425 430

Trp Ser Pro Asp Gln Thr Ala Glu Ala Ser His Val Ser Arg Tyr Gly

435 440 445

Gly Ser Pro Arg Asp Pro Val Leu Thr Leu Arg Ala Phe Ala Gly Pro

450 455 460

Leu Ser Pro Ala Lys Ala Glu Asp Phe Arg Lys Leu Trp Lys Thr Pro

465 470 475 480

Pro Arg Glu Lys Ala Gly Phe Leu His His Val Lys Lys Ser Asp Pro

485 490 495

Glu Arg Gly Phe Glu Arg Val Gly Arg Glu Leu Ala His Glu Leu Gly

500 505 510

Tyr Pro Trp Val Glu Tyr Trp Glu Phe Leu Gly Cys Phe Val Asp Leu

515 520 525

Ser Ser Gln Glu Gly Leu Gln Arg Leu Glu Glu Tyr Leu Thr Gln Gln

530 535 540

Glu Ile Gly Lys Lys Ala Gln Gln Glu Thr Gly Glu Arg Glu Ala Ser

545 550 555 560

Cys Arg Asp Lys Ala Thr Thr Ser Gly Ser Asn Ser Ile Ser Val Arg

565 570 575

Ala Phe Leu Asp Glu Asp Asp Met Ser Leu Glu Glu Ile Lys Asn Arg

580 585 590

Gln Asn Ala Ala Arg Asn Asn Ser Pro Pro Thr Val Gly Ala Phe Gly

595 600 605

His Thr Arg Cys Ser Ala Phe Pro Leu Glu Gln Glu Ala Asp Leu Ile

610 615 620

Glu Ala Ala Glu Pro Gly Gly Pro His Ser Ser Arg Asn Gly Leu Cys

625 630 635 640

His Pro Leu Asn His Ser Arg Thr Leu Ala Gly Lys Arg Pro Lys Ala

645 650 655

Pro Arg Gly Glu Glu Ala His Leu Pro Pro Val Ser Asp Leu Thr Val
660 665 670
Glu Phe Asp Lys Leu Asn Leu Gln Asn Ile Gly Arg Ser Val Ser Lys
675 680 685
Thr Pro Asp Glu Ser Thr Lys Thr Lys Asp Gln Ile Leu Thr Ser Arg
690 695 700
Ile Asn Ala Val Glu Arg Asp Leu Leu Glu Pro Ser Pro Ala Asp Gln
705 710 715 720
Leu Gly Asn Gly His Arg Arg Thr Glu Ser Glu Met Ser Ala Arg Ile

725 730 735
Ala Lys Met Ser Leu Ser Pro Ser Ser Pro Arg His Glu Asp Gln Leu
740 745 750
Glu Val Thr Arg Glu Pro Ala Arg Arg Leu Phe Leu Phe Gly Glu Glu
755 760 765
Pro Ser Lys Leu Asp Gln Asp Val Leu Ala Ala Leu Glu Cys Ala Asp
770 775 780
Val Asp Pro His Gln Phe Pro Ala Val His Arg Trp Lys Ser Ala Val
785 790 795 800

Leu Cys Tyr Ser Pro Ser Asp Arg Gln Ser Trp Pro Ser Pro Ala Val
805 810 815
Lys Gly Arg Phe Lys Ser Gln Leu Pro Asp Leu Ser Gly Pro His Ser
820 825 830
Tyr Ser Pro Gly Arg Asn Ser Val Ala Gly Ser Asn Pro Ala Lys Pro
835 840 845
Gly Leu Gly Ser Pro Gly Arg Tyr Ser Pro Val His Gly Ser Gln Leu
850 855 860
Arg Arg Met Ala Arg Leu Ala Glu Leu Ala Ala Leu

