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(54)发明名称

用于治疗XLMTM的组合物

(57)摘要

本发明提供了一种在骨骼肌中实现MTM1表达的新型嗜肌性病毒载体。有利地，通过增加MTM1在骨骼肌中的表达，本发明的载体允许施用一定剂量的包含该载体的组合物，该剂量显著减少非靶组织暴露于该组合物。

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1.一种腺相关病毒(AAV)载体,其包含:

衣壳蛋白,所述衣壳蛋白包含至少一种修饰,所述至少一种修饰使所述AAV载体优先靶向到肌肉组织;以及

核酸,所述核酸编码全长MTM1蛋白。

2.根据权利要求1所述的AAV载体,其中所述衣壳蛋白包含至少一种修饰,所述至少一种修饰是位于AAV9衣壳多肽中的氨基酸262-269、327-332、382-386、452-460、488-505、527-539、545-558、581-593、704-714或其任何组合之间或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAV rh.10衣壳多肽中的类似位置中的任何两个连续氨基酸之间的插入。

3.根据权利要求1所述的AAV载体,其中所述衣壳蛋白包含至少一种修饰,所述至少一种修饰是AAV9衣壳多肽中的氨基酸586-88的置换和位于氨基酸588与589之间的插入或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAV rh.10衣壳多肽中的类似位置中的置换和插入。

4.根据权利要求1所述的AAV载体,其中所述衣壳蛋白包含至少一种修饰,所述至少一种修饰是AAV9衣壳多肽中的氨基酸586-588的置换和位于氨基酸588与589之间的插入,并且其中所述插入选自表1-4中的序列。

5.根据权利要求1所述的AAV载体,其中所述载体包含AAV vp1衣壳蛋白、vp2衣壳蛋白和vp3衣壳蛋白,其中:

所述vp1衣壳蛋白的氨基酸序列选自表5中的序列;

所述vp2衣壳蛋白的氨基酸序列选自表6中的序列;和/或

所述vp3衣壳蛋白的氨基酸序列选自表7中的序列。

6.根据权利要求1所述的方法,其中所述衣壳蛋白进一步包含至少一种修饰,所述至少一种修饰使所述AAV载体的肝嗜性降低。

7.根据权利要求1所述的AAV载体,其中编码所述全长MTM1蛋白的所述核酸与肌肉特异性启动子可操作地连接。

8.根据权利要求6所述的AAV载体,其中所述肌肉特异性启动子是MHCK7启动子。

9.根据权利要求8所述的AAV载体,其中所述编码全长MTM1蛋白的核酸包含位于所述肌肉特异性启动子下游的经可变剪接的外显子盒,其中所述经可变剪接的外显子盒在所述盒的3'端处包含ATG起始密码子。

10.根据权利要求10所述的AAV载体,其中所述经可变剪接的外显子盒包含骨骼肌特异性外显子。

11.根据权利要求11所述的AAV载体,其中所述经可变剪接的外显子盒促进所述核酸的骨骼肌表达。

12.一种治疗X连锁肌管肌病(XLMTM)的方法,所述方法包含向患有XLMTM的受试者施用组合物,所述组合物包含:

腺相关病毒(AAV)载体,所述AAV载体包含:

衣壳蛋白,所述衣壳蛋白包含至少一种修饰,所述至少一种修饰使所述AAV载体优先靶

向到肌肉组织;以及

核酸,所述核酸编码全长MTM1蛋白。

13.根据权利要求12所述的方法,其中所述衣壳蛋白包含至少一种修饰,所述至少一种修饰是位于AAV9衣壳多肽中的氨基酸262-269、327-332、382-386、452-460、488-505、527-539、545-558、581-593、704-714或其任何组合之间或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAV rh.10衣壳多肽中的类似位置中的任何两个连续氨基酸之间的插入。

14.根据权利要求12所述的方法,其中所述衣壳蛋白包含至少一种修饰,所述至少一种修饰是AAV9衣壳多肽中的氨基酸586-88的置换和位于氨基酸588与589之间的插入或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAVrh.10衣壳多肽中的类似位置中的置换和插入。

15.根据权利要求12所述的方法,其中所述衣壳蛋白包含至少一种修饰,所述至少一种修饰是AAV9衣壳多肽中的氨基酸586-588的置换和位于氨基酸588与589之间的插入,并且其中所述插入选自表1-4中的序列。

16.根据权利要求12所述的方法,其中所述载体包含AAV vp1衣壳蛋白、vp2衣壳蛋白和vp3衣壳蛋白,其中:

所述vp1衣壳蛋白的氨基酸序列选自表5中的序列;

所述vp2衣壳蛋白的氨基酸序列选自表6中的序列;和/或

所述vp3衣壳蛋白的氨基酸序列选自表7中的序列。

17.根据权利要求1所述的方法,其中所述衣壳蛋白进一步包含至少一种修饰,所述至少一种修饰使所述AAV载体的肝嗜性降低。

18.根据权利要求1所述的方法,其中编码所述全长MTM1蛋白的所述核酸与肌肉特异性启动子可操作地连接。

19.根据权利要求8所述的方法,其中所述肌肉特异性启动子是MHCK7启动子。

20.根据权利要求9所述的方法,其中所述编码全长MTM1蛋白的核酸包含位于所述肌肉特异性启动子下游的经可变剪接的外显子盒,其中所述经可变剪接的外显子盒在所述盒的3'端处包含ATG起始密码子。

21.根据权利要求20所述的方法,其中所述经可变剪接的外显子盒包含骨骼肌特异性外显子。

22.根据权利要求21所述的方法,其中所述经可变剪接的外显子盒促进所述核酸的骨骼肌表达。

用于治疗XLMTM的组合物

技术领域

[0001] 本公开涉及用于治疗X连锁肌管肌病(XLMTM)的方法。

[0002] 序列表

[0003] 本申请含有题为KATE-014-00US-Sequence-Listing.txt、创建于2022年5月24日并且大小为1642.5KB的作为ASCII.txt文件以电子形式提交的序列表。序列表的内容以其整体并入本文。

背景技术

[0004] X连锁肌管肌病(XLMTM)是一种罕见的极其严重的先天性神经肌肉疾病,其发生在大约50,000名活产男性中的1名中活产男性中。XLMTM是由肌微管素(MTM1)基因中的致病变体引起的,该致病变体编码蛋白质肌微管素,这是一种泛表达的脂质磷酸酶,会调节细胞内膜转运和囊泡输送,并且其功能是骨骼肌的正常发育、成熟和维持所需要的。功能性肌微管素的减少与严重骨骼肌无力相关,该严重骨骼肌无力是此疾病的最突出的临床表现的原因。

[0005] 几乎所有患有XLMTM的男童在出生时都呈现出异常的Apgar评分、严重的张力减退和虚弱以及呼吸窘迫;大约90％需要机械呼吸支持。受影响的男童的寿命显著缩短,在大约18个月的中值年龄死亡,该死亡通常是由于呼吸衰竭和其并发症引起的。

[0006] 如最近发布的病历回顾中所突出强调的,绝大多数受影响的男童的生活质量也很差。患者的在其出生第一年中的大约三分之一至一半在医院中度过,并且由于肺炎和其它呼吸道症状而再次入院很常见。即使借助积极的支持疗法来延长生命,患有XLMTM的男童较晚达到运动里程碑(如果有的话),并且很少实现独立移动。大多数需要终身机械呼吸支持;大约半数需要每天24小时进行机械通气。外科手术也很常见;具有长期呼吸机依赖性的患者通常需要气管切开术,并且几乎所有患者由于无力都需要胃造口术,这会损害进食能力。

[0007] 诊断技术并且特别是基因测试的进展已经加速了诊断XLMTM的时间,该诊断现在通常在生命的前3个月至4个月内做出。治疗开发工作正在进行中,但是目前没有经批准用于治疗XLMTM的药物。如上所述,支持性护理可以延长存活期,但是不会改变疾病的进程。

[0008] 正在研究的治疗策略包括AT132(resamirigenebilparvovec),即一种静脉内递送的基因疗法,其由递送人MTM1的AAV8衣壳与肌间线蛋白启动子组成。迄今为止,已经公开地呈现了23名在1/2期临床试验(ASPIRO,NCT03199469)中接受AT132的参与者的所选择的数据。此方法显示出临床结果的实质性改善,其中许多参与者经历如通过CHOP-INTEND所评估的运动功能的改善以及呼吸机支持需要的大大降低,其中一些参与者得以完全摆脱机械通气。

[0009] 不幸的是,AT132也涉及严重的安全性发现,值得注意的是严重的肝内胆汁淤积导致四名参与者出现肝衰竭和死亡。在其它基因疗法的情况下已经报告了肝毒性,典型地,其中转氨酶显著升高,并且在支持性护理的情况下有时与类固醇结合会消退。相比之下,AT132项目中的肝毒性的特征在于,胆汁淤积,在一些情况下,该胆汁淤积是严重的、进行性的,并且据报告对免疫抑制无应答,通过添加预防性熊脱氧胆酸也未得到预防。

[0010] 因此,仍然没有经批准用于治疗XLMTM的药物,这使患有该病状的患者群体的医疗需求严重得不到满足。

发明内容

[0011] 本发明提供了一种在骨骼肌中实现MTM1表达的新型嗜肌性病毒载体。有利地,通过增加MTM1在骨骼肌中的表达,本发明的载体允许施用一定剂量的包含该载体的组合物,该剂量显著减少非靶组织暴露于该组合物。更有效的给药使治疗XLMTM的方法具有临床功效(肌肉强度提高并且对机械通气的需求减少)以及改进的安全性,特别是,在医疗需求严重未得到满足的此群体中肝毒性的风险降低。

[0012] 本发明的方法提供了一种腺相关病毒(AAV)载体,其包含衣壳蛋白,该衣壳蛋白具有至少一种修饰,该至少一种修饰使该AAV载体优先靶向到肌肉组织。该载体进一步包含核酸,该核酸编码全长MTM1蛋白。

[0013] 该衣壳蛋白可以进一步包含至少一种修饰,该至少一种修饰导致该AAV载体的肝嗜性降低。

[0014] 该AAV可以是任何已知的AAV,例如AAV9。该衣壳蛋白可以包含至少一种修饰,该至少一种修饰是位于AAV9衣壳多肽中的氨基酸262-269、327-332、382-386、452-460、488-505、527-539、545-558、581-593、704-714或其任何组合之间或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAV rh.10衣壳多肽中的类似位置中的任何两个连续氨基酸之间的插入。例如,该衣壳蛋白可以包含至少一种修饰,该至少一种修饰是AAV9衣壳多肽中的氨基酸586-588的置换和位于氨基酸588与589之间的插入或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAV rh.10衣壳多肽中的类似位置中的置换和插入。该衣壳蛋白可以包含至少一种修饰,该至少一种修饰是AAV9衣壳多肽中的氨基酸586-588的置换和位于氨基酸588与589之间的插入,并且其中该插入选自下文详细提供的表1-4中的序列。

[0015] 该载体可以包含vp1衣壳蛋白、vp2衣壳蛋白和vp3衣壳蛋白。该vp1衣壳蛋白的氨基酸序列可以选自表5中的序列,氨基酸序列vp2衣壳蛋白可以选自表6中的序列,和/或氨基酸序列vp3衣壳蛋白选自表7中的序列,这些氨基酸序列中的每个氨基酸序列在下文中详细提供。

[0016] 编码该全长MTM1蛋白的该核酸可以与肌肉特异性启动子可操作地连接。该肌肉特异性启动子可以是任何已知的肌肉特异性启动子。例如,该肌肉特异性启动子是MHCK7启动子。

[0017] 编码该全长MTM1蛋白的该核酸可以包含位于该肌肉特异性启动子下游的经可变剪接的外显子盒。该经可变剪接的外显子盒在该盒的3'端处可以包含ATG起始密码子。该经可变剪接的外显子盒可以包含骨骼肌特异性外显子。有利地,该经可变剪接的外显子盒可以促进该核酸的骨骼肌表达。因此,两个该AAV衣壳和编码由该衣壳递送的MTM1的该核酸两者均使骨骼肌表达增加。

[0018] 本发明的各方面提供了治疗X连锁肌管肌病(XLMTM)的方法。该方法包含向患有XLMTM的受试者施用包含腺相关病毒(AAV)载体的组合物,该AAV载体包含衣壳蛋白和核酸,

该衣壳蛋白包含至少一种修饰,该至少一种修饰使在该AAV载体优先靶向到肌肉组织,该核酸编码全长MTM1蛋白。

[0019] 该衣壳蛋白可以进一步包含至少一种修饰,该至少一种修饰导致该AAV载体的肝嗜性降低。

[0020] 该AAV可以是任何已知的AAV,例如AAV9。该衣壳蛋白可以包含至少一种修饰,该至少一种修饰是位于AAV9衣壳多肽中的氨基酸262-269、327-332、382-386、452-460、488-505、527-539、545-558、581-593、704-714或其任何组合之间或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAV rh.10衣壳多肽中的类似位置中的任何两个连续氨基酸之间的插入。例如,该衣壳蛋白可以包含至少一种修饰,该至少一种修饰是AAV9衣壳多肽中的氨基酸586-88的置换和位于氨基酸588与589之间的插入或AAV1衣壳多肽、AAV2衣壳多肽、AAV3衣壳多肽、AAV4衣壳多肽、AAV5衣壳多肽、AAV6衣壳多肽、AAV7衣壳多肽、AAV8衣壳多肽、AAV rh.74衣壳多肽、AAV rh.10衣壳多肽中的类似位置中的置换和插入。该衣壳蛋白可以包含至少一种修饰,该至少一种修饰是AAV9衣壳多肽中的氨基酸586-88的置换和位于氨基酸588与589之间的插入,并且其中该插入选自下文详细提供的表1-4中的序列。

[0021] 该载体可以包含vp1衣壳蛋白、vp2衣壳蛋白和vp3衣壳蛋白。该vp1衣壳蛋白的氨基酸序列可以选自表5中的序列,氨基酸序列vp2衣壳蛋白可以选自表6中的序列,和/或氨基酸序列vp3衣壳蛋白选自表7中的序列,这些氨基酸序列中的每个氨基酸序列在下文中详细提供。

[0022] 编码该全长MTM1蛋白的该核酸可以与肌肉特异性启动子可操作地连接。该肌肉特异性启动子可以是任何已知的肌肉特异性启动子。例如,该肌肉特异性启动子是MHCK7启动子。

[0023] 编码该全长MTM1蛋白的该核酸可以包含位于该肌肉特异性启动子下游的经可变剪接的外显子盒。该经可变剪接的外显子盒在该盒的3'端处可以包含ATG起始密码子。该经可变剪接的外显子盒可以包含骨骼肌特异性外显子。有利地,该经可变剪接的外显子盒可以促进该核酸的骨骼肌表达。因此,两个该AAV衣壳和编码由该衣壳递送的MTM1的该核酸两者均使骨骼肌表达增加。

[0024] 表1:MyoAAV(eMyoAAV)衣壳变体

[0025]

排名	N聚体基序	SEQ ID NO.:	编码序列	SEQ ID NO.:
1	AEGRGDQYTR	177	GCTGAGGGTAGAGGAGACCAGTATACTCGT	181
2	GPGRGDQTTL	178	GGGCCGGGTAGAGGAGACCAGACTACGTTG	182
3	AEGRGDQYTR	177	GCGGAAGGCAGAGGAGACCAATACACAAGG	183
4	ATGRGDLGQA	179	GCGACTGGTAGAGGAGACCTGGGTCAGGCT	184
5	AVARGDQGLI	180	GCGGTGGCGAGAGGAGACCAGGGTCTTATT	185
6	NISRGDQGYQ	6	AACATCTCCAGAGGAGACCAAGGTTACCAA	186
7	APARGDQGSQ	7	GCGCCGGCTAGAGGAGACCAGGGGAGTCAG	187
8	AVSRGDRMEF	8	GCCGTTAGCAGAGGAGACCGGATGGAATTC	188
9	QMGRGDMGIK	10	CAGATGGGTAGAGGAGACATGGGGATTAAG	189
10	EYRRGDKADI	11	GAGTATCGGAGAGGAGACAAGGCGGATATT	190
11	ESRRGDKEPL	12	GAGAGTCGGAGAGGAGACAAGGAGCCGCTG	191

[0026]

12	AHMRGDLGGT	13	GCACACATGAGAGGAGACCTAGGCGGCACG	192
13	VWQRGDKMDM	14	GTGTGGCAAAGAGGAGACAAAATGGACATG	193
14	SIGRGDTGHM	15	TCTATTGGGAGAGGAGACACGGGTCATATG	194
15	NIARGDAGQY	16	AATATTGCTAGAGGAGACGCTGGTCAGTAT	195
16	AVARGDQGLI	180	GCAGTAGCAAGAGGAGACCAAGGCTTAATC	196
17	SVSRGDQGLH	17	TCGGTCTCGAGAGGAGACCAAGGATTGCAC	197
18	EYRRGDKADI	11	GAATACAGGAGAGGAGACAAAGCAGACATC	198
19	AHMRGDLGGT	13	GCGCATATGAGAGGAGACTTGGGGGGGACT	199
20	QIGRGDITHG	18	CAGATTGGTAGAGGAGACATTACTCATGGG	200
21	EVRRGDLHGT	19	GAAGTCAGAAGAGGAGACTTGCACGGGACA	201
22	SVSRGDVHTM	20	AGTGTCTCAAGAGGAGACGTGCACACGATG	202
23	MVTRGDLGTR	21	ATGGTGACTAGAGGAGACCTTGGTACGCGG	203
24	NGGRGDTTHF	22	AACGGCGGGAGAGGAGACACGACGCACTTC	204
25	TMGRGDMNSL	23	ACGATGGGGAGAGGAGACATGAATTCGCTT	205
26	AISRGDQGLS	24	GCGATTAGTAGAGGAGACCAGGGTCTTTCT	206
27	NDARGDKSTY	25	AACGACGCAAGAGGAGACAAATCCACATAC	207
28	VGLRGDLTGS	26	GTGGGGCTGAGAGGAGACTTGACGGGTTCG	208
29	EMRRGDLGTS	27	GAGATGAGGAGAGGAGACCTGGGGACGAGT	209
30	AMSRGDMGMA	28	GCGATGAGTAGAGGAGACATGGGGATGGCG	210
31	ATGRGDLGQA	179	GCAACGGGCAGAGGAGACTTAGGCCAAGCA	211
32	NVARGDQVNY	29	AACGTAGCAAGAGGAGACCAAGTTAACTAC	212
33	SIGRGDTGHM	15	AGCATCGGAAGAGGAGACACCGGCCACATG	213
34	ASVRGDLSGS	30	GCATCCGTAAGAGGAGACCTATCAGGCTCA	214
35	SAARGDTERL	31	AGCGCCGCGAGAGGAGACACTGAACGGCTA	215
36	AMSRGDMGMA	28	GCCATGTCAAGAGGAGACATGGGTATGGCT	216
37	SPSRGDQGRT	9	AGTCCATCGAGAGGAGACCAAGGACGCACT	217
38	VPGRGDLNTM	32	GTGCCTGGGAGAGGAGACCTTAATACTATG	218
39	GPGRGDQTTL	178	GGTCCTGGGAGAGGAGACCAAACGACCCTT	219
40	TSVRGDHGTL	33	ACATCGGTCAGAGGAGACCACGGAACATTG	220
41	TPSRGDLGQT	34	ACGCCTTCGAGAGGAGACCTTGGGCAGACT	221
42	AGHRGDTGVI	35	GCTGGACACAGAGGAGACACAGGAGTCATC	222
43	APARGDQGSM	36	GCGCCGGCGAGAGGAGACCAGGGTAGTATG	223
44	MSLRGDLNGS	37	ATGTCGTTGAGAGGAGACTTGAATGGGTCG	224
45	EAKRGDVHSI	38	GAGGCTAAGAGAGGAGACGTGCATTCTATT	225
46	SAQRGDVQAV	39	AGTGCTCAGAGAGGAGACGTGCAGGCGGTG	226
47	STARGDQGDR	40	AGTACGGCGAGAGGAGACCAGGGGGATAGG	227
48	QISRGDLGIN	41	CAGATTAGTAGAGGAGACCTGGGGATTAAT	228
49	TFTRGDMTMN	42	ACGTTCACAAGAGGAGACATGACGATGAAC	229
50	QEGRGDLNMR	43	CAAGAAGGAAGAGGAGACCTGAACATGAGG	230
51	AHARGDTSSL	44	GCACACGCAAGAGGAGACACCAGCTCCCTG	231
52	TNGRGDAGTL	45	ACGAATGGGAGAGGAGACGCTGGGACTCTG	232

[0027]

53	AFGRGDQGQL	46	GCTTTCGGCAGAGGAGACCAAGGGCAACTA	233
54	ADGRGDRSSL	47	GCTGATGGGAGAGGAGACCGTTCGTCTCTG	234
55	DGRRGDGHSL	48	GACGGACGCAGAGGAGACGGACACAGCCTT	235
56	EKLRGDLHST	49	GAGAAGTTGAGAGGAGACCTTCATTCGACT	236
57	EARRGDASAM	50	GAGGCGCGTAGAGGAGACGCTTCGGCGATG	237
58	MGTRGDKMDF	51	ATGGGAACGAGAGGAGACAAAATGGACTTC	238
59	STSRGDRESY	52	TCGACTTCGAGAGGAGACCGGGAGTCGTAT	239
60	CQPRGDTTRC	53	TGTCAGCCGAGAGGAGACACGACTCGGTGT	240
61	MHTRGDKMDF	54	ATGCACACGAGAGGAGACAAAATGGACTTC	241
62	YSARGDTSGL	55	TACAGTGCCAGAGGAGACACAAGTGGCCTG	242
63	STMRGDHEKL	56	TCGACGATGAGAGGAGACCATGAGAAGTTG	243
64	TQMRGDGVTL	57	ACCCAAATGAGAGGAGACGGGGTCACACTA	244
65	TTRRGDMGDN	58	ACTACTCGTAGAGGAGACATGGGGGATAAT	245
66	ANGRGDRLEL	59	GCGAATGGTAGAGGAGACAGGCTGGAGTTG	246
67	AVSRGDRMEF	8	GCTGTGTCTAGAGGAGACAGGATGGAGTTT	247
68	ENQRGDLSGR	60	GAGAATCAGAGAGGAGACTTGTCGGGTCGG	248
69	STGRGDLGQA	61	TCGACTGGTAGAGGAGACCTGGGGCAGGCT	249
70	MHTRGDKMDF	54	ATGCATACTAGAGGAGACAAGATGGATTTT	250
71	SSARGDYSEV	62	AGTAGTGCGAGAGGAGACTATAGTGAGGTG	251
72	AFGRGDQGQL	46	GCGTTTGGGAGAGGAGACCAGGGTCAGCTT	252
73	STARGDAATY	63	AGTACGGCGAGAGGAGACGCGGCGACTTAT	253
74	VNTRGDTQKL	64	GTCAACACAAGAGGAGACACTCAAAAACTT	254
75	AMSRGDHASL	65	GCGATGAGTAGAGGAGACCATGCGTCGCTT	255
76	QAARGDVNKL	66	CAGGCTGCTAGAGGAGACGTTAATAAGCTG	256
77	RGTRGDTVEL	67	AGGGGTACGAGAGGAGACACGGTTGAGTTG	257
78	TTRRGDMGDN	58	ACCACCCGGAGAGGAGACATGGGAGACAAC	258
79	ASTRGDYAGV	68	GCTAGTACGAGAGGAGACTATGCGGGTGTT	259
80	DDRRGDKLPL	69	GACGACAGGAGAGGAGACAAACTGCCCCTT	260
81	SGSRGDLNAV	70	TCGGGGTCGAGAGGAGACCTGAATGCGGTG	261
82	EYRRGDQQIQ	71	GAGTATAGGAGAGGAGACCAGCAGATTCAG	262
83	TYVRGDRAEV	72	ACGTACGTCAGAGGAGACAGAGCAGAAGTG	263
84	QSLRGDLNGS	73	CAATCACTAAGAGGAGACTTGAACGGATCC	264
85	EGRRGDTTSL	74	GAGGGTCGGAGAGGAGACACGACGTCGTTG	265
86	AENRGDRSSL	75	GCGGAGAATAGAGGAGACCGGTCGAGTTTG	266
87	VAGRGDRSEL	76	GTGGCTGGGAGAGGAGACCGTAGTGAGCTG	267
88	DPARGDIGAR	77	GATCCGGCGAGAGGAGACATTGGTGCGCGT	268
89	EMRRGDLGTS	27	GAAATGCGCAGAGGAGACTTGGGAACTTCA	269
90	VWQRGDKMDM	14	GTTTGGCAGAGAGGAGACAAGATGGATATG	270
91	VIGRGDKALQ	78	GTGATTGGGAGAGGAGACAAGGCGCTTCAG	271
92	SFERGDKNSL	79	AGCTTCGAAAGAGGAGACAAAAACTCTCTT	272
93	QIARGDIASV	80	CAGATTGCTAGAGGAGACATTGCTAGTGTG	273

[0028]

