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<110> CSL Behring GmbH

<120> Complex

<130> A198

<150> EP2013164728

<151> 2013-04-22

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Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro	50 55 60
Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val	65 70 75 80
Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val	85 90 95
Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala	100 105 110
Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val	115 120 125
Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn	130 135 140
Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser	145 150 155 160

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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
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His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
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Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
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 Asp Ser Tyr Glu Asp 725 Ile Ser Ala Tyr Leu 730 Leu Ser Lys Asn Asn 735 Ala
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 Gln Lys Gln 755 Phe Asn Ala Thr Thr 760 Ile Pro Glu Asn Asp 765 Ile Glu Lys
 Thr Asp 770 Pro Trp Phe Ala His 775 Arg Thr Pro Met Pro 780 Lys Ile Gln Asn
 Val 785 Ser Ser Ser Asp Leu 790 Leu Met Leu Leu Arg 795 Gln Ser Pro Thr Pro 800
 His Gly Leu Ser Leu 805 Ser Asp Leu Gln Glu 810 Ala Lys Tyr Glu Thr 815 Phe
 Ser Asp Asp Pro 820 Ser Pro Gly Ala Ile 825 Asp Ser Asn Asn Ser 830 Leu Ser
 Glu Met Thr 835 His Phe Arg Pro Gln 840 Leu His His Ser Gly 845 Asp Met Val
 Phe Thr 850 Pro Glu Ser Gly Leu 855 Gln Leu Arg Leu Asn 860 Glu Lys Leu Gly
 Thr 865 Thr Ala Ala Thr Glu 870 Leu Lys Lys Leu Asp 875 Phe Lys Val Ser Ser 880
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 Gly Thr Asp Asn 900 Thr Ser Ser Leu Gly 905 Pro Pro Ser Met Pro 910 Val His
 Tyr Asp Ser 915 Gln Leu Asp Thr Thr 920 Leu Phe Gly Lys Lys 925 Ser Ser Pro
 Leu Thr 930 Glu Ser Gly Gly Pro 935 Leu Ser Leu Ser Glu 940 Glu Asn Asn Asp
 Ser 945 Lys Leu Leu Glu Ser 950 Gly Leu Met Asn Ser 955 Gln Glu Ser Ser Trp 960
 Gly Lys Asn Val Ser 965 Ser Thr Glu Ser Gly 970 Arg Leu Phe Lys Gly 975 Lys

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Lys	Asn 1805	Phe	Val	Lys	Pro	Asn 1810	Glu	Thr	Lys	Thr	Tyr 1815	Phe	Trp	Lys
Val	Gln 1820	His	His	Met	Ala	Pro 1825	Thr	Lys	Asp	Glu	Phe 1830	Asp	Cys	Lys
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Ser	Gly 1850	Leu	Ile	Gly	Pro	Leu 1855	Leu	Val	Cys	His	Thr 1860	Asn	Thr	Leu
Asn	Pro 1865	Ala	His	Gly	Arg	Gln 1870	Val	Thr	Val	Gln	Glu 1875	Phe	Ala	Leu
Phe	Phe 1880	Thr	Ile	Phe	Asp	Glu 1885	Thr	Lys	Ser	Trp	Tyr 1890	Phe	Thr	Glu
Asn	Met 1895	Glu	Arg	Asn	Cys	Arg 1900	Ala	Pro	Cys	Asn	Ile 1905	Gln	Met	Glu
Asp	Pro 1910	Thr	Phe	Lys	Glu	Asn 1915	Tyr	Arg	Phe	His	Ala 1920	Ile	Asn	Gly
Tyr	Ile 1925	Met	Asp	Thr	Leu	Pro 1930	Gly	Leu	Val	Met	Ala 1935	Gln	Asp	Gln
Arg	Ile 1940	Arg	Trp	Tyr	Leu	Leu 1945	Ser	Met	Gly	Ser	Asn 1950	Glu	Asn	Ile
His	Ser 1955	Ile	His	Phe	Ser	Gly 1960	His	Val	Phe	Thr	Val 1965	Arg	Lys	Lys
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Glu	Thr 1985	Val	Glu	Met	Leu	Pro 1990	Ser	Lys	Ala	Gly	Ile 1995	Trp	Arg	Val

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Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln	Tyr
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Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly	Ser
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Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys	Val
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Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile	Ile
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Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly	Asn
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Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser	Ser
	2120					2125					2130			
Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg	Tyr
	2135					2140					2145			
Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu	Arg
	2150					2155					2160			
Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro	Leu
	2165					2170					2175			
Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala	Ser
	2180					2185					2190			
Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys	Ala
	2195					2200					2205			
Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg	Pro	Gln	Val
	2210					2215					2220			
Asn	Asn	Pro	Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln	Lys	Thr	Met
	2225					2230					2235			
Lys	Val	Thr	Gly	Val	Thr	Thr	Gln	Gly	Val	Lys	Ser	Leu	Leu	Thr
	2240					2245					2250			

eo1f-seq1

Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly
2255 2260 2265

His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe
2270 2275 2280

Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp
2285 2290 2295

Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp
2300 2305 2310

Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala
2315 2320 2325

Gln Asp Leu Tyr
2330

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<212> PRT
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<400> 7

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

Glu Asn Phe Lys Ala Leu Val Leu Ile Ala Phe Ala Gln Tyr Leu Gln
20 25 30

Gln Cys Pro Phe Glu Asp His Val Lys Leu Val Asn Glu Val Thr Glu
35 40 45

Phe Ala Lys Thr Cys Val Ala Asp Glu Ser Ala Glu Asn Cys Asp Lys
50 55 60

Ser Leu His Thr Leu Phe Gly Asp Lys Leu Cys Thr Val Ala Thr Leu
65 70 75 80

Arg Glu Thr Tyr Gly Glu Met Ala Asp Cys Cys Ala Lys Gln Glu Pro
85 90 95

Glu Arg Asn Glu Cys Phe Leu Gln His Lys Asp Asp Asn Pro Asn Leu
100 105 110

Pro Arg Leu Val Arg Pro Glu Val Asp Val Met Cys Thr Ala Phe His
115 120 125

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

eol-f-seq1

Arg His Pro Tyr Phe Tyr Ala Pro Glu Leu Leu Phe Phe Ala Lys Arg
145 150 155 160

Tyr Lys Ala Ala Phe Thr Glu Cys Cys Gln Ala Ala Asp Lys Ala Ala
165 170 175

Cys Leu Leu Pro Lys Leu Asp Glu Leu Arg Asp Glu Gly Lys Ala Ser
180 185 190

Ser Ala Lys Gln Arg Leu Lys Cys Ala Ser Leu Gln Lys Phe Gly Glu
195 200 205

Arg Ala Phe Lys Ala Trp Ala Val Ala Arg Leu Ser Gln Arg Phe Pro
210 215 220

Lys Ala Glu Phe Ala Glu Val Ser Lys Leu Val Thr Asp Leu Thr Lys
225 230 235 240

Val His Thr Glu Cys Cys His Gly Asp Leu Leu Glu Cys Ala Asp Asp
245 250 255

Arg Ala Asp Leu Ala Lys Tyr Ile Cys Glu Asn Gln Asp Ser Ile Ser
260 265 270

Ser Lys Leu Lys Glu Cys Cys Glu Lys Pro Leu Leu Glu Lys Ser His
275 280 285

Cys Ile Ala Glu Val Glu Asn Asp Glu Met Pro Ala Asp Leu Pro Ser
290 295 300

Leu Ala Ala Asp Phe Val Glu Ser Lys Asp Val Cys Lys Asn Tyr Ala
305 310 315 320

Glu Ala Lys Asp Val Phe Leu Gly Met Phe Leu Tyr Glu Tyr Ala Arg
325 330 335

Arg His Pro Asp Tyr Ser Val Val Leu Leu Leu Arg Leu Ala Lys Thr
340 345 350

Tyr Glu Thr Thr Leu Glu Lys Cys Cys Ala Ala Ala Asp Pro His Glu
355 360 365

Cys Tyr Ala Lys Val Phe Asp Glu Phe Lys Pro Leu Val Glu Glu Pro
370 375 380

Gln Asn Leu Ile Lys Gln Asn Cys Glu Leu Phe Glu Gln Leu Gly Glu
385 390 395 400

Tyr Lys Phe Gln Asn Ala Leu Leu Val Arg Tyr Thr Lys Lys Val Pro
405 410 415

eolf-seq1

Gln Val Ser Thr Pro Thr Leu Val Glu Val Ser Arg Asn Leu Gly Lys
420 425 430

Val Gly Ser Lys Cys Cys Lys His Pro Glu Ala Lys Arg Met Pro Cys
435 440 445

Ala Glu Asp Tyr Leu Ser Val Val Leu Asn Gln Leu Cys Val Leu His
450 455 460

Glu Lys Thr Pro Val Ser Asp Arg Val Thr Lys Cys Cys Thr Glu Ser
465 470 475 480

Leu Val Asn Arg Arg Pro Cys Phe Ser Ala Leu Glu Val Asp Glu Thr
485 490 495

Tyr Val Pro Lys Glu Phe Asn Ala Glu Thr Phe Thr Phe His Ala Asp
500 505 510

Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys Gln Thr Ala
515 520 525

Leu Val Glu Leu Val Lys His Lys Pro Lys Ala Thr Lys Glu Gln Leu
530 535 540

Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val Glu Lys Cys Cys Lys
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35