865 870 875
<210> 179
<211> 680

<212> PRT

<213> Homo sapiens

<400> 179

Met Leu Trp Pro Arg Leu Ala Ala Ala Glu Trp Ala Ala Leu Ala Trp
1 5 10 15

Glu Leu Leu Gly Ala Ser Val Leu Leu Ile Ala Val Arg Trp Leu Val
20 25 30

Arg Arg Leu Gly Pro Arg Pro Gly Gly Leu Gly Arg Ser Gly Thr Pro
35 40 45

Val Pro Pro Pro Ser Ala Ala Ala Ala Pro Ala Ser Gly Glu Met Thr

50 55 60

Met Asp Ala Leu Leu Ala Arg Leu Lys Leu Leu Asn Pro Asp Asp Leu
65 70 75 80

Arg Glu Glu Ile Val Lys Ala Gly Leu Lys Cys Gly Pro Ile Thr Ser
85 90 95

Thr Thr Arg Phe Ile Phe Glu Lys Lys Leu Ala Gln Ala Leu Leu Glu
100 105 110

Gln Gly Gly Arg Leu Ser Ser Phe Tyr His His Glu Ala Gly Val Thr
115 120 125

Ala Leu Ser Gln Asp Pro Gln Arg Ile Leu Lys Pro Ala Glu Gly Asn
130 135 140

Pro Thr Asp Gln Ala Gly Phe Ser Glu Asp Arg Asp Phe Gly Tyr Ser
145 150 155 160

Val Gly Leu Asn Pro Pro Glu Glu Glu Ala Val Thr Ser Lys Thr Cys
165 170 175

Ser Val Pro Pro Ser Asp Thr Asp Thr Tyr Arg Ala Gly Ala Thr Ala
180 185 190

Ser Lys Glu Pro Pro Leu Tyr Tyr Gly Val Cys Pro Val Tyr Glu Asp

195 200 205

Val Pro Ala Arg Asn Glu Arg Ile Tyr Val Tyr Glu Asn Lys Lys Glu
210 215 220

Ala Leu Gln Ala Val Lys Met Ile Lys Gly Ser Arg Phe Lys Ala Phe

225 230 235 240

Ser Thr Arg Glu Asp Ala Glu Lys Phe Ala Arg Gly Ile Cys Asp Tyr

245 250 255

Phe Pro Ser Pro Ser Lys Thr Ser Leu Pro Leu Ser Pro Val Lys Thr

260 265 270

Ala Pro Leu Phe Ser Asn Asp Arg Leu Lys Asp Gly Leu Cys Leu Ser

275 280 285

Glu Ser Glu Thr Val Asn Lys Glu Arg Ala Asn Ser Tyr Lys Asn Pro

290 295 300

Arg Thr Gln Asp Leu Thr Ala Lys Leu Arg Lys Ala Val Glu Lys Gly

305 310 315 320

Glu Glu Asp Thr Phe Ser Asp Leu Ile Trp Ser Asn Pro Arg Tyr Leu

325 330 335

Ile Gly Ser Gly Asp Asn Pro Thr Ile Val Gln Glu Gly Cys Arg Tyr

340 345 350

Asn Val Met His Val Ala Ala Lys Glu Asn Gln Ala Ser Ile Cys Gln

355 360 365

Leu Thr Leu Asp Val Leu Glu Asn Pro Asp Phe Met Arg Leu Met Tyr

370 375 380

Pro Asp Asp Asp Glu Ala Met Leu Gln Lys Arg Ile Arg Tyr Val Val

385 390 395 400

Asp Leu Tyr Leu Asn Thr Pro Asp Lys Met Gly Tyr Asp Thr Pro Leu

405 410 415

His Phe Ala Cys Lys Phe Gly Asn Ala Asp Val Val Asn Val Leu Ser

420 425 430

Ser His His Leu Ile Val Lys Asn Ser Arg Asn Lys Tyr Asp Lys Thr

435 440 445

Pro Glu Asp Val Ile Cys Glu Arg Ser Lys Asn Lys Ser Val Glu Leu

450 455 460

Lys Glu Arg Ile Arg Glu Tyr Leu Lys Gly His Tyr Tyr Val Pro Leu

465 470 475 480

Leu Arg Ala Glu Glu Thr Ser Ser Pro Val Ile Gly Glu Leu Trp Ser

485 490 495

Pro Asp Gln Thr Ala Glu Ala Ser His Val Ser Arg Tyr Gly Gly Ser

500 505 510

Pro Arg Asp Pro Val Leu Thr Leu Arg Ala Phe Ala Gly Pro Leu Ser

515 520 525

Pro Ala Lys Ala Glu Asp Phe Arg Lys Leu Trp Lys Thr Pro Pro Arg

530 535 540

Glu Lys Ala Gly Phe Leu His His Val Lys Lys Ser Asp Pro Glu Arg

545 550 555 560

Gly Phe Glu Arg Val Gly Arg Glu Leu Ala His Glu Leu Gly Tyr Pro

565 570 575

Trp Val Glu Tyr Trp Glu Phe Leu Gly Cys Phe Val Asp Leu Ser Ser

580 585 590

Gln Glu Gly Leu Gln Arg Leu Glu Glu Tyr Leu Thr Gln Gln Glu Ile

595 600 605

Gly Lys Lys Ala Gln Gln Glu Thr Gly Glu Arg Glu Ala Ser Cys Arg

610 615 620

Asp Lys Ala Thr Thr Ser Glu Arg Ser His Gln Asn Ser Ile Arg Met

625 630 635 640

Phe Trp Pro Leu Leu Asn Val Gln Thr Ser Thr Pro Ile Ser Ser Arg

645 650 655

Pro Cys Thr Asp Gly Arg Val Leu Ser Cys Ala Thr His Pro Arg Thr

660 665 670

Asp Arg Val Gly Pro Val Pro Arg

675 680

<210> 180

<211> 648

<212> PRT

<213> Homo sapiens

<400> 180

Met Leu Trp Pro Arg Leu Ala Ala Ala Glu Trp Ala Ala Leu Ala Trp

1 5 10 15

Glu Leu Leu Gly Ala Ser Val Leu Leu Ile Ala Val Arg Trp Leu Val

20 25 30

Arg Arg Leu Gly Pro Arg Pro Gly Gly Leu Gly Arg Ser Gly Thr Pro

35 40 45

Val Pro Pro Pro Ser Ala Ala Ala Ala Pro Ala Ser Gly Glu Met Thr

50 55 60

Met Asp Ala Leu Leu Ala Arg Leu Lys Leu Leu Asn Pro Asp Asp Leu

65 70 75 80

Arg Glu Glu Ile Val Lys Ala Gly Leu Lys Cys Gly Pro Ile Thr Ser

85 90 95

Thr Thr Arg Phe Ile Phe Glu Lys Lys Leu Ala Gln Ala Leu Leu Glu

100 105 110

Gln Gly Gly Arg Leu Ser Ser Phe Tyr His His Glu Ala Gly Val Thr

115 120 125

Ala Leu Ser Gln Asp Pro Gln Arg Ile Leu Lys Pro Ala Glu Gly Asn

130 135 140

Pro Thr Asp Gln Ala Gly Phe Ser Glu Asp Arg Asp Phe Gly Tyr Ser

145 150 155 160

Val Gly Leu Asn Pro Pro Glu Glu Glu Ala Val Thr Ser Lys Thr Cys

165 170 175

Ser Val Pro Pro Ser Asp Thr Asp Thr Tyr Arg Ala Gly Ala Thr Ala

180 185 190

Ser Lys Glu Pro Pro Leu Tyr Tyr Gly Val Cys Pro Val Tyr Glu Asp

195 200 205

Val Pro Ala Arg Asn Glu Arg Ile Tyr Val Tyr Glu Asn Lys Lys Glu

210 215 220

Ala Leu Gln Ala Val Lys Met Ile Lys Gly Ser Arg Phe Lys Ala Phe

225 230 235 240

Ser Thr Arg Glu Asp Ala Glu Lys Phe Ala Arg Gly Ile Cys Asp Tyr

245 250 255

Phe Pro Ser Pro Ser Lys Thr Ser Leu Pro Leu Ser Pro Val Lys Thr

260 265 270

Ala Pro Leu Phe Ser Asn Asp Arg Leu Lys Asp Gly Leu Cys Leu Ser

275 280 285

Glu Ser Glu Thr Val Asn Lys Glu Arg Ala Asn Ser Tyr Lys Asn Pro

290 295 300

Arg Thr Gln Asp Leu Thr Ala Lys Leu Arg Lys Ala Val Glu Lys Gly

305 310 315 320

Glu Glu Asp Thr Phe Ser Asp Leu Ile Trp Ser Asn Pro Arg Tyr Leu

325 330 335

Ile Gly Ser Gly Asp Asn Pro Thr Ile Val Gln Glu Gly Cys Arg Tyr

340 345 350

Asn Val Met His Val Ala Ala Lys Glu Asn Gln Ala Ser Ile Cys Gln

355 360 365

Leu Thr Leu Asp Val Leu Glu Asn Pro Asp Phe Met Arg Leu Met Tyr

370 375 380

Pro Asp Asp Asp Glu Ala Met Leu Gln Lys Arg Ile Arg Tyr Val Val

385 390 395 400

Asp Leu Tyr Leu Asn Thr Pro Asp Lys Met Gly Tyr Asp Thr Pro Leu

405 410 415

His Phe Ala Cys Lys Phe Gly Asn Ala Asp Val Val Asn Val Leu Ser

420 425 430

Ser His His Leu Ile Val Lys Asn Ser Arg Asn Lys Tyr Asp Lys Thr

435 440 445

Pro Glu Asp Val Ile Cys Glu Arg Ser Lys Asn Lys Ser Val Glu Leu

450 455 460

Lys Glu Arg Ile Arg Glu Tyr Leu Lys Gly His Tyr Tyr Val Pro Leu

465 470 475 480

Leu Arg Ala Glu Glu Thr Ser Ser Pro Val Ile Gly Glu Leu Trp Ser

485 490 495

Pro Asp Gln Thr Ala Glu Ala Ser His Val Ser Arg Tyr Gly Gly Ser

500 505 510

Pro Arg Asp Pro Val Leu Thr Leu Arg Ala Phe Ala Gly Pro Leu Ser
515 520 525

Pro Ala Lys Ala Glu Asp Phe Arg Lys Leu Trp Lys Thr Pro Pro Arg
530 535 540

Glu Lys Ala Gly Phe Leu His His Val Lys Lys Ser Asp Pro Glu Arg
545 550 555 560

Gly Phe Glu Arg Val Gly Arg Glu Leu Ala His Glu Leu Gly Tyr Pro
565 570 575

Trp Val Glu Tyr Trp Glu Phe Leu Gly Cys Phe Val Asp Leu Ser Ser

580 585 590

Gln Glu Gly Leu Gln Arg Leu Glu Glu Tyr Leu Thr Gln Gln Glu Ile
595 600 605

Gly Lys Lys Ala Gln Gln Glu Thr Gly Glu Arg Glu Ala Ser Cys Arg
610 615 620

Asp Lys Ala Thr Thr Ser Val Glu Met Arg Phe His Arg Ile Asp Gln
625 630 635 640

Ala Gly Leu Glu Leu Leu Thr Ser
645

<210> 181

<211

> 501

<212> PRT

<213> Homo sapiens

<400> 181

Met Thr Arg Leu Pro Val Ser Gly Thr Gln Pro Thr Lys Lys Val Ile
1 5 10 15

Cys Glu Arg Ser Lys Asn Lys Ser Val Glu Leu Lys Glu Arg Ile Arg
20 25 30

Glu Tyr Leu Lys Gly His Tyr Tyr Val Pro Leu Leu Arg Ala Glu Glu
35 40 45

Thr Ser Ser Pro Val Ile Gly Glu Leu Trp Ser Pro Asp Gln Thr Ala

50 55 60

Glu Ala Ser His Val Ser Arg Tyr Gly Gly Ser Pro Arg Asp Pro Val
65 70 75 80
Leu Thr Leu Arg Ala Phe Ala Gly Pro Leu Ser Pro Ala Lys Ala Glu
85 90 95
Asp Phe Arg Lys Leu Trp Lys Thr Pro Pro Arg Glu Lys Ala Gly Phe
100 105 110
Leu His His Val Lys Lys Ser Asp Pro Glu Arg Gly Phe Glu Arg Val
115 120 125
Gly Arg Glu Leu Ala His Glu Leu Gly Tyr Pro Trp Val Glu Tyr Trp

130 135 140
Glu Phe Leu Gly Cys Phe Val Asp Leu Ser Ser Gln Glu Gly Leu Gln
145 150 155 160
Arg Leu Glu Glu Tyr Leu Thr Gln Gln Glu Ile Gly Lys Lys Ala Gln
165 170 175
Gln Glu Thr Gly Glu Arg Glu Ala Ser Cys Arg Asp Lys Ala Thr Thr
180 185 190
Ser Gly Ser Asn Ser Ile Ser Val Arg Ala Phe Leu Asp Glu Asp Asp
195 200 205

Met Ser Leu Glu Glu Ile Lys Asn Arg Gln Asn Ala Ala Arg Asn Asn
210 215 220
Ser Pro Pro Thr Val Gly Ala Phe Gly His Thr Arg Cys Ser Ala Phe
225 230 235 240
Pro Leu Glu Gln Glu Ala Asp Leu Ile Glu Ala Ala Glu Pro Gly Gly
245 250 255
Pro His Ser Ser Arg Asn Gly Leu Cys His Pro Leu Asn His Ser Arg
260 265 270
Thr Leu Ala Gly Lys Arg Pro Lys Ala Pro Arg Gly Glu Glu Ala His

275 280 285
Leu Pro Pro Val Ser Asp Leu Thr Val Glu Phe Asp Lys Leu Asn Leu
290 295 300

Gln Asn Ile Gly Arg Ser Val Ser Lys Thr Pro Asp Glu Ser Thr Lys
305 310 315 320
Thr Lys Asp Gln Ile Leu Thr Ser Arg Ile Asn Ala Val Glu Arg Asp
325 330 335
Leu Leu Glu Pro Ser Pro Ala Asp Gln Leu Gly Asn Gly His Arg Arg
340 345 350

Thr Glu Ser Glu Met Ser Ala Arg Ile Ala Lys Met Ser Leu Ser Pro
355 360 365
Ser Ser Pro Arg His Glu Asp Gln Leu Glu Val Thr Arg Glu Pro Ala
370 375 380
Arg Arg Leu Phe Leu Phe Gly Glu Glu Pro Ser Lys Leu Asp Gln Asp
385 390 395 400
Val Leu Ala Ala Leu Glu Cys Ala Asp Val Asp Pro His Gln Phe Pro
405 410 415
Ala Val His Arg Trp Lys Ser Ala Val Leu Cys Tyr Ser Pro Ser Asp
420 425 430
Arg Gln Ser Trp Pro Ser Pro Ala Val Lys Gly Arg Phe Lys Ser Gln
435 440 445
Leu Pro Asp Leu Ser Gly Pro His Ser Tyr Ser Pro Gly Arg Asn Ser
450 455 460
Val Ala Gly Ser Asn Pro Ala Lys Pro Gly Leu Gly Ser Pro Gly Arg
465 470 475 480
Tyr Ser Pro Val His Gly Ser Gln Leu Arg Arg Met Ala Arg Leu Ala
485 490 495

Glu Leu Ala Ala Leu
500

<210> 182
<211> 780
<212> PRT
<213> Homo sapiens
<400> 182
Met Ala Pro Tyr Ser Leu Leu Val Thr Arg Leu Gln Lys Ala Leu Gly

1 5 10 15

Val Arg Gln Tyr His Val Ala Ser Val Leu Cys Gln Arg Ala Lys Val

20 25 30

Ala Met Ser His Phe Glu Pro Asn Glu Tyr Ile His Tyr Asp Leu Leu

35 40 45

Glu Lys Asn Ile Asn Ile Val Arg Lys Arg Leu Asn Arg Pro Leu Thr

50 55 60

Leu Ser Glu Lys Ile Val Tyr Gly His Leu Asp Asp Pro Ala Ser Gln

65 70 75 80

Glu Ile Glu Arg Gly Lys Ser Tyr Leu Arg Leu Arg Pro Asp Arg Val

85 90 95

Ala Met Gln Asp Ala Thr Ala Gln Met Ala Met Leu Gln Phe Ile Ser

100 105 110

Ser Gly Leu Ser Lys Val Ala Val Pro Ser Thr Ile His Cys Asp His

115 120 125

Leu Ile Glu Ala Gln Val Gly Gly Glu Lys Asp Leu Arg Arg Ala Lys

130 135 140

Asp Ile Asn Gln Glu Val Tyr Asn Phe Leu Ala Thr Ala Gly Ala Lys

145 150 155 160

Tyr Gly Val Gly Phe Trp Lys Pro Gly Ser Gly Ile Ile His Gln Ile

165 170 175

Ile Leu Glu Asn Tyr Ala Tyr Pro Gly Val Leu Leu Ile Gly Thr Asp

180 185 190

Ser His Thr Pro Asn Gly Gly Gly Leu Gly Gly Ile Cys Ile Gly Val

195 200 205

Gly Gly Ala Asp Ala Val Asp Val Met Ala Gly Ile Pro Trp Glu Leu

210 215 220

Lys Cys Pro Lys Val Ile Gly Val Lys Leu Thr Gly Ser Leu Ser Gly

225 230 235 240

Trp Ser Ser Pro Lys Asp Val Ile Leu Lys Val Ala Gly Ile Leu Thr

245 250 255

Val Lys Gly Gly Thr Gly Ala Ile Val Glu Tyr His Gly Pro Gly Val

260 265 270

Asp Ser Ile Ser Cys Thr Gly Met Ala Thr Ile Cys Asn Met Gly Ala
275 280 285
Glu Ile Gly Ala Thr Thr Ser Val Phe Pro Tyr Asn His Arg Met Lys
290 295 300
Lys Tyr Leu Ser Lys Thr Gly Arg Glu Asp Ile Ala Asn Leu Ala Asp
305 310 315 320
Glu Phe Lys Asp His Leu Val Pro Asp Pro Gly Cys His Tyr Asp Gln
325 330 335
Leu Ile Glu Ile Asn Leu Ser Glu Leu Lys Pro His Ile Asn Gly Pro

340 345 350
Phe Thr Pro Asp Leu Ala His Pro Val Ala Glu Val Gly Lys Val Ala
355 360 365
Glu Lys Glu Gly Trp Pro Leu Asp Ile Arg Val Gly Leu Ile Gly Ser
370 375 380
Cys Thr Asn Ser Ser Tyr Glu Asp Met Gly Arg Ser Ala Ala Val Ala
385 390 395 400
Lys Gln Ala Leu Ala His Gly Leu Lys Cys Lys Ser Gln Phe Thr Ile
405 410 415

Thr Pro Gly Ser Glu Gln Ile Arg Ala Thr Ile Glu Arg Asp Gly Tyr
420 425 430
Ala Gln Ile Leu Arg Asp Leu Gly Gly Ile Val Leu Ala Asn Ala Cys
435 440 445
Gly Pro Cys Ile Gly Gln Trp Asp Arg Lys Asp Ile Lys Lys Gly Glu
450 455 460
Lys Asn Thr Ile Val Thr Ser Tyr Asn Arg Asn Phe Thr Gly Arg Asn
465 470 475 480
Asp Ala Asn Pro Glu Thr His Ala Phe Val Thr Ser Pro Glu Ile Val

485 490 495
Thr Ala Leu Ala Ile Ala Gly Thr Leu Lys Phe Asn Pro Glu Thr Asp
500 505 510