94	TISRGDLGGA	81	ACGATTAGTAGAGGAGACCTGGGTGGGGCT	274
95	AMIRGDMTHS	82	GCGATGATTAGAGGAGACATGACGCATAGT	275
96	TSVRGDHGTL	33	ACGAGTGTGAGAGGAGACCATGGGACGCTG	276
97	TMRRGDLNDS	83	ACGATGCGGAGAGGAGACCTGAATGATAGT	277
98	AYSRGDLGNH	84	GCCTACTCCAGAGGAGACCTAGGCAACCAC	278
99	EERRGDTHRL	85	GAGGAGCGGAGAGGAGACACTCATCGGCTG	279
100	SQLRGDAGTI	86	TCACAACTAAGAGGAGACGCGGGGACAATC	280
101	AMVRGDAHQL	87	GCGATGGTGAGAGGAGACGCGCATCAGCTG	281
102	TTSRGDLNSV	88	ACGACTAGTAGAGGAGACTTGAATTCGGTT	282
103	WEQRGDMIGK	89	TGGGAGCAGAGAGGAGACATGATTGGGAAG	283
104	YTTRGDLQSN	90	TACACCACCAGAGGAGACCTCCAATCAAAC	284
105	MSQRGDLSHQ	91	ATGTCGCAGAGAGGAGACCTTTCGCATCAG	285
106	ASTRGDTTHM	92	GCGAGTACTAGAGGAGACACGACGCATATG	286
107	SDTRGDTHRL	93	TCAGACACCAGAGGAGACACCCACAGACTG	287
108	TLGRGDQYTS	94	ACGCTGGGTAGAGGAGACCAGTATACGAGT	288
109	SYARGDVREV	95	TCGTATGCGAGAGGAGACGTTAGGGAGGTT	289
110	ETRRGDLSQN	96	GAGACTCGTAGAGGAGACCTGAGTCAGAAT	290
111	TIGRGDLMDK	97	ACAATCGGGAGAGGAGACCTGATGGACAAA	291
112	SYTRGDLSQN	98	AGTTACACCAGAGGAGACCTTAGCCAAAAC	292
113	SKLRGDASEI	99	TCGAAGCTGAGAGGAGACGCTAGTGAGATT	293
114	SMARGDKAEI	100	TCGATGGCGAGAGGAGACAAGGCGGAGATT	294
115	GAVRGDHSSL	101	GGAGCCGTCAGAGGAGACCACTCATCGTTA	295
116	METRGDMSNR	102	ATGGAGACGAGAGGAGACATGAGTAATCGT	296
117	AYTRGDKDAL	103	GCGTACACAAGAGGAGACAAAGACGCACTA	297
118	ENRRGDITQS	104	GAGAATCGGAGAGGAGACATTACGCAGTCG	298
119	STGRGDLGQA	61	TCCACGGGCAGAGGAGACCTTGGACAAGCA	299
120	GAVRGDHSSL	101	GGTGCTGTTAGAGGAGACCATAGTAGTCTT	300
121	SQLRGDAGTI	86	TCTCAGCTTAGAGGAGACGCTGGTACGATT	301
122	MLLRGDKNDF	105	ATGCTCCTAAGAGGAGACAAAAACGACTTC	302
123	KVQRGDASDW	106	AAGGTGCAGAGAGGAGACGCGAGTGATTGG	303
124	AFTRGDMQTA	107	GCGTTTACGAGAGGAGACATGCAGACTGCT	304
125	QPKRGDVQAQ	108	CAGCCTAAGAGAGGAGACGTTCAGGCTCAG	305
126	ASLRGDMGVS	109	GCTAGTCTGAGAGGAGACATGGGGGTGAGT	306
127	AYSRGDKESF	110	GCCTACTCCAGAGGAGACAAAGAATCGTTC	307
128	RFQRGDLTDA	111	CGGTTCCAAAGAGGAGACTTGACCGACGCT	308
129	SDARGDTMKL	112	TCTGATGCTAGAGGAGACACGATGAAGCTG	309
130	SGARGDTVSL	113	AGCGGGGCCAGAGGAGACACAGTAAGTCTC	310
131	DEKRGDQKHL	114	GATGAGAAGAGAGGAGACCAGAAGCATCTT	311
132	NGVRGDVQNF	115	AACGGAGTAAGAGGAGACGTCCAAAACTTC	312
133	MTLRGDLGGS	116	ATGACGTTGAGAGGAGACCTGGGTGGGTCG	313
134	EARRGDASAM	50	GAGGCTAGGAGAGGAGACGCTAGTGCGATG	314

[0029]

135	GQERGDLGTR	117	GGGCAGGAGAGAGGAGACCTGGGGACTCGG	315
136	RGARGDLVDA	118	AGAGGCGCCAGAGGAGACCTAGTCGACGCT	316
137	QYSRGDHTDL	119	CAATACTCCAGAGGAGACCACACCGACCTT	317
138	MNTRGDVHAM	120	ATGAACACCAGAGGAGACGTGCACGCTATG	318
139	TVRRGDLATE	121	ACGGTACGGAGAGGAGACCTAGCAACCGAA	319
140	NIARGDAGQY	16	AATATTGCGAGAGGAGACGCTGGTCAGTAT	320
141	SVGRGDKADI	122	TCTGTTGGGAGAGGAGACAAGGCTGATATT	321
142	SHNRGDTGTM	123	TCACACAACAGAGGAGACACCGGAACCATG	322
143	TNTRGDKESV	124	ACGAACACCAGAGGAGACAAAGAATCAGTA	323
144	SIGRGDQYTI	125	TCGATTGGTAGAGGAGACCAGTATACGATT	324
145	QTSRGDAGSW	126	CAGACGAGTAGAGGAGACGCGGGGTCTTGG	325
146	AENRGDRSSL	75	GCTGAAAACAGAGGAGACCGAAGCAGCCTA	326
147	AISRGDVQSL	127	GCGATTTCGAGAGGAGACGTTCAGTCGTTG	327
148	NAQRGDHGQL	128	AACGCACAAAGAGGAGACCACGGGCAACTG	328
149	LNSRGDQASV	129	CTCAACTCGAGAGGAGACCAAGCCTCCGTC	329
150	SGNRGDIGTF	130	TCGGGAAACAGAGGAGACATAGGTACATTC	330
151	NVGRGDQATM	131	AACGTGGGAAGAGGAGACCAAGCCACAATG	331
152	SYSRGDTGRL	132	TCGTATTCTAGAGGAGACACTGGTCGGCTT	332
153	SHLRGDQALA	133	AGCCACTTAAGAGGAGACCAAGCGTTGGCC	333
154	YFARGDMTMN	134	TACTTCGCCAGAGGAGACATGACTATGAAC	334
155	QSQRGDLNPM	135	CAGTCGCAGAGAGGAGACCTTAATCCTATG	335
156	EQRRGDKTEL	136	GAGCAGAGGAGAGGAGACAAGACGGAGCTG	336
157	VSARGDAGQL	137	GTGTCTGCGAGAGGAGACGCGGGTCAGTTG	337
158	SPSRGDQGRT	9	TCTCCGTCTAGAGGAGACCAGGGGCGGACG	338
159	EASRGDKGTH	138	GAGGCTAGTAGAGGAGACAAGGGTACGCAT	339
160	LSTRGDMGMQ	139	CTGTCTACTAGAGGAGACATGGGTATGCAG	340
161	ANMRGDQLHT	140	GCGAATATGAGAGGAGACCAGCTGCATACT	341
162	ENTRGDLTHA	141	GAGAATACGAGAGGAGACCTTACTCATGCG	342
163	IERRGDSAGL	142	ATTGAGCGTAGAGGAGACTCGGCGGGGCTG	343
164	SAMRGDGVSL	143	AGTGCGATGAGAGGAGACGGAGTGAGCTTG	344
165	TVSRGDQGLS	144	ACGGTTTCGAGAGGAGACCAGGGGTTGTCT	345
166	SIVRGDLNST	145	TCGATCGTCAGAGGAGACCTGAACTCCACG	346
167	DVARGDKTNF	146	GACGTAGCGAGAGGAGACAAAACAAACTTC	347
168	WSQRGDLSGT	147	TGGAGCCAAAGAGGAGACCTGAGTGGAACC	348
169	LNQRGDVSNM	148	CTGAACCAAAGAGGAGACGTTTCCAACATG	349
170	AALRGDLSGS	149	GCCGCCCTAAGAGGAGACCTATCCGGCTCA	350
171	RVARGDITDI	150	AGGGTTGCGAGAGGAGACATTACGGATATT	351
172	STNRGDLNQV	151	TCGACGAACAGAGGAGACCTCAACCAAGTT	352
173	DSRRGDSVSL	152	GATTCGCGGAGAGGAGACTCTGTGAGTCTT	353
174	SVGRGDQSQM	153	AGTGTTGGGAGAGGAGACCAGTCTCAGATG	354
175	SNTRGDTNSL	154	TCCAACACGAGAGGAGACACAAACTCCCTA	355

[0030]

176	DNRRGDGTTM	155	GATAATCGGAGAGGAGACGGTACGACTATG	356
177	TPSRGDQGRL	156	ACGCCTTCGAGAGGAGACCAAGGAAGACTA	357
178	NYSRGDSMTL	157	AACTACAGCAGAGGAGACTCAATGACGCTT	358
179	MQARGDAGTL	158	ATGCAGGCTAGAGGAGACGCTGGGACTCTG	359
180	TQSRGDLSGA	159	ACGCAGTCGAGAGGAGACTTGTCTGGTGCG	360
181	FAQRGDLTGV	160	TTTGCGCAGAGAGGAGACTTGACTGGGGTT	361
182	APVRGDLIGT	161	GCGCCGGTGAGAGGAGACCTGATTGGTACG	362
183	SNTRGDTNSL	154	TCGAATACTAGAGGAGACACGAATAGTTTG	363
184	EPKRGDLSNT	162	GAGCCGAAGAGAGGAGACTTGAGTAATACG	364
185	SVGRGDTYPL	163	TCGGTTGGGAGAGGAGACACTTATCCTCTG	365
186	QTARGDMTGH	164	CAAACAGCCAGAGGAGACATGACTGGCCAC	366
187	AGARGDLENR	165	GCTGGTGCGAGAGGAGACTTGGAGAATCGG	367
188	MSTRGDLNNV	166	ATGAGCACTAGAGGAGACCTAAACAACGTC	368
189	EKQRGDLNSM	167	GAAAAACAAAGAGGAGACCTCAACAGCATG	369
190	IKTRGDLGHE	168	ATTAAGACGAGAGGAGACCTTGGTCATGAG	370
191	IGRRGDMELS	169	ATTGGGAGGAGAGGAGACATGGAGTTGTCT	371
192	TTGRGDLKEV	170	ACTACGGGTAGAGGAGACTTGAAGGAGGTT	372
193	TDKRGDQNTV	171	ACGGATAAGAGAGGAGACCAGAATACTGTG	373
194	SNVRGDREAV	172	TCGAATGTTAGAGGAGACCGGGAGGCGGTT	374
195	SVGRGDQSQM	153	TCAGTCGGCAGAGGAGACCAAAGTCAAATG	375
196	YANRGDLSHQ	173	TACGCCAACAGAGGAGACCTGAGTCACCAA	376
197	QISRGDLGIN	41	CAAATATCGAGAGGAGACCTAGGTATCAAC	377
198	SMMRGDAGQL	174	TCGATGATGAGAGGAGACGCTGGGCAGTTG	378
199	EARRGDSQGL	175	GAGGCGCGGAGAGGAGACAGTCAGGGGCTG	379
200	MPTRGDQTKF	176	ATGCCCACAAGAGGAGACCAAACCAAATTC	380

[0031] 表2:增强型MyoAAV(eMyoAAV)衣壳变体

[0032]

排名	N 聚体插入物	SEQ ID NO.:	编码序列	SEQ ID NO.:
1	SNSRGDYNSL	381	TCAAACTCCAGAGGAGACTACAACTCCTTG	557
2	SSARGDRDYL	397	TCGTCGGCTAGAGGAGACCGTGATTATCTG	558
3	STVRGDYTSV	398	AGCACGGTCAGAGGAGACTACACGTCCGTG	559
4	QERRGDYTSM	382	CAGGAGCGGAGAGGAGACTATACGAGTATG	560
5	NGGRGDTTHF	386	AACGGCGGGAGAGGAGACACGACGCACTTC	561
6	ASTRGDHGVL	383	GCGAGTACTAGAGGAGACCATGGTGTGTTG	562
7	SYQRGDQHNM	399	TCGTACCAAAGAGGAGACCAACACAACATG	563
8	NDTRGDRSYM	400	AACGACACAAGAGGAGACCGATCTTACATG	564
9	ENRRGDFNNT	384	GAAAACAGGAGAGGAGACTTCAACAACACT	565
10	SGSRGDLSGH	401	TCCGGCTCGAGAGGAGACTTGTCAGGACAC	566
11	ENRRGDITQS	393	GAGAATCGGAGAGGAGACATTACGCAGTCG	567

[0033]

12	DKPRGDRQLL	402	GATAAGCCGAGAGGAGACCGGCAGTTGTTG	568
13	EERRGDTHRL	392	GAGGAGCGGAGAGGAGACACTCATCGGCTG	569
14	AMIRGDMTHS	391	GCGATGATTAGAGGAGACATGACGCATAGT	570
15	SNNRGDYTTM	403	TCAAACAACAGAGGAGACTACACGACAATG	571
16	QGGRGDLSTL	404	CAGGGTGGGAGAGGAGACTTGTCGACGTTG	572
17	SKDRGDYQTL	405	TCGAAGGATAGAGGAGACTATCAGACTCTT	573
18	ATARGDQMKL	406	GCTACGGCGAGAGGAGACCAGATGAAGCTG	574
19	QHMRGDLTGA	407	CAGCATATGAGAGGAGACTTGACTGGTGCG	575
20	DGTRGDLGRY	408	GACGGCACGAGAGGAGACCTTGGAAGGTAC	576
21	DSRRGDYANL	409	GACTCTCGGAGAGGAGACTACGCAAACCTC	577
22	SAMRGDYTST	410	TCGGCGATGAGAGGAGACTATACTAGTACT	578
23	ENRRGDAQLL	411	GAGAATCGGAGAGGAGACGCGCAGCTGCTG	579
24	TTLRGDHSQL	412	ACGACGCTGAGAGGAGACCATAGTCAGCTT	580
25	DAGRGDMHRM	413	GACGCAGGGAGAGGAGACATGCACCGTATG	581
26	QHTRGDLSST	414	CAGCATACGAGAGGAGACTTGAGTTCTACT	582
27	QVYRGDRESV	415	CAAGTTTACAGAGGAGACAGGGAATCCGTG	583
28	SSQRGDLAGT	416	TCGAGTCAGAGAGGAGACTTGGCTGGTACT	584
29	TDVRGDRGTF	417	ACGGATGTTAGAGGAGACAGGGGGACGTTT	585
30	SSVRGDREVT	418	TCGTCTGTGAGAGGAGACCGGGAGGTGACG	586
31	ENRRGDLTNA	419	GAGAATAGGAGAGGAGACCTGACTAATGCG	587
32	SYARGDVHSI	420	TCGTATGCGAGAGGAGACGTTCATTCTATT	588
33	DSSRGDLNLR	421	GACAGCTCAAGAGGAGACCTCAACCTCCGG	589
34	SNARGDYSNM	422	TCGAACGCGAGAGGAGACTACTCAAACATG	590
35	SSVRGDHSVL	423	TCGTCTGTGAGAGGAGACCATTCGGTGCTT	591
36	SAFRGDLHAT	424	TCGGCTTTTAGAGGAGACCTGCATGCTACT	592
37	SAMRGDYTST	410	TCCGCCATGAGAGGAGACTACACAAGCACG	593
38	NAQRGDHGQL	394	AACGCACAAAGAGGAGACCACGGGCAACTG	594
39	SDRRGDQLLY	425	TCGGATCGGAGAGGAGACCAGCTGTTGTAT	595
40	SGVRGDRLAV	426	AGCGGCGTAAGAGGAGACCGCCTAGCCGTA	596
41	ASLRGDLSST	427	GCCAGCCTAAGAGGAGACCTCAGCTCAACG	597
42	TNGRGDLHGM	428	ACGAACGGAAGAGGAGACCTTCACGGAATG	598
43	TNTRGDHGML	429	ACGAATACGAGAGGAGACCATGGGATGCTG	599
44	SSARGDRDYL	397	AGTTCCGCCAGAGGAGACCGGGACTACCTC	600
45	EDRRGDLLRT	430	GAGGATCGGAGAGGAGACCTTTTGAGGACT	601
46	SSLRGDLLHS	431	TCGTCGCTGAGAGGAGACCTGTTGCATTCT	602
47	ENRRGDLTNA	419	GAAAACCGTAGAGGAGACCTCACGAACGCT	603
48	DGRRGDRESI	432	GACGGCAGGAGAGGAGACCGGGAATCGATC	604
49	TGTRGDTMTW	433	ACTGGAACCAGAGGAGACACAATGACATGG	605
50	STVRGDYTSV	398	TCGACTGTTAGAGGAGACTATACTTCTGTT	606
51	SATRGDHNVL	434	TCGGCAACGAGAGGAGACCACAACGTACTG	607
52	TDRRGDSGTL	435	ACGGATCGGAGAGGAGACAGTGGTACTCTG	608

[0034]

53	TSARGDLIHT	436	ACGAGTGCTAGAGGAGACCTGATTCATACG	609
54	SGVRGDRLAV	426	AGTGGGGTGAGAGGAGACCGGCTGGCGGTG	610
55	AVERGDRLML	437	GCGGTTGAGAGAGGAGACCGTCTTATGCTG	611
56	DRSRGDTHVL	438	GACAGGTCGAGAGGAGACACGCACGTACTC	612
57	ESTRGDLRVV	439	GAGTCGACGAGAGGAGACCTTCGTGTTGTG	613
58	TTIRGDYREL	440	ACGACGATTAGAGGAGACTATCGTGAGTTG	614
59	TFIRGDLAGA	441	ACGTTCATCAGAGGAGACCTGGCAGGTGCG	615
60	MTSRGDLTTY	442	ATGACGAGCAGAGGAGACTTGACAACATAC	616
61	ADRRGDQLYS	443	GCGGATCGTAGAGGAGACCAGCTTTATTCG	617
62	AHMRGDLGGT	385	GCACACATGAGAGGAGACCTAGGCGGCACG	618
63	GYVRGDLGQH	444	GGGTACGTCAGAGGAGACCTGGGGCAACAC	619
64	DASRGDRTSL	445	GATGCGAGTAGAGGAGACAGGACTAGTTTG	620
65	TEVRGDRSQV	446	ACGGAGGTGAGAGGAGACAGGTCGCAGGTT	621
66	SHLRGDQALA	395	TCGCATCTGAGAGGAGACCAGGCTCTTGCG	622
67	SEVRGDRLSI	447	TCGGAGGTGAGAGGAGACCGGTTGAGTATT	623
68	SAARGDTERL	387	AGCGCCGCGAGAGGAGACACTGAACGGCTA	624
69	SDRRGDLSGA	448	TCAGACCGTAGAGGAGACCTGTCGGGCGCT	625
70	SVTRGDRVVI	449	AGCGTCACAAGAGGAGACAGAGTAGTCATC	626
71	SEGRGDRMAL	450	TCGGAGGGGAGAGGAGACAGGATGGCTCTT	627
72	SSTRGDHLSL	451	TCGTCTACTAGAGGAGACCATCTTTCGCTG	628
73	AMIRGDMTHS	391	GCTATGATCAGAGGAGACATGACCCACTCC	629
74	SSTRGDQIYV	452	TCGTCGACGAGAGGAGACCAGATTTATGTG	630
75	EERRGDTHRL	392	GAGGAGCGGAGAGGAGACACTCATCGGTTG	631
76	SNSRGDYNSL	381	TCGAATTCGAGAGGAGACTATAATAGTCTT	632
77	SAQRDRMGSP	453	TCCGCACAAAGGGATCGTATGGGTTCTCCG	633
78	TGTRGDIATF	454	ACGGGTACGAGAGGAGACATTGCGACTTTT	634
79	SMQRGDLLST	455	TCGATGCAGAGAGGAGACCTGCTTTCTACT	635
80	EDVRGDRSKL	456	GAGGATGTGAGAGGAGACAGGAGTAAGCTT	636
81	AHMRGDLGGT	385	GCGCATATGAGAGGAGACTTGGGGGGGACT	637
82	TSVRGDQSQY	457	ACGAGTGTGAGAGGAGACCAGAGTCAGTAT	638
83	ADRRGDTGLF	458	GCGGATCGGAGAGGAGACACGGGGTTGTTT	639
84	NTYRGDRDSL	459	AACACTTACAGAGGAGACCGAGACAGCCTG	640
85	TDVRGDRGTF	417	ACGGATGTTAGAGGAGACCGGGGGACGTTT	641
86	SRGRGDLNDL	460	TCTCGTGGGAGAGGAGACCTGAATGATTTG	642
87	SNVRGDREAV	396	AGCAACGTAAGAGGAGACAGGGAAGCCGTC	643
88	MDRRGDASIL	461	ATGGACAGGAGAGGAGACGCCTCCATACTG	644
89	SIWRGDRTEV	462	TCGATATGGAGAGGAGACCGTACAGAAGTC	645
90	NSQRGDYSGM	463	AACTCACAAAGAGGAGACTACAGTGGAATG	646
91	SSVRGDIGGI	464	TCTAGCGTAAGAGGAGACATCGGGGGGATC	647
92	ENQRGDLSGR	390	GAGAATCAGAGAGGAGACTTGTCGGGTCGG	648
93	EIRRGDLLAQ	465	GAGATTCGGAGAGGAGACCTTCTGGCTCAG	649

[0035]

94	SNIRGDHAVM	466	TCGAACATCAGAGGAGACCACGCAGTCATG	650
95	LDTRGDRSQV	467	CTGGATACGAGAGGAGACCGGAGTCAGGTT	651
96	ANTRGDHQNF	468	GCGAATACGAGAGGAGACCATCAGAATTTT	652
97	QVYRGDRESV	415	CAGGTGTATAGAGGAGACCGTGAGTCTGTT	653
98	TSVRGDLSMN	469	ACGTCGGTGAGAGGAGACCTTTCGATGAAT	654
99	ASTRGDHGVL	383	GCCTCAACGAGAGGAGACCACGGAGTTCTC	655
100	TTTRGDYLNT	470	ACGACGACGAGAGGAGACTATCTTAATACG	656
101	AERRGDIKEY	471	GCGGAGAGGAGAGGAGACATTAAGGAGTAT	657
102	SHARGDLGST	472	TCGCATGCTAGAGGAGACTTGGGTTCGACT	658
103	TSQRGDYVSL	473	ACGTCTCAGAGAGGAGACTATGTTTCTCTT	659
104	GPGRGDQTTL	556	GGGCCGGGTAGAGGAGACCAGACTACGTTG	660
105	VNVRGDRGEV	474	GTGAATGTGAGAGGAGACCGTGGTGAGGTG	661
106	SYRRGDHDQL	475	TCGTATCGTAGAGGAGACCATGATCAGCTT	662
107	SGTRGDRVDL	476	AGCGGCACAAGAGGAGACAGGGTAGACCTC	663
108	SHFRGDLHTS	477	TCCCACTTCAGAGGAGACTTGCACACGTCC	664
109	SDRRGDLSVP	478	TCGGATCGTAGAGGAGACCTTTCGGTGCCT	665
110	SGTRGDTLIL	479	AGCGGCACCAGAGGAGACACCCTTATACTC	666
111	ENTRGDLHGK	480	GAAAACACCAGAGGAGACCTCCACGGCAAA	667
112	DRARGDTHVL	481	GATCGGGCGAGAGGAGACACGCATGTGCTG	668
113	ASGRGDIAGL	482	GCGTCTGGTAGAGGAGACATTGCGGGGCTT	669
114	EGRRGDLFQA	483	GAGGGTCGTAGAGGAGACCTGTTTCAGGCG	670
115	RSERGDRLEI	484	AGATCCGAAAGAGGAGACAGGCTAGAAATC	671
116	AAYRGDAHVL	485	GCGGCCTACAGAGGAGACGCACACGTGCTC	672
117	NDSRGDQHRL	486	AACGACTCGAGAGGAGACCAACACCGATTG	673
118	SSARGDHSQL	487	TCATCGGCAAGAGGAGACCACTCTCAACTG	674
119	TNERGDRLSI	488	ACGAATGAGAGAGGAGACCGTCTTTCGATT	675
120	SNSRGDYTSV	489	AGCAACTCCAGAGGAGACTACACCAGTGTC	676
121	NVTRGDHTVM	490	AACGTCACAAGAGGAGACCACACCGTTATG	677
122	TMVRGDVKGL	491	ACGATGGTGAGAGGAGACGTTAAGGGGCTT	678
123	TGTRGDIATF	454	ACCGGGACAAGAGGAGACATAGCCACGTTC	679
124	VQLRGDLAST	492	GTGCAGCTGAGAGGAGACTTGGCTTCTACT	680
125	MNRRGDYSEQ	493	ATGAACCGGAGAGGAGACTACTCGGAACAA	681
126	ANTRGDLSPV	494	GCGAATACTAGAGGAGACCTGAGTCCGGTT	682
127	TGMRGDAGSL	495	ACGGGTATGAGAGGAGACGCTGGGAGTCTT	683
128	LDRRGDFSSA	496	CTAGACCGCAGAGGAGACTTCAGCTCCGCG	684
129	MYHRGDMTSV	497	ATGTACCACAGAGGAGACATGACTTCGGTG	685
130	GSMRGDLHST	498	GGGTCGATGAGAGGAGACTTGCATTCGACG	686
131	SSSRGDFSSV	499	TCGTCGTCCAGAGGAGACTTCAGCTCTGTT	687
132	TGTRGDLHTY	500	ACGGGTACGAGAGGAGACTTGCATACTTAT	688
133	YTQRGDLATV	501	TACACCCAAAGAGGAGACCTTGCCACCGTC	689
134	TDVRGDRMYV	502	ACGGATGTTAGAGGAGACCGGATGTATGTG	690

[0036]