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<223> Primer for Mutagenesis

<400> 9
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35

eo1f-seq1

<210> 10
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 <220>
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 <400> 10
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 <400> 11
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 <210> 13
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 <400> 13
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eof-seq1

<400> 15
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<210> 17
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<400> 17
caggtcatag ttctggcagc atttggatca ctcgagccc 39

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<400> 18
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gcactccagg tcatagttgc agcacgtttt ggtacactc 39

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<400> 20
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<210> 21
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eof-seq1

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<400> 21
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<210> 22
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<400> 22
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<210> 23
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<400> 23
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<210> 24
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<400> 24
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<210> 31
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eof-seq1

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<400> 33
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<210> 37
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<400> 37
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<210> 38
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<210> 39
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<210> 40
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<210> 41
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<210> 44
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 <400> 45
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 <400> 46
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<210> 49
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eolf-seq1

<400> 49
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<210> 50
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<220>
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<400> 50
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caggaggat ccaccatcgt gcacttcatt atgttggttat ggcag 45

<210> 52
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<212> DNA
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caacaagctg gtggaccct gccatatct ggatgtctgc 40

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<212> DNA
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gcagacatcc agatatgggc aggggtccac cagcttggtg 40

<210> 54
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<212> DNA
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<220>
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<400> 54
gccagggacc cttgttagcc tctctgtcg gcccc 35

<210> 55
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eolf-seq1

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<400> 55
ggggccgaca ggataggcta caaaggggcc ctggc 35

<210> 56
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gtggctagca tggaaataga gctctccac 29

<210> 57
<211> 30
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<400> 57
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<210> 59
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ggtatcatca tagtcaattt cctcttgaca tgactgaaga gtag 44

<210> 60
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eo1f-seq1

<210> 61
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 <212> DNA
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 <220>
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 <400> 61
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 <210> 62
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 <212> DNA
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 <210> 63
 <211> 45
 <212> DNA
 <213> Artificial Sequence

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 <210> 66
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eolf-seq1

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<400> 67
ccttcttcat ttcaactgat atggtacaat catagtcaat ttcctcttga tc 52

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<400> 68
tgactatgat gataccatat cagtttgcac gaagaaggaa gattttgaca tttatg 56

<210> 69
<211> 56
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<210> 70
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<400> 70
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<210> 71
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<400> 71
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<210> 72
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eolf-seq1

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gataccatat cagttgaaat gaagaaggaa tgttttgaca tttatgatga ggatg 55
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<400> 73
catcctcatc ataaatgtca aaacattcct tcttcatttc aactgatatg gtatc 55
<210> 74
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gaaatgaaga aggaagattt ttgcatttat gatgaggatg aaaatcagag ccc 53
<210> 75
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<400> 75
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gaaatgaaga aggaagattt tgactgttat gatgaggatg aaaatcagag ccc 53
<210> 77
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gggctctgat tttcatcctc atcataacag tcaaaatctt ctttcttcat ttc 53

eo1f-seq1

<210> 78
 <211> 47
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 <220>
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 <210> 79
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 <210> 80
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 <210> 81
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 <400> 81
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 <210> 82
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 <212> DNA
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 <220>
 <223> PCR primer

 <400> 82
 gtggctagcg catggaaata gagctctcca c 31

 <210> 83
 <211> 40
 <212> DNA
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 <220>
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eo1f-seq1

<400> 83
cacgcggccg cgttaccggt gtagagggtcc tgtgcctcgc 40

<210> 84
<211> 30
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<220>
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<400> 84
gtgaccggta actccacagt gagctgtccc 30

<210> 85
<211> 33
<212> DNA
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<220>
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<400> 85
acagcgccg ctatcacttg ctgcacttcc tgg 33

<210> 86
<211> 29
<212> DNA
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<220>
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<400> 86
gtgaccgggt gcaacgacat cactgccag 29

<210> 87
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> cDNA Sequence (Thrombin cleavage site)

<400> 87
accggtgatg acaactctcc ttcctttatc caaattcgct cagttgcca gaagcatcct 60
aaaacttgga ccggt 75

<210> 88
<211> 93
<212> DNA
<213> Artificial Sequence

<220>
<223> cDNA Sequence (Thrombin cleavage site)

<400> 88
accggtgatg aggatgaaaa tcagagcccc cgcagctttc aaaagaaaac acgacactat 60
tttattgctg cagtgagag gctctggacc ggt 93

eof-seq1

<210> 89
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 89
 gtgttcctg agctgctgcc ctctatggt caaactgg 38

<210> 90
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 <400> 90
 ccagtttgac cataggaggg cagcagctca gggaacac 38

<210> 91
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 <220>
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 <400> 91
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<210> 92
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<210> 93
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 <400> 93
 ctcgaccacc tcgaaatggc attcgtcctt cataggcc 38

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eof-seq1

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eolf-seq1

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eolf-seq1

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240															
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288															
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912															

eolf-seq1																
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305					310					315					320	
gac	ctt	gga	cag	ttt	cta	ctg	ttt	tgt	cat	atc	tct	tcc	cac	caa	cat	1008
Asp	Leu	Gly	Gln	Phe	Leu	Leu	Phe	Cys	His	Ile	Ser	Ser	His	Gln	His	
				325					330					335		
gat	ggc	atg	gaa	gct	tat	gtc	aaa	gta	gac	agc	tgt	cca	gag	gaa	ccc	1056
Asp	Gly	Met	Glu	Ala	Tyr	Val	Lys	Val	Asp	Ser	Cys	Pro	Glu	Glu	Pro	
			340					345					350			
caa	cta	cga	atg	aaa	aat	aat	gaa	gaa	gcg	gaa	gac	tat	gat	gat	gat	1104
Gln	Leu	Arg	Met	Lys	Asn	Asn	Glu	Glu	Ala	Glu	Asp	Tyr	Asp	Asp	Asp	
		355					360					365				
ctt	act	gat	tct	gaa	atg	gat	gtg	gtc	agg	ttt	gat	gat	gac	aac	tct	1152
Leu	Thr	Asp	Ser	Glu	Met	Asp	Val	Val	Arg	Phe	Asp	Asp	Asp	Asn	Ser	
	370					375					380					
cct	tcc	ttt	atc	caa	att	cgc	tca	gtt	gcc	aag	aag	cat	cct	aaa	act	1200
Pro	Ser	Phe	Ile	Gln	Ile	Arg	Ser	Val	Ala	Lys	Lys	His	Pro	Lys	Thr	
385					390					395					400	
tgg	gta	cat	tac	att	gct	gct	gaa	gag	gag	gac	tgg	gac	tat	gct	ccc	1248
Trp	Val	His	Tyr	Ile	Ala	Ala	Glu	Glu	Glu	Asp	Trp	Asp	Tyr	Ala	Pro	
				405					410					415		
tta	gtc	ctc	gcc	ccc	gat	gac	aga	agt	tat	aaa	agt	caa	tat	ttg	aac	1296
Leu	Val	Leu	Ala	Pro	Asp	Asp	Arg	Ser	Tyr	Lys	Ser	Gln	Tyr	Leu	Asn	
			420					425					430			
aat	ggc	cct	cag	cgg	att	ggc	agg	aag	tac	aaa	aaa	gtc	cga	ttt	atg	1344
Asn	Gly	Pro	Gln	Arg	Ile	Gly	Arg	Lys	Tyr	Lys	Lys	Val	Arg	Phe	Met	
		435					440					445				
gca	tac	aca	gat	gaa	acc	ttt	aag	act	cgt	gaa	gct	att	cag	cat	gaa	1392
Ala	Tyr	Thr	Asp	Glu	Thr	Phe	Lys	Thr	Arg	Glu	Ala	Ile	Gln	His	Glu	
	450					455					460					
tca	gga	atc	ttg	gga	cct	tta	ctt	tat	ggg	gaa	gtt	gga	gac	aca	ctg	1440
Ser	Gly	Ile	Leu	Gly	Pro	Leu	Leu	Tyr	Gly	Glu	Val	Gly	Asp	Thr	Leu	
465					470				475						480	
ttg	att	ata	ttt	aag	aat	caa	gca	agc	aga	cca	tat	aac	atc	tac	cct	1488
Leu	Ile	Ile	Phe	Lys	Asn	Gln	Ala	Ser	Arg	Pro	Tyr	Asn	Ile	Tyr	Pro	
				485					490					495		
cac	gga	atc	act	gat	gtc	cgt	cct	ttg	tat	tca	agg	aga	tta	cca	aaa	1536
His	Gly	Ile	Thr	Asp	Val	Arg	Pro	Leu	Tyr	Ser	Arg	Arg	Leu	Pro	Lys	
			500					505					510			
ggc	gta	aaa	cat	ttg	aag	gat	ttt	cca	att	ctg	cca	gga	gaa	ata	ttc	1584
Gly	Val	Lys	His	Leu	Lys	Asp	Phe	Pro	Ile	Leu	Pro	Gly	Glu	Ile	Phe	
		515					520					525				
aaa	tat	aaa	tgg	aca	gtg	act	gta	gaa	gat	ggg	cca	act	aaa	tca	gat	1632
Lys	Tyr	Lys	Trp	Thr	Val	Thr	Val	Glu	Asp	Gly	Pro	Thr	Lys	Ser	Asp	
	530					535					540					
cct	cgg	tgc	ctg	acc	cgc	tat	tac	tct	agt	ttc	gtt	aat	atg	gag	aga	1680
Pro	Arg	Cys	Leu	Thr	Arg	Tyr	Tyr	Ser	Ser	Phe	Val	Asn	Met	Glu	Arg	
545					550					555				560		
gat	cta	gct	tca	gga	ctc	att	ggc	cct	ctc	ctc	atc	tgc	tac	aaa	gaa	1728