Tyr Leu Thr Gly Thr Asp Gly Lys Lys Phe Arg Leu Glu Ala Pro Asp
515 520 525

Ala Asp Glu Leu Pro Lys Gly Glu Phe Asp Pro Gly Gln Asp Thr Tyr
530 535 540

Gln His Pro Pro Lys Asp Ser Ser Gly Gln His Val Asp Val Ser Pro
545 550 555 560

Thr Ser Gln Arg Leu Gln Leu Leu Glu Pro Phe Asp Lys Trp Asp Gly
565 570 575

Lys Asp Leu Glu Asp Leu Gln Ile Leu Ile Lys Val Lys Gly Lys Cys
580 585 590

Thr Thr Asp His Ile Ser Ala Ala Gly Pro Trp Leu Lys Phe Arg Gly
595 600 605

His Leu Asp Asn Ile Ser Asn Asn Leu Leu Ile Gly Ala Ile Asn Ile
610 615 620

Glu Asn Gly Lys Ala Asn Ser Val Arg Asn Ala Val Thr Gln Glu Phe

625 630 635 640

Gly Pro Val Pro Asp Thr Ala Arg Tyr Tyr Lys Lys His Gly Ile Arg
645 650 655

Trp Val Val Ile Gly Asp Glu Asn Tyr Gly Glu Gly Ser Ser Arg Glu
660 665 670

His Ala Ala Leu Glu Pro Arg His Leu Gly Gly Arg Ala Ile Ile Thr
675 680 685

Lys Ser Phe Ala Arg Ile His Glu Thr Asn Leu Lys Lys Gln Gly Leu
690 695 700

Leu Pro Leu Thr Phe Ala Asp Pro Ala Asp Tyr Asn Lys Ile His Pro
705 710 715 720

Val Asp Lys Leu Thr Ile Gln Gly Leu Lys Asp Phe Thr Pro Gly Lys
725 730 735

Pro Leu Lys Cys Ile Ile Lys His Pro Asn Gly Thr Gln Glu Thr Ile
740 745 750

Leu Leu Asn His Thr Phe Asn Glu Thr Gln Ile Glu Trp Phe Arg Ala
755 760 765

Gly Ser Ala Leu Asn Arg Met Lys Glu Leu Gln Gln

770 775 780

<210> 183

<211> 747

<212> PRT

<213> Homo sapiens

<400> 183

Met Ser His Phe Glu Pro Asn Glu Tyr Ile His Tyr Asp Leu Leu Glu
1 5 10 15

Lys Asn Ile Asn Ile Val Arg Lys Arg Leu Asn Arg Pro Leu Thr Leu
20 25 30

Ser Glu Lys Ile Val Tyr Gly His Leu Asp Asp Pro Ala Ser Gln Glu
35 40 45

Ile Glu Arg Gly Lys Ser Tyr Leu Arg Leu Arg Pro Asp Arg Val Ala

50 55 60

Met Gln Asp Ala Thr Ala Gln Met Ala Met Leu Gln Phe Ile Ser Ser
65 70 75 80

Gly Leu Ser Lys Val Ala Val Pro Ser Thr Ile His Cys Asp His Leu
85 90 95

Ile Glu Ala Gln Val Gly Gly Glu Lys Asp Leu Arg Arg Ala Lys Asp
100 105 110

Ile Asn Gln Glu Val Tyr Asn Phe Leu Ala Thr Ala Gly Ala Lys Tyr
115 120 125

Gly Val Gly Phe Trp Lys Pro Gly Ser Gly Ile Ile His Gln Ile Ile

130 135 140

Leu Glu Asn Tyr Ala Tyr Pro Gly Val Leu Leu Ile Gly Thr Asp Ser
145 150 155 160

His Thr Pro Asn Gly Gly Gly Leu Gly Gly Ile Cys Ile Gly Val Gly
165 170 175

Gly Ala Asp Ala Val Asp Val Met Ala Gly Ile Pro Trp Glu Leu Lys
180 185 190

Cys Pro Lys Val Ile Gly Val Lys Leu Thr Gly Ser Leu Ser Gly Trp

195 200 205

Ser Ser Pro Lys Asp Val Ile Leu Lys Val Ala Gly Ile Leu Thr Val

210 215 220

Lys Gly Gly Thr Gly Ala Ile Val Glu Tyr His Gly Pro Gly Val Asp

225 230 235 240

Ser Ile Ser Cys Thr Gly Met Ala Thr Ile Cys Asn Met Gly Ala Glu

245 250 255

Ile Gly Ala Thr Thr Ser Val Phe Pro Tyr Asn His Arg Met Lys Lys

260 265 270

Tyr Leu Ser Lys Thr Gly Arg Glu Asp Ile Ala Asn Leu Ala Asp Glu

275 280 285

Phe Lys Asp His Leu Val Pro Asp Pro Gly Cys His Tyr Asp Gln Leu

290 295 300

Ile Glu Ile Asn Leu Ser Glu Leu Lys Pro His Ile Asn Gly Pro Phe

305 310 315 320

Thr Pro Asp Leu Ala His Pro Val Ala Glu Val Gly Lys Val Ala Glu

325 330 335

Lys Glu Gly Trp Pro Leu Asp Ile Arg Val Gly Leu Ile Gly Ser Cys

340 345 350

Thr Asn Ser Ser Tyr Glu Asp Met Gly Arg Ser Ala Ala Val Ala Lys

355 360 365

Gln Ala Leu Ala His Gly Leu Lys Cys Lys Ser Gln Phe Thr Ile Thr

370 375 380

Pro Gly Ser Glu Gln Ile Arg Ala Thr Ile Glu Arg Asp Gly Tyr Ala

385 390 395 400

Gln Ile Leu Arg Asp Leu Gly Gly Ile Val Leu Ala Asn Ala Cys Gly

405 410 415

Pro Cys Ile Gly Gln Trp Asp Arg Lys Asp Ile Lys Lys Gly Glu Lys

420 425 430

Asn Thr Ile Val Thr Ser Tyr Asn Arg Asn Phe Thr Gly Arg Asn Asp

435 440 445

Ala Asn Pro Glu Thr His Ala Phe Val Thr Ser Pro Glu Ile Val Thr

450 455 460

Ala Leu Ala Ile Ala Gly Thr Leu Lys Phe Asn Pro Glu Thr Asp Tyr

465 470 475 480

Leu Thr Gly Thr Asp Gly Lys Lys Phe Arg Leu Glu Ala Pro Asp Ala

485 490 495

Asp Glu Leu Pro Lys Gly Glu Phe Asp Pro Gly Gln Asp Thr Tyr Gln

500 505 510

His Pro Pro Lys Asp Ser Ser Gly Gln His Val Asp Val Ser Pro Thr

515 520 525

Ser Gln Arg Leu Gln Leu Leu Glu Pro Phe Asp Lys Trp Asp Gly Lys

530 535 540

Asp Leu Glu Asp Leu Gln Ile Leu Ile Lys Val Lys Gly Lys Cys Thr

545 550 555 560

Thr Asp His Ile Ser Ala Ala Gly Pro Trp Leu Lys Phe Arg Gly His

565 570 575

Leu Asp Asn Ile Ser Asn Asn Leu Leu Ile Gly Ala Ile Asn Ile Glu

580 585 590

Asn Gly Lys Ala Asn Ser Val Arg Asn Ala Val Thr Gln Glu Phe Gly

595 600 605

Pro Val Pro Asp Thr Ala Arg Tyr Tyr Lys Lys His Gly Ile Arg Trp

610 615 620

Val Val Ile Gly Asp Glu Asn Tyr Gly Glu Gly Ser Ser Arg Glu His

625 630 635 640

Ala Ala Leu Glu Pro Arg His Leu Gly Gly Arg Ala Ile Ile Thr Lys

645 650 655

Ser Phe Ala Arg Ile His Glu Thr Asn Leu Lys Lys Gln Gly Leu Leu

660 665 670

Pro Leu Thr Phe Ala Asp Pro Ala Asp Tyr Asn Lys Ile His Pro Val

675 680 685

Asp Lys Leu Thr Ile Gln Gly Leu Lys Asp Phe Thr Pro Gly Lys Pro

690 695 700

Leu Lys Cys Ile Ile Lys His Pro Asn Gly Thr Gln Glu Thr Ile Leu
705 710 715 720
Leu Asn His Thr Phe Asn Glu Thr Gln Ile Glu Trp Phe Arg Ala Gly
725 730 735
Ser Ala Leu Asn Arg Met Lys Glu Leu Gln Gln
740 745

<210> 184
<211> 780
<212> PRT
<213> Homo sapiens
<400> 184

Met Ala Pro Tyr Ser Leu Leu Val Thr Arg Leu Gln Lys Ala Leu Gly
1 5 10 15

Val Arg Gln Tyr His Val Ala Ser Val Leu Cys Gln Arg Ala Lys Val
20 25 30
Ala Met Ser His Phe Glu Pro Asn Glu Tyr Ile His Tyr Asp Leu Leu
35 40 45
Glu Lys Asn Ile Asn Ile Val Arg Lys Arg Leu Asn Arg Pro Leu Thr
50 55 60
Leu Ser Glu Lys Ile Val Tyr Gly His Leu Asp Asp Pro Ala Ser Gln
65 70 75 80
Glu Ile Glu Arg Gly Lys Ser Tyr Leu Arg Leu Arg Pro Asp Arg Val

85 90 95
Ala Met Gln Asp Ala Thr Ala Gln Met Ala Met Leu Gln Phe Ile Ser
100 105 110
Ser Gly Leu Ser Lys Val Ala Val Pro Ser Thr Ile His Cys Asp His
115 120 125
Leu Ile Glu Ala Gln Val Gly Gly Glu Lys Asp Leu Arg Arg Ala Lys
130 135 140
Asp Ile Asn Gln Glu Val Tyr Asn Phe Leu Ala Thr Ala Gly Ala Lys

145 150 155 160

Tyr Gly Val Gly Phe Trp Lys Pro Gly Ser Gly Ile Ile His Gln Ile
165 170 175
Ile Leu Glu Asn Tyr Ala Tyr Pro Gly Val Leu Leu Ile Gly Thr Asp
180 185 190
Ser His Thr Pro Asn Gly Gly Gly Leu Gly Gly Ile Cys Ile Gly Val
195 200 205
Gly Gly Ala Asp Ala Val Asp Val Met Ala Gly Ile Pro Trp Glu Leu
210 215 220
Lys Cys Pro Lys Val Ile Gly Val Lys Leu Thr Gly Ser Leu Ser Gly

225 230 235 240
Trp Ser Ser Pro Lys Asp Val Ile Leu Lys Val Ala Gly Ile Leu Thr
245 250 255
Val Lys Gly Gly Thr Gly Ala Ile Val Glu Tyr His Gly Pro Gly Val
260 265 270
Asp Ser Ile Ser Cys Thr Gly Met Ala Thr Ile Cys Asn Met Gly Ala
275 280 285
Glu Ile Gly Ala Thr Thr Ser Val Phe Pro Tyr Asn His Arg Met Lys
290 295 300

Lys Tyr Leu Ser Lys Thr Gly Arg Glu Asp Ile Ala Asn Leu Ala Asp
305 310 315 320
Glu Phe Lys Asp His Leu Val Pro Asp Pro Gly Cys His Tyr Asp Gln
325 330 335
Leu Ile Glu Ile Asn Leu Ser Glu Leu Lys Pro His Ile Asn Gly Pro
340 345 350
Phe Thr Pro Asp Leu Ala His Pro Val Ala Glu Val Gly Lys Val Ala
355 360 365
Glu Lys Glu Gly Trp Pro Leu Asp Ile Arg Val Gly Leu Ile Gly Ser

370 375 380
Cys Thr Asn Ser Ser Tyr Glu Asp Met Gly Arg Ser Ala Ala Val Ala
385 390 395 400

Lys Gln Ala Leu Ala His Gly Leu Lys Cys Lys Ser Gln Phe Thr Ile
405 410 415
Thr Pro Gly Ser Glu Gln Ile Arg Ala Thr Ile Glu Arg Asp Gly Tyr
420 425 430
Ala Gln Ile Leu Arg Asp Leu Gly Gly Ile Val Leu Ala Asn Ala Cys
435 440 445

Gly Pro Cys Ile Gly Gln Trp Asp Arg Lys Asp Ile Lys Lys Gly Glu
450 455 460
Lys Asn Thr Ile Val Thr Ser Tyr Asn Arg Asn Phe Thr Gly Arg Asn
465 470 475 480
Asp Ala Asn Pro Glu Thr His Ala Phe Val Thr Ser Pro Glu Ile Val
485 490 495
Thr Ala Leu Ala Ile Ala Gly Thr Leu Lys Phe Asn Pro Glu Thr Asp
500 505 510
Tyr Leu Thr Gly Thr Asp Gly Lys Lys Phe Arg Leu Glu Ala Pro Asp
515 520 525
Ala Asp Glu Leu Pro Lys Gly Glu Phe Asp Pro Gly Gln Asp Thr Tyr
530 535 540
Gln His Pro Pro Lys Asp Ser Ser Gly Gln His Val Asp Val Ser Pro
545 550 555 560
Thr Ser Gln Arg Leu Gln Leu Leu Glu Pro Phe Asp Lys Trp Asp Gly
565 570 575
Lys Asp Leu Glu Asp Leu Gln Ile Leu Ile Lys Val Lys Gly Lys Cys
580 585 590

Thr Thr Asp His Ile Ser Ala Ala Gly Pro Trp Leu Lys Phe Arg Gly
595 600 605
His Leu Asp Asn Ile Ser Asn Asn Leu Leu Ile Gly Ala Ile Asn Ile
610 615 620
Glu Asn Gly Lys Ala Asn Ser Val Arg Asn Ala Val Thr Gln Glu Phe
625 630 635 640
Gly Pro Val Pro Asp Thr Ala Arg Tyr Tyr Lys Lys His Gly Ile Arg
645 650 655