135	TSVRGDHGTL	388	ACATCGGTCAGAGGAGACCACGGAACATTG	691
136	SNSRGDLSVN	503	TCGAACTCCAGAGGAGACCTATCGGTAAAC	692
137	QSGRGDQMTL	504	CAGTCTGGGAGAGGAGACCAGATGACGTTG	693
138	MNTRGDLQQS	505	ATGAACACCAGAGGAGACTTGCAACAATCG	694
139	AGSRGDLQTV	506	GCGGGATCAAGAGGAGACCTACAAACGGTG	695
140	SNMRGDQTYV	507	TCGAACATGAGAGGAGACCAAACTTACGTC	696
141	TPSRGDMSNV	508	ACGCCAAGTAGAGGAGACATGTCCAACGTC	697
142	NSTRGDLHMA	509	AACAGCACAAGAGGAGACCTACACATGGCA	698
143	ANTRGDLSVS	510	GCTAACACCAGAGGAGACCTCTCAGTCAGT	699
144	TDRRGDTGLL	511	ACCGACCGAAGAGGAGACACCGGCTTACTG	700
145	DGVRGDRATW	512	GACGGCGTAAGAGGAGACCGTGCAACATGG	701
146	ENRRGDFNNT	384	GAGAATCGTAGAGGAGACTTTAATAATACG	702
147	EPSRGDRMVL	513	GAGCCTAGTAGAGGAGACAGGATGGTGTTG	703
148	SGVRGDRIII	514	AGCGGCGTTAGAGGAGACCGGATCATAATC	704
149	TSMRGDYTHV	515	ACGTCGATGAGAGGAGACTATACGCATGTT	705
150	ASSRGDLTVI	516	GCGTCGAGTAGAGGAGACTTGACTGTTATT	706
151	ETRRGDLSLQ	517	GAGACGCGTAGAGGAGACCTGTCGCTTCAG	707
152	NNARGDQSMH	518	AACAACGCAAGAGGAGACCAATCAATGCAC	708
153	TDRRGDSSAL	519	ACGGATAGGAGAGGAGACTCTAGTGCGCTT	709
154	SSQRGDLTGV	520	TCAAGCCAAAGAGGAGACTTGACAGGTGTG	710
155	QTARGDVMVH	521	CAGACGGCTAGAGGAGACGTTATGGTTCAT	711
156	VSQRGDLNAV	522	GTGTCGCAGAGAGGAGACCTGAATGCTGTT	712
157	TMTRGDLAAN	523	ACGATGACCAGAGGAGACCTCGCTGCTAAC	713
158	NASRGDHSSL	524	AATGCTTCGAGAGGAGACCATTCGTCGTTG	714
159	SNTRGDMGLT	525	TCAAACACCAGAGGAGACATGGGCCTCACG	715
160	MYSRGDTHSL	526	ATGTATTCGAGAGGAGACACTCATAGTCTG	716
161	ADQRGDRAPL	527	GCGGATCAGAGAGGAGACAGGGCTCCGCTT	717
162	QERRGDYTSM	382	CAAGAAAGGAGAGGAGACTACACCTCTATG	718
163	SQNRGDLANT	528	TCCCAAAACAGAGGAGACCTAGCCAACACG	719
164	EKLRGDLHST	389	GAGAAGTTGAGAGGAGACCTTCATTCGACT	720
165	QGGRGDLSTL	404	CAAGGCGGAAGAGGAGACCTGAGTACACTG	721
166	SNRRGDTEMQ	529	TCGAATAGGAGAGGAGACACTGAGATGCAG	722
167	SGSRGDVSAL	530	TCGGGTAGTAGAGGAGACGTGAGTGCTTTG	723
168	ESTRGDRGTL	531	GAGTCGACGAGAGGAGACCGTGGTACGCTG	724
169	SAVRGDAALH	532	TCGGCGGTGAGAGGAGACGCGGCGCTTCAT	725
170	LSSRGDVNRL	533	CTGAGCAGCAGAGGAGACGTTAACCGCCTT	726
171	EQRRGDIQTI	534	GAGCAGAGGAGAGGAGACATTCAGACTATT	727
172	AAYRGDAHVL	485	GCTGCGTATAGAGGAGACGCGCATGTTCTT	728
173	SPVRGDHGAL	535	TCGCCGGTGAGAGGAGACCATGGGGCTTTG	729
174	DSRRGDYANL	409	GATTCGAGGAGAGGAGACTATGCGAATCTG	730
175	LSRRGDYQEL	536	TTGAGTCGGAGAGGAGACTATCAGGAGTTG	731

176	SYARGDVHSI	420	TCCTACGCAAGAGGAGACGTCCACTCCATC	732
177	DSRRGDASYH	537	GACTCACGCAGAGGAGACGCGTCGTACCAC	733
178	NHQRGDLSSS	538	AACCACCAAAGAGGAGACCTGAGCTCGAGT	734
179	SSTRGDHLSL	451	TCCTCAACGAGAGGAGACCACCTGTCTTTG	735
180	SWNRGDISGL	539	TCGTGGAACAGAGGAGACATATCTGGCCTT	736
181	TGTRGDLGTM	540	ACGGGTACTAGAGGAGACCTGGGGACGATG	737
182	QQLRGDTHTL	541	CAGCAGCTTAGAGGAGACACGCATACTCTT	738
183	AGLRGDRDSL	542	GCGGGGTTGAGAGGAGACCGTGATTCGCTT	739
184	QVYRGDRDQL	543	CAGGTTTATAGAGGAGACCGGGATCAGTTG	740
185	AGVRGDRVTI	544	GCAGGAGTAAGAGGAGACAGAGTGACCATC	741
186	NSARGDLLHS	545	AACTCAGCCAGAGGAGACCTTCTGCACTCC	742
187	NHSRGDLTGV	546	AACCACAGTAGAGGAGACCTGACAGGCGTT	743
[0037] 188	NAYRGDTSAF	547	AACGCTTACAGAGGAGACACATCCGCGTTC	744
189	SANRGDIMHT	548	TCGGCTAACAGAGGAGACATAATGCACACG	745
190	QSARGDLVSY	549	CAATCCGCCAGAGGAGACCTCGTCAGTTAC	746
191	DSRRGDASYH	537	GATAGTAGGAGAGGAGACGCTAGTTATCAT	747
192	SFVRGDVRTL	550	TCGTTTGTGAGAGGAGACGTTCGTACGCTG	748
193	SDMRGDRSVY	551	AGCGACATGAGAGGAGACCGATCTGTGTAC	749
194	SGIRGDRYPI	552	TCCGGAATCAGAGGAGACCGCTACCCAATA	750
195	SNVRGDMAHS	553	TCCAACGTCAGAGGAGACATGGCTCACAGC	751
196	TEVRGDRSQV	446	ACTGAGGTTAGAGGAGACCGTTCGCAGGTT	752
197	ASSRGDLQQT	554	GCGAGCAGCAGAGGAGACCTGCAACAAACG	753
198	QSARGDLVSY	549	CAGTCTGCTAGAGGAGACCTTGTGTCTTAT	754
199	DASRGDRTSL	445	GACGCATCTAGAGGAGACCGAACATCCCTC	755
200	NSVRGDLNQT	555	AACAGTGTCAGAGGAGACCTCAACCAAACT	756

[0038] 表3:排名靠前的骨骼肌特异性n聚体插入物和/或RGD基序

变体	SEQ ID NO.:
TTGRGDQARL	757
TTLRGDHSQL	758
TNLRGDYQLT	759
STSRGDYVTH	760
MPARGDLVQT	761
[0039] SGVRGDRLAV	762
SNERGDQHRL	763
STLRGDYAVS	764
SNARGDIMTT	765
EASRGDLQMR	766
TYARGDLSGH	767
DSSRGDRSSV	768

SQSRGDLVPL	769
SATRGDYSIL	770
QATRGDLQHT	771
HDDRGDRRML	772
SSHRGDLLAT	773
SYQRGDQHNM	774
SHQRGDYNTL	775
MDQRGDMSVV	776
QIARGDLHVP	777
TYTRGDQHMM	778
DASRGDRTSL	779
SDRRGDLHPQ	780
SATRGDHSTL	781

[0040]

AYQRGDFTSV	782		NWQRGDTSTL	823	
TGNRGDLQSV	783		TDSRGDRTVL	824	
AWRRGDLENA	784		YAVRGDQHTI	825	
NAARGDHGLL	785		FGVRGDTRDL	826	
SYSRGDHQAL	786		SSARGDTGML	827	
DGVRGDRTVV	787		SAMRGDQMGQ	828	
SSERGDKMST	788		SHTRGDLVTT	829	
TSMRGDYTHV	789		VTTRGDTAIL	830	
SGVRGDRIII	790		EPTRGDRHSI	831	
ENRRGDAQLL	791		GSQRGDRLVL	832	
TVYRGDREQH	792		QHYRGDLSTT	833	
LDRRGDLLNS	793		METRGDRQQL	834	
ESVRGDLRST	794		EALRGDKVVL	835	
DKYRGDQRGL	795		NAVRGDQSYV	836	
TDRRGDAHIL	796		SPLRGDNRAL	837	
SQTRGDTSLM	797		ENRRGDTHAL	838	
DATRGDTRML	798		NSQRGDLTGT	839	
SMQRGDLTHA	799		QYAPSQGTV	840	
SGTRGDTLIL	800		DNSRGDHSRL	841	
ANTRGDHQNF	801		NTHRGDYASI	842	
TSQRGDHTQL	802		HTTRGDQQPL	843	
SHWRGDTSSL	803		EWRRGDQTAL	844	
ISGRGDRQEL	804		TAVRGDQTTV	845	
SVLRGDIGTI	805		EYLRGDRISQ	846	
QDSRGDLSGK	806		SRYRGDQETI	847	
KPIRGDGAEL	807		ASLRGDTVTL	848	
TYMRGDLQHT	808		VGVRGDSHVL	849	
TELRGDLSST	809		TNSRGDHTSL	850	
SAMRGDHAVL	810		VDQRGDQRAL	851	
SWVRGDASTL	811		ASVRGDRLDV	852	
QYARGDPHAL	812		TSYRGDLSSN	853	
STNRGDIVVH	813		TSDRGDSSNR	854	
VNIRGDLHQT	814		SYMRGDLDMR	855	
REYRGDSSIL	815		TDVRGDRSMI	856	
STLRGDGSMM	816		SYVRGDSSTV	857	
SSQRGDITAH	817		QVYRGDRESV	858	
TEFRGDRSTV	818		TDRRGDAVSF	859	
TSTRGDYVTV	819		TNSRGDLHTT	860	
NHLRGDVSAI	820		EAIRGDFKTL	861	
LERRGDLVST	821		TGIRGDTAGL	862	
NEYRGDHSHP	822		TSSRGDVQSL	863	

[0041]

SSRRGDTNEL	864
SNARGDHTPL	865
SELRGDRSPY	866
VHARGDTSIM	867
SALRGDHGTL	868
QTGRGDIAGM	869
TVARGDQIRL	870
TNSRGDSVAL	871
QNARGDSAVI	872
HYLRGDTTTL	873
ANARGDLQNT	874
QNIRGDIRTV	875
AALRGDHGQM	876
TTDRGDLSAR	877
LNVRGDLVHT	878
YSTRGDHTVL	879
TNARGDLTVS	880
TNARGDYTAL	881
AEGRGDTRGS	882
TNIRGDQSSV	883
VDRRGDTMTM	884
QIGRGDVTPL	885
MQARGDLLGV	886
NTQRGDYASV	887
SDTRGDRITQ	888
SAIRGDYRDV	889
VGVRGDVHPL	890
TVLRGDAERL	891
ASTRGDLSGQ	892
DSRRGDGQNL	893
IDKRGDIQGL	894
TVTRGDLLVN	895
DSTRGDRLGL	896
AANRGDYASL	897
RDYRGDTSSL	898
SNIRGDASLH	899
NLQRGDRTDF	900
NASRGDHSSM	901
TSMRGDYTHV	902
TSRRGDLNDV	903
QSHRGDVQSL	904

STTRGDYQSV	905
YSTRGDHAML	906
TSARGDLIHT	907
ATARGDRESF	908
ASTRGDYSTM	909
SNNRGDVQRL	910
ERLRGDQHII	911
SSIRGDHATL	912
NPTRGDIATV	913
MSTRGDLSVN	914
MDRRGDITYA	915
NATRGDLMSA	916
SDHRGDRTYQ	917
NWVRGDLSTA	918
SSHRGDLSAT	919
NATRGDYREI	920
DTLRGDLQTA	921
IAVRGDLTPV	922
TLLRGDLAHS	923
MNTRGDHTVL	924
TGHRGDIAVY	925
TSNRGDQMSN	926
SATRGDHTAI	927
SSVRGDREHA	928
TNSRGDLVVH	929
ETRRGDLSSQ	930
TYARGDITLT	931
SASRGDTLHL	932
DNQRGDLSSR	933
TQSRGDLRDA	934
ENRRGDLTNA	935
TSIRGDISSV	936
ISARGDTMTL	937
SRVRGDQDHW	938
SGNRGDIASY	939
NEQRGDRYNH	940
EALRGDVRAL	941
VDRRGDYTQM	942
NNVRGDYTSV	943
QTYRGDASVL	944
SNYRGDHGSL	945

	TSSRGDLREV	946	TGTRGDLRAI	975
	QYTRGDVSNL	947	QMARGDLSTA	976
	SDLRGDVRER	948	LVERGDRIMN	977
	QNARGDTTAL	949	GLVRGDLNAR	978
	NSLRGDRDTM	950	NNPRGDLSSV	979
	SNSRGDQAQV	951	HEKRGDLSNS	980
	EATRGDRSTL	952	SQARGDLHQT	981
	VPQRGDITNL	953	FTGRGDLRTA	982
	DKIRGDLRSI	954	QSIRGDTGHL	983
	SAARGDYSIV	955	SAGRGDMSVL	984
	VGLRGDLIGQ	956	SERRGDEHKW	985
	QAGRGDLTVI	957	TTGRGDLVSL	986
	SKTRGDFQEA	958	LGLRGDQIGQ	987
	GTARGDYSML	959	VALRGDLTHQ	988
[0042]	ISTRGDLVTI	960	MIGRGDQAPL	989
	TGTRGDREYM	961	FQARGDHSTL	990
	MTTRGDLSIT	962	NSVRGDHSSL	991
	STSRGDMTSV	963	WPNRGDLQST	992
	GPARGDFTSS	964	SASRGDYQTL	993
	VDRRGDLGHV	965	TMQRGDLHTI	994
	NSGRGDMSQL	966	TALRGDLAGT	995
	SQGRGDLERY	967	VNARGDFSQT	996
	VFGRGDQYTL	968	GWIRGDRTSM	997
	IVGRGDLHLQ	969	TFSRGDHTVL	998
	SYSRGDTSRL	970	SGARGDLVGV	999
	MSSRGDRATI	971	NNVRGDYTSV	1000
	MSSRGDLTRV	972	QTARGDHVVL	1001
	QHTRGDFGNL	973	TLIRGDLTRS	1002
	ETRRGDLSSQ	974	VTTRGDRLEL	1003

[0043] 表4:排名靠前的骨骼肌特异性n聚体插入物和/或RGD基序

变体	SEQ ID NO.:	SNARGDIMTT	1012
EASRGDLQMR	1004	TTGRGDQARL	1013
TYARGDLSGH	1005	TTLRGDHSQL	1014
DSSRGDRSSV	1006	TNLRGDYQLT	1015
[0044] SQSRGDLVPL	1007	STSRGDYVTH	1016
MPARGDLVQT	1008	SATRGDYSIL	1017
SGVRGDRLAV	1009	QATRGDLQHT	1018
SNERGDQHRL	1010	HDDRGDRRML	1019
STLRGDYAVS	1011	SSHRGDLLAT	1020

[0045]

SYQRGDQHNM	1021	REYRGDSSIL	1062
SHQRGDYNTL	1022	STLRGDGSMM	1063
MDQRGDMSVV	1023	SSQRGDITAH	1064
QIARGDLHVP	1024	TEFRGDRSTV	1065
TYTRGDQHMM	1025	TSTRGDYVTV	1066
DASRGDRTSL	1026	NHLRGDVSAI	1067
SDRRGDLHPQ	1027	LERRGDLVST	1068
SATRGDHSTL	1028	NEYRGDHSHP	1069
AYQRGDFTSV	1029	NWQRGDTSTL	1070
TGNRGDLQSV	1030	TDSRGDRTVL	1071
AWRRGDLENA	1031	YAVRGDQHTI	1072
NAARGDHGLL	1032	FGVRGDTRDL	1073
SYSRGDHQAL	1033	SSARGDTGML	1074
DGVRGDRTVV	1034	SAMRGDQMGQ	1075
SSERGDKMST	1035	SHTRGDLVTT	1076
TSMRGDYTHV	1036	VTTRGDTAIL	1077
SGVRGDRIII	1037	EPTRGDRHSI	1078
ENRRGDAQLL	1038	GSQRGDRLVL	1079
TVYRGDREQH	1039	QHYRGDLSTT	1080
LDRRGDLLNS	1040	METRGDRQQL	1081
ESVRGDLRST	1041	EALRGDKVVL	1082
DKYRGDQRGL	1042	NAVRGDQSYV	1083
TDRRGDAHIL	1043	SPLRGDNRAL	1084
SQTRGDTSLM	1044	ENRRGDTHAL	1085
DATRGDTRML	1045	NSQRGDLTGT	1086
SMQRGDLTHA	1046	DNSRGDHSRL	1087
SGTRGDTLIL	1047	NTHRGDYASI	1088
ANTRGDHQNF	1048	HTTRGDQQPL	1089
TSQRGDHTQL	1049	EWRRGDQTAL	1090
SHWRGDTSSL	1050	TAVRGDQTTV	1091
ISGRGDRQEL	1051	EYLRGDRISQ	1092
SVLRGDIGTI	1052	SRYRGDQETI	1093
QDSRGDLSGK	1053	ASLRGDTVTL	1094
KPIRGDGAEL	1054	VGVRGDSHVL	1095
TYMRGDLQHT	1055	TNSRGDHTSL	1096
TELRGDLSST	1056	VDQRGDQRAL	1097
SAMRGDHAVL	1057	ASVRGDRLDV	1098
SWVRGDASTL	1058	TSYRGDLSSN	1099
QYARGDPHAL	1059	TSDRGDSSNR	1100
STNRGDIVVH	1060	SYMRGDLDMR	1101
VNIRGDLHQT	1061	TDVRGDRSMI	1102

[0046]

SYVRGDSSTV	1103	RDYRGDTSSL	1144
QVYRGDRESV	1104	SNIRGDASLH	1145
TDRRGDAVSF	1105	NLQRGDRTDF	1146
TNSRGDLHTT	1106	NASRGDHSSM	1147
EAIRGDFKTL	1107	TSMRGDYTHV	1148
TGIRGDTAGL	1108	TSRRGDLNDV	1149
TSSRGDVQSL	1109	QSHRGDVQSL	1150
SSRRGDTNEL	1110	STTRGDYQSV	1151
SNARGDHTPL	1111	YSTRGDHAML	1152
SELRGDRSPY	1112	TSARGDLIHT	1153
VHARGDTSIM	1113	ATARGDRESF	1154
SALRGDHGTL	1114	ASTRGDYSTM	1155
QTGRGDIAGM	1115	SNNRGDVQRL	1156
TVARGDQIRL	1116	ERLRGDQHII	1157
TNSRGDSVAL	1117	SSIRGDHATL	1158
QNARGDSAVI	1118	NPTRGDIATV	1159
HYLRGDTTTL	1119	MSTRGDLSVN	1160
ANARGDLQNT	1120	MDRRGDITYA	1161
QNIRGDIRTV	1121	NATRGDLMSA	1162
AALRGDHGQM	1122	SDHRGDRTYQ	1163
TTDRGDLSAR	1123	NWVRGDLSTA	1164
LNVRGDLVHT	1124	SSHRGDLSAT	1165
YSTRGDHTVL	1125	NATRGDYREI	1166
TNARGDLTVS	1126	DTLRGDLQTA	1167
TNARGDYTAL	1127	IAVRGDLTPV	1168
AEGRGDTRGS	1128	TLLRGDLAHS	1169
TNIRGDQSSV	1129	MNTRGDHTVL	1170
VDRRGDTMTM	1130	TGHRGDIAVY	1171
QIGRGDVTPL	1131	TSNRGDQMSN	1172
MQARGDLLGV	1132	SATRGDHTAI	1173
NTQRGDYASV	1133	SSVRGDREHA	1174
SDTRGDRITQ	1134	TNSRGDLVVH	1175
SAIRGDYRDV	1135	ETRRGDLSSQ	1176
VGVRGDVHPL	1136	TYARGDITLT	1177
TVLRGDAERL	1137	SASRGDTLHL	1178
ASTRGDLSGQ	1138	DNQRGDLSSR	1179
DSRRGDGQNL	1139	TQSRGDLRDA	1180
IDKRGDIQGL	1140	ENRRGDLTNA	1181
TVTRGDLLVN	1141	TSIRGDISSV	1182
DSTRGDRLGL	1142	ISARGDTMTL	1183
AANRGDYASL	1143	SRVRGDQDHW	1184

	SGNRGDIASY	1185		MSSRGDLTRV	1218
	NEQRGDRYNH	1186		QHTRGDFGNL	1219
	EALRGDVRAL	1187		ETRRGDLSSQ	1220
	VDRRGDYTQM	1188		TGTRGDLRAI	1221
	NNVRGDYTSV	1189		QMARGDLSTA	1222
	QTYRGDASVL	1190		LVERGDRIMN	1223
	SNYRGDHGSL	1191		GLVRGDLNAR	1224
	TSSRGDLREV	1192		NNPRGDLSSV	1225
	QYTRGDVSNL	1193		HEKRGDLSNS	1226
	SDLRGDVRER	1194		SQARGDLHQT	1227
	QNARGDTTAL	1195		FTGRGDLRTA	1228
	NSLRGDRDTM	1196		QSIRGDTGHL	1229
	SNSRGDQAQV	1197		SAGRGDMSVL	1230
	EATRGDRSTL	1198		SERRGDEHKW	1231
	VPQRGDITNL	1199		TTGRGDLVSL	1232
	DKIRGDLRSI	1200		LGLRGDQIGQ	1233
[0047]	SAARGDYSIV	1201		VALRGDLTHQ	1234
	VGLRGDLIGQ	1202		MIGRGDQAPL	1235
	QAGRGDLTVI	1203		FQARGDHSTL	1236
	SKTRGDFQEA	1204		NSVRGDHSSL	1237
	GTARGDYSML	1205		WPNRGDLQST	1238
	ISTRGDLVTI	1206		SASRGDYQTL	1239
	TGTRGDREYM	1207		TMQRGDLHTI	1240
	MTTRGDLSIT	1208		TALRGDLAGT	1241
	STSRGDMTSV	1209		VNARGDFSQT	1242
	GPARGDFTSS	1210		GWIRGDRTSM	1243
	VDRRGDLGHV	1211		TFSRGDHTVL	1244
	NSGRGDMSQL	1212		SGARGDLVGV	1245
	SQGRGDLERY	1213		NNVRGDYTSV	1246
	VFGRGDQYTL	1214		QTARGDHVVL	1247
	IVGRGDLHLQ	1215		TLIRGDLTRS	1248
	SYSRGDTSRL	1216		VTTRGDRLEL	1249
	MSSRGDRATI	1217			

[0048] 表5:VP1衣壳蛋白

[0049]

SEQ ID NO.:	VP1 衣壳蛋白序列

[0050]

1250	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKTGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSAWLGDRV ITTSTRPWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLNFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCPPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMRRTGNNFEFSYQFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPNNMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGKDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQQNAAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1251	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKTGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSAWLGDRV ITTSTRPWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLNFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCPPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMRRTGNNFEFSYQFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPNNMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGKDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQQNAAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1252	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQSNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGLGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1253	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQRPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKPFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLHYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL

[0051]

1254	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLSFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNSEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1255	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1256	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1257	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL

[0052]

1258	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGPVEEAAKTAPGKKRPVEPPPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTVANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1259	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQDEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSARAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQANTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNSE GTYSEPRPIGTRYLTRNL
1260	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSNSRGDYNSLAQAQT GWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTP VPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEF AVNTEGVYSEPRPIGTRYLTRNL
1261	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAA QTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL

[0053]

1262	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDLGLSAQA ATGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL
1263	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDAVGVAQAA QTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL
1264	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDAVGVAQA ATGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL
1265	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDLGLSAQA ATGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL

[0054]

1266	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDAVGVAQAA QTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL
1267	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDAVGVAQA ATGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL
1268	MAADGYLPDWLEDNLSEGIREWWALKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLQAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGNASGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHE GCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVP FHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPG PSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSL IFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQ TGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNT PVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVE FAVNTEGVYSEPRPIGTRYLTRNL
1269	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKTGQQPAKKRLNFGQTGDT ESVPDPQPIGEPPAAPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSA HEGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFEN VPFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYI PGPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSG SLIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQA AQTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIK NTPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNN VEFAVNTEGVYSEPRPIGTRYLTRNL

[0055]

1270	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQHQDNARGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ TKKRVLEPFGLVEEGAKTAPGKKRPVEQSPQEPDSSSGIVKTGQQPAKKRLNFGQTGDTE SVPDPQPLGEPPATPSGVGSLTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISNGTSGGATNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAA QTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKN TPVPADPPTAFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNV EFAVNTEGVYSEPRPIGTRYLTRNL
1271	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPFGLVEEGAKTAPGKKRPVEQSPQEPDSSSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAA QTGWVQNQGILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKN TPVPADPPAEFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANV DFTVDNNGLYTEPRPIGTRYLTRPL
1272	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPDSSSGIGKSGQQPAKKRLNFGQTGDSESVPDP QPLSEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNVSGNWHCDSTWLGDRVITTSTR TWALPTYNNHLYKQISNGTSGGSSNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNN WGFRPKKLNFKLFNIQVKEVTQNEGTKTIANNLTSTVQVFTDSEYQLPYVLGSAHQGCLP PFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSS YAHSQSLDRLMNPLIDQYLYYLSRTQTNGTNATQTLLFAQAGPQNMSAQAKNWLPGPCYR QQRVSTTVSQNNNSNFTWTGATKYHLNGRDSLVSPGVAMATHKDDEERFFPSSGVLMFGK QGAGKDNVEYTNVMLTSEEEIKTTNPVATEQYGVVADNLQQTNSAPIVGAVNSQGALPGM VWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPVNFTDA KLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSANVDFAVNADGVYSEPR PIGTRYLTRNL
1273	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPDSSSGIGKSGQQPAKKRLNFGPTGDSESVPDP QPLSEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNVSGNWHCDSTWLGDRVITTSTR TWALPTYNNHLYKQISNGTSGGSSNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNN WGFRPKKLNFKLFNIQVKEVTQNEGTKTTANNLTSTVQVFTDSEYQLPYVLGSAHQGCLP PFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSS YAHSQSLDRLMNPLIDQYLYYLSRTQTNGTNATQTLLFAQAGPQNMSAQAKNWLPGPCYR QQRVSTAVSQNNNSNFTWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSSGVLMFGK QGAGKDNVEYTNVMLTSEEEIKTTNPVATEQYGVVADNLQQTNSAPIVGAVNSQGALPGM VWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPVNFTDA KLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSANVDFAVNADGVYSEPR PIGTRYLTRNL

[0056]

1274	MAADGYLPDWLEDNLSEGIREWWALKPGAPQPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPDSSSGIGKSGRQPAKKRLNFGQTGDSESVPDP QPLSEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVITTSTR TWALPTYNNHLYKQISNGTSGGSSNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNN WGFRPKRLNFKLFNIQVKEVTQNEGTKTIANNLTSTVQVFTDSKYQLPYVLGSAHQGCLP PFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSS YAHSQSLDRLMNPLIDQYLYYLSRTQTNGTNATQTLLFAQAGPQNMSAQAKNWLPGPCYR QQRVSTTVSQNNNSNFTWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSSGVLMFGK QGAGKDNVEYTNVMLTSEEEIKTTNPVATEQYGVVADNLQQTNSAPIVGAVNSQGALPGM VWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPVNFTDA KLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSANVDFAVNADGVYSEPR PIGTRYLTRNL
1275	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANSLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTPNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLSSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1276	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYVHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNSGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYPTRNL
1277	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPAYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLSGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSSITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL

[0057]

1278	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIVWELQKENSKRRNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1279	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPPS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVVIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSELRPIGTRYLTRNL
1280	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKATNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1281	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGRTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYLDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLASTIQVFTDSEYQPPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSRAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPTVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFIAQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNADFAVNTE GVYSEPRPIGTRYLTRNL

[0058]