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Asp	Leu	Ala	Ser	Gly 565	Leu	Ile	Gly	Pro	Leu 570	Leu	Ile	Cys	Tyr	Lys 575	Glu
tct Ser	gta Val	gat Asp	caa Gln 580	aga Arg	gga Gly	aac Asn	cag Gln	ata Ile 585	atg Met	tca Ser	gac Asp	aag Lys	agg Arg 590	aat Asn	gtc Val
atc Ile	ctg Leu	ttt Phe 595	tct Ser	gta Val	ttt Phe	gat Asp	gag Glu 600	aac Asn	cga Arg	agc Ser	tgg Trp	tac Tyr 605	ctc Leu	aca Thr	gag Glu
aat Asn	ata Ile 610	caa Gln	cgc Arg	ttt Phe	ctc Leu	ccc Pro 615	aat Asn	cca Pro	gct Ala	gga Gly	gtg Val 620	cag Gln	ctt Leu	gag Glu	gat Asp
cca Pro 625	gag Glu	ttc Phe	caa Gln	gcc Ala	tcc Ser 630	aac Asn	atc Ile	atg Met	cac His	agc Ser 635	atc Ile	aat Asn	ggc Gly	tat Tyr	gtt Val 640
ttt Phe	gat Asp	agt Ser	ttg Leu	cag Gln 645	ttg Leu	tca Ser	gtt Val	tgt Cys	ttg Leu 650	cat His	gag Glu	gtg Val	gca Ala	tac Tyr 655	tgg Trp
tac Tyr	att Ile	cta Leu	agc Ser 660	att Ile	gga Gly	gca Ala	cag Gln	act Thr 665	gac Asp	ttc Phe	ctt Leu	tct Ser	gtc Val 670	ttc Phe	ttc Phe
tct Ser	gga Gly	tat Tyr 675	acc Thr	ttc Phe	aaa Lys	cac His	aaa Lys 680	atg Met	gtc Val	tat Tyr	gaa Glu	gac Asp 685	aca Thr	ctc Leu	acc Thr
cta Leu	ttc Phe 690	cca Pro	ttc Phe	tca Ser	gga Gly	gaa Glu 695	act Thr	gtc Val	ttc Phe	atg Met	tcg Ser 700	atg Met	gaa Glu	aac Asn	cca Pro
ggg Gly 705	cta Leu	tgg Trp	att Ile	ctg Leu	ggg Gly 710	tgc Cys	cac His	aac Asn	tca Ser	gac Asp 715	ttt Phe	cgg Arg	aac Asn	aga Arg	ggc Gly 720
atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggg Gly 735	gat Asp
tat Tyr	tac Tyr	gag Glu	gac Asp 740	agt Ser	tat Tyr	gaa Glu	gat Asp	att Ile 745	tca Ser	gca Ala	tac Tyr	ttg Leu 750	ctg Leu	agt Ser	aaa Lys
aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro
agc Ser	act Thr 770	agg Arg	caa Gln	aag Lys	caa Gln	ttt Phe 775	aat Asn	gcc Ala	acc Thr	aca Thr	att Ile 780	cca Pro	gaa Glu	aat Asn	act Thr
act Thr 785	ctt Leu	cag Gln	tca Ser	gat Asp	caa Gln 790	gag Glu	gaa Glu	att Ile	gac Asp	tat Tyr 795	gat Asp	gat Asp	acc Thr	ata Ile	tca Ser 800
gtt Val	gaa Glu	atg Met	aag Lys	aag Lys 805	gaa Glu	gat Asp	ttt Phe	gac Asp	att Ile 810	tat Tyr	gat Asp	gag Glu	gat Asp	gaa Glu 815	aat Asn
cag Gln	agc Ser	ccc Pro	cgc Arg 820	agc Ser	ttt Phe	caa Gln	aag Lys	aaa Lys 825	aca Thr	cga Arg	cac His	tat Tyr	ttt Phe 830	att Ile	gct Ala
gca	gtg	gag	agg	ctc	tgg	gat	tat	ggg	atg	agt	agc	tcc	cca	cat	gtt

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Ala	Val	Glu	Arg	Leu	Trp	Asp	Tyr	Gly	Met	Ser	Ser	Ser	Pro	His	Val	
		835					840					845				
cta	aga	aac	agg	gct	cag	agt	ggc	agt	gtc	cct	cag	ttc	aag	aaa	gtt	2592
Leu	Arg	Asn	Arg	Ala	Gln	Ser	Gly	Ser	Val	Pro	Gln	Phe	Lys	Lys	Val	
	850					855					860					
gtt	ttc	cag	gaa	ttt	act	gat	ggc	tcc	ttt	act	cag	ccc	tta	tac	cgt	2640
Val	Phe	Gln	Glu	Phe	Thr	Asp	Gly	Ser	Phe	Thr	Gln	Pro	Leu	Tyr	Arg	
	865				870					875					880	
gga	gaa	cta	aat	gaa	cat	ttg	gga	ctc	ctg	ggg	cca	tat	ata	aga	gca	2688
Gly	Glu	Leu	Asn	Glu	His	Leu	Gly	Leu	Leu	Gly	Pro	Tyr	Ile	Arg	Ala	
				885					890					895		
gaa	gtt	gaa	gat	aat	atc	atg	gta	act	ttc	aga	aat	cag	gcc	tct	cgt	2736
Glu	Val	Glu	Asp	Asn	Ile	Met	Val	Thr	Phe	Arg	Asn	Gln	Ala	Ser	Arg	
			900					905					910			
ccc	tat	tcc	ttc	tat	tct	agc	ctt	att	tct	tat	gag	gaa	gat	cag	agg	2784
Pro	Tyr	Ser	Phe	Tyr	Ser	Ser	Leu	Ile	Ser	Tyr	Glu	Glu	Asp	Gln	Arg	
		915					920					925				
caa	gga	gca	gaa	cct	aga	aaa	aac	ttt	gtc	aag	cct	aat	gaa	acc	aaa	2832
Gln	Gly	Ala	Glu	Pro	Arg	Lys	Asn	Phe	Val	Lys	Pro	Asn	Glu	Thr	Lys	
	930					935					940					
act	tac	ttt	tgg	aaa	gtg	caa	cat	cat	atg	gca	ccc	act	aaa	gat	gag	2880
Thr	Tyr	Phe	Trp	Lys	Val	Gln	His	His	Met	Ala	Pro	Thr	Lys	Asp	Glu	
					950					955					960	
ttt	gac	tgc	aaa	gcc	tgg	gct	tat	ttc	tct	gat	gtt	gac	ctg	gaa	aaa	2928
Phe	Asp	Cys	Lys	Ala	Trp	Ala	Tyr	Phe	Ser	Asp	Val	Asp	Leu	Glu	Lys	
				965					970					975		
gat	gtg	cac	tca	ggc	ctg	att	gga	ccc	ctt	ctg	gtc	tgc	cac	act	aac	2976
Asp	Val	His	Ser	Gly	Leu	Ile	Gly	Pro	Leu	Leu	Val	Cys	His	Thr	Asn	
			980					985					990			
aca	ctg	aac	cct	gct	cat	ggg	aga	caa	gtg	aca	gta	cag	gaa	ttt	gct	3024
Thr	Leu	Asn	Pro	Ala	His	Gly	Arg	Gln	Val	Thr	Val	Gln	Glu	Phe	Ala	
		995					1000					1005				
ctg	ttt	ttc	acc	atc	ttt	gat	gag	acc	aaa	agc	tgg	tac	ttc	act		3069
Leu	Phe	Phe	Thr	Ile	Phe	Asp	Glu	Thr	Lys	Ser	Trp	Tyr	Phe	Thr		
	1010					1015					1020					
gaa	aat	atg	gaa	aga	aac	tgc	agg	gct	ccc	tgc	aat	atc	cag	atg		3114
Glu	Asn	Met	Glu	Arg	Asn	Cys	Arg	Ala	Pro	Cys	Asn	Ile	Gln	Met		
	1025					1030					1035					
gaa	gat	ccc	act	ttt	aaa	gag	aat	tat	cgc	ttc	cat	gca	atc	aat		3159
Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn		
	1040					1045					1050					
ggc	tac	ata	atg	gat	aca	cta	cct	ggc	tta	gta	atg	gct	cag	gat		3204
Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp		
	1055					1060					1065					
caa	agg	att	cga	tgg	tat	ctg	ctc	agc	atg	ggc	agc	aat	gaa	aac		3249
Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn		
	1070					1075					1080					
atc	cat	tct	att	cat	ttc	agt	gga	cat	gtg	ttc	act	gta	cga	aaa		3294
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys		
	1085					1090					1095					
aaa	gag	gag	tat	aaa	atg	gca	ctg	tac	aat	ctc	tat	cca	ggt	gtt		3339