Trp Val Val Ile Gly Asp Glu Asn Tyr Gly Glu Gly Ser Ser Arg Glu

660 665 670

His Ala Ala Leu Glu Pro Arg His Leu Gly Gly Arg Ala Ile Ile Thr

675 680 685

Lys Ser Phe Ala Arg Ile His Glu Thr Asn Leu Lys Lys Gln Gly Leu

690 695 700

Leu Pro Leu Thr Phe Ala Asp Pro Ala Asp Tyr Asn Lys Ile His Pro

705 710 715 720

Val Asp Lys Leu Thr Ile Gln Gly Leu Lys Asp Phe Thr Pro Gly Lys

725 730 735

Pro Leu Lys Cys Ile Ile Lys His Pro Asn Gly Thr Gln Glu Thr Ile

740 745 750

Leu Leu Asn His Thr Phe Asn Glu Thr Gln Ile Glu Trp Phe Arg Ala

755 760 765

Gly Ser Ala Leu Asn Arg Met Lys Glu Leu Gln Gln

770 775 780

<210> 185

<211> 1833

<212> PRT

<213> Homo sapiens

<400> 185

Met Arg Glu Lys Glu Gln Glu Arg Glu Glu Gln Leu Met Glu Asp Lys

1 5 10 15

Lys Arg Lys Lys Glu Asp Lys Lys Lys Lys Glu Ala Thr Gln Lys Val

20 25 30

Thr Glu Gln Lys Thr Lys Val Pro Glu Val Thr Lys Pro Ser Leu Ser

35 40 45

Gln Pro Thr Ala Ala Ser Pro Ile Gly Ser Ser Pro Ser Pro Pro Val

50 55 60

Asn Gly Gly Asn Asn Ala Lys Arg Val Ala Val Pro Asn Gly Gln Pro

65 70 75 80

Pro Ser Ala Ala Arg Tyr Met Pro Arg Glu Val Pro Pro Arg Phe Arg

85 90 95

Cys Gln Gln Asp His Lys Val Leu Leu Lys Arg Gly Gln Pro Pro Pro

100 105 110

Pro Ser Cys Met Leu Leu Gly Gly Gly Ala Gly Pro Pro Pro Cys Thr

115 120 125

Ala Pro Gly Ala Asn Pro Asn Asn Ala Gln Val Thr Gly Ala Leu Leu

130 135 140

Gln Ser Glu Ser Gly Thr Ala Pro Asp Ser Thr Leu Gly Gly Ala Ala

145 150 155 160

Ala Ser Asn Tyr Ala Asn Ser Thr Trp Gly Ser Gly Ala Ser Ser Asn

165 170 175

Asn Gly Thr Ser Pro Asn Pro Ile His Ile Trp Asp Lys Val Ile Val

180 185 190

Asp Gly Ser Asp Met Glu Glu Trp Pro Cys Ile Ala Ser Lys Asp Thr

195 200 205

Glu Ser Ser Ser Glu Asn Thr Thr Asp Asn Asn Ser Ala Ser Asn Pro

210 215 220

Gly Ser Glu Lys Ser Thr Leu Pro Gly Ser Thr Thr Ser Asn Lys Gly

225 230 235 240

Lys Gly Ser Gln Cys Gln Ser Ala Ser Ser Gly Asn Glu Cys Asn Leu

245 250 255

Gly Val Trp Lys Ser Asp Pro Lys Ala Lys Ser Val Gln Ser Ser Asn

260 265 270

Ser Thr Thr Glu Asn Asn Asn Gly Leu Gly Asn Trp Arg Asn Val Ser

275 280 285

Gly Gln Asp Arg Ile Gly Pro Gly Ser Gly Phe Ser Asn Phe Asn Pro

290 295 300

Asn Ser Asn Pro Ser Ala Trp Pro Ala Leu Val Gln Glu Gly Thr Ser

305 310 315 320

Arg Lys Gly Ala Leu Glu Thr Asp Asn Ser Asn Ser Ser Ala Gln Val

325 330 335

Ser Thr Val Gly Gln Thr Ser Arg Glu Gln Gln Ser Lys Met Glu Asn

340 345 350

Ala Gly Val Asn Phe Val Val Ser Gly Arg Glu Gln Ala Gln Ile His

355 360 365

Asn Thr Asp Gly Pro Lys Asn Gly Asn Thr Asn Ser Leu Asn Leu Ser

370 375 380

Ser Pro Asn Pro Met Glu Asn Lys Gly Met Pro Phe Gly Met Gly Leu

385 390 395 400

Gly Asn Thr Ser Arg Ser Thr Asp Ala Pro Ser Gln Ser Thr Gly Asp

405 410 415

Arg Lys Thr Gly Ser Val Gly Ser Trp Gly Ala Ala Arg Gly Pro Ser

420 425 430

Gly Thr Asp Thr Val Ser Gly Gln Ser Asn Ser Gly Asn Asn Gly Asn

435 440 445

Asn Gly Lys Glu Arg Glu Asp Ser Trp Lys Gly Ala Ser Val Gln Lys

450 455 460

Ser Thr Gly Ser Lys Asn Asp Ser Trp Asp Asn Asn Asn Arg Ser Thr

465 470 475 480

Gly Gly Ser Trp Asn Phe Gly Pro Gln Asp Ser Asn Asp Asn Lys Trp

485 490 495

Gly Glu Gly Asn Lys Met Thr Ser Gly Val Ser Gln Gly Glu Trp Lys

500 505 510

Gln Pro Thr Gly Ser Asp Glu Leu Lys Ile Gly Glu Trp Ser Gly Pro

515 520 525

Asn Gln Pro Asn Ser Ser Thr Gly Ala Trp Asp Asn Gln Lys Gly His

530 535 540

Pro Leu Pro Glu Asn Gln Gly Asn Ala Gln Ala Pro Cys Trp Gly Arg

545 550 555 560

Ser Ser Ser Ser Thr Gly Ser Glu Val Gly Gly Gln Ser Thr Gly Ser

565 570 575

Asn His Lys Ala Gly Ser Ser Asp Ser His Asn Ser Gly Arg Arg Ser

580 585 590

Tyr Arg Pro Thr His Pro Asp Cys Gln Ala Val Leu Gln Thr Leu Leu
595 600 605
Ser Arg Thr Asp Leu Asp Pro Arg Val Leu Ser Asn Thr Gly Trp Gly
610 615 620
Gln Thr Gln Ile Lys Gln Asp Thr Val Trp Asp Ile Glu Glu Val Pro
625 630 635 640
Arg Pro Glu Gly Lys Ser Asp Lys Gly Thr Glu Gly Trp Glu Ser Ala
645 650 655
Ala Thr Gln Thr Lys Asn Ser Gly Gly Trp Gly Asp Ala Pro Ser Gln

660 665 670
Ser Asn Gln Met Lys Ser Gly Trp Gly Glu Leu Ser Ala Ser Thr Glu
675 680 685
Trp Lys Asp Pro Lys Asn Thr Gly Gly Trp Asn Asp Tyr Lys Asn Asn
690 695 700
Asn Ser Ser Asn Trp Gly Gly Gly Arg Pro Asp Glu Lys Thr Pro Ser
705 710 715 720
Ser Trp Asn Glu Asn Pro Ser Lys Asp Gln Gly Trp Gly Gly Gly Arg
725 730 735

Gln Pro Asn Gln Gly Trp Ser Ser Gly Lys Asn Gly Trp Gly Glu Glu
740 745 750
Val Asp Gln Thr Lys Asn Ser Asn Trp Glu Ser Ser Ala Ser Lys Pro
755 760 765
Val Ser Gly Trp Gly Glu Gly Gly Gln Asn Glu Ile Gly Thr Trp Gly
770 775 780
Asn Gly Gly Asn Ala Ser Leu Ala Ser Lys Gly Gly Trp Glu Asp Cys
785 790 795 800
Lys Arg Ser Pro Ala Trp Asn Glu Thr Gly Arg Gln Pro Asn Ser Trp

805 810 815
Asn Lys Gln His Gln Gln Gln Gln Pro Pro Gln Gln Pro Pro Pro Pro
820 825 830

Gln Pro Glu Ala Ser Gly Ser Trp Gly Gly Pro Pro Pro Pro Pro Pro
835 840 845

Gly Asn Val Arg Pro Ser Asn Ser Ser Trp Ser Ser Gly Pro Gln Pro
850 855 860

Ala Thr Pro Lys Asp Glu Glu Pro Ser Gly Trp Glu Glu Pro Ser Pro
865 870 875 880

Gln Ser Ile Ser Arg Lys Met Asp Ile Asp Asp Gly Thr Ser Ala Trp
885 890 895

Gly Asp Pro Asn Ser Tyr Asn Tyr Lys Asn Val Asn Leu Trp Asp Lys
900 905 910

Asn Ser Gln Gly Gly Pro Ala Pro Arg Glu Pro Asn Leu Pro Thr Pro
915 920 925

Met Thr Ser Lys Ser Ala Ser Val Trp Ser Lys Ser Thr Pro Pro Ala
930 935 940

Pro Asp Asn Gly Thr Ser Ala Trp Gly Glu Pro Asn Glu Ser Ser Pro

945 950 955 960

Gly Trp Gly Glu Met Asp Asp Thr Gly Ala Ser Thr Thr Gly Trp Gly
965 970 975

Asn Thr Pro Ala Asn Ala Pro Asn Ala Met Lys Pro Asn Ser Lys Ser
980 985 990

Met Gln Asp Gly Trp Gly Glu Ser Asp Gly Pro Val Thr Gly Ala Arg
995 1000 1005

His Pro Ser Trp Glu Glu Glu Glu Asp Gly Gly Val Trp Asn Thr Thr
1010 1015 1020

Gly Ser Gln Gly Ser Ala Ser Ser His Asn Ser Ala Ser Trp Gly Gln
1025 1030 1035 1040

Gly Gly Lys Lys Gln Met Lys Cys Ser Leu Lys Gly Gly Asn Asn Asp
1045 1050 1055

Ser Trp Met Asn Pro Leu Ala Lys Gln Phe Ser Asn Met Gly Leu Leu
1060 1065 1070

Ser Gln Thr Glu Asp Asn Pro Ser Ser Lys Met Asp Leu Ser Val Gly
1075 1080 1085

Ser Leu Ser Asp Lys Lys Phe Asp Val Asp Lys Arg Ala Met Asn Leu

1090 1095 1100

Gly Asp Phe Asn Asp Ile Met Arg Lys Asp Arg Ser Gly Phe Arg Pro

1105 1110 1115 1120

Pro Asn Ser Lys Asp Met Gly Thr Thr Asp Ser Gly Pro Tyr Phe Glu

1125 1130 1135

Lys Leu Thr Leu Pro Phe Ser Asn Gln Asp Gly Cys Leu Gly Asp Glu

1140 1145 1150

Ala Pro Cys Ser Pro Phe Ser Pro Ser Pro Ser Tyr Lys Leu Ser Pro

1155 1160 1165

Ser Gly Ser Thr Leu Pro Asn Val Ser Leu Gly Ala Ile Gly Thr Gly

1170 1175 1180

Leu Asn Pro Gln Asn Phe Ala Ala Arg Gln Gly Gly Ser His Gly Leu

1185 1190 1195 1200

Phe Gly Asn Ser Thr Ala Gln Ser Arg Gly Leu His Thr Pro Val Gln

1205 1210 1215

Pro Leu Asn Ser Ser Pro Ser Leu Arg Ala Gln Val Pro Pro Gln Phe

1220 1225 1230

Ile Ser Pro Gln Val Ser Ala Ser Met Leu Lys Gln Phe Pro Asn Ser

1235 1240 1245

Gly Leu Ser Pro Gly Leu Phe Asn Val Gly Pro Gln Leu Ser Pro Gln

1250 1255 1260

Gln Ile Ala Met Leu Ser Gln Leu Pro Gln Ile Pro Gln Phe Gln Leu

1265 1270 1275 1280

Ala Cys Gln Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln Leu Leu Gln

1285 1290 1295

Asn Gln Arg Lys Ile Ser Gln Ala Val Arg Gln Gln Gln Glu Gln Gln

1300 1305 1310

Leu Ala Arg Met Val Ser Ala Leu Gln Gln Gln Gln Gln Gln Gln Gln

1315 1320 1325

Arg Gln Pro Gly Met Lys His Ser Pro Ser His Pro Val Gly Pro Lys

1330 1335 1340

Pro His Leu Asp Asn Met Val Pro Asn Ala Leu Asn Val Gly Leu Pro

1345 1350 1355 1360

Asp Leu Gln Thr Lys Gly Pro Ile Pro Gly Tyr Gly Ser Gly Phe Ser

1365 1370 1375

Ser Gly Gly Met Asp Tyr Gly Met Val Gly Gly Lys Glu Ala Gly Thr

1380 1385 1390

Glu Ser Arg Phe Lys Gln Trp Thr Ser Met Met Glu Gly Leu Pro Ser

1395 1400 1405

Val Ala Thr Gln Glu Ala Asn Met His Lys Asn Gly Ala Ile Val Ala

1410 1415 1420

Pro Gly Lys Thr Arg Gly Gly Ser Pro Tyr Asn Gln Phe Asp Ile Ile

1425 1430 1435 1440

Pro Gly Asp Thr Leu Gly Gly His Thr Gly Pro Ala Gly Asp Ser Trp

1445 1450 1455

Leu Pro Ala Lys Ser Pro Pro Thr Asn Lys Ile Gly Ser Lys Ser Ser

1460 1465 1470

Asn Ala Ser Trp Pro Pro Glu Phe Gln Pro Gly Val Pro Trp Lys Gly

1475 1480 1485

Ile Gln Asn Ile Asp Pro Glu Ser Asp Pro Tyr Val Thr Pro Gly Ser

1490 1495 1500

Val Leu Gly Gly Thr Ala Thr Ser Pro Ile Val Asp Thr Asp His Gln

1505 1510 1515 1520

Leu Leu Arg Asp Asn Thr Thr Gly Ser Asn Ser Ser Leu Asn Thr Ser

1525 1530 1535

Leu Pro Ser Pro Gly Ala Trp Pro Tyr Ser Ala Ser Asp Asn Ser Phe

1540 1545 1550

Thr Asn Val His Ser Thr Ser Ala Lys Phe Pro Asp Tyr Lys Ser Thr

1555 1560 1565

Trp Ser Pro Asp Pro Ile Gly His Asn Pro Thr His Leu Ser Asn Lys

1570 1575 1580

Met Trp Lys Asn His Ile Ser Ser Arg Asn Thr Thr Pro Leu Pro Arg

1585 1590 1595 1600

Pro Pro Pro Gly Leu Thr Asn Pro Lys Pro Ser Ser Pro Trp Ser Ser
1605 1610 1615
Thr Ala Pro Arg Ser Val Arg Gly Trp Gly Thr Gln Asp Ser Arg Leu
1620 1625 1630
Ala Ser Ala Ser Thr Trp Ser Asp Gly Gly Ser Val Arg Pro Ser Tyr
1635 1640 1645
Trp Leu Val Leu His Asn Leu Thr Pro Gln Ile Asp Gly Ser Thr Leu
1650 1655 1660
Arg Thr Ile Cys Met Gln His Gly Pro Leu Leu Thr Phe His Leu Asn

1665 1670 1675 1680
Leu Thr Gln Gly Thr Ala Leu Ile Arg Tyr Ser Thr Lys Gln Glu Ala
1685 1690 1695
Ala Lys Ala Gln Thr Ala Leu His Met Cys Val Leu Gly Asn Thr Thr
1700 1705 1710
Ile Leu Ala Glu Phe Ala Thr Asp Asp Glu Val Ser Arg Phe Leu Ala
1715 1720 1725
Gln Ala Gln Pro Pro Thr Pro Ala Ala Thr Pro Ser Ala Pro Ala Ala
1730 1735 1740

Gly Trp Gln Ser Leu Glu Thr Gly Gln Asn Gln Ser Asp Pro Val Gly
1745 1750 1755 1760
Pro Ala Leu Asn Leu Phe Gly Gly Ser Thr Gly Leu Gly Gln Trp Ser
1765 1770 1775
Ser Ser Ala Gly Gly Ser Ser Gly Ala Asp Leu Ala Gly Ala Ser Leu
1780 1785 1790
Trp Gly Pro Pro Asn Tyr Ser Ser Ser Leu Trp Gly Val Pro Thr Val
1795 1800 1805
Glu Asp Pro His Arg Met Gly Ser Pro Ala Pro Leu Leu Pro Gly Asp