1282	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPHLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQLIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGNLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNMGYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYGTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1283	MVADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQGDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAELQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCQPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWEPQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1284	MAADGYLPDWLEDNLSEGIREWWALKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLQAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQTSNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSAEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1285	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKSTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKCWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL

[0059]

1286	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RPINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYPFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQDTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQVLIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1287	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAGKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLVDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWSPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1288	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSTQARNWL PGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSSG ILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNSQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPP TAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTEG AYSEPRPIGTRYLTRN
1289	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNPTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL

[0060]

1290	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVSAADAAALEHDKACDQRLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKGPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDEQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1291	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPRPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1292	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVLQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1293	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLAEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNKGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTGDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNDSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL

[0061]

1294	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNKGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINSNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1295	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPLGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQVLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNPGGTSGNRELQFYQGGPSTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEDRFFPSS GVLIFGKTGATNKTTLENVLMTNEEEIRPTNPVATEEYGIVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1296	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTRLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQRRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1297	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKHLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTVQVFSDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKN WLPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPS SGVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNN QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANP PEVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQ GVYSEPRPIGTRYLTRNL

[0062]

1298	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTISYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNQELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPP TAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTEG VYSEPRPIGTRYLTRNL
1299	MAADGYLPDWLEDNLSEGIHEWWDPKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTHNNHLYKQISNGTSGGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDRQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTEGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPQILIKNTPVPANPPEV FTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQGVY SEPRPIGTRYLTRNL
1300	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGSQPAKKKLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGGQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSAQAQAQTGWVQNQG ILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPT AFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVSTEGV YSEPRPIGTRYLTRNL
1301	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPGNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRLLEPLGLVEEAAKTAPGKKRPVEQSPQEPDSSAGIGKSGSQPAKKKLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSAQAQAQTGWVQNQG ILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPT AFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGV YSEPRPIGTRYLTRNL

[0063]

1302	MAADGYLPDWLEDTLSEGIRQRWKLKPGPPPPEPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTGTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1303	MAADGYLPDWLEDTLSEGIRQRWKLKPGPPPPEPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNESQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1304	MAADGYLPDWLEDTLSEGIRQRWKLKPGPPPPEPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAAGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1305	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHRDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSGYQLPYVLGSAHQG CLPPFPADVFMVPQYGYPTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAVASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0064]

1306	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHRDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVGEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDSHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDNEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1307	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQGGNTQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1308	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLSLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKSGNQPARKRLNFGQTGDSD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIQDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVGQDRDVYLQGPTWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1309	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKSGNQPARKRLNFGQTGDSD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNSFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0065]

1310	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKSGNQPARKRLNFGQTGDSD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLGYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGPEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1311	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKTAPGEKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWYCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLVGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1312	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYRYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHVDAEFQERLKEDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKAAPGEKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGHFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPPMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGARYLTRNL
1313	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPRPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0066]

1314	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPRPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1315	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTCNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTYLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLRGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1316	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKGDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGGRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQTLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1317	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0067]

1318	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRILEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSGYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHGQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDVRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL VFGKQDSGKTNVDIEKVMITDEEEIRTTNPAATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFVSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1319	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLV NNNRGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1320	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASRKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1321	MAADGYPPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQRPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNRQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0068]

1322	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNGGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANGNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLTGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1323	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLRPGLRKPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDA DSVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLDDRV IATSTRTWALPTYNNHLYKQISSQSGACNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INSNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVPGSAHQ GCLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVP FHSSYAHCQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLP GPCYRQQRLSKQANDNNNCNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGT LIFGKQGTNANDADLENVMITDEEEIRPTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKSTPVPANPPT NFSSAKFASSITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGV YSEPRPIGTRYLTRNL
1324	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDGSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLNSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSPFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRTTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDNNGVY SEPRPIGTRYLTRNL
1325	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLY KGEPVDEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVGEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPVADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDRQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSGYQLPYVLGLAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKEDSKRWNPEIQYTSNYNKPVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0069]

1326	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLY KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHAGAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPVADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQDSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1327	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLESGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMASGSGAPVADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNSWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLLNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSSKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYPTRNL
1328	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEGPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1329	MAADGYLPDWLEDTLSEGTRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0070]

1330	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWAQPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGALQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHRGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1331	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHQDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYRLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1332	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHQDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRPSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1333	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHQDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRPSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0071]

1334	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKLAERHQDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFTVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNLTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN YSSAKFASFITQYSTGQVSVEIEWELRKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1335	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEQSPQEPDSSSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSTSTGASNDNHYFGYGTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVEEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAVASHKDDEDKFFPMSGV MIFGKESAGASSTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1336	MAADGYLPDWLEDTLSEGIRQWWKLRPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAETAPGKKRPVEQSPQGPDSSSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYPNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQGRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1337	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEQSPQEPDSPSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GRLPPFPADVFMIPQYGYLTLNNGSQAVGRSSSYCLEYFPSQMLRTGNNFTFSYTFEEVP LHSSCAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNRDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSAGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL

[0072]

1338	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYPRYNHADAEFQERLQEDTPFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEV PLHSSYAHSQSLDRLMNPLIVQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWL PGPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSG VMIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAM GALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPP AEFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSASVDFTVDNNG LYTEPRPIGTRYLTRPL
1339	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNCHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1340	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEQSPQEPDSSSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1341	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLEAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEGAKTAPGKKRPVEQSPQEPDSSSGIGKKGQQPARKRLNFGQTGDSE SVPDPQPLGEPPAAPSGVGPNTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISNGTSGGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFTYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQTTGGTANTQTLGFSQGGPNTMANQAKNWL PGPCYRQQRVSTTTGQNNNSNFAWTAGTKYHLNGRNSLANPGIAMATHKDDEERFFPVTG SCFWQQNAARDNADYSDVMLTSEEEIKTTNPVATEEYGIVADNLQQQNTAPQIGTVNSQG ALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPT TFNQSKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTSVDFAVNTEGV YSEPRPIGTRYLTRNL

[0073]

1342	MAADGYLPDWLEDTLSEGIRQRWKLKPGPPPPEPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1343	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLVDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRTTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1344	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHPPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNRLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRTTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLVGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1345	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLRQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQTASGTQQSRLLFSQAGPTSMSLQAKNWLPGP CYRQQRLSKQANDNNNSNFPWTGATKYYLNGRDSLVNPGPAMASHKDDEEKFFPMHGTLI FGKEGTNATNAELENVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTAASTETVNHQGAL PGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTNF SSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL

[0074]

1346	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLECFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQTASGTQQSRLLFSQAGPTSMSLQAKNWLPGP CYRQQRLSKQANDNNNSNFPWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTLI FGKEGTNATNAELENVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTAASTETVNHQGAL PGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTNF SSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL
1347	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCRFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQGLDRLMNPLIDQYLYYLNRTQTASGTQQSRLLFSQAGPTSMSLQAKNWLPGP CYRQQRLSKQANDNNNSNFPWTGATKYHLNGGDSLVNPGPAMASHKDDEEKFFPMHGTLI FGKEGTNATNAELENVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTAASTETVNHQGAL PGMVWQDRDVYLRGPIWAKIPHADGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTNF SSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL
1348	MAADGYLPDWLKDTLSEGIRQWWKLKPGPPPPKPAERHKDDSGGLVLPGYKYLGPFNGLD KGEPVNEADAAALEYDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGSWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVPGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVWQDRDVHLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1349	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVGEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSGYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDNEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0075]

1350	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVGEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNRHCDSTWMGDRVI TTSTRTWALPTYNNHLYRQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLSNGSQAVGRSSFYCPEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDNEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGPKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1351	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPASPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVV TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDLEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1352	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPKPAERHKDDSRGLVLPGYKYLGPFNGLDK GEPVNEADAAALEHDKAYDRQLDSGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQA KKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDADS VPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGDWHCDSTWMGDRVIT TSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLIN NNWGFRPKRLNLKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDLEYQLPYVLGSAHQGC LPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFH SSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPGP CYRQQRVSKTAADNNNGEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVLI FGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTRAATSDVNTQGVL PGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTTF SAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL
1353	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYLKYDHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNDGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVREVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWIGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQASTADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGRVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0076]

1354	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDSGDNPYPKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1355	MAADGYLPDWLEDTLSEGIRQWWKLKPGPPPPKPAERHKDDSRGLVLPGYKYLGPFNGLD KGEPVNEADAAALEHDKAYDRQLDGGDNPYLKYNHADAEFQERLKEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEPVKTAPGKKRPVEHSLAEPDSSSGTGKAGQQPARRRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYRQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGSRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLVDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1356	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLPGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSAGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTETIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSCAHSQSSDRLMNPLIDQYLYYLSRTRSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1357	MAADGYLPDWLEDNLSEGIREWWDLKPGAPKPKANQQKQDDGRGLVLLGYKYLGPFNGLD KGEPVNAADAAALEHDKAYDQQLKAGDNPYLRYNHADAEFQERLQEDTSFGGNLGRAVFQ AKKRVLEPLGLVEEAAKTAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSGYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL

[0077] 表6:VP2衣壳蛋白

[0078]

SEQ ID NO.:	VP2 衣壳蛋白序列
1358	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSG VGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLY KQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKL FNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQY GYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMN PLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNN NSEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADK VMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQ DRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLN SFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIG TRYLTRNL
1359	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSGV GSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYK QISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLF NIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYG YLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNP LIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNN SEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKV MITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDLGLSAQAATGWVQNQGILPGMVWQD RDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNS FITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGT RYLTRNL
1360	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSG VGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLY KQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKL FNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQY GYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMN PLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNN NSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADK VMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDAVGVAQAAQTGWVQNQGILPGMVWQ DRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLN SFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIG TRYLTRNL
1361	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSGV GSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYK QISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLF NIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYG YLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNP LIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNN SEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKV MITNEEEIKTTNPVATESYGQVATNHQGQSGRGDAVGVAQAAQTGWVQNQGILPGMVWQD RDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNS FITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGT RYLTRNL

[0079]

1362	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSG VGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLY KQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKL FNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQY GYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMN PLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNN NSEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADK VMITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDAVGVAQAATGWVQNQGILPGMVWQ DRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLN SFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIG TRYLTRNL
1363	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSG VGSLTMASGGGAPVADNNEGADGVGNASGNWHCDSQWLGDRVITTSTRTWALPTYNNHLY KQISSASTGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLF NIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYG YLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNP LIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNN SEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKV MITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQD RDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNS FITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGT RYLTRNL
1364	MAPGKKRPVEPSPQRSPDSSTGIGKTGQQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPA AVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVITTSTRTWALPTYNNH L YKQISNGTSGGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFK LFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQ YGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLM NPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQN NNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDAD KVMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVW QDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKL NSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPI GTRYLTRNL
1365	MAPGKKRPVEQSPQEPDSSSGIVKTGQQPAKKRLNFGQTGDTESVPDPQPLGEPPATPSG VGSLTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVITTSTRTWALPTYNNHL Y KQISNGTSGGATNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKL FNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQY GYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMN PLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNN NSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADK VMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQ DRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLN SFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIG TRYLTRNL
1366	MAPGKKRPVEQSPQEPDSSSGIGKTGQQPAKKRLNFGQTGDSESVPDPQPLGEPPATPAA VGPTTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLY KQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKL FNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQY GYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMN PLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNN NSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADK VMITNEEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQ DRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPAEFSATKFA SFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGLYTEPRPIG TRYLTRPL

[0080]

1367	MAPGKKRPVEPSPQRSPDSSTGIGKTGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSAWLGDRV ITTSTRPWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLNFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCPPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMRRTGNNFEFSYQFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPNNMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGKDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQQNAAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1368	MAPGKKRPVEPSPQRSPDSSTGIGKTGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSAWLGDRV ITTSTRPWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLNFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCPPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMRRTGNNFEFSYQFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPNNMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGKDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQQNAAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1369	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQSNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGLGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1370	MAPGKKRPVEPSPQRSPDSSTGIGKKGQRPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKPFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLHYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1371	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLSFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNSEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL

[0081]

1372	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1373	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1374	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1375	MAPGKKRPVEPPPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTVANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1376	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQDEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSARAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQANTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNSE GTYSEPRPIGTRYLTRNL

[0082]

1377	MAPGKKRPVEPDSSSGIGKSGQQPAKKRLNFGQTGDSESVPDP QPLSEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNVSGNWHCDSTWLGDRVITTSTR TWALPTYNNHLYKQISNGTSGGSSNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNN WGFRPKKLNFKLFNIQVKEVTQNEGTKTIANNLTSTVQVFTDSEYQLPYVLGSAHQGCLP PFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSS YAHSQSLDRLMNPLIDQYLYYLSRTQTNGTNATQTLLFAQAGPQNMSAQAKNWLPGPCYR QQRVSTTVSQNNNSNFTWTGATKYHLNGRDSLVSPGVAMATHKDDEERFFPSSGVLMFGK QGAGKDNVEYTNVMLTSEEEIKTTNPVATEQYGVVADNLQQTNSAPIVGAVNSQGALPGM VWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPVNFTDA KLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSANVDFAVNADGVYSEPR PIGTRYLTRNL
1378	MAPGKKRPVEPDSSSGIGKSGQQPAKKRLNFGPTGDSESVPDP QPLSEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNVSGNWHCDSTWLGDRVITTSTR TWALPTYNNHLYKQISNGTSGGSSNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNN WGFRPKKLNFKLFNIQVKEVTQNEGTKTTANNLTSTVQVFTDSEYQLPYVLGSAHQGCLP PFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSS YAHSQSLDRLMNPLIDQYLYYLSRTQTNGTNATQTLLFAQAGPQNMSAQAKNWLPGPCYR QQRVSTAVSQNNNSNFTWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSSGVLMFGK QGAGKDNVEYTNVMLTSEEEIKTTNPVATEQYGVVADNLQQTNSAPIVGAVNSQGALPGM VWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPVNFTDA KLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSANVDFAVNADGVYSEPR PIGTRYLTRNL
1379	MAPGKKRPVEPDSSSGIGKSGRQPAKKRLNFGQTGDSESVPDP QPLSEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVITTSTR TWALPTYNNHLYKQISNGTSGGSSNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNN WGFRPKRLNFKLFNIQVKEVTQNEGTKTIANNLTSTVQVFTDSKYQLPYVLGSAHQGCLP PFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSS YAHSQSLDRLMNPLIDQYLYYLSRTQTNGTNATQTLLFAQAGPQNMSAQAKNWLPGPCYR QQRVSTTVSQNNNSNFTWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSSGVLMFGK QGAGKDNVEYTNVMLTSEEEIKTTNPVATEQYGVVADNLQQTNSAPIVGAVNSQGALPGM VWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPVNFTDA KLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSANVDFAVNADGVYSEPR PIGTRYLTRNL
1380	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANSLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTPNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLSSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1381	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYVHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNSGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYPTRNL

[0083]

1382	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPAYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLSGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSSITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1383	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIVWELQKENSKRRNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1384	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPPS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVVIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSELRPIGTRYLTRNL
1385	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKATNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1386	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGRTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYLDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLASTIQVFTDSEYQPPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSRAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPTVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFIAQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNADFAVNTE GVYSEPRPIGTRYLTRNL

[0084]

1387	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQLIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGNLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNMGYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYGTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1388	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCQPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWEPQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1389	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQTSNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSAEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1390	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKSTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKCWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1391	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RPINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYPFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQDTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQVLIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL

[0085]

1392	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAGKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLVDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWSPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1393	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTAGTQQLLFSQAGPSNMSTQARNWL PGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSSG ILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNSQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPP TAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTEG AYSEPRPIGTRYLTRN
1394	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNPTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATNKDDEDRFFPSS GILMFGKQGAGKDNVDYSNVMLTSEEEIKTTNPVATEQYGVVADNLQQQNTAPIVGAVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GVYSEPRPIGTRYLTRNL
1395	MAPGKKGPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDEQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1396	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPRPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL

[0086]

1397	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1398	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNKGADGVGNASGNWHCDSTWLGDR V ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTGDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNDSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1399	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNKGADGVGNASGNWHCDSTWLGDR V ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINSNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1400	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPLGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDR V ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQVLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNPGGTSGNRELQFYQGGPSTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEDRFFPSS GVLIFGKTGATNKTTLENVLMTNEEEIRPTNPVATEEYGIVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL
1401	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTRLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKNW LPGPCFRQRRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANPP EVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQG VYSEPRPIGTRYLTRNL

[0087]

1402	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTVQVFSDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNRELQFYQGGPTTMAEQAKN WLPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPS SGVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNN QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPANP PEVFTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQ GVYSEPRPIGTRYLTRNL
1403	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSQSAGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKKLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQSVGRSSFYCLEYFPSQMLRTGNNFTISYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLARTQSNAGGTAGNQELQFYQGGPTTMAEQAKNW LPGPCFRQQRVSKTLDQNNNSNFAWTGATKYHLNGRNSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPP TAFNQAKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTEG VYSEPRPIGTRYLTRNL
1404	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPARKRLNFGQTGDS ESVPDPQPIGEPPAAPSSVGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTHNNHLYKQISNGTSGGSTNDNVYFGYSTPWGYFDFNRFHCHFSPRDRQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFSFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTEGTAGTQQLLFSQAGPSNMSAQARNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLIFGKTGAANKTTLENVLMTNEEEIRPTNPVATEEYGTVSSNLQAANTAAQTQVVNNQ GALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPQILIKNTPVPANPPEV FTPAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNFDKQTGVDFAVDSQGVY SEPRPIGTRYLTRNL
1405	MAPGKKRPVEQSPQEPDSSAGIGKSGSQPAKKKLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGGQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSAQAQAQTGWVQNQG ILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPT AFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVSTEGV YSEPRPIGTRYLTRNL
1406	MAPGKKRPVEQSPQEPDSSAGIGKSGSQPAKKKLNFGQTGDTE SVPDPQPIGEPPAAPSGVGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAH EGCLPPFPADVFMIPQYGYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENV PFHSSYAHSQSLDRLMNPLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIP GPSYRQQRVSTTVTQNNNSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGS LIFGKQGTGRDNVDADKVMITNEEEIKTTNPVATESYGQVATNHQSAQAQAQTGWVQNQG ILPGMVWQDRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPT AFNKDKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGV YSEPRPIGTRYLTRNL

[0088]

1407	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTGTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1408	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNESQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1409	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAAGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1410	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSGYQLPYVLGSAHQG CLPPFPADVFMVPQYGYPTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAVASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1411	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDSHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDNEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0089]

1412	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQGGNTQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1413	MAPGKKRPVEHSPAEPDSSSGTGKSGNQPARKRLNFGQTGDSD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIQDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVGQDRDVYLQGPTWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1414	MAPGKKRPVEHSPAEPDSSSGTGKSGNQPARKRLNFGQTGDSD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNSFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1415	MAPGKKRPVEHSPAEPDSSSGTGKSGNQPARKRLNFGQTGDSD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLGYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGPEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1416	MAPGEKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWYCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLVGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0090]

1417	MAPGEKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGHFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPPMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGARYLTRNL
1418	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPRPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1419	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPRPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1420	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTCNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTYLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLRGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1421	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGGRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQTLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0091]

1422	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1423	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSGYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHGQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDVRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL VFGKQDSGKTNVDIEKVMITDEEEIRTTNPAATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFVSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1424	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLV NNNRGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1425	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASRKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1426	MAPGKKRPVEHSPVEPDSSSGTGKAGQRPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNRQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0092]

1427	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNGGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANGNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRATNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLTGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1428	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDA DSVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLDDRV IATSTRTWALPTYNNHLYKQISSQSGACNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INSNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVPGSAHQ GCLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVP FHSSYAHCQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLP GPCYRQQRLSKQANDNNNCNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGT LIFGKQGTNANDADLENVMITDEEEIRPTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKSTPVPANPPT NFSSAKFASSITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGV YSEPRPIGTRYLTRNL
1429	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSPFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRTTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDNNGVY SEPRPIGTRYLTRNL
1430	MAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPVADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDRQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSGYQLPYVLGLAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKEDSKRWNPEIQYTSNYNKPVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1431	MAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPVADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQDSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0093]

1432	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMASGSGAPVADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNSWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLLNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSSKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYPTRNL
1433	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1434	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1435	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWAQPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQSNSGALQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHRGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1436	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSG VGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLY KQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKL FNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQY GYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMN PLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNN NSEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADK VMITNEEEIKTTNPVATESYGQVATNHQSNSRGDYNSLAQAQTGWVQNQGILPGMVWQDR DVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSF ITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTR YLTRNL

[0094]

1437	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSGV GSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYK QISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLF NIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYG YLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNP LIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNN SEFAWPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKV MITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDAVGVAQAATGWVQNQGILPGMVWQD RDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNS FITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGT RYLTRNL
1438	MAPGKKRPVEQSPQEPDSSAGIGKSGAQPAKKRLNFGQTGDTESVPDPQPIGEPPAAPSG VGSLTMASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLY KQISNSTSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKL FNIQVKEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQY GYLTLNDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMN PLIDQYLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNN NSEFAWAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADK VMITNEEEIKTTNPVATESYGQVATNHQSGQSGRGDLGLSAQAATGWVQNQGILPGMVWQ DRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLN SFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIG TRYLTRNL
1439	MAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYRLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1440	MAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRPSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1441	MAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRPSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0095]

1442	MAPGKKRPVEHSPVEPDSSSGTGKAGHQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFTVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNLTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLEHVMITDEEEIRTTNPVATEQYGNVSNNLQNSNTGPTTENVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN YSSAKFASFITQYSTGQVSVEIEWELRKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1443	MAPGKKRPVEQSPQEPDSSSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSTSTGASNDNHYFGYGTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVEEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAVASHKDDEDKFFPMSGV MIFGKESAGASSTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1444	MAPGKKRPVEQSPQGPDSSSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYPNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQGRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1445	MAPGKKRPVEQSPQEPDSPSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GRLPPFPADVFMIPQYGYLTLNNGSQAVGRSSSYCLEYFPSQMLRTGNNFTFSYTFEEVP LHSSCAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNRDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSAGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1446	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEV PLHSSYAHSQSLDRLMNPLIVQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWL PGPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSG VMIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAM GALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPP AEFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSASVDFTVDNNG LYTEPRPIGTRYLTRPL

[0096]

1447	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNCHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1448	MAPGKKRPVEQSPQEPDSSSGIGKTGQQPAKKRLNFGQTGDSE SVPDPQPLGEPPATPAAVGPTTMASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1449	MAPGKKRPVEQSPQEPDSSSGIGKKGQQPARKRLNFGQTGDSE SVPDPQPLGEPPAAPSGVGPNTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISNGTSGGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQR LINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSAH QGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFTYTFEDV PFHSSYAHSQSLDRLMNPLIDQYLYYLSRTQTTGGTANTQTLGFSQGGPNTMANQAKNWL PGPCYRQQRVSTTTGQNNNSNFAWTAGTKYHLNGRNSLANPGIAMATHKDDEERFFPVTG SCFWQQNAARDNADYSDVMLTSEEEIKTTNPVATEEYGIVADNLQQQNTAPQIGTVNSQG ALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPT TFNQSKLNSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTSVDFAVNTEGV YSEPRPIGTRYLTRNL
1450	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLGRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1451	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLVDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRTTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0097]

1452	MAPGKKRPVEHPPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNKTQTNSGTLQQSRLLFSQAGPTNMSLQAKNRLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLENVMITDEEEIRTTNPVATEQYGTVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLVGGFGLKHPPPQIMIKNTPVPANPPTN FSSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1453	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLRQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQTASGTQQSRLLFSQAGPTSMSLQAKNWLPGP CYRQQRLSKQANDNNNSNFPWTGATKYYLNGRDSLVNPGPAMASHKDDEEKFFPMHGTLI FGKEGTNATNAELENVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTAASTETVNHQGAL PGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTNF SSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL
1454	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLECFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLNRTQTASGTQQSRLLFSQAGPTSMSLQAKNWLPGP CYRQQRLSKQANDNNNSNFPWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTLI FGKEGTNATNAELENVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTAASTETVNHQGAL PGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTNF SSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL
1455	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPTSLGSTTMATGSGAPMADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCRFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQGLDRLMNPLIDQYLYYLNRTQTASGTQQSRLLFSQAGPTSMSLQAKNWLPGP CYRQQRLSKQANDNNNSNFPWTGATKYHLNGGDSLVNPGPAMASHKDDEEKFFPMHGTLI FGKEGTNATNAELENVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTAASTETVNHQGAL PGMVWQDRDVYLRGPIWAKIPHADGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTNF SSAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL
1456	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGSWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVPGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATADVNTQGV LPGMVWQDRDVHLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0098]

1457	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSGYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDNEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1458	MAPGKKRPVEHSPVEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNRHCDSTWMGDRVI TTSTRTWALPTYNNHLYRQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLSNGSQAVGRSSFYCPEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSTTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDNEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQRGNRQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGPKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1459	MAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPASPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRV V TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDLEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1460	MAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDADS VPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGDWHCDSTWMGDRVIT TSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLIN NNWGFRPKRLNLKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDLEYQLPYVLGSAHQGC LPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFH SSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPGP CYRQQRVSKTAADNNNGEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVLI FGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTRAATSDVNTQGVL PGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTTF SAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYS EPRPIGTRYLTRNL
1461	MAPGKKRPVEHSPVEPDSSSGTGKAGNQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNDGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVREVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWIGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQASTADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGRVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL

[0099]

1462	MAPGKKRPVEHSPAEPDSSSGTGKAGQQPARKRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1463	MAPGKKRPVEHSLAEPDSSSGTGKAGQQPARRRLNFGQTGDAD SVPDPQPLGQPPAAPSGLGTNTMATGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYRQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGSRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLVDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1464	MAPGKKRPVEPSPQRSPDSSAGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTETIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSSCAHSQSSDRLMNPLIDQYLYYLSRTRSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL
1465	MAPGKKRPVEPSPQRSPDSSTGIGKKGQQPAKKRLNFGQTGDS ESVPDPQPIGEPPAGPSGLGSGTMAAGGGAPMADNNEGADGVGSSSGNWHCDSTWLGDRV ITTSTRTWALPTYNNHLYKQISNGTSGGSTNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQ RLINNNWGFRPKRLSFKLFNIQVKEVTQNEGTKTIANNLTSTIQVFTDSEYQLPYVLGSA HQGCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFEFSYTFED VPFHSGYAHSQSLDRLMNPLIDQYLYYLSRTQSTGGTQGTQQLLFSQAGPANMSAQAKNW LPGPCYRQQRVSTTLSQNNNSNFAWTGATKYHLNGRDSLVNPGVAMATHKDDEERFFPSS GVLMFGKQGAGRDNVDYSSVMLTSEEEIKTTNPVATEQYGVVADNLQQTNTGPIVGNVNS QGALPGMVWQNRDVYLQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADP PTTFSQAKLASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSTNVDFAVNTE GTYSEPRPIGTRYLTRNL