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Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
1100	1100					1105					1110			
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Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg
1115	1115					1120					1125			
gtg	gaa	tgc	ctt	att	ggc	gag	cat	cta	cat	gct	ggg	atg	agc	aca
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr
1130	1130					1135					1140			
ctt	ttt	ctg	gtg	tac	agc	aat	aag	tgt	cag	act	ccc	ctg	gga	atg
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met
1145	1145					1150					1155			
gct	tct	gga	cac	att	aga	gat	ttt	cag	att	aca	gct	tca	gga	caa
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
1160	1160					1165					1170			
tat	gga	cag	tgg	gcc	cca	aag	ctg	gcc	aga	ctt	cat	tat	tcc	gga
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
1175	1175					1180					1185			
tca	atc	aat	gcc	tgg	agc	acc	aag	gag	ccc	ttt	tct	tgg	atc	aag
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
1190	1190					1195					1200			
gtg	gat	ctg	ttg	gca	cca	atg	att	att	cac	ggc	atc	aag	acc	cag
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
1205	1205					1210					1215			
ggt	gcc	cgt	cag	aag	ttc	tcc	agc	ctc	tac	atc	tct	cag	ttt	atc
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
1220	1220					1225					1230			
atc	atg	tat	agt	ctt	gat	ggg	aag	aag	tgg	cag	act	tat	cga	gga
Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
1235	1235					1240					1245			
aat	tcc	act	gga	acc	tta	atg	gtc	ttc	ttt	ggc	aat	gtg	gat	tca
Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
1250	1250					1255					1260			
tct	ggg	ata	aaa	cac	aat	att	ttt	aac	cct	cca	att	att	gct	cga
Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg
1265	1265					1270					1275			
tac	atc	cgt	ttg	cac	cca	act	cat	tat	agc	att	cgc	agc	act	ctt
Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
1280	1280					1285					1290			
cgc	atg	gag	ttg	atg	ggc	tgt	gat	tta	aat	agt	tgc	agc	atg	cca
Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
1295	1295					1300					1305			
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Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
1310	1310					1315					1320			
tca	tcc	tac	ttt	acc	aat	atg	ttt	gcc	acc	tgg	tct	cct	tca	aaa
Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys
1325	1325					1330					1335			
gct	cga	ctt	cac	ctc	caa	ggg	agg	agt	aat	gcc	tgg	aga	cct	cag
Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg	Pro	Gln
1340	1340					1345					1350			
gtg	aat	aat	cca	aaa	gag	tgg	ctg	caa	gtg	gac	ttc	cag	aag	aca

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Val	Asn 1355	Asn	Pro	Lys	Glu	Trp 1360	Leu	Gln	Val	Asp	Phe 1365	Gln	Lys	Thr	
atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu	4149
acc Thr	agc Ser 1385	atg Met	tat Tyr	gtg Val	aag Lys	gag Glu 1390	ttc Phe	ctc Leu	atc Ile	tcc Ser	agc Ser 1395	agt Ser	caa Gln	gat Asp	4194
ggc Gly	cat His 1400	cag Gln	tgg Trp	act Thr	ctc Leu	ttt Phe 1405	ttt Phe	cag Gln	aat Asn	ggc Gly	aaa Lys 1410	gta Val	aag Lys	gtt Val	4239
ttt Phe	cag Gln 1415	gga Gly	aat Asn	caa Gln	gac Asp	tcc Ser 1420	ttc Phe	aca Thr	cct Pro	gtg Val	gtg Val 1425	aac Asn	tct Ser	cta Leu	4284
gac Asp	cca Pro 1430	ccg Pro	tta Leu	ctg Leu	act Thr	cgc Arg 1435	tac Tyr	ctt Leu	cga Arg	att Ile	cac His 1440	ccc Pro	cag Gln	agt Ser	4329
tgg Trp	gtg Val 1445	cac His	cag Gln	att Ile	gcc Ala	ctg Leu 1450	agg Arg	atg Met	gag Glu	gtt Val	ctg Leu 1455	ggc Gly	tgc Cys	gag Glu	4374
gca Ala	cag Gln 1460	gac Asp	ctc Leu	tac Tyr	acc Thr	ggt Gly 1465	caa Gln	agg Arg	aac Asn	gtc Val	tcc Ser 1470	tgc Cys	ccc Pro	cag Gln	4419
ctg Leu	gag Glu 1475	gtc Val	cct Pro	gtc Val	tgc Cys	ccc Pro 1480	tcg Ser	ggc Gly	ttt Phe	cag Gln	ctg Leu 1485	agc Ser	tgt Cys	aag Lys	4464
acc Thr	tca Ser 1490	gcg Ala	tgc Cys	tgc Cys	cca Pro	agc Ser 1495	tgt Cys	cgc Arg	tgt Cys	gag Glu	cgc Arg 1500	atg Met	gag Glu	gcc Ala	4509
tgc Cys	atg Met 1505	ctc Leu	aat Asn	ggc Gly	act Thr	gtc Val 1510	att Ile	ggg Gly	ccc Pro	ggg Gly	aag Lys 1515	act Thr	gtg Val	atg Met	4554
atc Ile	gat Asp 1520	gtg Val	tgc Cys	acg Thr	acc Thr	tgc Cys 1525	cgc Arg	tgc Cys	atg Met	gtg Val	cag Gln 1530	gtg Val	ggg Gly	gtc Val	4599
atc Ile	tct Ser 1535	gga Gly	ttc Phe	aag Lys	ctg Leu	gag Glu 1540	tgc Cys	agg Arg	aag Lys	acc Thr	acc Thr 1545	tgc Cys	aac Asn	ccc Pro	4644
tgc Cys	ccc Pro 1550	ctg Leu	ggt Gly	tac Tyr	aag Lys	gaa Glu 1555	gaa Glu	aat Asn	aac Asn	aca Thr	ggt Gly 1560	gaa Glu	tgt Cys	tgt Cys	4689
ggg Gly	aga Arg 1565	tgt Cys	ttg Leu	cct Pro	acg Thr	gct Ala 1570	tgc Cys	acc Thr	att Ile	cag Gln	cta Leu 1575	aga Arg	gga Gly	gga Gly	4734
cag Gln	atc Ile 1580	atg Met	aca Thr	ctg Leu	aag Lys	cgt Arg 1585	gat Asp	gag Glu	acg Thr	ctc Leu	cag Gln 1590	gat Asp	ggc Gly	tgt Cys	4779
gat Asp	act Thr 1595	cac His	ttc Phe	tgc Cys	aag Lys	gtc Val 1600	aat Asn	gag Glu	aga Arg	gga Gly	gag Glu 1605	tac Tyr	ttc Phe	tgg Trp	4824
gag	aag	agg	gtc	aca	ggc	tgc	cca	ccc	ttt	gat	gaa	cac	aag	tgt	4869

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Glu	Lys	Arg	Val	Thr	Gly	Cys	Pro	Pro	Phe	Asp	Glu	His	Lys	Cys	
	1610					1615					1620				
ctg	gct	gag	gga	ggt	aaa	att	atg	aaa	att	cca	ggc	acc	tgc	tgt	4914
Leu	Ala	Glu	Gly	Gly	Lys	Ile	Met	Lys	Ile	Pro	Gly	Thr	Cys	Cys	
	1625					1630					1635				
gac	aca	tgt	gag	gag	cct	gag	tgc	aac	gac	atc	act	gcc	agg	ctg	4959
Asp	Thr	Cys	Glu	Glu	Pro	Glu	Cys	Asn	Asp	Ile	Thr	Ala	Arg	Leu	
	1640					1645					1650				
cag	tat	gtc	aag	gtg	gga	agc	tgt	aag	tct	gaa	gta	gag	gtg	gat	5004
Gln	Tyr	Val	Lys	Val	Gly	Ser	Cys	Lys	Ser	Glu	Val	Glu	Val	Asp	
	1655					1660					1665				
atc	cac	tac	tgc	cag	ggc	aaa	tgt	gcc	agc	aaa	gcc	atg	tac	tcc	5049
Ile	His	Tyr	Cys	Gln	Gly	Lys	Cys	Ala	Ser	Lys	Ala	Met	Tyr	Ser	
	1670					1675					1680				
att	gac	atc	aac	gat	gtg	cag	gac	cag	tgc	tcc	tgc	tgc	tct	ccg	5094
Ile	Asp	Ile	Asn	Asp	Val	Gln	Asp	Gln	Cys	Ser	Cys	Cys	Ser	Pro	
	1685					1690					1695				
aca	cgg	acg	gag	ccc	atg	cag	gtg	gcc	ctg	cac	tgc	acc	aat	ggc	5139
Thr	Arg	Thr	Glu	Pro	Met	Gln	Val	Ala	Leu	His	Cys	Thr	Asn	Gly	
	1700					1705					1710				
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Ser	Val	Val	Tyr	His	Glu	Val	Leu	Asn	Ala	Met	Glu	Cys	Lys	Cys	
	1715					1720					1725				
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Ser	Pro	Arg	Lys	Cys	Ser	Lys									
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<400> 146