1810 1815 1820
Leu Leu Gly Gly Gly Ser Asp Ser Ile
1825 1830

<210> 186

<211> 1723

<212> PRT

<213> Homo sapiens

<400> 186

Met Arg Glu Lys Glu Gln Glu Arg Glu Glu Gln Leu Met Glu Asp Lys
1 5 10 15

Lys Arg Lys Lys Glu Asp Lys Lys Lys Lys Glu Ala Thr Gln Lys Val
20 25 30

Thr Glu Gln Lys Thr Lys Val Pro Glu Val Thr Lys Pro Ser Leu Ser
35 40 45

Gln Pro Thr Ala Ala Ser Pro Ile Gly Ser Ser Pro Ser Pro Pro Val
50 55 60

Asn Gly Gly Asn Asn Ala Lys Arg Val Ala Val Pro Asn Gly Gln Pro
65 70 75 80

Pro Ser Ala Ala Arg Tyr Met Pro Arg Glu Val Pro Pro Arg Phe Arg
85 90 95

Cys Gln Gln Asp His Lys Val Leu Leu Lys Arg Gly Gln Pro Pro Pro
100 105 110

Pro Ser Cys Met Leu Leu Gly Gly Gly Ala Gly Pro Pro Pro Cys Thr
115 120 125

Ala Pro Gly Ala Asn Pro Asn Asn Ala Gln Val Thr Gly Ala Leu Leu
130 135 140

Gln Ser Glu Ser Gly Thr Ala Pro Asp Ser Thr Leu Gly Gly Ala Ala
145 150 155 160

Ala Ser Asn Tyr Ala Asn Ser Thr Trp Gly Ser Gly Ala Ser Ser Asn
165 170 175

Asn Gly Thr Ser Pro Asn Pro Ile His Ile Trp Asp Lys Val Ile Val
180 185 190

Asp Gly Ser Asp Met Glu Glu Trp Pro Cys Ile Ala Ser Lys Asp Thr
195 200 205

Glu Ser Ser Ser Glu Asn Thr Thr Asp Asn Asn Ser Ala Ser Asn Pro

210 215 220

Gly Ser Glu Lys Ser Thr Leu Pro Gly Ser Thr Thr Ser Asn Lys Gly

225 230 235 240

Lys Gly Ser Gln Cys Gln Ser Ala Ser Ser Gly Asn Glu Cys Asn Leu

245 250 255

Gly Val Trp Lys Ser Asp Pro Lys Ala Lys Ser Val Gln Ser Ser Asn

260 265 270

Ser Thr Thr Glu Asn Asn Asn Gly Leu Gly Asn Trp Arg Asn Val Ser

275 280 285

Gly Gln Asp Arg Ile Gly Pro Gly Ser Gly Phe Ser Asn Phe Asn Pro

290 295 300

Asn Ser Asn Pro Ser Ala Trp Pro Ala Leu Val Gln Glu Gly Thr Ser

305 310 315 320

Arg Lys Gly Ala Leu Glu Thr Asp Asn Ser Asn Ser Ser Ala Gln Val

325 330 335

Ser Thr Val Gly Gln Thr Ser Arg Glu Gln Gln Ser Lys Met Glu Asn

340 345 350

Ala Gly Val Asn Phe Val Val Ser Gly Arg Glu Gln Ala Gln Ile His

355 360 365

Asn Thr Asp Gly Pro Lys Asn Gly Asn Thr Asn Ser Leu Asn Leu Ser

370 375 380

Ser Pro Asn Pro Met Glu Asn Lys Gly Met Pro Phe Gly Met Gly Leu

385 390 395 400

Gly Asn Thr Ser Arg Ser Thr Asp Ala Pro Ser Gln Ser Thr Gly Asp

405 410 415

Arg Lys Thr Gly Ser Val Gly Ser Trp Gly Ala Ala Arg Gly Pro Ser

420 425 430

Gly Thr Asp Thr Val Ser Gly Gln Ser Asn Ser Gly Asn Asn Gly Asn

435 440 445

Asn Gly Lys Glu Arg Glu Asp Ser Trp Lys Gly Ala Ser Val Gln Lys

450 455 460

Ser Thr Gly Ser Lys Asn Asp Ser Trp Asp Asn Asn Asn Arg Ser Thr

465 470 475 480

Gly Gly Ser Trp Asn Phe Gly Pro Gln Asp Ser Asn Asp Asn Lys Trp

485 490 495

Gly Glu Gly Asn Lys Met Thr Ser Gly Val Ser Gln Gly Glu Trp Lys

500 505 510

Gln Pro Thr Gly Ser Asp Glu Leu Lys Ile Gly Glu Trp Ser Gly Pro

515 520 525

Asn Gln Pro Asn Ser Ser Thr Gly Ala Trp Asp Asn Gln Lys Gly His

530 535 540

Pro Leu Pro Glu Asn Gln Gly Asn Ala Gln Ala Pro Cys Trp Gly Arg

545 550 555 560

Ser Ser Ser Ser Thr Gly Ser Glu Val Gly Gly Gln Ser Thr Gly Ser

565 570 575

Asn His Lys Ala Gly Ser Ser Asp Ser His Asn Ser Gly Arg Arg Ser

580 585 590

Tyr Arg Pro Thr His Pro Asp Cys Gln Ala Val Leu Gln Thr Leu Leu

595 600 605

Ser Arg Thr Asp Leu Asp Pro Arg Val Leu Ser Asn Thr Gly Trp Gly

610 615 620

Gln Thr Gln Ile Lys Gln Asp Thr Val Trp Asp Ile Glu Glu Val Pro

625 630 635 640

Arg Pro Glu Gly Lys Ser Asp Lys Gly Thr Glu Gly Trp Glu Ser Ala

645 650 655

Ala Thr Gln Thr Lys Asn Ser Gly Gly Trp Gly Asp Ala Pro Ser Gln

660 665 670

Ser Asn Gln Met Lys Ser Gly Trp Gly Glu Leu Ser Ala Ser Thr Glu

675 680 685

Trp Lys Asp Pro Lys Asn Thr Gly Gly Trp Asn Asp Tyr Lys Asn Asn

690 695 700

Asn Ser Ser Asn Trp Gly Gly Gly Arg Pro Asp Glu Lys Thr Pro Ser

705 710 715 720

Ser Trp Asn Glu Asn Pro Ser Lys Asp Gln Gly Trp Gly Gly Gly Arg

725 730 735

Gln Pro Asn Gln Gly Trp Ser Ser Gly Lys Asn Gly Trp Gly Glu Glu

740 745 750

Val Asp Gln Thr Lys Asn Ser Asn Trp Glu Ser Ser Ala Ser Lys Pro

755 760 765

Val Ser Gly Trp Gly Glu Gly Gly Gln Asn Glu Ile Gly Thr Trp Gly

770 775 780

Asn Gly Gly Asn Ala Ser Leu Ala Ser Lys Gly Gly Trp Glu Asp Cys

785 790 795 800

Lys Arg Ser Pro Ala Trp Asn Glu Thr Gly Arg Gln Pro Asn Ser Trp

805 810 815

Asn Lys Gln His Gln Gln Gln Gln Pro Pro Gln Gln Pro Pro Pro Pro

820 825 830

Gln Pro Glu Ala Ser Gly Ser Trp Gly Gly Pro Pro Pro Pro Pro Pro

835 840 845

Gly Asn Val Arg Pro Ser Asn Ser Ser Trp Ser Ser Gly Pro Gln Pro

850 855 860

Ala Thr Pro Lys Asp Glu Glu Pro Ser Gly Trp Glu Glu Pro Ser Pro

865 870 875 880

Gln Ser Ile Ser Arg Lys Met Asp Ile Asp Asp Gly Thr Ser Ala Trp

885 890 895

Gly Asp Pro Asn Ser Tyr Asn Tyr Lys Asn Val Asn Leu Trp Asp Lys

900 905 910

Asn Ser Gln Gly Gly Pro Ala Pro Arg Glu Pro Asn Leu Pro Thr Pro

915 920 925

Met Thr Ser Lys Ser Ala Ser Asp Ser Lys Ser Met Gln Asp Gly Trp

930 935 940

Gly Glu Ser Asp Gly Pro Val Thr Gly Ala Arg His Pro Ser Trp Glu

945 950 955 960

Glu Glu Glu Asp Gly Gly Val Trp Asn Thr Thr Gly Ser Gln Gly Ser

965 970 975

Ala Ser Ser His Asn Ser Ala Ser Trp Gly Gln Gly Gly Lys Lys Gln
980 985 990
Met Lys Cys Ser Leu Lys Gly Gly Asn Asn Asp Ser Trp Met Asn Pro
995 1000 1005
Leu Ala Lys Gln Phe Ser Asn Met Gly Leu Leu Ser Gln Thr Glu Asp
1010 1015 1020
Asn Pro Ser Ser Lys Met Asp Leu Ser Val Gly Ser Leu Ser Asp Lys
1025 1030 1035 1040
Lys Phe Asp Val Asp Lys Arg Ala Met Asn Leu Gly Asp Phe Asn Asp

1045 1050 1055
Ile Met Arg Lys Asp Arg Ser Gly Phe Arg Pro Pro Asn Ser Lys Asp
1060 1065 1070
Met Gly Thr Thr Asp Ser Gly Pro Tyr Phe Glu Lys Gly Gly Ser His
1075 1080 1085
Gly Leu Phe Gly Asn Ser Thr Ala Gln Ser Arg Gly Leu His Thr Pro
1090 1095 1100
Val Gln Pro Leu Asn Ser Ser Pro Ser Leu Arg Ala Gln Val Pro Pro
1105 1110 1115 1120

Gln Phe Ile Ser Pro Gln Val Ser Ala Ser Met Leu Lys Gln Phe Pro
1125 1130 1135
Asn Ser Gly Leu Ser Pro Gly Leu Phe Asn Val Gly Pro Gln Leu Ser
1140 1145 1150
Pro Gln Gln Ile Ala Met Leu Ser Gln Leu Pro Gln Ile Pro Gln Phe
1155 1160 1165
Gln Leu Ala Cys Gln Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln Leu
1170 1175 1180
Leu Gln Asn Gln Arg Lys Ile Ser Gln Ala Val Arg Gln Gln Gln Glu

1185 1190 1195 1200
Gln Gln Leu Ala Arg Met Val Ser Ala Leu Gln Gln Gln Gln Gln Gln
1205 1210 1215

Gln Gln Arg Gln Pro Gly Met Lys His Ser Pro Ser His Pro Val Gly
1220 1225 1230
Pro Lys Pro His Leu Asp Asn Met Val Pro Asn Ala Leu Asn Val Gly
1235 1240 1245
Leu Pro Asp Leu Gln Thr Lys Gly Pro Ile Pro Gly Tyr Gly Ser Gly
1250 1255 1260

Phe Ser Ser Gly Gly Met Asp Tyr Gly Met Val Gly Gly Lys Glu Ala
1265 1270 1275 1280
Gly Thr Glu Ser Arg Phe Lys Gln Trp Thr Ser Met Met Glu Gly Leu
1285 1290 1295
Pro Ser Val Ala Thr Gln Glu Ala Asn Met His Lys Asn Gly Ala Ile
1300 1305 1310
Val Ala Pro Gly Lys Thr Arg Gly Gly Ser Pro Tyr Asn Gln Phe Asp
1315 1320 1325
Ile Ile Pro Gly Asp Thr Leu Gly Gly His Thr Gly Pro Ala Gly Asp

1330 1335 1340
Ser Trp Leu Pro Ala Lys Ser Pro Pro Thr Asn Lys Ile Gly Ser Lys
1345 1350 1355 1360
Ser Ser Asn Ala Ser Trp Pro Pro Glu Phe Gln Pro Gly Val Pro Trp
1365 1370 1375
Lys Gly Ile Gln Asn Ile Asp Pro Glu Ser Asp Pro Tyr Val Thr Pro
1380 1385 1390
Gly Ser Val Leu Gly Gly Thr Ala Thr Ser Pro Ile Val Asp Thr Asp
1395 1400 1405

His Gln Leu Leu Arg Asp Asn Thr Thr Gly Ser Asn Ser Ser Leu Asn
1410 1415 1420
Thr Ser Leu Pro Ser Pro Gly Ala Trp Pro Tyr Ser Ala Ser Asp Asn
1425 1430 1435 1440
Ser Phe Thr Asn Val His Ser Thr Ser Ala Lys Phe Pro Asp Tyr Lys
1445 1450 1455
Ser Thr Trp Ser Pro Asp Pro Ile Gly His Asn Pro Thr His Leu Ser
1460 1465 1470