[0100] 表7:VP3衣壳蛋白

[0101]

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[0102]

1466	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNLEFAVNTEGVYSEPRPIGTRYLTRNL
1467	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL
1468	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAATGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL
1469	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDAVGVAQAAQTGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL
1470	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDAVGVAQAATGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL

[0103]

1471	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQSGQSGRGDLGLSAQAATGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL
1472	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDAVGVAQAAQTGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL
1473	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WAAASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQSGQSGRGDAVGVAQAATGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL
1474	MASGGGAPVADNNEGADGVGNASGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISS ASTGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQVK EVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTLN DGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQY LYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFAW PGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITNE EEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQDRDVYL QGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQY STGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLTR NL
1475	MASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVITTSTRTWALPTYNNHLYKQIS N GTSGGATNDNTYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL

[0104]

1476	MASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVITTSTRTWALPTYNNHLYKQIS N GTSGGATNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQ YSTGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLT RNL
1477	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQGQSGRGDLGLSAQAAQTGWVQNQGILPGMVWQDRDVY LQGPIWAKIPHTDGNFHPSPLMGGFGLKHPPPQILIKNTPVPADPPAEFSATKFASFITQ YSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGLYTEPRPIGTRYLT RPL
1478	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQSNSRGDYNSLAQAQTGWVQNQGILPGMVWQDRDVYLQ GPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQYS TGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLTRN L
1479	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQSNSRGDYNSLAQAQTGWVQNQGILPGMVWQDRDVYLQ GPIWAKIPHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQYS TGQVSVEIEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLTRN L
1480	MASGGGAPVADNNEGADGVGSSSGNWHCDSQWLGDRVITTSTRTWALPTYNNHLYKQISN STSGGSSNDNAYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLNFKLFNIQV KEVTDNNGVKTIANNLTSTVQVFTDSDYQLPYVLGSAHEGCLPPFPADVFMIPQYGYLTL NDGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYEFENVPFHSSYAHSQSLDRLMNPLIDQ YLYYLSKTINGSGQNQQTLKFSVAGPSNMAVQGRNYIPGPSYRQQRVSTTVTQNNNSEFA WPGASSWALNGRNSLMNPGPAMASHKEGEDRFFPLSGSLIFGKQGTGRDNVDADKVMITN EEEIKTTNPVATESYGQVATNHQSAQAQAQTGWVQNQGILPGMVWQDRDVYLQGPIWAKI PHTDGNFHPSPLMGGFGMKHPPPQILIKNTPVPADPPTAFNKDKLNSFITQYSTGQVSVE IEWELQKENSKRWNPEIQYTSNYYKSNNVEFAVNTEGVYSEPRPIGTRYLTRNL

[0105]

1481	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTQSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTSADNNNSEYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKFFPQSGVL IFGKQGSEKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQGGNTQAATADVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1482	MASGSGAPMADNNEGADGVGNSSGNWYCDSTWMGDRVITTSTRTWALPTYNNHLYKQISS QSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLSFKLFNIQVKE VTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQGCLPPFPADVFMVPQYGYLTLNN GSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYL YYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPGPCYRQQRVSKTAADNNNSDYSW TGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVLIFGKQDSGKTNVDIEKVMITDE EEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGVLPGMVWQDRDVYLQGPIWAKIP HTDGHFHPSPLVGGFGLKHPPPQILIKNTPVPANPSTTFSAAKFASFITQYSTGQVSVEI EWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYSEPRPIGTRYLTRNL
1483	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVITTSTRTWALPTYNNHLYKQISS QSGASNDNHYFGYSTPWGHFDFNRFHCHFSPRDWQRLINNNWGFRPKRLSFKLFNIQVKE VTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQGCLPPFPADVFMVPQYGYLTLNN GSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYL YYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPGPCYRQQRVSKTAADNNNSDYSW TGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVLIFGKQDSGKTNVDIEKVMITDE EEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGVLPGMVWQDRDVYLQGPIWAKIP HTDGHFHPSPPMGGFGLKHPPPQILIKNTPVPANPSTTFSAAKFASFITQYSTGQVSVEI EWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYSEPRPIGARYLTRNL
1484	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1485	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVITTSTRTWALPTYNNHLYKQISS QSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLINNNWGFRPKRLSFKLFNIQVKE VTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQGCLPPFPADVFMVPQYGYLTLNN GSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPFHSSYAHSQSLDRLMNPLIDQYL YYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPGPCYRQQRVSKTAADNNNSDYSW TGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVLIFGKQDSGKTNVDIEKVMITDE EEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGVLPGMVWQDRDVYLQGPIWAKIP HTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTTFSAAKFASFITQYSTGQVSVEI EWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVYSEPRPIGTRYLTRNL

[0106]

1486	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTCNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTYLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLRGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1487	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTCNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTYLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLRGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1488	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHSQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDIRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL IFGKQDSGKTNVDIEKVMITDEEEIRTTNPVATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1489	MASGSGAPMADNNEGADGVGNSSGNWHCDSTWMGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNNWGFRPKRLSFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSGYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEDVPF HSSYAHGQSLDRLMNPLIDQYLYYLSRTNTPSGTTTMSRLQFSQAGASDVRDQSRNWLPG PCYRQQRVSKTAADNNNSDYSWTGATKYHLNGRDSLVNPGPAMASHKDDEEKYFPQSGVL VFGKQDSGKTNVDIEKVMITDEEEIRTTNPAATEQYGSVSTNLQSGNTQAATSDVNTQGV LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQILIKNTPVPANPSTT FSAAKFVSFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYLTRNL
1490	MASGSGAPVADNNEGADGVGNSSGNWHCDSQWLGDRVI TTSTRTWALPTYNNHLYKQISSQSGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRLI NNSWGFRPKRLNFKLFNIQVKEVTQNDGTTTIANNLTSTVQVFTDSEYQLPYVLGSAHQG CLPPFPADVFMVPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFQFSYTFEDVPF HSSYAHSQSLDRLLNPLIDQYLYYLNKTQSNSGTLQQSRLLFSQAGPTSMSLQAKNWLPG PCYRQQRLSKQANDNNNSNFPWTAATKYHLNGRDSLVNPGPAMASHKDDEEKFFPMHGTL IFGKQGTNANDADLDNVMITDEEEIRTTNPVATEQYGYVSNNLQNSNTGPTTGTVNHQGA LPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKHPPPQIMIKNTPVPANPPTN FSSSKFASFITQYSTGQVSVEIEWELQKENSKRWNPEIQYTSNYNKSVNVDFTVDTNGVY SEPRPIGTRYPTRNL

[0107]

1491	MASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSTSTGASNDNHYFGYGTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVEEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAVASHKDDEDKFFPMSGV MIFGKESAGASSTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1492	MASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYPNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQGRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1493	MASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GRLPPFPADVFMIPQYGYLTLNNGSQAVGRSSSYCLEYFPSQMLRTGNNFTFSYTFEEVP LHSSCAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNRDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSAGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL
1494	MASGGGAPMADNNEGADGVGNASGNWHCDSTWLGDRVI TTSTRTWALPTYNNHLYKQISSASTGASNDNHYFGYSTPWGYFDFNRFHCHFSPRDWQRL INNNWGFRPKRLNFKLFNIQVKEVTTNDGVTTIANNLTSTVQVFSDSEYQLPYVLGSAHQ GCLPPFPADVFMIPQYGYLTLNNGSQAVGRSSFYCLEYFPSQMLRTGNNFTFSYTFEEVP FHSSYAHSQSLDRLMNPLIDQYLYYLNRTQNQSGSAQNKDLLFSRGSPAGMSVQPKNWLP GPCYRQQRVSKTKTDNNNSNFTWTGASKYNLNGRESIINPGTAMASHKDDEDKFFPMSGV MIFGKESAGASNTALDNVMITDEEEIKATNPVATERFGTVAVNFQSSSTDPATGDVHAMG ALPGMVWQDRDVYLQGPIWAKIPHTDGHFHPSPLMGGFGLKNPPPQILIKNTPVPANPPA EFSATKFASFITQYSTGQVSVEIEWELQKENSKRWNPEVQYTSNYAKSANVDFTVDNNGL YTEPRPIGTRYLTRPL

附图说明

[0108] 图1A-C示出了由KT-430施用产生的关于Mtm1 KO小鼠的存活和生长的结果。

[0109] 图2示出了由KT-430施用产生的关于Mtm1 KO小鼠的肌肉功能的结果。

[0110] 图3示出了KT-430在Mtm1 KO小鼠体内的生物分布。

[0111] 图4示出了Mtm1 KO小鼠中在KT-430处理后hMTM1 mRNA的剂量依赖性表达。

[0112] 图5示出了Mtm1 KO小鼠中在KT-430处理后MTM1蛋白的剂量依赖性表达。

具体实施方式

[0113] 本发明提供了一种在骨骼肌中实现MTM1表达以及在肝组织中实现载体的暴露降低的新型嗜肌性病毒载体。有利地,通过增加MTM1在骨骼肌中的表达,本发明的载体允许施用一定剂量的包含该载体的组合物,该剂量显著减少非靶组织暴露于该组合物。

[0114] XLMTM和AT132

[0115] XLMTM是由肌微管素(MTM1)基因中的致病变体引起的,该致病变体编码蛋白质肌微管素,这是一种泛表达的脂质磷酸酶,会调节细胞内膜转运和囊泡输送,并且其功能是骨骼肌的正常发育、成熟和维持所需要的。功能性肌微管素的减少与严重骨骼肌无力相关,该严重骨骼肌无力导致此疾病的最突出的临床表现。

[0116] MTM1是大型进化上保守的肌微管素磷酸酶家族的成员。其是一种泛表达的脂质磷酸酶,使以下两种类型的磷酸肌醇的肌醇环的D3磷酸去磷酸化:磷脂酰肌醇3-磷酸(PtdIns3P)和磷脂酰肌醇3,5-二磷酸(PtdIns(3,5)P2)。MTM1调节众多细胞过程,包括通过核内体隔室进行的囊泡分选、兴奋-收缩偶联和肌肉中的T小管组织。MTM1基因中的功能丧失突变导致这些过程中的缺陷,这被认为是XLMTM患病肌肉中的严重运动功能障碍和组织学缺陷的根本原因。

[0117] 小鼠和狗的MTM1基因功能丧失与患有XLMTM的人类儿童的类似功能缺陷和组织学缺陷以及细胞器组织中的相关组织学缺陷相关,这些人类儿童的功能缺陷和组织学缺陷包括存活率降低、运动功能受损、肌肉萎缩、收缩强度降低,细胞器组织中的这些组织学缺陷包括中央核、线粒体定位错误和T小管组织破坏。人MTM1编码序列描述于SEQ ID NO:3中。通过AAV8介导的基因疗法恢复功能性肌微管素以在肌间线蛋白启动子的控制下表达全长鼠MTM1已经显示出,在通过肌肉内或静脉内(IV)注射到Mtm1敲除(KO)小鼠体内施用时,改善存活率、体重增加、肌肉收缩力、运动功能和细胞器定位错误中的组织学缺陷。

[0118] 在不受作用机制约束的情况下,认为XLMTM产生异常肝底物,该肝底物本身并不严重,但是易于发生另外的损伤。包括胆汁淤积在内的肝异常是XLMTM的自然史的一部分。肝表现不如骨骼肌和呼吸肌无力的表现突出,该骨骼肌和呼吸肌无力是占主导地位且最常见的致命性临床表现;然而,肝表现可能是更临床相关的,并且在AT132项目中出现肝毒性后越来越多地认识到肝表现。尚未报告胆汁淤积性肝衰竭是该疾病的自然史的一部分,但是有这样的病例报告,即在如呼吸道感染等应激源环境下,胆红素大幅升高,这与胆汁淤积的易感性的存在一致,在不存在临床压力的情况下,该胆汁淤积可以是轻微的或甚至是亚临床的。目前未知的是,胆汁淤积或胆汁淤积的易感性是否可能与其它变量相关,如特异性MTM1突变、新生儿黄疸和其它肝异常(如紫癜)。

[0119] 与目前提出的项目相关,迄今为止使用的AT132的临床剂量一直很高(1E14和3E14vg/kg),这与其它基于载体的基因疗法项目中使用的剂量类似,大概是为了补偿由于使用未选择的天然存在的衣壳而导致的所关注的组织中的次优生物分布和/或表达。截至2021年1月29日报告的来自ASPIRO的中期数据表明,严重治疗中出现的肝胆事件在高剂量组中更常见(高剂量组中的17名参与者中的5名参与者相对于低剂量组中的6名参与者中的0名参与者),但是大概在2021年9月报告的研究参与者中,在低剂量组中发生了至少一次后续事件。最近发布的活检和尸检数据表明,在绝对项方面并且相对于心脏和骨骼肌两者,经历致命肝事件的研究参与者在用AT132治疗后肝中的载体拷贝数(VCN)非常高。相比之下,在肝组织中鉴定出几乎没有MTM1或肌微管素。在不受作用机制约束的情况下,这些发现表明,肝毒性可能是由衣壳而非转基因驱动的,剂量是一个因素,并且减少肝暴露于衣壳可能降低针对患有XLMTM的男童的基于载体的基因疗法的风险。例如,ASPIRO试验中尚未报告与基于载体的基因疗法相关的其它类型的不良事件(如补体激活和其后遗症)。

[0120] 腺相关病毒载体

[0121] AAV是用于将基因材料递送到哺乳动物细胞中的特别合适的病毒载体。AAV已知在哺乳动物体内不会引起疾病,并且不会引起非常轻微的免疫应答。另外,AAV能够在多个阶段中感染细胞,无论是处于静止还是在细胞复制周期的期中。有利地,AAV DNA不会在随机位点处有规律地插入到宿主的基因组中,这由此减少了此载体的致癌特性。

[0122] AAV已被工程化为递送各种治疗,特别是,针对由单核苷酸多态性("SNP")引起的遗传性病症的治疗。已与AAV载体联合研究的遗传性疾病包括囊性纤维化、血友病、关节炎、黄斑变性、肌营养不良、帕金森氏病(Parkinson's disease)、充血性心力衰竭和阿尔茨海默氏病(Alzheimer's disease)。AAV可以用作用于将经工程化的核酸递送到宿主,并且利用宿主自身的核糖体将核酸转录为所期望的蛋白质的载体。参见例如,West等人,《病毒学(Virology)》160:38-47(1987);美国专利第4,797,368号;WO 93/24641;Kotin,《人类基因疗法(Human Gene Therapy)》5:793-801(1994);以及Muzyczka,《临床研究杂志(J.Clin.Invest.)》94:1351(1994)。AAV在其复制和/或致病性上有一些缺陷,并且因此可以比腺病毒载体更安全。在一些实施例中,AAV可以整合到人细胞的19号染色体上的特定位点中,而无可观察到的副作用。在一些实施例中,AAV载体、其系统和/或AAV颗粒的容量可以为至多约4.7kb。AAV载体或其系统可以包括一种或多种本文所述的经工程化的衣壳多核苷酸。

[0123] AAV是小的复制缺陷型非包膜病毒,其感染人类和其它灵长类物种,并且具有线性单链DNA基因组。天然存在的AAV血清型表现出肝嗜性。因此,用传统AAV载体转染非肝组织受到病毒的天然肝嗜性的阻碍。此外,由于肝会起作用以使递送到受试者的物质分解,因此用未经修饰的AAV载体转染非肝组织需要更高剂量以提供足以越过肝并且到达非肝组织的病毒负载。可获得多于30种天然存在的AAV血清型。AAV衣壳中存在许多天然变体。AAV血清型包括但不限于AAV血清型AAV1、AAV2、AAV3、AAV3B、AAV4、AAV5、AAV6、AAV7、AAV8、AAV9、AAV10、AAV11、AAV12、AAV13。AAV可以使用常规分子生物学技术进行工程化,从而使其可能例如针对细胞特异性递送、最小化免疫原性、调谐稳定性和颗粒寿命、高效降解、到细胞核的精确递送来对这些颗粒进行优化。通过选择AAV血清型、启动子和递送方法的适当组合,AAV载体可以特异性地靶向一种或多种类型的细胞。

[0124] 先前鉴定与嗜性相关的AAV序列的方法依赖于具有不同特性的高度相关的现存血清型的比较、不相关的血清型之间的随机结构域交换或对更高阶结构的考虑来鉴定定义肝嗜性的基序。例如,通过比较高度相关的血清型,已经对AAV嗜性的决定因素进行定位。一个此类实例是AAV1与AAV6之间的单氨基酸变化(E531K),该变化改进AAV1中的鼠肝转导。参见Wu等人(2006)《病毒学杂志(J.Virol.)》,80(22):11393-7,该文献通过引用并入本文。另一个实例是AAV2与AAV8之间的相互结构域交换,该相互结构域交换改变嗜性,但是未能定义任何稳健的特异性组织靶向基序。参见Raupp等人(201)《病毒学杂志》,86(17):9396-408,该文献通过引用并入本文。进一步地,对结构的全局考虑仅突出了较好的肝转导子或较差的肝转导子之间的总差异,这些总差异是更基于观察的而非可用实践。Nam等人(2007)《病毒学杂志》,81(22):12260-71。

[0125] 可以用于本发明的表现出经修饰的组织嗜性的AAV描述于美国专利第9,695,220号;美国专利第9,719,070号;美国专利第10,119,125号;美国专利第10,526,584号;美国专利申请公开第2018-0369414号;美国专利申请公开第2020-0123504号;美国专利申请公开

第2020-0318082号;PCT国际专利申请公开第WO 2015/054653号;PCT国际专利申请公开第WO 2016/179496号;PCT国际专利申请公开第WO 2017/100791号;以及PCT国际专利申请公开第WO 2019/217911号中,这些文献中的每个文献的全部内容通过引用并入本文。

[0126] AAV载体或其系统可以包括一种或多种调节分子,如启动子、增强子、抑制子等。在一些实施例中,AAV载体或其系统可以包括一种或多种多核苷酸,该一种或多种多核苷酸可以编码一种或多种调节蛋白。在一些实施例中,该一种或多种调节蛋白可以选自Rep78、Rep68、Rep52、Rep40、其变体和其组合。在一些实施例中,肌肉特异性启动子可以驱动经工程化的AAV衣壳多核苷酸的表达。

[0127] AAV载体或其系统可以包括一种或多种多核苷酸,该一种或多种多核苷酸可以编码一种或多种衣壳蛋白,如本文其它地方所描述的经工程化的AAV衣壳蛋白。经工程化的衣壳蛋白可以能够组装成AAV病毒颗粒的蛋白质壳(经工程化的衣壳)。经工程化的衣壳可以具有细胞特异性嗜性、组织特异性嗜性和/或器官特异性嗜性。

[0128] AAV载体或其系统可以被配置成产生具有特定血清型的AAV颗粒。在一些实施例中,血清型可以是AAV-1、AAV-2、AAV-3、AAV-4、AAV-5、AAV-6、AAV-8、AAV-9或其任何组合。在一些实施例中,AAV可以是AAV1、AAV-2、AAV-5、AAV-9或其任何组合。可以针对要靶向的细胞选择AAV的AAV;例如,可以选择AAV血清型1、2、5、9或混合衣壳AAV-1、AAV-2、AAV-5、AAV-9或其任何组合,以靶向脑和/或神经元细胞;并且可以选择AAV-4以靶向心脏组织;并且可以选择AAV-8以递送到肝。因此,在一些实施例中,能够产生能够靶向脑和/或神经元细胞的AAV颗粒的AAV载体或其系统可以被配置成产生具有血清型1、2、5或混合衣壳AAV-1、AAV-2、AAV-5或其任何组合的AAV颗粒。在一些实施例中,能够产生能够靶向心脏组织的AAV颗粒的AAV载体或其系统可以被配置成产生具有AAV-4血清型的AAV颗粒。在一些实施例中,能够产生能够靶向肝的AAV颗粒的AAV载体或其系统可以被配置成产生具有AAV-8血清型的AAV。还参见Srivastava.2017.《当代病毒学观点(Curr.Opin.Virol.)》21:75-80。

[0129] 应当理解,虽然不同的血清型可以提供某种水平的细胞、组织和/或器官特异性,但是每种血清型仍然是多嗜性的,并且由此在使用该血清型来靶向该血清型在转导方面不太不高效的组织的情况下,可能导致组织毒性。因此,除了通过选择特定血清型的AAV来实现某种组织靶向能力之外,将理解,AAV血清型的嗜性可以由本文所述的经工程化的AAV衣壳进行修饰。如本文其它地方所描述的,任何血清型的野生型AAV的变体都可以通过本文所述的方法产生,并且被确定为具有特定细胞特异性嗜性,该细胞特异性嗜性可以与参考野生型AAV血清型的嗜性相同或不同。在一些实施例中,野生型血清型的细胞、组织和/或特异性可以增强(例如,使其对血清型已经朝向其偏置的特定细胞类型更具选择性或特异性)。例如,野生型AAV-9朝向人类的肌肉和脑偏置(参见例如,Srivastava.2017.《当代病毒学观点》21:75-80)。通过包括如本文所述的野生型AAV-9的经工程化的AAV衣壳和/或衣壳蛋白变体,可以减少或消除对神经细胞的嗜性和/或增加的肌肉特异性,使得相比之下神经特异性似乎降低,由此使对肌肉的特异性相较于野生型AAV-9对肌肉的特异性有所增强。如先前所提及的,包括野生型AAV血清型的经工程化的衣壳和/或衣壳蛋白变体可以具有与野生型参考AAV血清型的嗜性不同的嗜性。例如,AAV-9的经工程化的AAV衣壳和/或衣壳蛋白变体在人体中可以对除肌肉或脑之外的组织具有特异性。

[0130] 在一些实施例中,AAV载体是混合AAV载体或其系统。混合AAV是包括具有来自一种

血清型的元件的基因组的AAV,这些元件被包装到源自于至少一种不同血清型的衣壳中。例如,如果要产生的是rAAV2/5,并且如果产生方法基于上文所讨论的无辅助瞬时转染方法,则第1质粒和第3质粒(腺辅助质粒)将与针对rAAV2产生所讨论的相同。然而,第2质粒pRepCap将不同。在这个被称为pRep2/Cap5的质粒中,Rep基因仍然源自AAV2,而Cap基因源自AAV5。产生方案与如上文所提及的AAV2产生方法相同。所产生的rAAV被称为rAAV2/5,其中基因组基于重组AAV2,而衣壳基于AAV5。据假设,此AAV2/5混合病毒所展示的细胞或组织嗜性应与AAV5的细胞或组织嗜性相同。将理解,野生型混合AAV颗粒存在与先前所讨论的非混合野生型血清型相同的特异性问题。

[0131] 基于野生型的混合AAV系统所实现的优点可以与可以使用经工程化的AAV衣壳所实现的增加且可定制的细胞特异性相结合,可以通过产生可以包括本文其它地方所述的经工程化的AAV衣壳的混合AAV相结合。将理解,混合AAV可以含有经工程化的AAV衣壳,该经工程化的AAV衣壳含有具有来自与该经工程化的AAV衣壳是其变体的参考野生型血清型不同的血清型的元件的基因组。例如,可以产生包括经工程化的AAV衣壳的混合AAV,该经工程化的AAV衣壳是AAV-9血清型的用于包装含有来自AAV-2血清型的组分(例如,rep元件)的基因组的变体。与先前所讨论的基于野生型的混合AAV一样,所产生的AAV颗粒的嗜性将是经工程化的AAV衣壳的嗜性。

[0132] 在一些实施例中,AAV载体或其系统被配置为“无肠”载体,该无肠载体与结合逆转录病毒载体所描述的载体类似。在一些实施例中,“无肠”AAV载体或其系统可以具有参与和所关注的异源序列相关的基因组扩增和包装的顺式作用病毒DNA元件(例如,经工程化的AAV衣壳多核苷酸)。

[0133] 本文所述的载体可以使用任何合适的过程或技术来构建。在一些实施例中,对本文所述的载体可以使用一种或多种合适的重组和/或克隆方法或技术。合适的重组和/或克隆技术和/或方法可以包括但不限于美国申请公开第US2004-0171156 A1号中所描述的重组和/或克隆技术和/或方法。本文其它地方描述了其它合适的方法和技术。

[0134] 重组AAV载体的构建在许多出版物中进行了描述,包括美国专利第5,173,414号;Tratschin等人,《分子细胞生物学(Mol.Cell.Biol.)》5:3251-3260(1985);Tratschin等人,《分子细胞生物学》4:2072-2081(1984);Hermonat和Muzyczka,《美国国家科学院院刊(PNAS)》81:6466-6470(1984);以及Samulski等人,《病毒学杂志》63:03822-3828(1989)。这些技术和/或方法中的任何技术和/或方法可以用于和/或适合于构建本文所述的AAV或其它载体。本文其它地方讨论了AAV载体。

[0135] 在一些实施例中,载体可以具有一个或多个插入位点,如限制性核酸内切酶识别序列(还被称为“克隆位点”)。在一些实施例中,一个或多个插入位点(例如,约或多于约1个、2个、3个、4个、5个、6个、7个、8个、9个、10个或更多个插入位点)位于一个或多个载体的一个或多个序列元件的上游和/或下游。

[0136] 本文所述的用于表达经工程化的AAV衣壳系统的一个或多个元件的递送媒剂、载体、颗粒、纳米颗粒、制剂和其组分如前述文档中所使用的,如国际专利申请公开WO WO2021/050974和WO 2021/077000,以及PCT国际申请第PCT/US2021/042812号,这些文献的内容通过引用并入本文。

[0137] 另外的AAV载体描述于国际专利申请公开WO 2019/2071632中,该国际专利申请公

开的内容通过引用并入本文。

[0138] 进一步的AAV载体描述于国际专利申请公开WO 2020/086881和WO 2020/235543中,这些国际专利申请公开中的每个国际专利申请公开的内容通过引用并入本文。