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

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Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
275 280 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
290 295 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
325 330 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
340 345 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
355 360 365

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Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
 370 375 380
 Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
 385 390 395 400
 Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
 405 410 415
 Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
 420 425 430
 Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
 435 440 445
 Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
 450 455 460
 Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
 465 470 475 480
 Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
 485 490 495
 His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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 Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
 515 520 525
 Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
 530 535 540
 Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
 545 550 555 560
 Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
 565 570 575
 Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
 580 585 590
 Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
 595 600 605
 Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
 610 615 620
 Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
 625 630 635 640

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Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
 645 650 655
 Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
 660 665 670
 Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
 675 680 685
 Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
 690 695 700
 Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
 705 710 715 720
 Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
 725 730 735
 Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
 740 745 750
 Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
 755 760 765
 Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
 770 775 780
 Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
 785 790 795 800
 Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
 805 810 815
 Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
 820 825 830
 Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
 835 840 845
 Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
 850 855 860
 Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
 865 870 875 880
 Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
 885 890 895
 Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
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Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
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Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
930 935 940

Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
945 950 955 960

Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
965 970 975

Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
980 985 990

Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
995 1000 1005

Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
1010 1015 1020

Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met
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Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
1040 1045 1050

Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp
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Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn
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Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg Lys
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Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val
1100 1105 1110

Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg
1115 1120 1125

Val Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met Ser Thr
1130 1135 1140

Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu Gly Met
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Ala Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala Ser Gly Gln
1160 1165 1170

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Val	Asp 1205	Leu	Leu	Ala	Pro	Met 1210	Ile	Ile	His	Gly	Ile 1215	Lys	Thr	Gln
Gly	Ala 1220	Arg	Gln	Lys	Phe	Ser 1225	Ser	Leu	Tyr	Ile	Ser 1230	Gln	Phe	Ile
Ile	Met 1235	Tyr	Ser	Leu	Asp	Gly 1240	Lys	Lys	Trp	Gln	Thr 1245	Tyr	Arg	Gly
Asn	Ser 1250	Thr	Gly	Thr	Leu	Met 1255	Val	Phe	Phe	Gly	Asn 1260	Val	Asp	Ser
Ser	Gly 1265	Ile	Lys	His	Asn	Ile 1270	Phe	Asn	Pro	Pro	Ile 1275	Ile	Ala	Arg
Tyr	Ile 1280	Arg	Leu	His	Pro	Thr 1285	His	Tyr	Ser	Ile	Arg 1290	Ser	Thr	Leu
Arg	Met 1295	Glu	Leu	Met	Gly	Cys 1300	Asp	Leu	Asn	Ser	Cys 1305	Ser	Met	Pro
Leu	Gly 1310	Met	Glu	Ser	Lys	Ala 1315	Ile	Ser	Asp	Ala	Gln 1320	Ile	Thr	Ala
Ser	Ser 1325	Tyr	Phe	Thr	Asn	Met 1330	Phe	Ala	Thr	Trp	Ser 1335	Pro	Ser	Lys
Ala	Arg 1340	Leu	His	Leu	Gln	Gly 1345	Arg	Ser	Asn	Ala	Trp 1350	Arg	Pro	Gln
Val	Asn 1355	Asn	Pro	Lys	Glu	Trp 1360	Leu	Gln	Val	Asp	Phe 1365	Gln	Lys	Thr
Met	Lys 1370	Val	Thr	Gly	Val	Thr 1375	Thr	Gln	Gly	Val	Lys 1380	Ser	Leu	Leu
Thr	Ser 1385	Met	Tyr	Val	Lys	Glu 1390	Phe	Leu	Ile	Ser	Ser 1395	Ser	Gln	Asp
Gly	His 1400	Gln	Trp	Thr	Leu	Phe 1405	Phe	Gln	Asn	Gly	Lys 1410	Val	Lys	Val
Phe	Gln 1415	Gly	Asn	Gln	Asp	Ser 1420	Phe	Thr	Pro	Val	Val 1425	Asn	Ser	Leu

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Asp	Pro 1430	Pro	Leu	Leu	Thr	Arg 1435	Tyr	Leu	Arg	Ile	His 1440	Pro	Gln	Ser
Trp	Val 1445	His	Gln	Ile	Ala	Leu 1450	Arg	Met	Glu	Val	Leu 1455	Gly	Cys	Glu
Ala	Gln 1460	Asp	Leu	Tyr	Thr	Gly 1465	Gln	Arg	Asn	Val	Ser 1470	Cys	Pro	Gln
Leu	Glu 1475	Val	Pro	Val	Cys	Pro 1480	Ser	Gly	Phe	Gln	Leu 1485	Ser	Cys	Lys
Thr	Ser 1490	Ala	Cys	Cys	Pro	Ser 1495	Cys	Arg	Cys	Glu	Arg 1500	Met	Glu	Ala
Cys	Met 1505	Leu	Asn	Gly	Thr	Val 1510	Ile	Gly	Pro	Gly	Lys 1515	Thr	Val	Met
Ile	Asp 1520	Val	Cys	Thr	Thr	Cys 1525	Arg	Cys	Met	Val	Gln 1530	Val	Gly	Val
Ile	Ser 1535	Gly	Phe	Lys	Leu	Glu 1540	Cys	Arg	Lys	Thr	Thr 1545	Cys	Asn	Pro
Cys	Pro 1550	Leu	Gly	Tyr	Lys	Glu 1555	Glu	Asn	Asn	Thr	Gly 1560	Glu	Cys	Cys
Gly	Arg 1565	Cys	Leu	Pro	Thr	Ala 1570	Cys	Thr	Ile	Gln	Leu 1575	Arg	Gly	Gly
Gln	Ile 1580	Met	Thr	Leu	Lys	Arg 1585	Asp	Glu	Thr	Leu	Gln 1590	Asp	Gly	Cys
Asp	Thr 1595	His	Phe	Cys	Lys	Val 1600	Asn	Glu	Arg	Gly	Glu 1605	Tyr	Phe	Trp
Glu	Lys 1610	Arg	Val	Thr	Gly	Cys 1615	Pro	Pro	Phe	Asp	Glu 1620	His	Lys	Cys
Leu	Ala 1625	Glu	Gly	Gly	Lys	Ile 1630	Met	Lys	Ile	Pro	Gly 1635	Thr	Cys	Cys
Asp	Thr 1640	Cys	Glu	Glu	Pro	Glu 1645	Cys	Asn	Asp	Ile	Thr 1650	Ala	Arg	Leu
Gln	Tyr 1655	Val	Lys	Val	Gly	Ser 1660	Cys	Lys	Ser	Glu	Val 1665	Glu	Val	Asp
Ile	His 1670	Tyr	Cys	Gln	Gly	Lys 1675	Cys	Ala	Ser	Lys	Ala 1680	Met	Tyr	Ser

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Ile Asp Ile Asn Asp Val Gln Asp Gln Cys Ser Cys Cys Ser Pro
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Thr Arg Thr Glu Pro Met Gln Val Ala Leu His Cys Thr Asn Gly
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Ser Pro Arg Lys Cys Ser Lys
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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
35 40 45
ttt cct cct aga gtg cca aaa tct ttt cca ttc aac acc tca gtc gtg 192
Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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tac aaa aag act ctg ttt gta gaa ttc acg gat cac ctt ttc aac atc 240
Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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gct aag cca agg cca ccc tgg atg ggt ctg cta ggt cct acc atc cag 288
Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95
gct gag gtt tat gat aca gtg gtc att aca ctt aag aac atg gct tcc 336
Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110
cat cct gtc agt ctt cat gct gtt ggt gta tcc tac tgg aaa gct tct 384
His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125
gag gga gct gaa tat gat gat cag acc agt caa agg gag aaa gaa gat 432
Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