Asn Lys Met Trp Lys Asn His Ile Ser Ser Arg Asn Thr Thr Pro Leu

1475 1480 1485

Pro Arg Pro Pro Pro Gly Leu Thr Asn Pro Lys Pro Ser Ser Pro Trp

1490 1495 1500

Ser Ser Thr Ala Pro Arg Ser Val Arg Gly Trp Gly Thr Gln Asp Ser

1505 1510 1515 1520

Arg Leu Ala Ser Ala Ser Thr Trp Ser Asp Gly Gly Ser Val Arg Pro

1525 1530 1535

Ser Tyr Trp Leu Val Leu His Asn Leu Thr Pro Gln Ile Asp Gly Ser

1540 1545 1550

Thr Leu Arg Thr Ile Cys Met Gln His Gly Pro Leu Leu Thr Phe His

1555 1560 1565

Leu Asn Leu Thr Gln Gly Thr Ala Leu Ile Arg Tyr Ser Thr Lys Gln

1570 1575 1580

Glu Ala Ala Lys Ala Gln Thr Ala Leu His Met Cys Val Leu Gly Asn

1585 1590 1595 1600

Thr Thr Ile Leu Ala Glu Phe Ala Thr Asp Asp Glu Val Ser Arg Phe

1605 1610 1615

Leu Ala Gln Ala Gln Pro Pro Thr Pro Ala Ala Thr Pro Ser Ala Pro

1620 1625 1630

Ala Ala Gly Trp Gln Ser Leu Glu Thr Gly Gln Asn Gln Ser Asp Pro

1635 1640 1645

Val Gly Pro Ala Leu Asn Leu Phe Gly Gly Ser Thr Gly Leu Gly Gln

1650 1655 1660

Trp Ser Ser Ser Ala Gly Gly Ser Ser Gly Ala Asp Leu Ala Gly Ala

1665 1670 1675 1680

Ser Leu Trp Gly Pro Pro Asn Tyr Ser Ser Ser Leu Trp Gly Val Pro

1685 1690 1695

Thr Val Glu Asp Pro His Arg Met Gly Ser Pro Ala Pro Leu Leu Pro

1700 1705 1710

Gly Asp Leu Leu Gly Gly Gly Ser Asp Ser Ile

1715 1720

<210> 187

<211> 1029

<212> PRT

<213> Homo sapiens

<400> 187

Met Gln Thr Asn Glu Gly Glu Val Ser Glu Glu Ser Ser Ser Lys Val
1 5 10 15

Glu Gln Glu Asp Phe Val Met Glu Gly His Gly Lys Thr Pro Pro Pro
20 25 30

Gly Glu Glu Ser Lys Gln Glu Lys Glu Gln Glu Arg Glu Glu Gln Leu
35 40 45

Met Glu Asp Lys Lys Arg Lys Lys Glu Asp Lys Lys Lys Lys Glu Ala
50 55 60

Thr Gln Lys Val Thr Glu Gln Lys Thr Lys Val Pro Glu Val Thr Lys
65 70 75 80

Pro Ser Leu Ser Gln Pro Thr Ala Ala Ser Pro Ile Gly Ser Ser Pro
85 90 95

Ser Pro Pro Val Asn Gly Gly Asn Asn Ala Lys Arg Val Ala Val Pro

100 105 110

Asn Gly Gln Pro Pro Ser Ala Ala Arg Tyr Met Pro Arg Glu Val Pro
115 120 125

Pro Arg Phe Arg Cys Gln Gln Asp His Lys Val Leu Leu Lys Arg Gly
130 135 140

Gln Pro Pro Pro Pro Ser Cys Met Leu Leu Gly Gly Gly Ala Gly Pro
145 150 155 160

Pro Pro Cys Thr Ala Pro Gly Ala Asn Pro Asn Asn Ala Gln Val Thr
165 170 175

Gly Ala Leu Leu Gln Ser Glu Ser Gly Thr Ala Pro Val Trp Ser Lys

180 185 190

Ser Thr Pro Pro Ala Pro Asp Asn Gly Thr Ser Ala Trp Gly Glu Pro
195 200 205

Asn Glu Ser Ser Pro Gly Trp Gly Glu Met Asp Asp Thr Gly Ala Ser
210 215 220
Thr Thr Gly Trp Gly Asn Thr Pro Ala Asn Ala Pro Asn Ala Met Lys
225 230 235 240
Pro Asn Ser Lys Ser Met Gln Asp Gly Trp Gly Glu Ser Asp Gly Pro

245 250 255
Val Thr Gly Ala Arg His Pro Ser Trp Glu Glu Glu Glu Asp Gly Gly
260 265 270
Val Trp Asn Thr Thr Gly Ser Gln Gly Ser Ala Ser Ser His Asn Ser
275 280 285
Ala Ser Trp Gly Gln Gly Gly Lys Lys Gln Met Lys Cys Ser Leu Lys
290 295 300
Gly Gly Asn Asn Asp Ser Trp Met Asn Pro Leu Ala Lys Gln Phe Ser
305 310 315 320

Asn Met Gly Leu Leu Ser Gln Thr Glu Asp Asn Pro Ser Ser Lys Met
325 330 335
Asp Leu Ser Val Gly Ser Leu Ser Asp Lys Lys Phe Asp Val Asp Lys
340 345 350
Arg Ala Met Asn Leu Gly Asp Phe Asn Asp Ile Met Arg Lys Asp Arg
355 360 365
Ser Gly Phe Arg Pro Pro Asn Ser Lys Asp Met Gly Thr Thr Asp Ser
370 375 380
Gly Pro Tyr Phe Glu Lys Gly Gly Ser His Gly Leu Phe Gly Asn Ser

385 390 395 400
Thr Ala Gln Ser Arg Gly Leu His Thr Pro Val Gln Pro Leu Asn Ser
405 410 415
Ser Pro Ser Leu Arg Ala Gln Val Pro Pro Gln Phe Ile Ser Pro Gln
420 425 430
Val Ser Ala Ser Met Leu Lys Gln Phe Pro Asn Ser Gly Leu Ser Pro
435 440 445
Gly Leu Phe Asn Val Gly Pro Gln Leu Ser Pro Gln Gln Ile Ala Met

450 455 460

Leu Ser Gln Leu Pro Gln Ile Pro Gln Phe Gln Leu Ala Cys Gln Leu
465 470 475 480
Leu Leu Gln Gln Gln Gln Gln Gln Leu Leu Gln Asn Gln Arg Lys
485 490 495
Ile Ser Gln Ala Val Arg Gln Gln Gln Glu Gln Gln Leu Ala Arg Met
500 505 510
Val Ser Ala Leu Gln Gln Gln Gln Gln Gln Gln Arg Gln Pro Gly
515 520 525
Met Lys His Ser Pro Ser His Pro Val Gly Pro Lys Pro His Leu Asp

530 535 540
Asn Met Val Pro Asn Ala Leu Asn Val Gly Leu Pro Asp Leu Gln Thr
545 550 555 560
Lys Gly Pro Ile Pro Gly Tyr Gly Ser Gly Phe Ser Ser Gly Gly Met
565 570 575
Asp Tyr Gly Met Val Gly Gly Lys Glu Ala Gly Thr Glu Ser Arg Phe
580 585 590
Lys Gln Trp Thr Ser Met Met Glu Gly Leu Pro Ser Val Ala Thr Gln
595 600 605

Glu Ala Asn Met His Lys Asn Gly Ala Ile Val Ala Pro Gly Lys Thr
610 615 620
Arg Gly Gly Ser Pro Tyr Asn Gln Phe Asp Ile Ile Pro Gly Asp Thr
625 630 635 640
Leu Gly Gly His Thr Gly Pro Ala Gly Asp Ser Trp Leu Pro Ala Lys
645 650 655
Ser Pro Pro Thr Asn Lys Ile Gly Ser Lys Ser Ser Asn Ala Ser Trp
660 665 670
Pro Pro Glu Phe Gln Pro Gly Val Pro Trp Lys Gly Ile Gln Asn Ile

675 680 685
Asp Pro Glu Ser Asp Pro Tyr Val Thr Pro Gly Ser Val Leu Gly Gly
690 695 700

Thr Ala Thr Ser Pro Ile Val Asp Thr Asp His Gln Leu Leu Arg Asp
705 710 715 720
Asn Thr Thr Gly Ser Asn Ser Ser Leu Asn Thr Ser Leu Pro Ser Pro
725 730 735
Gly Ala Trp Pro Tyr Ser Ala Ser Asp Asn Ser Phe Thr Asn Val His
740 745 750

Ser Thr Ser Ala Lys Phe Pro Asp Tyr Lys Ser Thr Trp Ser Pro Asp
755 760 765
Pro Ile Gly His Asn Pro Thr His Leu Ser Asn Lys Met Trp Lys Asn
770 775 780
His Ile Ser Ser Arg Asn Thr Thr Pro Leu Pro Arg Pro Pro Pro Gly
785 790 795 800
Leu Thr Asn Pro Lys Pro Ser Ser Pro Trp Ser Ser Thr Ala Pro Arg
805 810 815
Ser Val Arg Gly Trp Gly Thr Gln Asp Ser Arg Leu Ala Ser Ala Ser
820 825 830
Thr Trp Ser Asp Gly Gly Ser Val Arg Pro Ser Tyr Trp Leu Val Leu
835 840 845
His Asn Leu Thr Pro Gln Ile Asp Gly Ser Thr Leu Arg Thr Ile Cys
850 855 860
Met Gln His Gly Pro Leu Leu Thr Phe His Leu Asn Leu Thr Gln Gly
865 870 875 880
Thr Ala Leu Ile Arg Tyr Ser Thr Lys Gln Glu Ala Ala Lys Ala Gln
885 890 895

Thr Ala Leu His Met Cys Val Leu Gly Asn Thr Thr Ile Leu Ala Glu
900 905 910
Phe Ala Thr Asp Asp Glu Val Ser Arg Phe Leu Ala Gln Ala Gln Pro
915 920 925
Pro Thr Pro Ala Ala Thr Pro Ser Ala Pro Ala Ala Gly Trp Gln Ser
930 935 940
Leu Glu Thr Gly Gln Asn Gln Ser Asp Pro Val Gly Pro Ala Leu Asn
945 950 955 960

Leu Phe Gly Gly Ser Thr Gly Leu Gly Gln Trp Ser Ser Ser Ala Gly

965 970 975

Gly Ser Ser Gly Ala Asp Leu Ala Gly Ala Ser Leu Trp Gly Pro Pro

980 985 990

Asn Tyr Ser Ser Ser Leu Trp Gly Val Pro Thr Val Glu Asp Pro His

995 1000 1005

Arg Met Gly Ser Pro Ala Pro Leu Leu Pro Gly Asp Leu Leu Gly Gly

1010 1015 1020

Gly Ser Asp Ser Ile

1025

<210> 188

<211> 631

<212> PRT

<213

> Homo sapiens

<400> 188

Met Asn Ser Ser Asp Glu Glu Lys Gln Leu Gln Leu Ile Thr Ser Leu

1 5 10 15

Lys Glu Gln Ala Ile Gly Glu Tyr Glu Asp Leu Arg Ala Glu Asn Gln

20 25 30

Lys Thr Lys Glu Lys Cys Asp Lys Ile Arg Gln Glu Arg Asp Glu Ala

35 40 45

Val Lys Lys Leu Glu Glu Phe Gln Lys Ile Ser His Met Val Ile Glu

50 55 60

Glu Val Asn Phe Met Gln Asn His Leu Glu Ile Glu Lys Thr Cys Arg

65 70 75 80

Glu Ser Ala Glu Ala Leu Ala Thr Lys Leu Asn Lys Glu Asn Lys Thr

85 90 95

Leu Lys Arg Ile Ser Met Leu Tyr Met Ala Lys Leu Gly Pro Asp Val

100 105 110

Ile Thr Glu Glu Ile Asn Ile Asp Asp Glu Asp Ser Thr Thr Asp Thr

115 120 125

Asp Gly Ala Ala Glu Thr Cys Val Ser Val Gln Cys Gln Lys Gln Ile

130 135 140

Lys Glu Leu Arg Asp Gln Ile Val Ser Val Gln Glu Glu Lys Lys Ile
145 150 155 160
Leu Ala Ile Glu Leu Glu Asn Leu Lys Ser Lys Leu Val Glu Val Ile
165 170 175
Glu Glu Val Asn Lys Val Lys Gln Glu Lys Thr Val Leu Asn Ser Glu
180 185 190
Val Leu Glu Gln Arg Lys Val Leu Glu Lys Cys Asn Arg Val Ser Met
195 200 205

Leu Ala Val Glu Glu Tyr Glu Glu Met Gln Val Asn Leu Glu Leu Glu
210 215 220
Lys Asp Leu Arg Lys Lys Ala Glu Ser Phe Ala Gln Glu Met Phe Ile
225 230 235 240
Glu Gln Asn Lys Leu Lys Arg Gln Ser His Leu Leu Leu Gln Ser Ser
245 250 255
Ile Pro Asp Gln Gln Leu Leu Lys Ala Leu Asp Glu Asn Ala Lys Leu
260 265 270
Thr Gln Gln Leu Glu Glu Glu Arg Ile Gln His Gln Gln Lys Val Lys

275 280 285

Glu Leu Glu Glu Gln Leu Glu Asn Glu Thr Leu His Lys Glu Ile His
290 295 300
Asn Leu Lys Gln Gln Leu Glu Leu Leu Glu Glu Asp Lys Lys Glu Leu
305 310 315 320
Glu Leu Lys Tyr Gln Asn Ser Glu Glu Lys Ala Arg Asn Leu Lys His
325 330 335
Ser Val Asp Glu Leu Gln Lys Arg Val Asn Gln Ser Glu Asn Ser Val
340 345 350