[0139] 进一步的AAV载体描述于国际专利申请公开WO 2005/033321;WO 2006/110689;WO 2007/127264;WO 2008/027084;WO 2009/073103;WO 2009/073104;WO 2009/105084;WO 2009/134681;WO 2009/136977;WO 2010/051367;WO 2010/138675;WO 2001/038187;WO 2012/112832;WO 2015/054653;WO 2016/179496;WO 2017/100791;WO 2017/019994;WO 2018/209154;WO 2019/067982;WO 2019/195701;WO 2019/217911;WO 2020/041498;WO 2020/210839;美国专利第7,906,111号;美国专利第9,737,618号;美国专利第10,265,417号;美国专利第10,485,883号;美国专利第10,695,441号;美国专利第10,722,598号;美国专利第8,999,678号;美国专利第10,301,648号;美国专利第10,626,415号;美国专利第9,198,984号;美国专利第10,155,931号;美国专利第8,524,219号;美国专利第9,206,238号;美国专利第8,685,387号;美国专利第9,359,618号;美国专利第8,231,880号;美国专利第8,470,310号;美国专利第9,597,363号;美国专利第8,940,290号;美国专利第9,593,346号;美国专利第10,501,757号;美国专利第10,786,568号;美国专利第10,973,928号;美国专利第10,519,198号;美国专利第8,846,031号;美国专利第9,617,561号;美国专利第9,884,071号;美国专利第10,406,173号;美国专利第9,596,220号;美国专利第9,719,010号;美国专利第10,117,125号;美国专利第10,526,584号;美国专利第10,881,548号;美国专利第10,738,087号;美国专利公开第2011-023353号;美国专利公开第2019-0015527号;美国专利公开第2020-155704号;美国专利公开第2017-0191079号;美国专利公开第2019-0218574号;美国专利公开第2020-0208176号;美国专利公开第2020-0325491号;美国专利公开第2019-0055523号;美国专利公开第2020-0385689号;美国专利公开第2009-0317417号;美国专利公开第2016-0051603号;美国专利公开第2016-00244783号;美国专利公开第2017-0183636号;美国专利公开第2020-0263201号;美国专利公开第2020-0101099号;美国专利公开第2020-0318082号;美国专利公开第2018-0369414号;美国专利公开第2019-0330278号;美国专利公开第2020-0231986号,这些文献中的每个文献的内容通过引用并入本文。

[0140] 衣壳蛋白

[0141] 衣壳蛋白是病毒的使得病毒能够递送到宿主中的壳或涂层。在没有该蛋白质的情况下,核酸将被宿主破坏,不会进入到宿主细胞中并开始转录和翻译。衣壳蛋白可以呈天然存在的AAV的天然构象,或者其可以被修饰。

[0142] 在某些示例实施例中,AAV衣壳蛋白是相较于对应的野生型AAV衣壳多肽在非肌肉细胞中的摄取减少或消除的经工程化的AAV衣壳蛋白。

[0143] 在一些实施例中,编码经工程化的AAV衣壳的多核苷酸可以被包括在多核苷酸中,该多核苷酸被配置成AAV载体系统中的AAV基因组供体,该AAV基因组供体可以用于产生本文其它地方所述的经工程化的AAV颗粒。在一些实施例中,编码经工程化的AAV衣壳的多核苷酸可以与聚腺苷酸化尾可操作地偶联。在一些实施例中,聚腺苷酸化尾可以是SV40聚腺苷酸化尾。在一些实施例中,编码AAV衣壳的多核苷酸可以与启动子可操作地偶联。在一些实施例中,启动子可以是组织特异性启动子。在一些实施例中,组织特异性启动子对肌肉

(例如,心肌、骨骼肌和/或平滑肌)、神经元和支持细胞(例如,星形胶质细胞、神经胶质细胞、施万细胞(Schwann cell)等)、脂肪、脾、肝、肾、免疫细胞、脊髓液细胞、滑液细胞、皮肤细胞、软骨、肌腱、结缔组织、骨、胰腺、肾上腺、血细胞、骨髓细胞、胎盘、内皮细胞和其组合具有特异性。在一些实施例中,启动子可以是组成型启动子。合适的组织特异性启动子和组成型启动子在本文其它地方讨论,并且在本领域中通常是已知的,并且可商购获得。合适的肌肉特异性启动子包括但不限于CK8、MHCK7、肌红蛋白启动子(Mb)、肌间线蛋白启动子、肌肉肌酸激酶启动子(MCK)和其变体以及SPc5-12合成启动子。

[0144] 本文描述了经工程化的病毒衣壳的各个实施例,如腺相关病毒(AAV)衣壳,该AAV衣壳可以被工程化以赋予经工程化的病毒颗粒细胞特异性嗜性,如肌肉特异性嗜性。经工程化的病毒衣壳可以是慢病毒、逆转录病毒、腺病毒或AAV衣壳。经工程化的衣壳可以被包括在经工程化的病毒颗粒(例如,经工程化的慢病毒颗粒、逆转录病毒颗粒、腺病毒颗粒或AAV病毒颗粒)中,并且可以赋予经工程化的病毒颗粒细胞特异性嗜性、降低的免疫原性或两者。本文所述的经工程化的病毒衣壳可以包括一种或多种本文所述的经工程化的病毒衣壳蛋白。本文所述的经工程化的病毒衣壳可以包括一种或多种本文所述的经工程化的病毒衣壳蛋白,该经工程化的病毒衣壳蛋白可以含有肌肉特异性靶向部分,该肌肉特异性靶向部分含有本文其它地方所述的n聚体基序或由其构成。

[0145] 经工程化的病毒衣壳和/或衣壳蛋白可以由一种或多种经工程化的病毒衣壳多核苷酸编码。在一些实施例中,经工程化的病毒衣壳多核苷酸是经工程化的AAV衣壳多核苷酸、经工程化的慢病毒衣壳多核苷酸、经工程化的逆转录病毒衣壳多核苷酸或经工程化的腺病毒衣壳多核苷酸。在一些实施例中,经工程化的病毒衣壳多核苷酸(例如,经工程化的AAV衣壳多核苷酸、经工程化的慢病毒衣壳多核苷酸、经工程化的逆转录病毒衣壳多核苷酸或经工程化的腺病毒衣壳多核苷酸)可以包括3'聚腺苷酸化信号。聚腺苷酸化信号可以是SV40聚腺苷酸化信号。

[0146] 经工程化的病毒衣壳可以是野生型病毒衣壳的变体。例如,在一些实施例中,经工程化的AAV衣壳可以是野生型AAV衣壳的变体。在一些实施例中,野生型AAV衣壳可以由VP1衣壳蛋白、VP2衣壳蛋白、VP3衣壳蛋白或其组合构成。换句话说,经工程化的AAV衣壳可以包括野生型VP1衣壳蛋白、野生型VP2衣壳蛋白和/或野生型VP3衣壳蛋白的一种或多种变体。在一些实施例中,参考野生型AAV衣壳的血清型可以是AAV-1、AAV-2、AAV-3、AAV-4、AAV-5、AAV-6、AAV-8、AAV-9或其任何组合。在一些实施例中,野生型AAV衣壳的血清型可以是AAV-9。经工程化的AAV衣壳可以具有与参考野生型AAV衣壳的嗜性不同的嗜性。

[0147] 经工程化的病毒衣壳可以含有1-60种经工程化的衣壳蛋白。在一些实施例中,经工程化的病毒衣壳可以含有1种、2种、3种、4种、5种、6种、7种、8种、9种、10种、11种、12种、13种、14种、15种、16种、17种、18种、19种、20种、21种、22种、23种、24种、25种、26种、27种、28种、29种、30种、31种、32种、33种、34种、35种、36种、37种、38种、39种、40种、41种、42种、43种、44种、45种、46种、47种、48种、49种、50种、51种、52种、53种、54种、55种、56种、57种、58种、59种或60种经工程化的衣壳蛋白。在一些实施例中,经工程化的病毒衣壳可以含有0-59种野生型病毒衣壳蛋白。在一些实施例中,经工程化的病毒衣壳可以含有0种、1种、2种、3种、4种、5种、6种、7种、8种、9种、10种、11种、12种、13种、14种、15种、16种、17种、18种、19种、20种、21种、22种、23种、24种、25种、26种、27种、28种、29种、30种、31种、32种、33种、34种、35

种、36种、37种、38种、39种、40种、41种、42种、43种、44种、45种、46种、47种、48种、49种、50种、51种、52种、53种、54种、55种、56种、57种、58种或59种野生型病毒衣壳蛋白。

[0148] 在一些实施例中,经工程化的AAV衣壳可以含有1-60种经工程化的衣壳蛋白。在一些实施例中,经工程化的AAV衣壳可以含有1种、2种、3种、4种、5种、6种、7种、8种、9种、10种、11种、12种、13种、14种、15种、16种、17种、18种、19种、20种、21种、22种、23种、24种、25种、26种、27种、28种、29种、30种、31种、32种、33种、34种、35种、36种、37种、38种、39种、40种、41种、42种、43种、44种、45种、46种、47种、48种、49种、50种、51种、52种、53种、54种、55种、56种、57种、58种或59种经工程化的衣壳蛋白。在一些实施例中,经工程化的AAV衣壳可以含有0-59种野生型AAV衣壳蛋白。在一些实施例中,经工程化的AAV衣壳可以含有0种、1种、2种、3种、4种、5种、6种、7种、8种、9种、10种、11种、12种、13种、14种、15种、16种、17种、18种、19种、20种、21种、22种、23种、24种、25种、26种、27种、28种、29种、30种、31种、32种、33种、34种、35种、36种、37种、38种、39种、40种、41种、42种、43种、44种、45种、46种、47种、48种、49种、50种、51种、52种、53种、54种、55种、56种、57种、58种或59种野生型AAV衣壳蛋白。

[0149] 在一些实施例中,经工程化的病毒衣壳蛋白可以具有n聚体氨基酸基序,其中n可以是至少3个氨基酸。在一些实施例中,n可以是3个、4个、5个、6个、7个、8个、9个、10个、11个、12个、13个、14个或15个氨基酸。在一些实施例中,经工程化的AAV衣壳可以具有6聚体或7聚体氨基酸基序。在一些实施例中,n聚体氨基酸基序可以插入在野生型病毒蛋白(VP)(或衣壳蛋白)中的两个氨基酸之间。在一些实施例中,n聚体基序可以插入在病毒衣壳蛋白中的可变氨基酸区中的两个氨基酸之间。

[0150] 在一些实施例中,n聚体基序可以插入在AAV衣壳蛋白的可变氨基酸区中的两个氨基酸之间。每种野生型AAV病毒蛋白的核含有八链β-桶状基序(βB至βI)和α-螺旋(αA),该β-桶状基序和该α-螺旋在自主细小病毒衣壳中是保守的(参见例如,DiMattia等人2012.《病毒学杂志》86(12):6947-6958)。结构可变区(VR)存在于连接β链的表面环中,这些β链聚簇以在衣壳表面产生局部变化。AAV具有12个可变区(还被称为高变区)(参见例如,Weitzman和Linden.2011.“腺相关病毒生物学(Adeno-Associated Virus Biology.)”Snyder,R.O.,Moullier,P.(编辑)新泽西州托托华(Totowa,NJ):胡玛纳出版社(Humana Press))。在一些实施例中,在野生型AVV衣壳蛋白的12个可变区中的一个或多个可变区中的两个氨基酸之间可以插入一个或多个n聚体基序。在一些实施例中,该一个或多个n聚体基序可以是各自插入在VR-I、VR-II、VR-III、VR-IV、VR-V、VR-VI、VR-VII、VR-III、VR-IX、VR-X、VR-XI、VR-XII或其组合中的两个氨基酸之间。在一些实施例中,n聚体可以插入在衣壳蛋白的VR-III中的两个氨基酸之间。在一些实施例中,经工程化的衣壳可以具有插入在AAV9病毒蛋白的位于氨基酸262与269之间的任何两个连续氨基酸之间、位于氨基酸327与332之间的任何两个连续氨基酸之间、位于氨基酸382与386之间的任何两个连续氨基酸之间、位于氨基酸452与460之间的任何两个连续氨基酸之间、位于氨基酸488与505之间的任何两个连续氨基酸之间、位于氨基酸545与558之间的任何两个连续氨基酸之间、位于氨基酸581与593之间的任何两个连续氨基酸之间、位于氨基酸704与714之间的任何两个连续氨基酸之间的n聚体。在一些实施例中,经工程化的衣壳可以具有插入在AAV9病毒蛋白的氨基酸588与589之间的n聚体。在一些实施例中,经工程化的衣壳可以具有插入在AAV9病毒蛋白的氨基酸588与589之间的7聚体基序。在其它实施例中,所插入的基序是具有氨基酸586-88的置换和589之前

的插入的10聚体基序。SEQ ID NO.1是用于至少参考上文所讨论的插入位点的参考AAV9衣壳序列。将理解,n聚体可以插入在其它血清型的AAV病毒蛋白中的类似位置中。在如先前所讨论的一些实施例中,n聚体可以插入在AAV病毒蛋白内的任何两个连续氨基酸之间,并且在一些实施例中,该插入是在可变区中进行的。

[0151] 在一些实施例中,n聚体基序的前1个、2个、3个或4个氨基酸可以置换其插入于其中并且位于插入位点之前的多肽的1个、2个、3个或4个氨基酸。在一些实施例中,n聚体基序的置换n聚体基序插入于其中的多肽的1个或多个氨基酸的氨基酸在n聚体基序中的"RGD"之前或紧位于其之前被插入。例如,在示出于例如表2-3中的10聚体插入物中的一个或多个插入物中,所示出的前三个氨基酸可以将1-3个氨基酸置换成其可以插入于其中的多肽。使用AAV作为另一个非限制性实例,可以在氨基酸588与589之间将n聚体基序中的一个或多个n聚体基序插入到例如和AAV9衣壳脯氨酰基肽中,并且插入物可以置换氨基酸586、587和588,使得插入后的紧接n聚体基序之前的氨基酸是残基585。将理解,此原理可以应用于任何其它插入上下文中,并且不一定局限于位于AAV9衣壳的残基588与589之间或另一个AAV衣壳中的等效位置中的插入。将进一步理解,在一些实施例中,n聚体基序插入于其中的多肽中没有氨基酸被n聚体基序置换。

[0152] 在一些实施例中,AAV衣壳或其它病毒衣壳或组合物可以是肌肉特异性的。在一些实施例中,经工程化的AAV或其它病毒衣壳或其它组合物的肌肉特异性是由并入在经工程化的AAV或本文所述的其它病毒衣壳或其它组合物中的肌肉特异性n聚体基序所赋予的。虽然不旨在受理论束缚,但是据信,n聚体基序赋予经工程化的AAV衣壳或其它病毒衣壳或其它组合物的结构域或区3D结构或在该结构域或区内赋予3D结构,使得病毒颗粒或含经工程化的AAV衣壳或其它病毒衣壳的其它组合物或本文所述的其它组合物的相互作用已经增加或提高了与肌肉细胞表面上的细胞表面受体和/或其它分子的相互作用(例如,增加的亲和力)。在一些实施例中,细胞表面受体是AAV受体(AAVR)。在一些实施例中,细胞表面受体是肌肉细胞特异性AAV受体。在一些实施例中,细胞表面受体或其它分子是在肌肉细胞的表面上选择性地表达的细胞表面受体或其它分子。在一些实施例中,细胞表面受体或分子是整合素或其二聚体。在一些实施例中,细胞表面受体或分子是Vb6整合素异二聚体。

[0153] 在一些实施例中,与不含有本发明的肌肉特异性n聚体基序的其它细胞类型和/或其它病毒颗粒(包括但不限于AAV)和其它组合物相比,含有本文所述的肌肉特异性衣壳、n聚体基序或肌肉特异性靶向部分的本文所述的肌肉特异性经工程化的病毒颗粒或其它组合物在肌肉细胞中的摄取、递送速率、转导速率、效率、量或其组合有所增加。

[0154] 使用肌肉特异性启动子开发第一代肌肉特异性AAV衣壳和第二代肌肉特异性AAV衣壳,并且在小鼠和非人灵长类动物中如本文其它地方和/或例如美国临时申请序列号62/899,453、62/916,207、63/018,454和63/242,008中所描述的对所产生的衣壳文库进行筛选。进一步在小鼠和非人灵长类动物中如先前所描述的对第一代myoAAV衣壳和第二代myoAAV衣壳进行优化,以产生增强的myoAAV衣壳。

[0155] 表1和2示出了增强的肌肉特异性n聚体基序的最高命中和其在每个表中以排名顺序呈现的编码序列。与全身递送后的第一代MyoAAV相比,增强的MyoAAV(eMyoAAV)衣壳变体可以更有效地转导小鼠肌肉。第一代myoAAV衣壳变体和第二代myoAAV衣壳变体依赖于aVb6整合素异二聚体来转导人原代肌管。

[0156] 表3和4示出了在衣壳变体的针对骨骼肌特异性的多个轮次的定向进化中产生的排名靠前的衣壳变体。如上表所示,对于含有P基序的变体n聚体插入物,所示出的变体序列的前三个氨基酸是置换对应于AAV9衣壳多肽的位置596、597和598的氨基酸的氨基酸。因此,例如,P基序被插入在AAV9载体的位置598与599处的氨基酸之间。

[0157] AAV可以进一步包含可以包含vp1衣壳蛋白、vp2衣壳蛋白和vp3衣壳蛋白。本发明的载体的vp1衣壳蛋白的氨基酸序列可以选自表5中的序列,氨基酸序列vp2衣壳蛋白可以选自表6中的序列,和/或氨基酸序列vp3衣壳蛋白选自表7中的序列。

[0158] 启动子

[0159] 本发明可以含有肌肉特异性启动子或另一种启动子。启动子可以与核酸序列连接,使得转录优选在肌细胞内发生。启动子区使得宿主细胞能够仅在应产生所期望的蛋白质的细胞类型和组织或器官中对转基因进行转录。此处,包括了肌肉特异性启动子,因为主要期望仅在肌细胞中对蛋白质进行翻译。期望核酸递送到其中并由此对蛋白质进行翻译的细胞类型的特异性,因为由将核酸递送在不需要核酸并且由此不需要蛋白质的细胞中并对该核酸进行翻译可能引起不利影响。

[0160] 在一些实施例中,肌肉特异性启动子产生增加的肌肉细胞效力、肌肉细胞特异性、降低的免疫原性或其任何组合。如本文所使用的,术语“肌肉特异性的”、“肌肉细胞特异性”、“肌肉细胞效力”、“肌细胞特异性”等是指肌肉特异性靶向部分和并入本发明的所述肌肉特异性靶向部分的组合物对肌细胞的特异性、选择性或效力相对于对非肌肉细胞的特异性、选择性或效力有所增加。在一些实施例中,本文所述的肌肉特异性靶向部分或并入肌肉特异性靶向部分的组合物对肌肉细胞/在肌肉细胞中的细胞特异性、或选择性、或效力或其组合为对非肌肉细胞的特异性、选择性和/或效力的至少2倍到至少500倍。

[0161] 在一些实施例中,所利用的肌细胞选择性启动子是MHCK7。MHCK7是一种小到足以被包括在AAV载体中的771个碱基对长度的启动子。MHCK7引导在快肌和慢肌骨骼肌和心肌中的表达,其中在肝、肺和脾中的表达低。MHCK7启动子与包括膈膜在内的骨骼肌中的高水平表达相关,并且包括用于特别地驱动在心肌和骨骼肌中的表达,而在脱靶组织中的表达最少的增强子。例如,启动子可以是具有SEQ ID NO:2的核酸序列的MHCK7启动子。

[0162] 在一些实施例中,本文所述的启动子被插入到对一种或多种非肌肉细胞类型的特异性降低(或没有可检测到的、可测量的或临床上相关的相互作用)的AAV蛋白(例如,AAV衣壳蛋白)中。示例性非肌肉细胞类型包括但不限于肝细胞、肾细胞、肺细胞、脾细胞、中枢神经系统细胞或外周神经系统细胞、骨细胞、免疫细胞、胃细胞、肠细胞、眼细胞、皮肤细胞等。在一些实施例中,非肌肉细胞是肝细胞。

[0163] 术语“可操作地连接”是指两个或更多个核酸分子在单个核酸片段上缔合,使得一个核酸分子的功能受到另一个核酸分子的功能影响。

[0164] 进一步的示例性组织特异性启动子包括U6启动子序列、MHCK7启动子序列、CK6启动子序列、tMCK启动子序列、CK5启动子序列、MCK启动子序列、HAS启动子序列、MPZ启动子序列、肌间线蛋白启动子序列、APOA2启动子序列、hAAT启动子序列、INS启动子序列、IRS2启动子序列、MYH6启动子序列、MYL2启动子序列、TNNI3启动子序列、SYN1启动子序列、GFAP启动子序列、NES启动子序列、MBP启动子序列或TH启动子序列。

[0165] 肌肉特异性启动子描述于国际专利申请公开WO 2020/006458和WO 2021/126880

中,这些国际专利申请公开中的每个国际专利申请公开的内容通过引用并入本文。

[0166] 进一步的肌肉特异性启动子描述于美国专利第9,133,482号;美国专利第10,105,453号;美国专利第10,301,367号;美国专利公开第2020-0360534号;PCT国际专利公开第WO 2020/006458号;第WO 2021/035120号;第WO 2021/053124号;以及第WO 2021/077000号中,这些文献中的每个文献的内容通过引用并入本文。

[0167] 先前已经描述了可诱导和/或具有组织特异性的RNA聚合酶II启动子。RNA聚合酶启动子是本领域已知的,并且进一步描述于美国专利公开11,149,288中,该美国专利公开的内容通过引用并入本文。

[0168] 经可变剪接的外显子

[0169] 本发明的各方面包含经可变剪接的外显子,这些经可变剪接的外显子可以用于病毒载体的上下文中,以有效地调节MTM1基因的编码区的表达。在某些实施例中,经可变剪接的外显子以条件敏感方式调节所关注的编码区。条件敏感方式意指经可变剪接的外显子以受一种或多种条件控制或影响的方式调节所关注的编码区的表达,该一种或多种条件包括但不限于环境条件、细胞内条件、细胞外条件、细胞的类型(例如,肝细胞相对于肌肉细胞)、基因表达模式或疾病状态。因此,本发明的各方面包含通过将所关注的编码区的表达与经可变剪接的外显子盒的表达相关来以条件敏感方式调节MTM1基因的编码区的表达。经可变剪接的外显子描述于PCT国际申请第PCT/US2022/017015号中,该PCT国际申请的全部内容通过引用并入本文。

[0170] 在一些实施例中,经可变剪接的外显子盒包含1个、2个、3个或4个经可变剪接的外显子。在一些其它实施例中,经可变剪接的外显子盒包含1个、2个、3个、4个、5个、6个、7个、8个、9个、10个、11个、12个、13个、14个、15个、16个、17个、18个、19个、20个、21个、22个、23个、24个或25个经可变剪接的外显子。在其中经可变剪接的外显子盒包含多于一个经可变剪接的外显子的一些实施例中,经可变剪接的外显子是相邻的。在其中经可变剪接的外显子盒包含多于一个经可变剪接的外显子的一些实施例中,经可变剪接的外显子不是相邻的。

[0171] 在一些实施例中,经可变剪接的外显子是合成的或重组的。在一些实施例中,经可变剪接的外显子被视为是合成的或重组的,因为相对于野生型经可变剪接的外显子,其经历一个或多个核酸修饰。核酸修饰可以是形成经可变剪接的外显子的核酸序列的一个或多个核苷酸的取代或缺失。

[0172] 在一些实施例中,可变外显子在其3'端处包含ATG起始密码子。如将理解的,在一些实施例中,野生型或天然存在的可变外显子在其3'端处可以包含ATG起始密码子。在此类实施例中,可变外显子可以包含与可变外显子的3'端处的异源起始密码子的插入不相关的核酸修饰。然而,将进一步理解,在一些实施例中,野生型或天然存在的可变外显子在其3'端处可以不包含ATG起始密码子。在此类实施例中,对可变外显子的3'端进行修饰,以引入异源起始密码子,使得在可变外显子在经剪接的转录本中被剪接或保留时,下游编码序列被翻译为全长蛋白质。如将理解的,在一些实施例中,可能需要1个、2个或3个核酸取代,以便将异源ATG起始密码子引入到可变外显子的3'端,这取决于野生型或天然存在的可变外显子的3'端处存在的序列。在此类实施例中,经可变剪接的外显子的3'端包含1个相对于野生型经可变剪接的外显子的核苷酸取代,以形成ATG起始密码子。在此类实施例中,经可变剪接的外显子的3'端包含2个相对于野生型经可变剪接的外显子的核苷酸取代,以形成ATG

起始密码子。在此类实施例中,经可变剪接的外显子的3'端包含3个相对于野生型经可变剪接的外显子的核苷酸取代,以形成ATG起始密码子。

[0173] 在一些实施例中,修饰包含在经可变剪接的外显子的3'端处插入异源起始密码子或异源起始密码子的一部分(例如,将1-3个核酸添加到经可变剪接的外显子的3'端而不是进行取代,以形成ATG起始密码子)。

[0174] 在其中可变外显子在3'端处包含1个、2个或3个核酸取代以产生异源ATG起始密码子的一些实施例中(例如,在野生型经可变剪接的外显子在其3'端处不包含ATG起始密码子的情况下),可变外显子的5'剪接位点的强度相对于野生型或天然存在的可变外显子的5'剪接位点强度的强度可以减弱。在此类实施例中,对紧位于包含可变外显子的3'端的序列下游的内含子序列进行一个或多个另外的修饰。在一些实施例中,相对于紧位于天然存在的或野生型可变外显子下游的天然存在的或野生型内含子序列,紧位于经可变剪接的外显子下游的内含子序列的前10个核苷酸包含1-5个核苷酸取代。在一些实施例中,相对于紧位于天然存在的或野生型可变外显子下游的天然存在的或野生型内含子序列,紧位于经可变剪接的外显子下游的内含子序列的前10个核苷酸包含1个核苷酸取代。在一些实施例中,相对于紧位于天然存在的或野生型可变外显子下游的天然存在的或野生型内含子序列,紧位于经可变剪接的外显子下游的内含子序列的前10个核苷酸包含2个核苷酸取代。在一些实施例中,相对于紧位于天然存在的或野生型可变外显子下游的天然存在的或野生型内含子序列,紧位于经可变剪接的外显子下游的内含子序列的前10个核苷酸包含3个核苷酸取代。在一些实施例中,相对于紧位于天然存在的或野生型可变外显子下游的天然存在的或野生型内含子序列,紧位于经可变剪接的外显子下游的内含子序列的前10个核苷酸包含4个核苷酸取代。在一些实施例中,相对于紧位于天然存在的或野生型可变外显子下游的天然存在的或野生型内含子序列,紧位于经可变剪接的外显子下游的内含子序列的前10个核苷酸包含5个核苷酸取代。在一些实施例中,相对于天然存在的或野生型可变外显子的5'剪接位点的强度,1-5个核苷酸取代恢复或部分恢复可变外显子的5'剪接位点的强度。