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aaa Lys	gag Glu	aat Asn	ggt Gly	cca Pro 165	atg Met	gcc Ala	tct Ser	gac Asp	cca Pro 170	ctg Leu	tgc Cys	ctt Leu	acc Thr	tac Tyr 175	tca Ser	528
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gga Gly	gcc Ala	cta Leu 195	cta Leu	gta Val	tgt Cys	aga Arg	gaa Glu 200	ggg Gly	agt Ser	ctg Leu	gcc Ala	aag Lys 205	gaa Glu	aag Lys	aca Thr	624
cag Gln	acc Thr 210	ttg Leu	cac His	aaa Lys	ttt Phe	ata Ile 215	cta Leu	ctt Leu	ttt Phe	gct Ala	gta Val 220	ttt Phe	gat Asp	gaa Glu	ggg Gly	672
aaa Lys 225	agt Ser	tgg Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240	720
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gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggt Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val	816
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile	864
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ttg Leu 305	gaa Glu	atc Ile	tcg Ser	cca Pro	ata Ile 310	act Thr	ttc Phe	ctt Leu	act Thr	gct Ala 315	caa Gln	aca Thr	ctc Leu	ttg Leu	atg Met 320	960
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caa Gln	cta Leu	cga Arg 355	atg Met	aaa Lys	aat Asn	aat Asn	gaa Glu 360	gaa Glu	gcg Ala	gaa Glu	gac Asp	tat Tyr 365	gat Asp	gat Asp	gat Asp	1104
ctt Leu	act Thr 370	gat Asp	tct Ser	gaa Glu	atg Met	gat Asp 375	gtg Val	gtc Val	agg Arg	ttt Phe	gat Asp 380	gat Asp	gac Asp	aac Asn	tct Ser	1152
cct Pro 385	tcc Ser	ttt Phe	atc Ile	caa Gln	att Ile 390	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 395	aag Lys	cat His	cct Pro	aaa Lys	act Thr 400	1200
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aat	ggc	cct	cag	cgg	att	ggg	agg	aag	tac	aaa	aaa	gtc	cga	ttt	atg	1344
Asn	Gly	Pro	Gln	Arg	Ile	Gly	Arg	Lys	Tyr	Lys	Lys	Val	Arg	Phe	Met	
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Ala	Tyr	Thr	Asp	Glu	Thr	Phe	Lys	Thr	Arg	Glu	Ala	Ile	Gln	His	Glu	
	450					455					460					
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Leu	Ile	Ile	Phe	Lys	Asn	Gln	Ala	Ser	Arg	Pro	Tyr	Asn	Ile	Tyr	Pro	
				485					490					495		
cac	gga	atc	act	gat	gtc	cgt	cct	ttg	tat	tca	agg	aga	tta	cca	aaa	1536
His	Gly	Ile	Thr	Asp	Val	Arg	Pro	Leu	Tyr	Ser	Arg	Arg	Leu	Pro	Lys	
			500					505					510			
ggg	gta	aaa	cat	ttg	aag	gat	ttt	cca	att	ctg	cca	gga	gaa	ata	ttc	1584
Gly	Val	Lys	His	Leu	Lys	Asp	Phe	Pro	Ile	Leu	Pro	Gly	Glu	Ile	Phe	
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aaa	tat	aaa	tgg	aca	gtg	act	gta	gaa	gat	ggg	cca	act	aaa	tca	gat	1632
Lys	Tyr	Lys	Trp	Thr	Val	Thr	Val	Glu	Asp	Gly	Pro	Thr	Lys	Ser	Asp	
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Pro	Arg	Cys	Leu	Thr	Arg	Tyr	Tyr	Ser	Ser	Phe	Val	Asn	Met	Glu	Arg	
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Ser	Val	Asp	Gln	Arg	Gly	Asn	Gln	Ile	Met	Ser	Asp	Lys	Arg	Asn	Val	
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Ile	Leu	Phe	Ser	Val	Phe	Asp	Glu	Asn	Arg	Ser	Trp	Tyr	Leu	Thr	Glu	
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Asn	Ile	Gln	Arg	Phe	Leu	Pro	Asn	Pro	Ala	Gly	Val	Gln	Leu	Glu	Asp	
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Pro	Glu	Phe	Gln	Ala	Ser	Asn	Ile	Met	His	Ser	Ile	Asn	Gly	Tyr	Val	
625					630					635					640	
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Phe	Asp	Ser	Leu	Gln	Leu	Ser	Val	Cys	Leu	His	Glu	Val	Ala	Tyr	Trp	
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tac	att	cta	agc	att	gga	gca	cag	act	gac	ttc	ctt	tct	gtc	ttc	ttc	2016
Tyr	Ile	Leu	Ser	Ile	Gly	Ala	Gln	Thr	Asp	Phe	Leu	Ser	Val	Phe	Phe	
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Ser	Gly	Tyr	Thr	Phe	Lys	His	Lys	Met	Val	Tyr	Glu	Asp	Thr	Leu	Thr	
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ggt Gly 705	cta Leu	tgg Trp	att Ile	ctg Leu	ggg Gly 710	tgc Cys	cac His	aac Asn	tca Ser	gac Asp 715	ttt Phe	cgg Arg	aac Asn	aga Arg	ggc Gly 720	2160
atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggt Gly 735	gat Asp	2208
tat Tyr	tac Tyr	gag Glu	gac Asp 740	agt Ser	tat Tyr	gaa Glu	gat Asp	att Ile 745	tca Ser	gca Ala	tac Tyr	ttg Leu	ctg Leu 750	agt Ser	aaa Lys	2256
aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro	2304
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act Thr 785	ctt Leu	cag Gln	tca Ser	gat Asp	caa Gln 790	gag Glu	gaa Glu	att Ile	gac Asp	tat Tyr 795	gat Asp	gat Asp	acc Thr	ata Ile	tca Ser 800	2400
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
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Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp

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135

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

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415

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Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
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His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
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Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
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Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr

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1465

1470

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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95
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Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
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cca Pro 625	gag Glu	ttc Phe	caa Gln	gcc Ala	tcc Ser 630	aac Asn	atc Ile	atg Met	cac His	agc Ser 635	atc Ile	aat Asn	ggc Gly	tat Tyr	gtt Val 640	1920
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gag Glu	gcc Ala 1670	tgc Cys	atg Met	ctc Leu	aat Asn	ggc Gly 1675	act Thr	gtc Val	att Ile	ggg Gly	ccc Pro 1680	ggg Gly	aag Lys	act Thr	5049
gtg Val	atg Met 1685	atc Ile	gat Asp	gtg Val	tgc Cys	acg Thr 1690	acc Thr	tgc Cys	cgc Arg	tgc Cys	atg Met 1695	gtg Val	cag Gln	gtg Val	5094

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ggg Gly	gtc Val 1700	atc Ile	tct Ser	gga Gly	ttc Phe	aag Lys 1705	ctg Leu	gag Glu	tgc Cys	agg Arg	aag Lys 1710	acc Thr	acc Thr	tgc Cys	5139
aac Asn	ccc Pro 1715	tgc Cys	ccc Pro	ctg Leu	ggt Gly	tac Tyr 1720	aag Lys	gaa Glu	gaa Glu	aat Asn	aac Asn 1725	aca Thr	ggt Gly	gaa Glu	5184
tgt Cys	tgt Cys 1730	ggg Gly	aga Arg	tgt Cys	ttg Leu	cct Pro 1735	acg Thr	gct Ala	tgc Cys	acc Thr	att Ile 1740	cag Gln	cta Leu	aga Arg	5229
gga Gly	gga Gly 1745	cag Gln	atc Ile	atg Met	aca Thr	ctg Leu 1750	aag Lys	cgt Arg	gat Asp	gag Glu	acg Thr 1755	ctc Leu	cag Gln	gat Asp	5274
ggc Gly	tgt Cys 1760	gat Asp	act Thr	cac His	ttc Phe	tgc Cys 1765	aag Lys	gtc Val	aat Asn	gag Glu	aga Arg 1770	gga Gly	gag Glu	tac Tyr	5319
ttc Phe	tgg Trp 1775	gag Glu	aag Lys	agg Arg	gtc Val	aca Thr 1780	ggc Gly	tgc Cys	cca Pro	ccc Pro	ttt Phe 1785	gat Asp	gaa Glu	cac His	5364
aag Lys	tgt Cys 1790	ctg Leu	gct Ala	gag Glu	gga Gly	ggt Gly 1795	aaa Lys	att Ile	atg Met	aaa Lys	att Ile 1800	cca Pro	ggc Gly	acc Thr	5409
tgc Cys	tgt Cys 1805	gac Asp	aca Thr	tgt Cys	gag Glu	gag Glu 1810	cct Pro	gag Glu	tgc Cys	aac Asn	gac Asp 1815	atc Ile	act Thr	gcc Ala	5454
agg Arg	ctg Leu 1820	cag Gln	tat Tyr	gtc Val	aag Lys	gtg Val 1825	gga Gly	agc Ser	tgt Cys	aag Lys	tct Ser 1830	gaa Glu	gta Val	gag Glu	5499
gtg Val	gat Asp 1835	atc Ile	cac His	tac Tyr	tgc Cys	cag Gln 1840	ggc Gly	aaa Lys	tgt Cys	gcc Ala	agc Ser 1845	aaa Lys	gcc Ala	atg Met	5544
tac Tyr	tcc Ser 1850	att Ile	gac Asp	atc Ile	aac Asn	gat Asp 1855	gtg Val	cag Gln	gac Asp	cag Gln	tgc Cys 1860	tcc Ser	tgc Cys	tgc Cys	5589
tct Ser	ccg Pro 1865	aca Thr	cgg Arg	acg Thr	gag Glu	ccc Pro 1870	atg Met	cag Gln	gtg Val	gcc Ala	ctg Leu 1875	cac His	tgc Cys	acc Thr	5634
aat Asn	ggc Gly 1880	tct Ser	gtt Val	gtg Val	tac Tyr	cat His 1885	gag Glu	gtt Val	ctc Leu	aat Asn	gcc Ala 1890	atg Met	gag Glu	tgc Cys	5679
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 <213> Artificial sequence