Pro Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Pro Pro Pro Pro Asn

355 360 365

Pro Ile Arg Ser Leu Met Ser Met Ile Arg Lys Arg Ser His Pro Ser

370 375 380

Gly Ser Gly Ala Lys Lys Glu Lys Ala Thr Gln Pro Glu Thr Thr Glu

385 390 395 400

Glu Val Thr Asp Leu Lys Arg Gln Ala Val Glu Glu Met Met Asp Arg

405 410 415

Ile Lys Lys Gly Val His Leu Arg Pro Val Asn Gln Thr Ala Arg Pro

420 425 430

Lys Thr Lys Pro Glu Ser Ser Lys Gly Cys Glu Ser Ala Val Asp Glu

435 440 445

Leu Lys Gly Ile Leu Gly Thr Leu Asn Lys Ser Thr Ser Ser Arg Ser

450 455 460

Leu Lys Ser Leu Asp Pro Glu Asn Ser Glu Thr Glu Leu Glu Arg Ile

465 470 475 480

Leu Arg Arg Arg Lys Val Thr Ala Glu Ala Asp Ser Ser Ser Pro Thr

485 490 495

Gly Ile Leu Ala Thr Ser Glu Ser Lys Ser Met Pro Val Leu Gly Ser

500 505 510

Val Ser Ser Val Thr Lys Thr Ala Leu Asn Lys Lys Thr Leu Glu Ala

515 520 525

Glu Phe Asn Ser Pro Ser Pro Pro Thr Pro Glu Pro Gly Glu Gly Pro

530 535 540

Arg Lys Leu Glu Gly Cys Thr Ser Ser Lys Val Thr Phe Gln Pro Pro

545 550 555 560

Ser Ser Ile Gly Cys Arg Lys Lys Tyr Ile Asp Gly Glu Lys Gln Ala

565 570 575

Glu Pro Val Val Val Leu Asp Pro Val Ser Thr His Glu Pro Gln Thr

580 585 590

Lys Asp Gln Val Ala Glu Lys Asp Pro Thr Gln His Lys Glu Asp Glu

595 600 605

Gly Glu Ile Gln Pro Glu Asn Lys Glu Asp Ser Ile Glu Asn Val Arg

610 615 620

Glu Thr Asp Ser Ser Asn Cys

625 630

<210> 189

<211> 456

<

212> PRT

<213> Homo sapiens

<400> 189

Met Asn Ser Ser Asp Glu Glu Lys Gln Leu Gln Leu Ile Thr Ser Leu
1 5 10 15

Lys Glu Gln Ala Ile Gly Glu Tyr Glu Asp Leu Arg Ala Glu Asn Gln
20 25 30

Lys Thr Lys Glu Lys Cys Asp Lys Ile Arg Gln Glu Arg Asp Glu Ala
35 40 45

Val Lys Lys Leu Glu Glu Phe Gln Lys Ile Ser His Met Val Ile Glu
50 55 60

Glu Val Asn Phe Met Gln Asn His Leu Glu Ile Glu Lys Thr Cys Arg
65 70 75 80

Glu Ser Ala Glu Ala Leu Ala Thr Lys Leu Asn Lys Glu Asn Lys Thr
85 90 95

Leu Lys Arg Ile Ser Met Leu Tyr Met Ala Lys Leu Gly Pro Asp Val
100 105 110

Ile Thr Glu Glu Ile Asn Ile Asp Asp Glu Asp Ser Thr Thr Asp Thr
115 120 125

Asp Gly Ala Ala Glu Thr Cys Val Ser Val Gln Cys Gln Lys Gln Ile

130 135 140

Lys Glu Leu Arg Asp Gln Ile Val Ser Val Gln Glu Glu Lys Lys Ile
145 150 155 160

Leu Ala Ile Glu Leu Glu Asn Leu Lys Ser Lys Leu Val Glu Val Ile
165 170 175

Glu Glu Val Asn Lys Val Lys Gln Glu Lys Thr Val Leu Asn Ser Glu
180 185 190

Val Leu Glu Gln Arg Lys Val Leu Glu Lys Cys Asn Arg Val Ser Met

195 200 205

Leu Ala Val Glu Glu Tyr Glu Glu Met Gln Val Asn Leu Glu Leu Glu
210 215 220
Lys Asp Leu Arg Lys Lys Ala Glu Ser Phe Ala Gln Glu Met Phe Ile
225 230 235 240
Glu Gln Asn Lys Leu Lys Arg Gln Ser His Leu Leu Leu Gln Ser Ser
245 250 255
Ile Pro Asp Gln Gln Leu Leu Lys Ala Leu Asp Glu Asn Ala Lys Leu
260 265 270
Thr Gln Gln Leu Glu Glu Glu Arg Ile Gln His Gln Gln Lys Val Lys

275 280 285
Glu Leu Glu Glu Gln Leu Glu Asn Glu Thr Leu His Lys Glu Ile His
290 295 300
Asn Leu Lys Gln Gln Leu Glu Leu Leu Glu Glu Asp Lys Lys Glu Leu
305 310 315 320
Glu Leu Lys Tyr Gln Asn Ser Glu Glu Lys Ala Arg Asn Leu Lys His
325 330 335
Ser Val Asp Glu Leu Gln Lys Arg Val Asn Gln Ser Glu Asn Ser Val
340 345 350

Pro Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Pro Pro Pro Pro Asn
355 360 365
Pro Ile Arg Ser Leu Met Ser Met Ile Arg Lys Arg Ser His Pro Ser
370 375 380
Gly Ser Gly Ala Lys Lys Glu Lys Ala Thr Gln Pro Glu Thr Thr Glu
385 390 395 400
Glu Val Thr Asp Leu Lys Arg Gln Ala Val Glu Glu Met Met Asp Arg
405 410 415
Ile Lys Lys Gly Val His Leu Arg Pro Val Asn Gln Thr Ala Arg Pro

420 425 430
Lys Thr Lys Pro Glu Ser Ser Lys Gly Cys Glu Ser Ala Val Asp Glu
435 440 445