[0175] 另外或可替代地,在一些实施例中,修饰包含破坏或缺失位于异源起始密码子5'处的所有天然起始密码子。在其中经可变剪接的外显子盒包含多于一个经可变剪接的外显子的一些实施例中,位于最5'的经可变剪接的外显子的异源起始密码子5'处的所有天然起始密码子都被破坏或缺失。另外或可替代地,在一些实施例中,修饰包含位于下一个5'剪接连接点上游至少50个核苷酸处向经可变剪接的外显子中引入异源框内终止密码子。在一些实施例中,经可变剪接的外显子是无义介导的衰变(NMD)外显子。在一些实施例中,NMD外显子包含位于下一个5'剪接连接点上游至少50个核苷酸处的框内终止密码子。

[0176] 在一些实施例中,在经可变剪接的外显子相对于野生型经可变剪接的外显子(例如,异源的)非天然地定位(例如,与其在野生型或天然存在的条件下将不连接的编码序列连接)时,其被视为是合成的。在一些实施例中,在经可变剪接的外显子(i)经历一个或多个核酸修饰,并且(ii)相对于野生型经可变剪接的外显子非天然地定位时,其被视为是合成的。

[0177] 在一些实施例中,经可变剪接的外显子是调节性外显子。在一些实施例中,调节性外显子是经可变调节的外显子(例如,已知经受可变剪接机制的外显子)。将理解,可变剪接是前mRNA转录本内的外显子或外显子的部分或非编码区差异地连接或跳过,从而导致多种

蛋白质同种型由单个基因编码的过程。

[0178] 药物组合物

[0179] 本发明的一些实施例可以包括将AAV载体提供给受试者的任何可接受形式。例如，AAV载体可以以包含AAV载体的组合物或制剂的形式提供给受试者。本发明的表达载体可以被调配和施用，以通过使活性成分与药剂在受试者的身体内的作用位点接触的任何方式治疗各种疾病状态。本文所述的组合物、多核苷酸、多肽、颗粒、细胞、载体系统和其组合可以包含在制剂(如药物制剂)中。在一些实施例中，制剂可以用于产生包括本文所述的一个或多个肌肉特异性靶向部分的多肽和其它颗粒。在一些实施例中，制剂可以递送给有需要的受试者。在一些实施例中，本文所述的经工程化的AAV衣壳系统、经工程化的细胞、经工程化的AAV衣壳颗粒和/或其组合的组分可以包括在可以递送给受试者或细胞的制剂中。在一些实施例中，制剂是药物制剂。本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种可以单独或作为活性成分(如在药物制剂中)提供给有需要的受试者或细胞。因此，本文还描述了含有某种量的本文所述的多肽、多核苷酸、载体、细胞或其组合中的一种或多种的药物制剂。在一些实施例中，药物制剂可以含有有效量的本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种。本文所述的药物制剂可以施用于有需要的受试者或细胞。

[0180] 在一些实施例中，基于有需要的受试者的体重或药物制剂可以施用于的特定患者群体的平均体重，药物制剂中含有的本文所述的多肽、多核苷酸、载体、细胞、病毒颗粒、纳米颗粒、其它递送颗粒和其组合中的一种或多种的量的范围可以为约1pg/kg至约10mg/kg。本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种在药物制剂中的量的范围可以为约1pg至约10g、约10nL至约10ml。在其中药物制剂含有一个或多个细胞的实施例中，量的范围可以为约1个细胞至1x 10^2个、1x 10^3个、1x 10^4个、1x 10^5个、1x 10^6个、1x 10^7个、1x 10^8个、1x 10^9个、1x 10^{10}个或更多个细胞。在其中药物制剂含有一个或多个细胞的实施例中，量的范围可以为每nL、μL、mL或L约1个细胞至1x 10^2个、1x 10^3个、1x 10^4个、1x 10^5个、1x 10^6个、1x 10^7个、1x 10^8个、1x 10^9个、1x 10^{10}个或更多个细胞。

[0181] 在其中制剂中包括经工程化的AAV衣壳颗粒的实施例中，制剂可以含有1个至1x10^2个、1x 10^3个、1x 10^4个、1x 10^5个、1x 10^6个、1x 10^7个、1x 10^8个、1x 10^9个、1x 10^{10}个、1x 10^{11}个、1x 10^{12}个、1x 10^{13}个、1x 10^{14}个、1x 10^{15}个、1x 10^{16}个、1x 10^{17}个、1x 10^{18}个、1x 10^{19}个或1x 10^{20}个转导单位(TU)/mL经工程化的AAV衣壳颗粒。在一些实施例中，制剂的体积可以为0.1mL至100mL，并且可以含有1个至1x 10^2个、1x 10^3个、1x 10^4个、1x 10^5个、1x 10^6个、1x 10^7个、1x 10^8个、1x 10^9个、1x 10^{10}个、1x 10^{11}个、1x 10^{12}个、1x 10^{13}个、1x 10^{14}个、1x 10^{15}个、1x 10^{16}个、1x 10^{17}个、1x 10^{18}个、1x 10^{19}个或1x 10^{20}个转导单位(TU)/mL经工程化的AAV衣壳颗粒。

[0182] 药学上可接受的载剂以及辅助成分和药剂

[0183] 在实施例中，含有某种量的本文所述的多肽、多核苷酸、载体、细胞、病毒颗粒、纳米颗粒、其它递送颗粒和其组合中的一种或多种的药物制剂可以进一步包括药学上可接受的载剂。合适的药学上可接受的载剂包括但不限于水、盐溶液、醇、阿拉伯胶、植物油、苯甲醇、聚乙二醇、明胶、碳水化合物(如乳糖、直链淀粉(amylose)或淀粉)、硬脂酸镁、滑石、硅酸、粘性石蜡、香水油、脂肪酸酯、羟甲基纤维素和聚乙烯吡咯烷酮，这些不会有害地与活性组合物发生反应。

[0184] 药物制剂可以进行灭菌,并且如果期望的话,可以与不会有害地与活性组合物发生反应的助剂(如润滑剂、防腐剂、稳定剂、润湿剂、乳化剂、用于影响渗透压的盐、缓冲剂、着色剂、调味剂和/或芳香物质等)混合。

[0185] 在一些实施例中,本文所述的药物制剂可以呈某种剂型。剂型可以适合于通过任何适当的途径施用。适当的途径包括但不限于口服(包括颊或舌下)、直肠、硬膜外、颅内、眼内、吸入、鼻内、局部(包括颊、舌下或经皮)、阴道、尿道内、肠胃外、颅内、皮下、肌肉内、静脉内、腹膜内、皮内、骨内、心脏内、关节内、海绵窦内、鞘内、玻璃体内、脑内、牙龈、龈下、脑室内和皮内。此类制剂可以通过本领域已知的任何方法制备。

[0186] 适合于口服施用的剂型可以是离散剂量单位,如胶囊、团粒或片剂、粉剂或颗粒剂、溶液或于水性或非水性液体中的悬浮液;可食用泡沫或打发物;或于水包油液体乳剂或油包水液体乳剂中。在一些实施例中,适合于口服施用的药物制剂还包括一种或多种对药物制剂进行调味、保存、着色或帮助药物制剂分散的药剂。制备用于口服施用的剂型也可以呈液体溶液的形式,其可以以泡沫剂、喷雾剂或液体溶液的形式递送。在一些实施例中,口服剂型可以含有约1ng至1000g的药物制剂,该药物制剂含有治疗有效量或其适当级分的所靶向的效应子融合蛋白和/或其复合物或含有本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种的组合物。口服剂型可以施用于有需要的受试者。

[0187] 在适当时,本文所述的剂型可以微胶囊化。

[0188] 剂型还可以被制备成延长或维持任何成分的释放。在一些实施例中,本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种可以是其释放被延迟的成分。在其它实施例中,延迟任选地包括的辅助成分的释放。用于延迟成分的释放的合适方法包括但不限于将成分包衣或包埋在聚合物、蜡、凝胶等中的材料中。延释剂量制剂可以如标准参考文献中所述的进行制备,如《药物剂型片剂(Pharmaceutical dosage form tablets)》,编者Liberman等人(纽约的马塞尔德克尔公司(New York,Marcel Dekker,Inc.),1989);《雷明顿-药物科学与实践(Remington-The science and practice of pharmacy)》,第20版,马里兰州巴尔的摩的利平科特·威廉斯和威尔金斯出版公司(Lippincott Williams& Wilkins,Baltimore,MD),2000;以及《药物剂型和药物递送系统(Pharmaceutical dosage forms and drug delivery systems)》,第6版,Ansel等人,(宾夕法尼亚州米堤亚:威廉姆斯和威尔金斯出版社(Media,PA:Williams and Wilkins),1995)。这些参考文献提供了关于用于制备片剂和胶囊以及片剂和团粒、胶囊和颗粒剂的延释剂型的赋形剂、材料、设备和工艺的信息。延释可以是约一小时至约3个月或更长时间中的任何时间。

[0189] 合适的包衣材料的实例包括但不限于纤维素聚合物,如邻苯二甲酸乙酸纤维素、羟丙基纤维素、羟丙基甲基纤维素、羟丙基甲基纤维素邻苯二甲酸酯和乙酸羟丙基甲基纤维素琥珀酸酯;聚乙酸乙烯酯邻苯二酸酯;丙烯酸聚合物和共聚物;以及可以商品名EUDRAGIT商购获得的甲基丙烯酸树脂(由德国韦斯特施塔特的罗斯制药公司(Roth Pharma,Westerstadt,Germany)销售);玉米蛋白;虫胶和多糖。

[0190] 包衣可以用不同比率的水溶性聚合物、非水溶性聚合物和/或pH依赖性聚合物在使用或不使用非水溶性/水溶性非聚合物赋形剂的情况下形成,以产生期望的释放谱。包衣也可以对剂型(基质或简单)进行,该剂型包括但不限于片剂(使用或不使用经包衣的珠粒压缩)、胶囊(使用或不使用经包衣的珠粒)、珠粒、颗粒组合物、以但不限于悬浮液形式或洒

剂剂型形式调配的“原样成分”。

[0191] 适合于局部施用的剂型可以被调配为软膏、乳膏、悬浮液、洗剂、粉剂、溶液、糊剂、凝胶、喷雾剂、气雾剂或油。在用于治疗眼睛或其它外部组织(例如,口腔或皮肤)的一些实施例中,药物制剂以局部软膏或乳膏的形式施涂。在以软膏进行调配时,本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种可以用石蜡软膏基质或水混溶性软膏基底进行调配。在一些实施例中,活性成分可以以具有水包油乳膏基底或油包水基底的乳膏进行调配。适合于在口腔中局部施用的剂型包括锭剂、软锭剂和漱口剂。

[0192] 适合于鼻腔施用或吸入施用的剂型包括气雾剂、溶液、悬浮液滴剂、凝胶或干粉剂。在一些实施例中,本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种被包含在适合于吸入的剂型中,呈通过微粉化获得或可通过微粉化获得的粒径减小的形式。在一些实施例中,大小减小的(例如,微粉化的)化合物或其盐或溶剂化物的粒径被约0.5微米至约10微米的D50值限定,如通过本领域已知的适当方法测得的。适合于通过吸入施用的剂型还包括颗粒、尘雾剂或雾剂。其中载剂或赋形剂是用于以鼻腔喷雾剂或滴剂的形式施用的液体的合适剂型包括活性成分(例如,本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种和/或辅助活性剂)的水性或油溶液/悬浮液,该水性或油溶液/悬浮液可以通过各种类型的计量剂量加压的气雾剂、喷雾器或吹入器产生。

[0193] 在一些实施例中,剂型可以是适于通过吸入施用的气雾剂制剂。在这些实施例中的一些实施例中,气雾剂制剂可以含有本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种的溶液或细悬浮液以及药学上可接受的水性或非水性溶剂。气雾剂制剂可以在密封容器中以无菌形式以单剂量的量或多剂量的量来呈现。对于这些实施例中的一些实施例,密封容器是单剂量或多剂量鼻腔分配器或者装配有计量阀的气雾剂分配器(例如,计量剂量的吸入器),该分配器旨在当容器中的内容物耗尽时被丢掉。

[0194] 在气雾剂剂型容纳在气雾剂分配器中的情况下,分配器含有处于压力下的合适推进剂,如压缩空气、二氧化碳或有机推进剂,包括但不限于氢氟碳化物。其它实施例中的气雾剂制剂剂型容纳在泵式雾化器中。加压气雾剂制剂还可以含有本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种的溶液或悬浮液。在进一步的实施例中,气雾剂制剂还可以含有掺入以提高例如制剂的稳定性和/或味道和/或细颗粒质量特性(量和/或谱)的助溶剂和/或调节剂。气雾剂制剂的施用可以是每天一次或每天若干次,例如每天2次、3次、4次或8次,其中每次递送1个、2个或3个剂量。

[0195] 对于适于和/或适合于吸入施用的一些剂型,药物制剂是干粉可吸入制剂。除了本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种、辅助活性成分和/或其药学上可接受的盐之外,此类剂型可以含有粉末基底,如乳糖、葡萄糖、海藻糖、甘露醇和/或淀粉。在这些实施例中的一些实施例中,本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种呈粒径减小形式。在进一步的实施例中,性能调节剂,如L-亮氨酸或另一种氨基酸、纤维二糖八乙酸酯和/或硬脂酸的金属盐,如硬脂酸镁或硬脂酸钙。

[0196] 在一些实施例中,气雾剂剂型可以被布置成使得每个计量剂量的气雾剂含有预定量的活性成分,如本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种中的一种或多种。

[0197] 适合于阴道施用的剂型可以呈现为子宫托、卫生棉塞、乳膏、凝胶、糊剂、泡沫或喷

雾制剂。适合于直肠施用的剂型包括栓剂或灌肠剂。

[0198] 适合于肠胃外施用和/或适合于任何类型的注射(例如,静脉内、腹膜内、皮下、肌肉内、皮内、骨内、硬膜外、心脏内、关节内、海绵窦内、牙龈、龈下、鞘内、玻璃体内、脑内和脑室内)的剂型可以包括水性和/或非水性无菌注射溶液以及水性和非水性无菌悬浮液,这些水性和/或非水性无菌注射溶液可以含有抗氧化剂、缓冲剂、抑菌剂、使组合物与受试者的血液等渗的溶质,这些水性和非水性无菌悬浮液可以包括悬浮剂和增稠剂。适合于肠胃外施用的剂型可以呈现在单单位剂量容器或多单位剂量容器中,包括但不限于密封安瓿或小瓶。剂量可以被冻干并且重悬于无菌载剂中,以在施用之前复原。在一些实施例中,可以由无菌粉剂、颗粒剂和片剂制备即时注射溶液和悬浮液。

[0199] 适合于眼部施用的剂型可以包括水性和/或非水性无菌溶液以及水性和非水性无菌悬浮液,这些水性和/或非水性无菌溶液可以任选地适合于注射,并且可以任选地含有抗氧化剂、缓冲剂、抑菌剂、使组合物与眼睛或其中含有的或受试者眼睛周围的流体等渗的溶质,这些水性和非水性无菌悬浮液可以包括悬浮剂和增稠剂。

[0200] 对于一些实施例,剂型含有每单位剂量预定量的本文所述的多肽、多核苷酸、载体、细胞和其组合中的一种或多种。在一些实施例中,预定量的此类单位剂量因此可以每天一次或多于一次施用。此类药物制剂可以通过本领域众所周知的方法中的任何方法制备。

[0201] 实例

[0202] 实例1:KT-430在MTM1敲除小鼠体内的功效(研究KTS1020)

[0203] 将命名为KT-430的新型组合物作为用于治疗XLMTM的治疗候选物进行测试。KT-430包含被称为MyoAAV3.8.的新型重组嗜肌性衣壳,该新型重组嗜肌性衣壳用于递送编码MTM1蛋白的核酸。MyoAAV3.8衣壳递送SEQ ID NO:4中描述的转基因。

[0204] 最近,使用第一代MyoAAV衣壳进行的MTM1基因置换显示出在使人MTM1编码序列在Mtm1 KO小鼠体内表达时,提高存活率、体重增加和运动功能,这由此证明了人蛋白在小鼠体内是有效的。参见Tabebordbar,2021,《细胞(Cell)》184:4919-4938,该文献的全部内容通过引用并入本文。这与MTM1跨真核生物的高度同源性一致,例如人蛋白分别与小鼠MTM1蛋白和犬MTM1蛋白92%和96%相同。

[0205] 通过AAV8介导的基因疗法恢复功能性肌微管素以在肌间线蛋白启动子的控制下表达全长犬MTM1在MTM1 p.N155K犬模型中是有效的。在以≥2E14 vg/kg的高剂量静脉内施用时,此基于AAV8的载体提高存活率,并且在肌肉收缩力、运动和呼吸功能以及组织学异常方面产生持久改善。这些使用基于AAV8的基因疗法和肌间线蛋白启动子的临床前研究预测了AT132(NCT03199469;ASPIRO)(即,相关的基于AAV8的基因疗法(AAV8-肌间线蛋白-hMTM1))的临床功效,由此验证了这些疾病模型的预测性和其药理学相关性。

[0206] 通过本发明,测试了KT-430凭借其设计以及具体地其新型嗜肌性衣壳MyoAAV3.8在骨骼肌中在比在ASPIRO中使用的AT132的最低剂量低一个数量级的剂量下实现有效水平的转基因表达的能力。此剂量将显著减少非靶组织暴露于KT-430,从而潜在地实现临床功效(肌肉强度提高和对机械通气的需要减少)以及安全性提高,以及特别地,医疗需求严重未满足的此群体的肝毒性风险降低。

[0207] 研究目标

[0208] 研究的目标是评价KT-430(MyoAAV3.8-MHCK7-hMTM1)在雄性MTM1 KO小鼠体内在

某种剂量范围(3E11 vg/kg、1E12 vg/kg和3E12 vg/kg)内在单次静脉内注射后10周的功效和生物分布。

[0209] 方法

[0210] 通过泰康利生物科学公司(Taconic Biosciences)获得Mtm1 KO小鼠(B6;129S-$Mtm1^{tm1(Gt(OST290S77)Lex)}$)并培育该小鼠(型号#TF0892)。小鼠模型不表达MTM1,并且表现出与先前发布的Mtm1 KO品系一致的存活率降低、肌肉病理学和运动缺陷。在4周龄时,向小鼠(n=6只半合子雄性/组)施用媒剂(PBS+35mM NaCl+0.001%普朗尼克(Pluronic)F68)或增加剂量的KT-430的单次静脉内(眶后)注射(10mL/kg)。将WT雄性同窝仔组并行用媒剂进行处理,以允许相对于健康小鼠进行比较。在4周龄时向小鼠给药,因为先前研究已经证实,基于AAV的基因置换在断奶后不久但在小鼠由于疾病进展而变得濒死之前进行施用时是有效的。

[0211] 给药后4周(8周龄)在大多数经媒剂处理的KO小鼠仍然是活的并且能够进行功能测试时进行中期功效评估,该功能测试包括握力(握力仪,哥伦布仪器公司(Columbus Instruments))、旷场活动(Panlab哈佛设备公司(Panlab Harvard Apparatus)旷场运动场/LE800SC)和自发跑轮活动(Med Associates公司(Med Associates)低姿态无线跑轮)。此后不久,大多数经媒剂处理的小鼠由于疾病进展需要人道安乐死。在研究结束时,即给药后10周,进行了另一次功能评估,以通过与WT同窝仔进行比较来评估使小鼠存活的功效。对小鼠进行安乐死,并且成对对胫骨肌、二头肌和四头肌进行称重,以评估肌肉生长。还以显微镜方式评价选择肌肉组织的病理学异常的逆转(包括对中心核和纤维直径进行定量以及对烟酰胺腺嘌呤二核苷酸(NADH)进行染色)以评估细胞器定位错误。还通过光学显微术评价心和肝的潜在毒性。评估组织的生物分布,包括载体拷贝数(VCN)、hMTM1转基因mRNA和蛋白质表达。

[0212] 表5:KTS1020的研究设计

[0213]

组	测试制品	剂量	调配浓度	剂量体积	动物数量
1	媒剂	-	-	10 mL/kg	6 只雄性（野生型）
2	媒剂	-	-		6 只雄性（敲除）
3	KT-430	3E11 vg/kg	3E10 vg/mL		6 只雄性（敲除）
4	KT-430	1E12 vg/kg	1E11 vg/mL		6 只雄性（敲除）
5	KT-430	3E12 vg/kg	3E11 vg/mL		6 只雄性（敲除）

[0214] 使用被引导朝向hMTM1编码序列的3'端的Taqman引物/探针,通过数字液滴PCR(ddPCR)来评价载体基因组的生物分布。将载体基因组的数量相对于使用鼠端粒酶(Tert)参考基因的二倍体基因组的数量归一化。为了测量转基因mRNA,使用被引导朝向hMTM1编码序列的3'端的相同引物来开发TaqMan测定。相对于标准曲线对mRNA的拷贝数进行定量,并且将该拷贝数相对于作为参考基因的鼠Gapdh mRNA的水平归一化。另外,将hMTM1转基因mRNA的水平与从第1组中的经媒剂处理的WT同窝仔中确定的小鼠Mtm1的内源水平进行比较。使用抗Mtm1抗体(亚诺法公司(Abnova))通过蛋白质印迹(western blot)来确定Mtm1的蛋白质水平。

[0215] 结果

[0216] 图1A-C示出了由KT-430施用产生的关于Mtm1 KO小鼠的存活和生长的结果。评价Mtm1 KO小鼠的存活率、体重和终末肌肉重量。图1A,存活率;图1B,体重;并且图1C,胫骨前肌和四头肌的肌肉重量。星号表示与经媒剂处理的KO小鼠的统计差异(*p<0.05;**p<

0.01)。

[0217] 用KT-430进行的处理引起存活率的剂量依赖性增加。由于疾病进展,在8周龄与10周龄之间由于疾病进展濒死时,必须对所有经媒剂处理的KO小鼠实施安乐死,这与Mtm1 KO小鼠中在其它地方所报告的存活率降低一致。相比之下,高剂量组(3E12 vg/kg)中的所有6只KO小鼠存活到在第10周时的计划的尸检。在低(3E11 vg/kg)剂量组和中(1E12 vg/kg)剂量组中,分别地,2/6只和5/6只动物存活到第10周。在经KT-430处理的KO小鼠中,肌肉重量(四头肌、胫骨肌)和体重也存在剂量依赖性增加。在第10周的尸检中,经高剂量处理的KO小鼠的肌肉和体重与WT动物的肌肉和体重无显著差异。

[0218] 图2示出了由KT-430施用产生的关于Mtm1 KO小鼠的肌肉功能的结果。在4周龄时对Mtm1 KO小鼠进行处理,并且在给药后第4周在经媒剂处理的KO小鼠仍然活着时评价该小鼠的运动功能。然后,在给药后第10周的尸检之前,第二次对小鼠进行评价。A-B)基于每只小鼠5次重复确定的握力的平均峰值力(牛顿(newton))。C-D)7天时间段(第4周)或8天时间段(第10周)内产生的自发跑轮活动(每天的平均距离,以公里为单位)。E-F)在旷场运动场中,在30分钟时间段内测量的旷场活动(总距离,以厘米为单位)。星号表示与经媒剂处理的KO小鼠的统计差异(*p<0.05;**p<0.01;***p<0.001)。

[0219] 当在8周龄时测量时,与WT同窝仔相比,经媒剂处理的Mtm1 KO小鼠表现出握力、旷场活动(行进的距离)和自发跑轮活动(7天至8天时间段内跑动的平均每日距离)显著减少。用KT-430进行的处理引起运动功能的这些量度的剂量依赖性提高,然而由于高动物间可变性,结果仅在高剂量下实现统计显著性。

[0220] 经媒剂处理的Mtm1 KO小鼠表现出XLMTM的预期病理学特征,包括肌纤维大小减小、内部/中心成核以及细胞器在四头肌和二头肌中的异常定位。用KT-430处理的Mtm1 KO小鼠显示出四头肌和二头肌中这些组织学特征在1E12 vg/kg和3E12 vg/kg的剂量下的剂量依赖性逆转,但是在3E11 vg/kg的低剂量下无明显改善。这与此剂量水平下运动功能的最小改善一致。肝和心脏是KT-430的所测试的组织学上正常的所有剂量,这进一步支持KT-430的安全性。在经KT-430处理的小鼠中,包括丙氨酸转氨酶、天冬氨酸转氨酶、碱性磷酸酶、胆红素或肌酸激酶在内的血清化学不存在相关变化。

[0221] 载体拷贝数(VCN)

[0222] 在第10周时,评价载体基因组DNA在存活的经KT-430处理的小鼠中的组织亚群中的生物分布。

[0223] 图3示出了KT-430在Mtm1 KO小鼠体内的生物分布。图3中使用的缩略语包括:KO=敲除;Mtm1=小鼠肌微管素基因;Tert=端粒酶;WT=野生型。给药增加剂量的KT-430的小鼠中的每个二倍体基因组的载体拷贝数(平均值±标准偏差)。载体拷贝数是相对于小鼠Tert基因(n=3-6/组)的归一化。

[0224] 用KT-430进行的处理引起所评价的所有组织中的每个二倍体基因组的载体基因组的剂量依赖性增加。在3E12 vg/kg的有效剂量下,肝中的水平为大约1vg/dg。肌肉和心脏中的水平小于0.1vg/dg。

[0225] 转基因表达

[0226] 图4示出了Mtm1 KO小鼠中在KT-430处理后hMTM1 mRNA的剂量依赖性表达。在经媒剂处理的WT小鼠中,测量了来自用增加剂量的KT-430处理的小鼠(n=3-5/组)的hMTM1转基

因相对于内源鼠Mtm1 mRNA的转基因mRNA水平(平均值±标准偏差)。所有数据均相对于鼠Gapdh的水平归一化。

[0227] KT-430处理引起肌肉和心脏中的hMTM1转基因mRNA在1E12 vg/kg和3E12 vg/kg的中剂量和高剂量下的剂量依赖性增加。通过与内源鼠Mtm1 mRNA水平进行比较,1E12vg/kg的剂量使hMTM1 mRNA水平与肌肉和心脏中的生理水平大致相似。3E12 vg/kg的高剂量引起肌肉和心脏中的超生理水平的转基因mRNA(正常值的7倍至16倍)。3E11vg/kg的低剂量产生了为亚生理的可检测但非常低水平的转基因mRNA。有趣的是,在肝中,3E12 vg/kg的高剂量产生了生理水平的转基因mRNA,这表明MHCK7启动子在肝中的活性很弱。

[0228] 图5示出了Mtm1 KO小鼠中在KT-430处理后MTM1蛋白的剂量依赖性表达。相对于WT动物中的内源鼠MTM1,来自用增加剂量的KT-430处理的小鼠(n=3-5只/组)的hMTM1蛋白水平(平均值±标准偏差)。