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 <400> 150

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20 25 30

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
 275 280 285
 Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
 290 295 300
 Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
 305 310 315 320
 Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
 325 330 335
 Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
 340 345 350
 Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
 355 360 365
 Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
 370 375 380
 Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
 385 390 395 400
 Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
 405 410 415
 Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
 420 425 430
 Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
 435 440 445
 Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
 450 455 460
 Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
 465 470 475 480
 Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
 485 490 495
 His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
 500 505 510
 Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
 515 520 525
 Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
 530 535 540

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Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
610 615 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625 630 635 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
645 650 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705 710 715 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
725 730 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
740 745 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
755 760 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
770 775 780

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
785 790 795 800

Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
805 810 815

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Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
820 825 830

Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
835 840 845

Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
850 855 860

Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
865 870 875 880

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
885 890 895

Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
900 905 910

Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
915 920 925

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
930 935 940

Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
945 950 955 960

Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
965 970 975

Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
980 985 990

Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
995 1000 1005

Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
1010 1015 1020

Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met
1025 1030 1035

Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
1040 1045 1050

Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp
1055 1060 1065

Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn
1070 1075 1080

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Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys
	1085					1090					1095			
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
	1100					1105					1110			
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg
	1115					1120					1125			
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr
	1130					1135					1140			
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met
	1145					1150					1155			
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
	1160					1165					1170			
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
	1175					1180					1185			
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
	1190					1195					1200			
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
	1205					1210					1215			
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
	1220					1225					1230			
Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
	1235					1240					1245			
Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
	1250					1255					1260			
Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg
	1265					1270					1275			
Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
	1280					1285					1290			
Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
	1295					1300					1305			
Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
	1310					1315					1320			
Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys
	1325					1330					1335			

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Ala	Arg 1340	Leu	His	Leu	Gln	Gly 1345	Arg	Ser	Asn	Ala	Trp 1350	Arg	Pro	Gln
Val	Asn 1355	Asn	Pro	Lys	Glu	Trp 1360	Leu	Gln	Val	Asp	Phe 1365	Gln	Lys	Thr
Met	Lys 1370	Val	Thr	Gly	Val	Thr 1375	Thr	Gln	Gly	Val	Lys 1380	Ser	Leu	Leu
Thr	Ser 1385	Met	Tyr	Val	Lys	Glu 1390	Phe	Leu	Ile	Ser	Ser 1395	Ser	Gln	Asp
Gly	His 1400	Gln	Trp	Thr	Leu	Phe 1405	Phe	Gln	Asn	Gly	Lys 1410	Val	Lys	Val
Phe	Gln 1415	Gly	Asn	Gln	Asp	Ser 1420	Phe	Thr	Pro	Val	Val 1425	Asn	Ser	Leu
Asp	Pro 1430	Pro	Leu	Leu	Thr	Arg 1435	Tyr	Leu	Arg	Ile	His 1440	Pro	Gln	Ser
Trp	Val 1445	His	Gln	Ile	Ala	Leu 1450	Arg	Met	Glu	Val	Leu 1455	Gly	Cys	Glu
Ala	Gln 1460	Asp	Leu	Tyr	Thr	Gly 1465	Asp	Asp	Asn	Ser	Pro 1470	Ser	Phe	Ile
Gln	Ile 1475	Arg	Ser	Val	Ala	Lys 1480	Lys	His	Pro	Lys	Thr 1485	Trp	Thr	Gly
Asn	Ser 1490	Thr	Val	Ser	Cys	Pro 1495	Leu	Gly	Tyr	Leu	Ala 1500	Ser	Thr	Ala
Thr	Asn 1505	Asp	Cys	Gly	Cys	Thr 1510	Thr	Thr	Thr	Cys	Leu 1515	Pro	Asp	Lys
Val	Cys 1520	Val	His	Arg	Ser	Thr 1525	Ile	Tyr	Pro	Val	Gly 1530	Gln	Phe	Trp
Glu	Glu 1535	Gly	Cys	Asp	Val	Cys 1540	Thr	Cys	Thr	Asp	Met 1545	Glu	Asp	Ala
Val	Met 1550	Gly	Leu	Arg	Val	Ala 1555	Gln	Cys	Ser	Gln	Lys 1560	Pro	Cys	Glu
Asp	Ser 1565	Cys	Arg	Ser	Gly	Phe 1570	Thr	Tyr	Val	Leu	His 1575	Glu	Gly	Glu
Cys	Cys 1580	Gly	Arg	Cys	Leu	Pro 1585	Ser	Ala	Cys	Glu	Val 1590	Val	Thr	Gly

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Ser	Pro 1595	Arg	Gly	Asp	Ser	Gln 1600	Ser	Ser	Trp	Lys	Ser 1605	Val	Gly	Ser
Gln	Trp 1610	Ala	Ser	Pro	Glu	Asn 1615	Pro	Cys	Leu	Ile	Asn 1620	Glu	Cys	Val
Arg	Val 1625	Lys	Glu	Glu	Val	Phe 1630	Ile	Gln	Gln	Arg	Asn 1635	Val	Ser	Cys
Pro	Gln 1640	Leu	Glu	Val	Pro	Val 1645	Cys	Pro	Ser	Gly	Phe 1650	Gln	Leu	Ser
Cys	Lys 1655	Thr	Ser	Ala	Cys	Cys 1660	Pro	Ser	Cys	Arg	Cys 1665	Glu	Arg	Met
Glu	Ala 1670	Cys	Met	Leu	Asn	Gly 1675	Thr	Val	Ile	Gly	Pro 1680	Gly	Lys	Thr
Val	Met 1685	Ile	Asp	Val	Cys	Thr 1690	Thr	Cys	Arg	Cys	Met 1695	Val	Gln	Val
Gly	Val 1700	Ile	Ser	Gly	Phe	Lys 1705	Leu	Glu	Cys	Arg	Lys 1710	Thr	Thr	Cys
Asn	Pro 1715	Cys	Pro	Leu	Gly	Tyr 1720	Lys	Glu	Glu	Asn	Asn 1725	Thr	Gly	Glu
Cys	Cys 1730	Gly	Arg	Cys	Leu	Pro 1735	Thr	Ala	Cys	Thr	Ile 1740	Gln	Leu	Arg
Gly	Gly 1745	Gln	Ile	Met	Thr	Leu 1750	Lys	Arg	Asp	Glu	Thr 1755	Leu	Gln	Asp
Gly	Cys 1760	Asp	Thr	His	Phe	Cys 1765	Lys	Val	Asn	Glu	Arg 1770	Gly	Glu	Tyr
Phe	Trp 1775	Glu	Lys	Arg	Val	Thr 1780	Gly	Cys	Pro	Pro	Phe 1785	Asp	Glu	His
Lys	Cys 1790	Leu	Ala	Glu	Gly	Gly 1795	Lys	Ile	Met	Lys	Ile 1800	Pro	Gly	Thr
Cys	Cys 1805	Asp	Thr	Cys	Glu	Glu 1810	Pro	Glu	Cys	Asn	Asp 1815	Ile	Thr	Ala
Arg	Leu 1820	Gln	Tyr	Val	Lys	Val 1825	Gly	Ser	Cys	Lys	Ser 1830	Glu	Val	Glu
Val	Asp 1835	Ile	His	Tyr	Cys	Gln 1840	Gly	Lys	Cys	Ala	Ser 1845	Lys	Ala	Met

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Tyr Ser Ile Asp Ile Asn Asp Val Gln Asp Gln Cys Ser Cys Cys
1850 1855 1860

Ser Pro Thr Arg Thr Glu Pro Met Gln Val Ala Leu His Cys Thr
1865 1870 1875

Asn Gly Ser Val Val Tyr His Glu Val Leu Asn Ala Met Glu Cys
1880 1885 1890

Lys Cys Ser Pro Arg Lys Cys Ser Lys
1895 1900

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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser	
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg	
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val	
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile	
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Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln	
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gct gag gtt tat gat aca gtg gtc att aca ctt aag aac atg gct tcc	336
Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser	
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cat cct gtc agt ctt cat gct gtt ggt gta tcc tac tgg aaa gct tct	384
His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser	
115 120 125	
gag gga gct gaa tat gat gat cag acc agt caa agg gag aaa gaa gat	432
Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp	
130 135 140	
gat aaa gtc ttc cct ggt gga agc cat aca tat gtc tgg cag gtc ctg	480
Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu	