Leu Lys Gly Ile Leu Ala Ser Gln

450 455

<210> 190

<211> 571

<212> PRT

<213> Homo sapiens

<400> 190

Met Val Ile Glu Glu Val Asn Phe Met Gln Asn His Leu Glu Ile Glu

1 5 10 15

Lys Thr Cys Arg Glu Ser Ala Glu Ala Leu Ala Thr Lys Leu Asn Lys

20 25 30

Glu Asn Lys Thr Leu Lys Arg Ile Ser Met Leu Tyr Met Ala Lys Leu

35 40 45

Gly Pro Asp Val Ile Thr Glu Glu Ile Asn Ile Asp Asp Glu Asp Ser

50 55 60

Thr Thr Asp Thr Asp Gly Ala Ala Glu Thr Cys Val Ser Val Gln Cys

65 70 75 80

Gln Lys Gln Ile Lys Glu Leu Arg Asp Gln Ile Val Ser Val Gln Glu

85 90 95

Glu Lys Lys Ile Leu Ala Ile Glu Leu Glu Asn Leu Lys Ser Lys Leu

100 105 110

Val Glu Val Ile Glu Glu Val Asn Lys Val Lys Gln Glu Lys Thr Val

115 120 125

Leu Asn Ser Glu Val Leu Glu Gln Arg Lys Val Leu Glu Lys Cys Asn

130 135 140

Arg Val Ser Met Leu Ala Val Glu Glu Tyr Glu Glu Met Gln Val Asn

145 150 155 160

Leu Glu Leu Glu Lys Asp Leu Arg Lys Lys Ala Glu Ser Phe Ala Gln

165 170 175

Glu Met Phe Ile Glu Gln Asn Lys Leu Lys Arg Gln Ser His Leu Leu

180 185 190

Leu Gln Ser Ser Ile Pro Asp Gln Gln Leu Leu Lys Ala Leu Asp Glu

195 200 205

Asn Ala Lys Leu Thr Gln Gln Leu Glu Glu Glu Arg Ile Gln His Gln

210 215 220

Gln Lys Val Lys Glu Leu Glu Glu Gln Leu Glu Asn Glu Thr Leu His

225 230 235 240

Lys Glu Ile His Asn Leu Lys Gln Gln Leu Glu Leu Leu Glu Glu Asp

245 250 255

Lys Lys Glu Leu Glu Leu Lys Tyr Gln Asn Ser Glu Glu Lys Ala Arg

260 265 270

Asn Leu Lys His Ser Val Asp Glu Leu Gln Lys Arg Val Asn Gln Ser

275 280 285

Glu Asn Ser Val Pro Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Pro

290 295 300

Pro Pro Pro Asn Pro Ile Arg Ser Leu Met Ser Met Ile Arg Lys Arg

305 310 315 320

Ser His Pro Ser Gly Ser Gly Ala Lys Lys Glu Lys Ala Thr Gln Pro

325 330 335

Glu Thr Thr Glu Glu Val Thr Asp Leu Lys Arg Gln Ala Val Glu Glu

340 345 350

Met Met Asp Arg Ile Lys Lys Gly Val His Leu Arg Pro Val Asn Gln

355 360 365

Thr Ala Arg Pro Lys Thr Lys Pro Glu Ser Ser Lys Gly Cys Glu Ser

370 375 380

Ala Val Asp Glu Leu Lys Gly Ile Leu Gly Thr Leu Asn Lys Ser Thr

385 390 395 400

Ser Ser Arg Ser Leu Lys Ser Leu Asp Pro Glu Asn Ser Glu Thr Glu

405 410 415

Leu Glu Arg Ile Leu Arg Arg Arg Lys Val Thr Ala Glu Ala Asp Ser

420 425 430

Ser Ser Pro Thr Gly Ile Leu Ala Thr Ser Glu Ser Lys Ser Met Pro

435 440 445

Val Leu Gly Ser Val Ser Ser Val Thr Lys Thr Ala Leu Asn Lys Lys

450 455 460

Thr Leu Glu Ala Glu Phe Asn Ser Pro Ser Pro Pro Thr Pro Glu Pro
465 470 475 480

Gly Glu Gly Pro Arg Lys Leu Glu Gly Cys Thr Ser Ser Lys Val Thr
485 490 495

Phe Gln Pro Pro Ser Ser Ile Gly Cys Arg Lys Lys Tyr Ile Asp Gly
500 505 510

Glu Lys Gln Ala Glu Pro Val Val Val Leu Asp Pro Val Ser Thr His
515 520 525

Glu Pro Gln Thr Lys Asp Gln Val Ala Glu Lys Asp Pro Thr Gln His
530 535 540

Lys Glu Asp Glu Gly Glu Ile Gln Pro Glu Asn Lys Glu Asp Ser Ile
545 550 555 560

Glu Asn Val Arg Glu Thr Asp Ser Ser Asn Cys
565 570

<210> 191

<211> 558

<212> PRT

<213> Homo sapiens

<400> 191

Met Asn Ser Ser Asp Glu Glu Lys Gln Leu Gln Leu Ile Thr Ser Leu
1 5 10 15

Lys Glu Gln Ala Ile Gly Glu Tyr Glu Asp Leu Arg Ala Glu Asn Gln
20 25 30

Lys Thr Lys Glu Lys Cys Asp Lys Ile Arg Gln Glu Arg Asp Glu Ala
35 40 45

Val Lys Lys Leu Glu Glu Phe Gln Lys Ile Ser His Met Val Ile Glu
50 55 60

Glu Val Asn Phe Met Gln Asn His Leu Glu Ile Glu Lys Thr Cys Arg
65 70 75 80

Glu Ser Ala Glu Ala Leu Ala Thr Lys Leu Asn Lys Glu Asn Lys Thr

85 90 95

Leu Lys Arg Ile Ser Met Leu Tyr Met Ala Lys Leu Gly Pro Asp Val

100 105 110

Ile Thr Glu Glu Ile Asn Ile Asp Asp Glu Asp Ser Thr Thr Asp Thr

115 120 125

Asp Gly Ala Ala Glu Thr Cys Val Ser Val Gln Cys Gln Lys Gln Ile

130 135 140

Lys Glu Leu Arg Asp Gln Ile Val Ser Val Gln Glu Glu Lys Lys Ile

145 150 155 160

Leu Ala Ile Glu Leu Glu Asn Leu Lys Ser Lys Leu Val Glu Val Ile

165 170 175

Glu Glu Val Asn Lys Val Lys Gln Glu Lys Thr Val Leu Asn Ser Glu

180 185 190

Val Leu Glu Gln Arg Lys Val Leu Glu Lys Cys Asn Arg Val Ser Met

195 200 205

Leu Ala Val Glu Glu Tyr Glu Glu Met Gln Val Asn Leu Glu Leu Glu

210 215 220

Lys Asp Leu Arg Lys Lys Ala Glu Ser Phe Ala Gln Glu Met Phe Ile

225 230 235 240

Glu Gln Asn Lys Leu Lys Arg Gln Ser His Leu Leu Leu Gln Ser Ser

245 250 255

Ile Pro Asp Gln Gln Leu Leu Lys Ala Leu Asp Glu Asn Ala Lys Leu

260 265 270

Thr Gln Gln Leu Glu Glu Glu Arg Ile Gln His Gln Gln Lys Val Lys

275 280 285

Glu Leu Glu Glu Gln Leu Glu Asn Glu Thr Leu His Lys Glu Ile His

290 295 300

Asn Leu Lys Gln Gln Leu Glu Leu Leu Glu Glu Asp Lys Lys Glu Leu

305 310 315 320

Glu Leu Lys Tyr Gln Asn Ser Glu Glu Lys Ala Arg Asn Leu Lys His

325 330 335

Ser Val Asp Glu Leu Gln Lys Arg Val Asn Gln Ser Glu Asn Ser Val

340 345 350

Pro Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Pro Pro Pro Pro Asn

355 360 365

Pro Ile Arg Ser Leu Met Ser Met Ile Arg Lys Arg Ser His Pro Ser

370 375 380

Gly Ser Gly Ala Lys Lys Glu Lys Ala Thr Gln Pro Glu Thr Thr Glu

385 390 395 400

Glu Val Thr Asp Leu Lys Arg Gln Ala Val Glu Glu Met Met Asp Arg

405 410 415

Ile Lys Lys Gly Val His Leu Arg Pro Val Asn Gln Thr Ala Arg Pro

420 425 430

Lys Thr Lys Pro Glu Ser Ser Lys Gly Cys Glu Ser Ala Val Asp Glu

435 440 445

Leu Lys Gly Ile Leu Gly Thr Leu Asn Lys Ser Thr Ser Ser Arg Ser

450 455 460

Leu Lys Ser Leu Asp Pro Glu Asn Ser Glu Thr Glu Leu Glu Arg Ile

465 470 475 480

Leu Arg Arg Arg Lys Val Thr Ala Glu Ala Asp Ser Ser Ser Pro Thr

485 490 495

Gly Ile Leu Ala Thr Ser Glu Ser Lys Ser Met Pro Val Leu Gly Ser

500 505 510

Val Ser Ser Val Thr Lys Thr Ala Leu Asn Lys Lys Thr Leu Glu Ala

515 520 525

Glu Phe Asn Ser Pro Ser Pro Pro Thr Pro Glu Pro Gly Glu Gly Pro

530 535 540

Arg Lys Leu Glu Gly Cys Thr Ser Ser Lys Val Thr Phe Gln

545 550 555

<210> 192

<211> 498

<212> PRT

<213> Homo sapiens

<400> 192

Met Val Ile Glu Glu Val Asn Phe Met Gln Asn His Leu Glu Ile Glu
1 5 10 15

Lys Thr Cys Arg Glu Ser Ala Glu Ala Leu Ala Thr Lys Leu Asn Lys

20 25 30

Glu Asn Lys Thr Leu Lys Arg Ile Ser Met Leu Tyr Met Ala Lys Leu
35 40 45

Gly Pro Asp Val Ile Thr Glu Glu Ile Asn Ile Asp Asp Glu Asp Ser
50 55 60

Thr Thr Asp Thr Asp Gly Ala Ala Glu Thr Cys Val Ser Val Gln Cys
65 70 75 80

Gln Lys Gln Ile Lys Glu Leu Arg Asp Gln Ile Val Ser Val Gln Glu
85 90 95

Glu Lys Lys Ile Leu Ala Ile Glu Leu Glu Asn Leu Lys Ser Lys Leu
100 105 110

Val Glu Val Ile Glu Glu Val Asn Lys Val Lys Gln Glu Lys Thr Val
115 120 125

Leu Asn Ser Glu Val Leu Glu Gln Arg Lys Val Leu Glu Lys Cys Asn
130 135 140

Arg Val Ser Met Leu Ala Val Glu Glu Tyr Glu Glu Met Gln Val Asn
145 150 155 160

Leu Glu Leu Glu Lys Asp Leu Arg Lys Lys Ala Glu Ser Phe Ala Gln

165 170 175

Glu Met Phe Ile Glu Gln Asn Lys Leu Lys Arg Gln Ser His Leu Leu
180 185 190

Leu Gln Ser Ser Ile Pro Asp Gln Gln Leu Leu Lys Ala Leu Asp Glu
195 200 205

Asn Ala Lys Leu Thr Gln Gln Leu Glu Glu Glu Arg Ile Gln His Gln
210 215 220

Gln Lys Val Lys Glu Leu Glu Glu Gln Leu Glu Asn Glu Thr Leu His

225 230 235 240

Lys Glu Ile His Asn Leu Lys Gln Gln Leu Glu Leu Leu Glu Glu Asp
245 250 255
Lys Lys Glu Leu Glu Leu Lys Tyr Gln Asn Ser Glu Glu Lys Ala Arg
260 265 270
Asn Leu Lys His Ser Val Asp Glu Leu Gln Lys Arg Val Asn Gln Ser
275 280 285
Glu Asn Ser Val Pro Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Pro
290 295 300
Pro Pro Pro Asn Pro Ile Arg Ser Leu Met Ser Met Ile Arg Lys Arg

305 310 315 320
Ser His Pro Ser Gly Ser Gly Ala Lys Lys Glu Lys Ala Thr Gln Pro
325 330 335
Glu Thr Thr Glu Glu Val Thr Asp Leu Lys Arg Gln Ala Val Glu Glu
340 345 350
Met Met Asp Arg Ile Lys Lys Gly Val His Leu Arg Pro Val Asn Gln
355 360 365
Thr Ala Arg Pro Lys Thr Lys Pro Glu Ser Ser Lys Gly Cys Glu Ser
370 375 380

Ala Val Asp Glu Leu Lys Gly Ile Leu Gly Thr Leu Asn Lys Ser Thr
385 390 395 400
Ser Ser Arg Ser Leu Lys Ser Leu Asp Pro Glu Asn Ser Glu Thr Glu
405 410 415
Leu Glu Arg Ile Leu Arg Arg Arg Lys Val Thr Ala Glu Ala Asp Ser
420 425 430
Ser Ser Pro Thr Gly Ile Leu Ala Thr Ser Glu Ser Lys Ser Met Pro
435 440 445
Val Leu Gly Ser Val Ser Ser Val Thr Lys Thr Ala Leu Asn Lys Lys

450 455 460
Thr Leu Glu Ala Glu Phe Asn Ser Pro Ser Pro Pro Thr Pro Glu Pro
465 470 475 480

Gly Glu Gly Pro Arg Lys Leu Glu Gly Cys Thr Ser Ser Lys Val Thr
485 490 495
Phe Gln

<210> 193
<211> 573
<212> PRT
<213> Homo sapiens
<400> 193
Met Asn Ser Ser Asp Glu Glu Lys Gln Leu Gln Leu Ile Thr Ser Leu
1 5 10 15

Lys Glu Gln Ala Ile Gly Glu Tyr Glu Asp Leu Arg Ala Glu Asn Gln
20 25 30
Lys Thr Lys Glu Lys Cys Asp Lys Ile Arg Gln Glu Arg Asp Glu Ala
35 40 45
Val Lys Lys Leu Glu Glu Phe Gln Lys Ile Ser His Met Val Ile Glu
50 55 60
Glu Val Asn Phe Met Gln Asn His Leu Glu Ile Glu Lys Thr Cys Arg
65 70 75 80
Glu Ser Ala Glu Ala Leu Ala Thr Lys Leu Asn Lys Glu Asn Lys Thr

85 90 95
Leu Lys Arg Ile Ser Met Leu Tyr Met Ala Lys Leu Gly Pro Asp Val
100 105 110
Ile Thr Glu Glu Ile Asn Ile Asp Asp Glu Asp Ser Thr Thr Asp Thr
115 120 125
Asp Gly Ala Ala Glu Thr Cys Val Ser Val Gln Cys Gln Lys Gln Ile
130 135 140
Lys Glu Leu Arg Asp Gln Ile Val Ser Val Gln Glu Glu Lys Lys Ile
145 150 155 160

Leu Ala Ile Glu Leu Glu Asn Leu Lys Ser Lys Leu Val Glu Val Ile
165 170 175
Glu Glu Val Asn Lys Val Lys Gln Glu Lys Thr Val Leu Asn Ser Glu

180 185 190

Val Leu Glu Gln Arg Lys Val Leu Glu Lys Cys Asn Arg Val Ser Met

195 200 205

Leu Ala Val Glu Glu Tyr Glu Glu Met Gln Val Asn Leu Glu Leu Glu

210 215 220

Lys Asp Leu Arg Lys Lys Ala Glu Ser Phe Ala Gln Glu Met Phe Ile

225 230 235 240

Glu Gln Asn Lys Leu Lys Arg Gln Ser His Leu Leu Leu Gln Ser Ser

245 250 255

Ile Pro Asp Gln Gln Leu Leu Lys Ala Leu Asp Glu Asn Ala Lys Leu

260 265 270

Thr Gln Gln Leu Glu Glu Glu Arg Ile Gln His Gln Gln Lys Val Lys

275 280 285

Glu Leu Glu Glu Gln Leu Glu Asn Glu Thr Leu His Lys Glu Ile His

290 295 300

Asn Leu Lys Gln Gln Leu Glu Leu Leu Glu Glu Asp Lys Lys Glu Leu

305 310 315 320

Glu Leu Lys Tyr Gln Asn Ser Glu Glu Lys Ala Arg Asn Leu Lys His

325 330 335

Ser Val Asp Glu Leu Gln Lys Arg Val Asn Gln Ser Glu Asn Ser Val

340 345 350

Pro Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Pro Pro Pro Pro Asn

355 360 365

Pro Ile Arg Ser Leu Met Ser Met Ile Arg Lys Arg Ser His Pro Ser

370 375 380

Gly Ser Gly Ala Lys Lys Glu Lys Ala Thr Gln Pro Glu Thr Thr Glu

385 390 395 400

Glu Val Thr Asp Leu Lys Arg Gln Ala Val Glu Glu Met Met Asp Arg

405 410 415

Ile Lys Lys Gly Val His Leu Arg Pro Val Asn Gln Thr Ala Arg Pro

420 425 430

Lys Thr Lys Pro Glu Ser Ser Lys Gly Cys Glu Ser Ala Val Asp Glu

435 440 445

Leu Lys Gly Ile Leu Gly Thr Leu Asn Lys Ser Thr Ser Ser Arg Ser
450 455 460
Leu Lys Ser Leu Asp Pro Glu Asn Ser Glu Thr Glu Leu Glu Arg Ile
465 470 475 480
Leu Arg Arg Arg Lys Val Thr Ala Glu Ala Asp Ser Ser Ser Pro Thr
485 490 495
Gly Ile Leu Ala Thr Ser Glu Ser Lys Ser Met Pro Val Leu Gly Ser
500 505 510
Val Ser Ser Val Thr Lys Thr Ala Leu Asn Lys Lys Thr Leu Glu Ala

515 520 525
Glu Phe Asn Ser Pro Ser Pro Pro Thr Pro Glu Pro Gly Glu Gly Pro
530 535 540
Arg Lys Leu Glu Gly Cys Thr Ser Ser Lys Val Thr Phe Gln Glu Ile
545 550 555 560
Leu Ile Gly Ser Pro Val Asn Ser Leu Leu Leu Phe Ile
565 570

<210> 194
<211> 617
<212> PRT
<213> Homo sapiens
<400> 194

Met Asn Ser Ser Asp Glu Glu Lys Gln Leu Gln Leu Ile Thr Ser Leu

1 5 10 15
Lys Glu Gln Ala Ile Gly Glu Tyr Glu Asp Leu Arg Ala Glu Asn Gln
20 25 30
Lys Thr Lys Glu Lys Cys Asp Lys Ile Arg Gln Glu Arg Asp Glu Ala
35 40 45
Val Lys Lys Leu Glu Glu Phe Gln Lys Ile Ser His Met Val Ile Glu
50 55 60
Glu Val Asn Phe Met Gln Asn His Leu Glu Ile Glu Lys Thr Cys Arg

65 70 75 80

Glu Ser Ala Glu Ala Leu Ala Thr Lys Leu Asn Lys Glu Asn Lys Thr
85 90 95
Leu Lys Arg Ile Ser Met Leu Tyr Met Ala Lys Leu Gly Pro Asp Val
100 105 110
Ile Thr Glu Glu Ile Asn Ile Asp Asp Glu Asp Ser Thr Thr Asp Thr
115 120 125
Asp Gly Ala Ala Glu Thr Cys Val Ser Val Gln Cys Gln Lys Gln Ile
130 135 140
Lys Glu Leu Arg Asp Gln Ile Val Ser Val Gln Glu Glu Lys Lys Ile

145 150 155 160
Leu Ala Ile Glu Leu Glu Asn Leu Lys Ser Lys Leu Val Glu Val Ile
165 170 175
Glu Glu Val Asn Lys Val Lys Gln Glu Lys Thr Val Leu Asn Ser Glu
180 185 190
Val Leu Glu Gln Arg Lys Val Leu Glu Lys Cys Asn Arg Val Ser Met
195 200 205
Leu Ala Val Glu Glu Tyr Glu Glu Met Gln Val Asn Leu Glu Leu Glu
210 215 220

Lys Asp Leu Arg Lys Lys Ala Glu Ser Phe Ala Gln Glu Met Phe Ile
225 230 235 240
Glu Gln Asn Lys Leu Lys Arg Gln Ser His Leu Leu Leu Gln Ser Ser
245 250 255
Ile Pro Asp Gln Gln Leu Leu Lys Ala Leu Asp Glu Asn Ala Lys Leu
260 265 270
Thr Gln Gln Leu Glu Glu Glu Arg Ile Gln His Gln Gln Lys Val Lys
275 280 285
Glu Leu Glu Glu Gln Leu Glu Asn Glu Thr Leu His Lys Glu Ile His

290 295 300
Asn Leu Lys Gln Gln Leu Glu Leu Leu Glu Glu Asp Lys Lys Glu Leu
305 310 315 320

Glu Leu Lys Tyr Gln Asn Ser Glu Glu Lys Ala Arg Asn Leu Lys His
325 330 335
Ser Val Asp Glu Leu Gln Lys Arg Val Asn Gln Ser Glu Asn Ser Val
340 345 350
Pro Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Pro Pro Pro Pro Asn
355 360 365

Pro Ile Arg Ser Leu Met Ser Met Ile Arg Lys Arg Ser His Pro Ser
370 375 380
Gly Ser Gly Ala Lys Lys Glu Lys Ala Thr Gln Pro Glu Thr Thr Glu
385 390 395 400
Glu Val Thr Asp Leu Lys Arg Gln Ala Val Glu Glu Met Met Asp Arg
405 410 415
Ile Lys Lys Gly Val His Leu Arg Pro Val Asn Gln Thr Ala Arg Pro
420 425 430
Lys Thr Lys Pro Glu Ser Ser Lys Gly Cys Glu Ser Ala Val Asp Glu

435 440 445
Leu Lys Gly Ile Leu Gly Thr Leu Asn Lys Ser Thr Ser Ser Arg Ser
450 455 460
Leu Lys Ser Leu Asp Pro Glu Asn Ser Glu Thr Glu Leu Glu Arg Ile
465 470 475 480
Leu Arg Arg Arg Lys Val Thr Ala Glu Ala Asp Ser Ser Ser Pro Thr
485 490 495
Gly Ile Leu Ala Thr Ser Glu Ser Lys Ser Met Pro Val Leu Gly Ser
500 505 510

Val Ser Ser Val Thr Lys Thr Ala Leu Asn Lys Lys Thr Leu Glu Ala
515 520 525
Glu Phe Asn Ser Pro Ser Pro Pro Thr Pro Glu Pro Gly Glu Gly Pro
530 535 540
Arg Lys Leu Glu Gly Cys Thr Ser Ser Lys Val Thr Phe Gln Phe Met
545 550 555 560
Ser Phe Gln Phe Asn Gln His Pro Cys Ile Ala Ala Val Glu Pro Arg
565 570 575

Glu His Phe Leu Glu Ile Phe Ser Pro Glu Leu Met Lys Lys Ala Phe

580 585 590

Ser Arg Ile Cys Ala Pro Pro Leu His Leu Gln Thr His Thr Ser Met

595 600 605

Glu Thr Ser Met Val Val Leu Gln Lys

610 615