[0229] 如所预期的,基于mRNA水平,KT-430在肌肉、心脏和肝中的hMTM1蛋白表达方面产生了剂量依赖性中增加。在任何组织中,在3E11 vg/kg下无可察觉到的MTM1表达,然而在肌肉和心脏中,在1E12 vg/kg下观察到亚生理MTM1表达(<正常值的100%),并且在3E12 vg/kg下观察到超生理表达(>正常值的100%)。

[0230] 结论

[0231] 总之,这些结果表明,KT-430处理使存活率、体重增长和运动功能得到剂量依赖性改善。KT-430在3E12 vg/kg的剂量下完全有效,这与肌肉中至少100%的正常MTM1表达一致。基于存活率以及体重、肌肉重量和运动功能改善的趋势,1E12 vg/kg的中剂量显示出一些功效证据。这与hMTM1 mRNA和蛋白质的较低亚生理表达一致。基于功效和安全性数据以及给药后10周时肌肉中的一致MTM1蛋白表达,KT-430进行的处理似乎与抗转基因免疫应答或肝毒性不相关。这些结果支持KT-430的生物活性,并且证明了MTM1基因置换在生理水平下表达时可以逆转疾病症状。结果也支持KT-430的安全性。

[0232] 通过引用并入

[0233] 在本公开通篇中已经参考并且引用了其它文档,如专利、专利申请、专利公开、杂志、书籍、论文、网页内容。所有此类文档特此出于所有目的通过引用整体并入本文。

[0234] 等效形式

[0235] 对于本领域的技术人员来说,根据本文档的全部内容(包括对本文所引用的科学文献和专利文献的参考),对本发明的各种修改以及本发明的除了在本文中示出且描述的实施例之外的许多进一步的实施例将变得显而易见。本文的主题含有可以适合于在本发明的各个实施例和其等效形式中实践本发明的重要信息、例示和指导。

[0236] 另外的序列

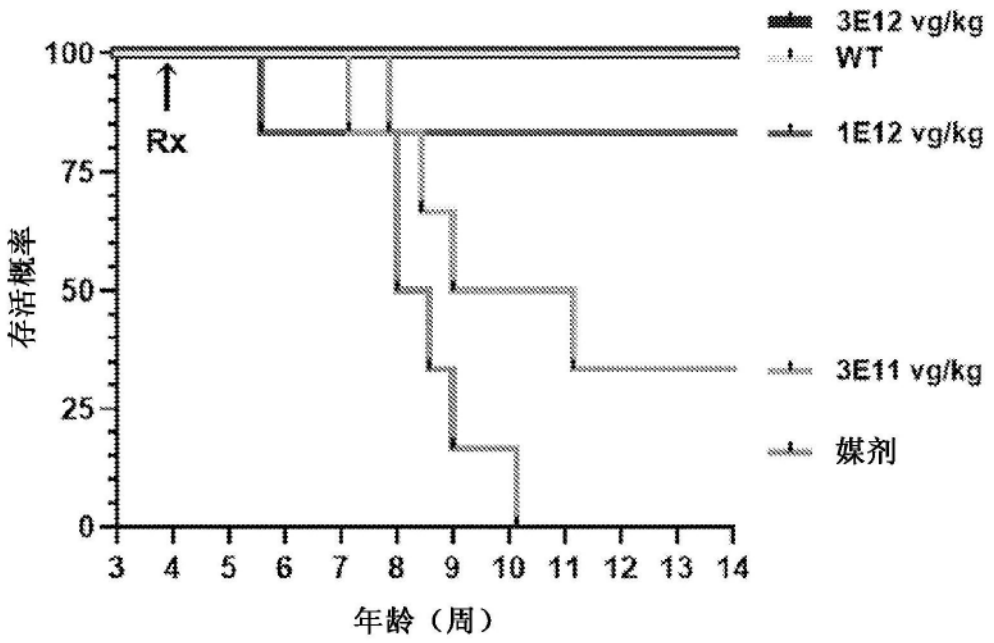

3E12 vg/kg
WT
1E12 vg/kg
3E11 vg/kg
媒剂
Rx
存活概率
年龄（周）

图1A

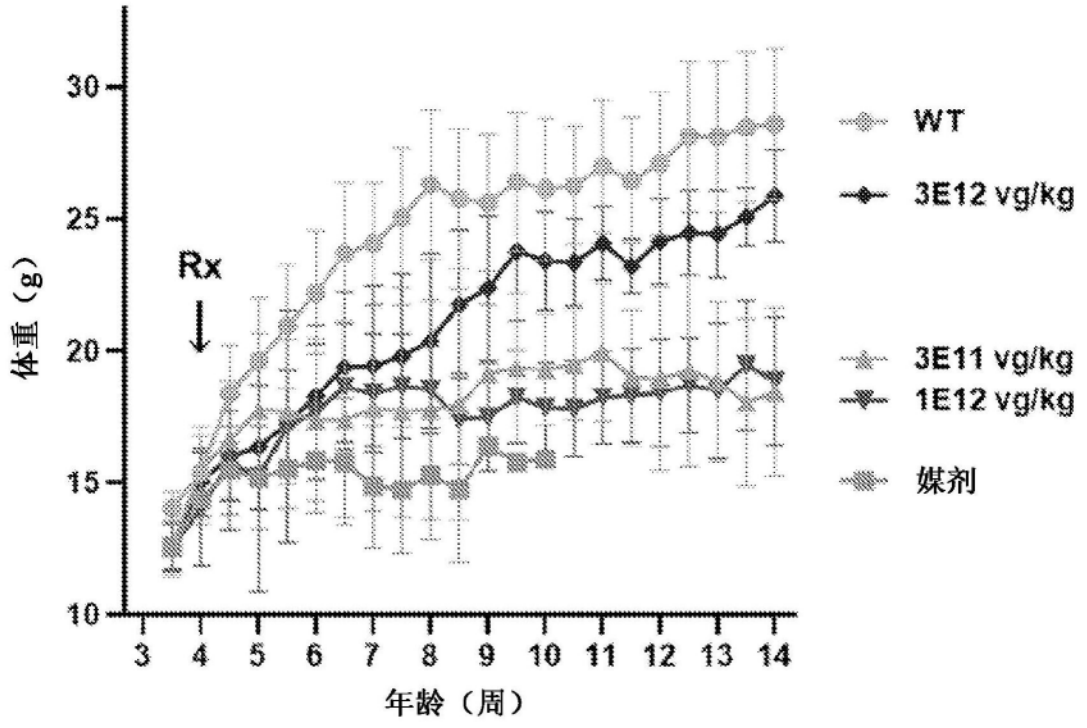

WT
3E12 vg/kg
3E11 vg/kg
1E12 vg/kg
媒剂
Rx
体重（g）
年龄（周）

图1B

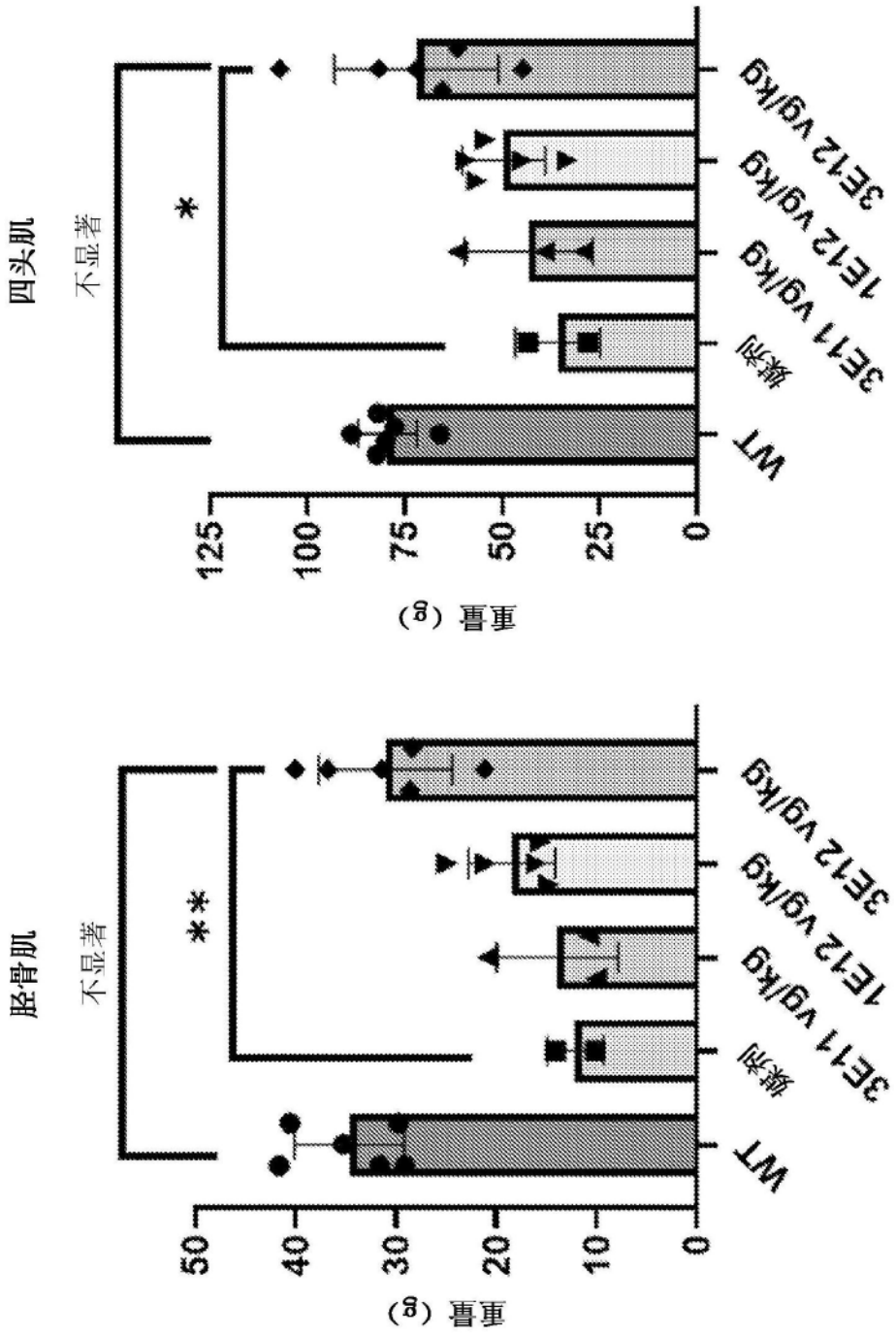

四头肌
不显著
*
WT
媒剂
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
重量（g）
0
25
50
75
100
125
胫骨肌
不显著
**
WT
媒剂
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
重量（g）
0
10
20
30
40
50

图1C

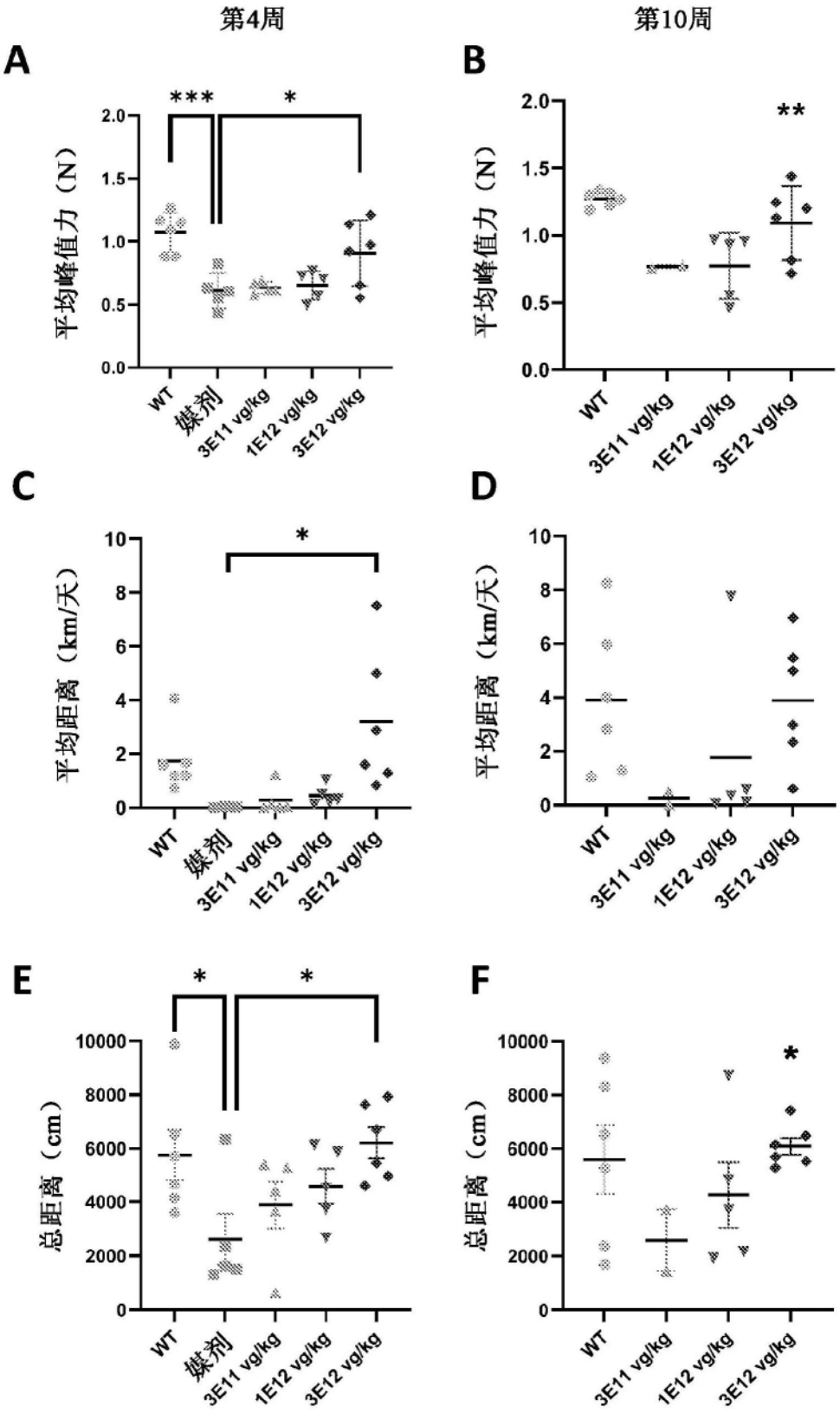

第4周
第10周
A
B
C
D
E
F
平均峰值力（N）
平均距离（km/天）
总距离（cm）
WT
媒剂
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg

图2

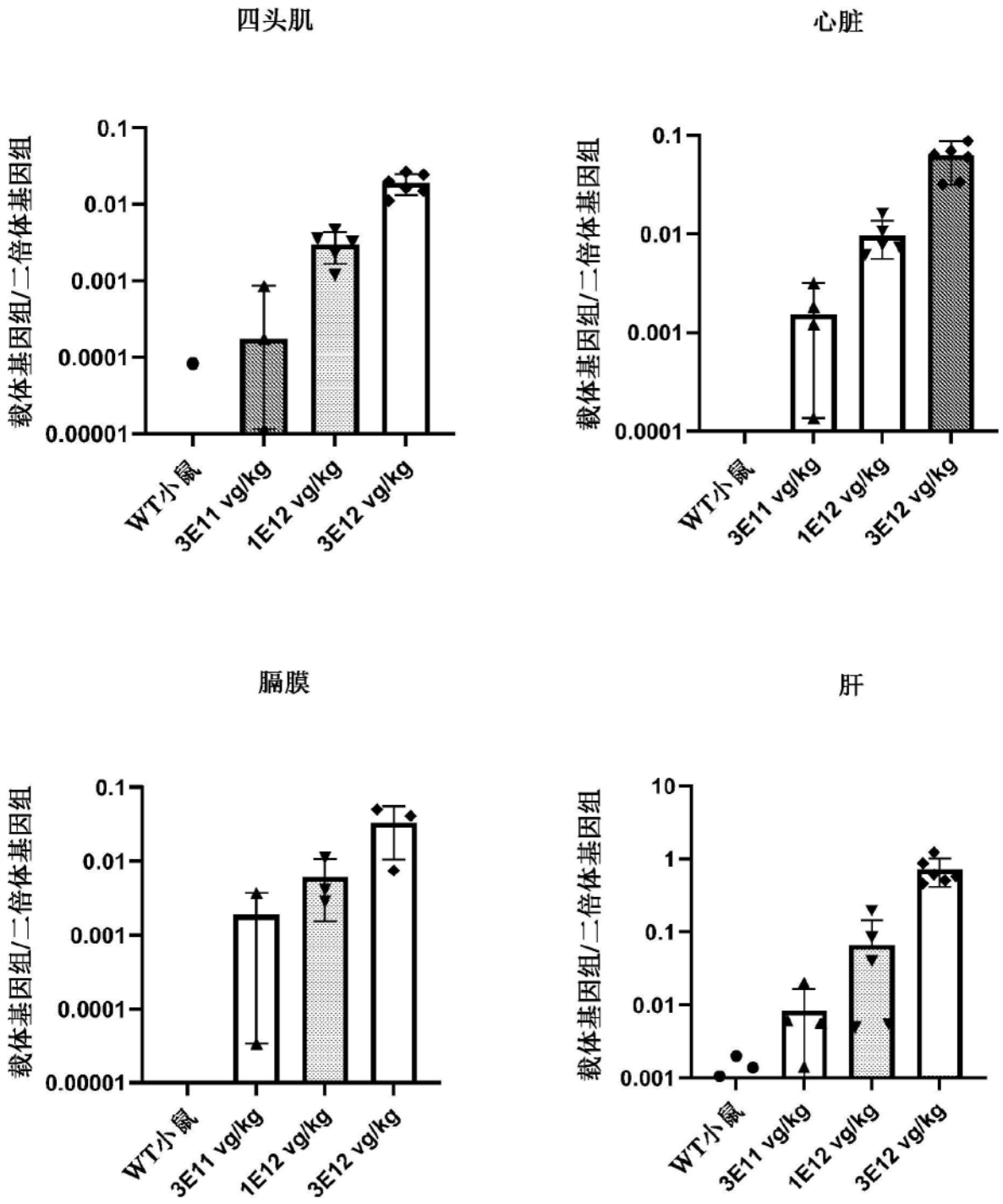

四头肌
心脏
膈膜
肝
载体基因组/二倍体基因组
0.1
0.01
0.001
0.0001
0.00001
10
1
WT小鼠
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg

图3

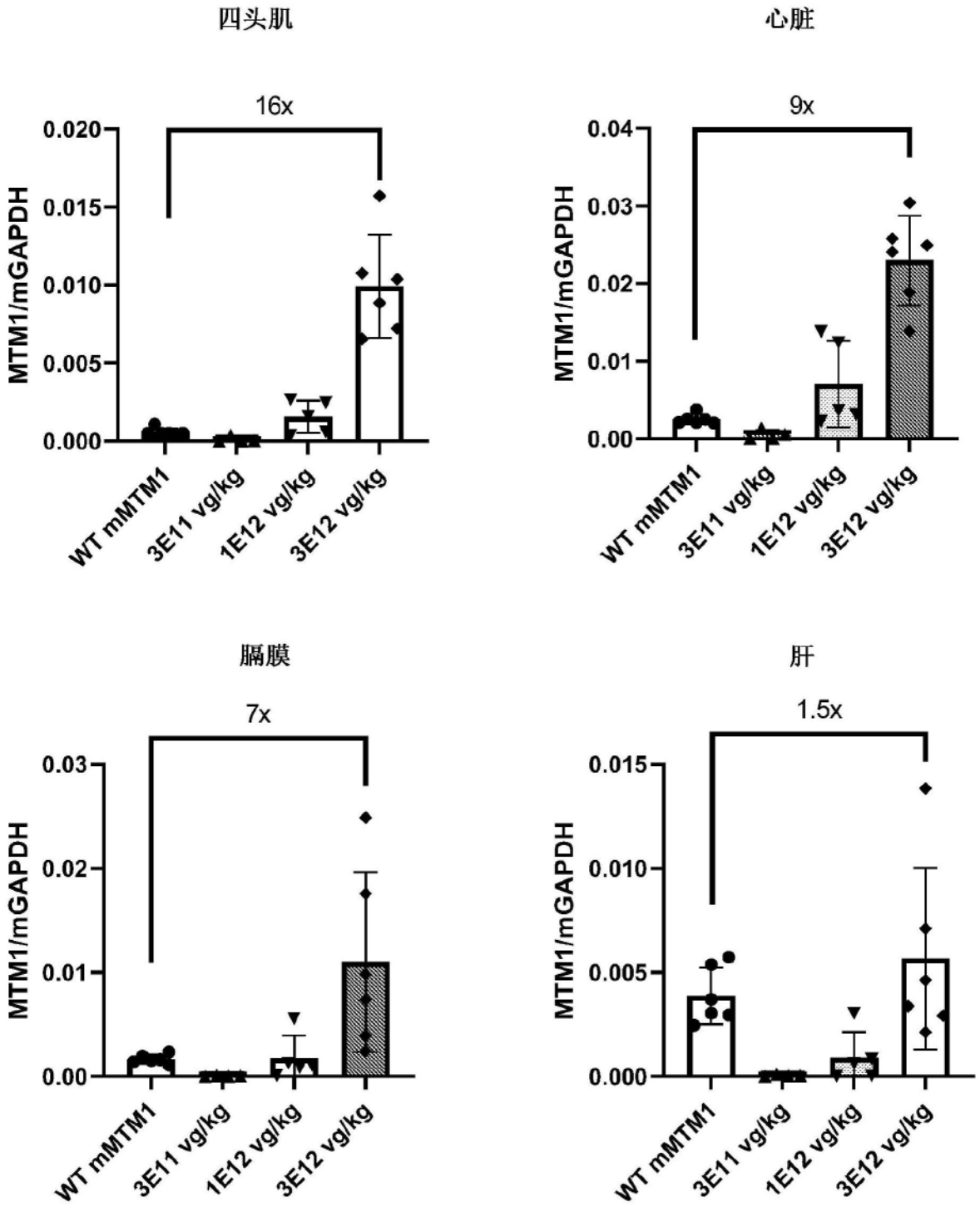

四头肌
16x
MTM1/mGAPDH
0.020
0.015
0.010
0.005
0.000
WT mMTM1
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
心脏
9x
MTM1/mGAPDH
0.04
0.03
0.02
0.01
0.00
WT mMTM1
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
膈膜
7x
MTM1/mGAPDH
0.03
0.02
0.01
0.00
WT mMTM1
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
肝
1.5x
MTM1/mGAPDH
0.015
0.010
0.005
0.000
WT mMTM1
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg

图4

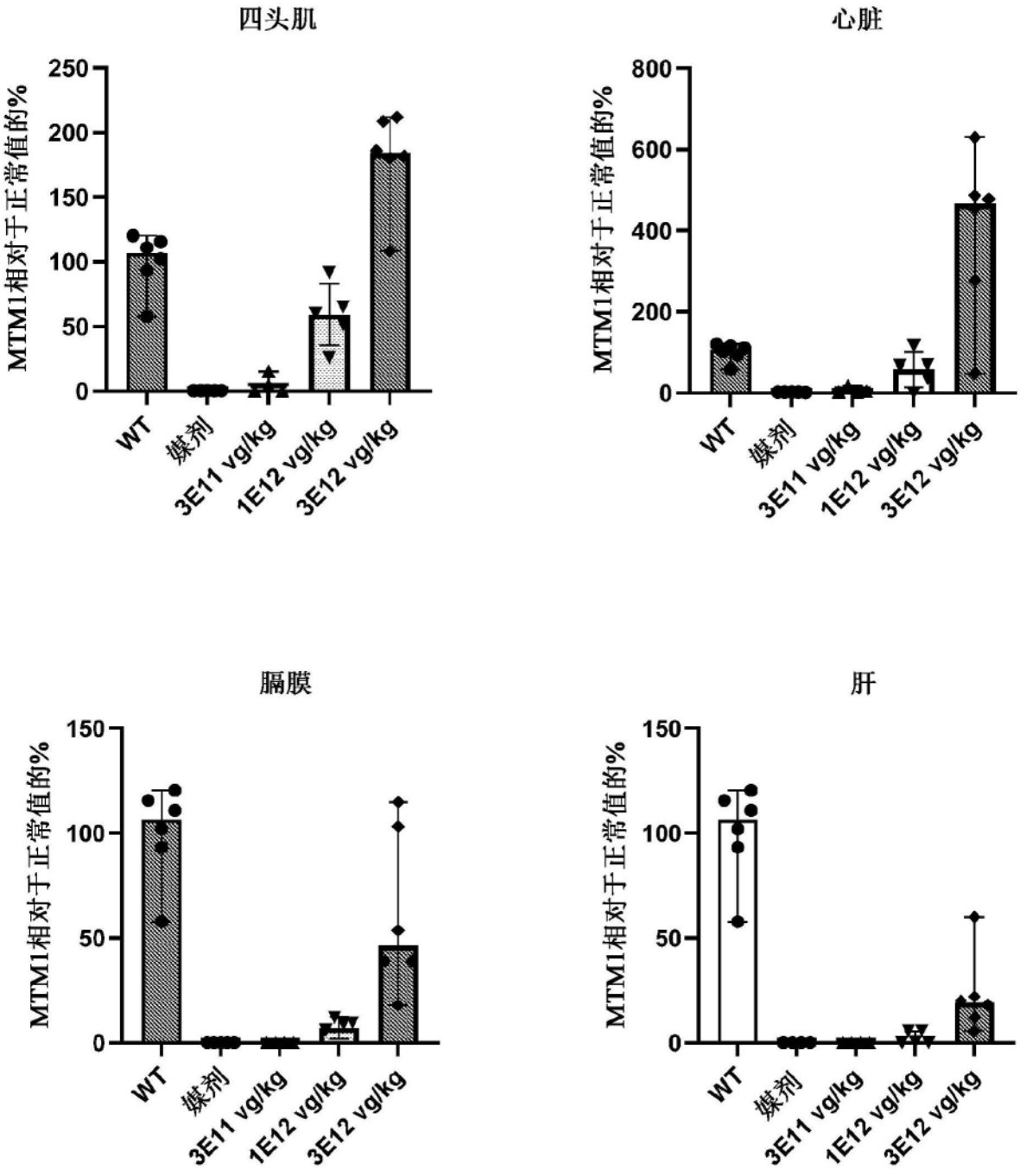

四头肌
MTM1相对于正常值的%
250
200
150
100
50
0
WT
媒剂
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
心脏
MTM1相对于正常值的%
800
600
400
200
0
WT
媒剂
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
膈膜
MTM1相对于正常值的%
150
100
50
0
WT
媒剂
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg
肝
MTM1相对于正常值的%
150
100
50
0
WT
媒剂
3E11 vg/kg
1E12 vg/kg
3E12 vg/kg

图5