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tat Tyr	ctt Leu	tct Ser	cat His 180	gtg Val	gac Asp	ctg Leu	gta Val	aaa Lys 185	gac Asp	ttg Leu	aat Asn	tca Ser	ggc Gly 190	ctc Leu	att Ile	576
gga Gly	gcc Ala	cta Leu 195	cta Leu	gta Val	tgt Cys	aga Arg	gaa Glu 200	ggg Gly	agt Ser	ctg Leu	gcc Ala	aag Lys 205	gaa Glu	aag Lys	aca Thr	624
cag Gln	acc Thr 210	ttg Leu	cac His	aaa Lys	ttt Phe	ata Ile 215	cta Leu	ctt Leu	ttt Phe	gct Ala	gta Val 220	ttt Phe	gat Asp	gaa Glu	ggg Gly	672
aaa Lys 225	agt Ser	tgg Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240	720
gct Ala	gca Ala	tct Ser	gct Ala	cgg Arg 245	gcc Ala	tgg Trp	cct Pro	aaa Lys	atg Met 250	cac His	aca Thr	gtc Val	aat Asn	ggc Gly 255	tat Tyr	768
gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggt Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val	816
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile	864
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ttg Leu 305	gaa Glu	atc Ile	tcg Ser	cca Pro	ata Ile 310	act Thr	ttc Phe	ctt Leu	act Thr	gct Ala 315	caa Gln	aca Thr	ctc Leu	ttg Leu	atg Met 320	960
gac Asp	ctt Leu	gga Gly	cag Gln	ttt Phe 325	cta Leu	ctg Leu	ttt Phe	tgt Cys	cat His 330	atc Ile	tct Ser	tcc Ser	cac His	caa Gln 335	cat His	1008
gat Asp	ggc Gly	atg Met	gaa Glu 340	gct Ala	tat Tyr	gtc Val	aaa Lys	gta Val 345	gac Asp	agc Ser	tgt Cys	cca Pro	gag Glu 350	gaa Glu	ccc Pro	1056
caa Gln	cta Leu	cga Arg 355	atg Met	aaa Lys	aat Asn	aat Asn	gaa Glu 360	gaa Glu	gcg Ala	gaa Glu	gac Asp	tat Tyr 365	gat Asp	gat Asp	gat Asp	1104
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cct Pro 385	tcc Ser	ttt Phe	atc Ile	caa Gln	att Ile 390	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 395	aag Lys	cat His	cct Pro	aaa Lys	act Thr 400	1200
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tta Leu	gtc Val	ctc Leu	gcc Ala	ccc Pro	gat Asp	gac Asp	aga Arg	agt Ser	tat Tyr	aaa Lys	agt Ser	caa Gln	tat Tyr	ttg Leu	aac Asn	1296

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Asn	Gly	Pro	Gln	Arg	Ile	Gly	Arg	Lys	Tyr	Lys	Lys	Val	Arg	Phe	Met	
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gca	tac	aca	gat	gaa	acc	ttt	aag	act	cgt	gaa	gct	att	cag	cat	gaa	1392
Ala	Tyr	Thr	Asp	Glu	Thr	Phe	Lys	Thr	Arg	Glu	Ala	Ile	Gln	His	Glu	
	450					455					460					
tca	gga	atc	ttg	gga	cct	tta	ctt	tat	ggg	gaa	ggt	gga	gac	aca	ctg	1440
Ser	Gly	Ile	Leu	Gly	Pro	Leu	Leu	Tyr	Gly	Glu	Val	Gly	Asp	Thr	Leu	
465					470					475					480	
ttg	att	ata	ttt	aag	aat	caa	gca	agc	aga	cca	tat	aac	atc	tac	cct	1488
Leu	Ile	Ile	Phe	Lys	Asn	Gln	Ala	Ser	Arg	Pro	Tyr	Asn	Ile	Tyr	Pro	
				485					490					495		
cac	gga	atc	act	gat	gtc	cgt	cct	ttg	tat	tca	agg	aga	tta	cca	aaa	1536
His	Gly	Ile	Thr	Asp	Val	Arg	Pro	Leu	Tyr	Ser	Arg	Arg	Leu	Pro	Lys	
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
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Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
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His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
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475

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Gly Val Lys₅₁₅ His Leu Lys Asp Phe₅₂₀ Pro Ile Leu Pro Gly₅₂₅ Glu Ile Phe

Lys Tyr₅₃₀ Lys Trp Thr Val Thr₅₃₅ Val Glu Asp Gly Pro Thr Lys Ser Asp

Pro Arg Cys Leu Thr Arg₅₅₀ Tyr Tyr Ser Ser Phe₅₅₅ Val Asn Met Glu Arg₅₆₀

Asp Leu Ala Ser Gly₅₆₅ Leu Ile Gly Pro Leu₅₇₀ Leu Ile Cys Tyr Lys₅₇₅ Glu

Ser Val Asp Gln₅₈₀ Arg Gly Asn Gln Ile₅₈₅ Met Ser Asp Lys Arg₅₉₀ Asn Val

Ile Leu Phe₅₉₅ Ser Val Phe Asp Glu₆₀₀ Asn Arg Ser Trp Tyr₆₀₅ Leu Thr Glu

Asn Ile₆₁₀ Gln Arg Phe Leu Pro₆₁₅ Asn Pro Ala Gly Val₆₂₀ Gln Leu Glu Asp

Pro Glu Phe Gln Ala Ser₆₃₀ Asn Ile Met His Ser₆₃₅ Ile Asn Gly Tyr Val₆₄₀

Phe Asp Ser Leu Gln₆₄₅ Leu Ser Val Cys Leu₆₅₀ His Glu Val Ala Tyr₆₅₅ Trp

Tyr Ile Leu Ser₆₆₀ Ile Gly Ala Gln Thr₆₆₅ Asp Phe Leu Ser Val₆₇₀ Phe Phe

Ser Gly Tyr₆₇₅ Thr Phe Lys His Lys₆₈₀ Met Val Tyr Glu Asp₆₈₅ Thr Leu Thr

Leu Phe₆₉₀ Pro Phe Ser Gly Glu₆₉₅ Thr Val Phe Met Ser₇₀₀ Met Glu Asn Pro

Gly₇₀₅ Leu Trp Ile Leu Gly₇₁₀ Cys His Asn Ser Asp₇₁₅ Phe Arg Asn Arg Gly₇₂₀

Met Thr Ala Leu₇₂₅ Lys Val Ser Ser Cys₇₃₀ Asp Lys Asn Thr Gly₇₃₅ Asp

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

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740	745	750	
Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro	755	760	765
Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr	770	775	780
Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser	785	790	795
Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn	805	810	815
Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala	820	825	830
Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val	835	840	845
Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val	850	855	860
Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg	865	870	875
Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala	885	890	895
Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg	900	905	910
Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg	915	920	925
Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys	930	935	940
Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu	945	950	955
Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys	965	970	975
Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn	980	985	990
Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala	995	1000	1005
Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr			

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Glu	Asn	Met	Glu	Arg	Asn	Cys	Arg	Ala	Pro	Cys	Asn	Ile	Gln	Met
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Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn
	1040					1045					1050			
Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp
	1055					1060					1065			
Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn
	1070					1075					1080			
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys
	1085					1090					1095			
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
	1100					1105					1110			
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg
	1115					1120					1125			
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr
	1130					1135					1140			
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met
	1145					1150					1155			
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
	1160					1165					1170			
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
	1175					1180					1185			
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
	1190					1195					1200			
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
	1205					1210					1215			
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
	1220					1225					1230			
Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
	1235					1240					1245			
Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
	1250					1255					1260			
Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg

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1265				1270				1275						
Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
	1280					1285					1290			
Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
	1295					1300					1305			
Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
	1310					1315					1320			
Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys
	1325					1330					1335			
Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg	Pro	Gln
	1340					1345					1350			
Val	Asn	Asn	Pro	Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln	Lys	Thr
	1355					1360					1365			
Met	Lys	Val	Thr	Gly	Val	Thr	Thr	Gln	Gly	Val	Lys	Ser	Leu	Leu
	1370					1375					1380			
Thr	Ser	Met	Tyr	Val	Lys	Glu	Phe	Leu	Ile	Ser	Ser	Ser	Gln	Asp
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Gly	His	Gln	Trp	Thr	Leu	Phe	Phe	Gln	Asn	Gly	Lys	Val	Lys	Val
	1400					1405					1410			
Phe	Gln	Gly	Asn	Gln	Asp	Ser	Phe	Thr	Pro	Val	Val	Asn	Ser	Leu
	1415					1420					1425			
Asp	Pro	Pro	Leu	Leu	Thr	Arg	Tyr	Leu	Arg	Ile	His	Pro	Gln	Ser
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Trp	Val	His	Gln	Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly	Cys	Glu
	1445					1450					1455			
Ala	Gln	Asp	Leu	Tyr	Thr	Gly	Asp	Asp	Asn	Ser	Pro	Ser	Phe	Ile
	1460					1465					1470			
Gln	Ile	Arg	Ser	Val	Ala	Lys	Lys	His	Pro	Lys	Thr	Trp	Thr	Gly
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Gln	Arg	Asn	Val	Ser	Cys	Pro	Gln	Leu	Glu	Val	Pro	Val	Cys	Pro
	1490					1495					1500			
Ser	Gly	Phe	Gln	Leu	Ser	Cys	Lys	Thr	Ser	Ala	Cys	Cys	Pro	Ser
	1505					1510					1515			
Cys	Arg	Cys	Glu	Arg	Met	Glu	Ala	Cys	Met	Leu	Asn	Gly	Thr	Val

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1520						1525						1530
Ile	Gly	Pro	Gly	Lys	Thr	Val	Met	Ile	Asp	Val	Cys	Thr Thr Cys
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Arg	Cys	Met	Val	Gln	Val	Gly	Val	Ile	Ser	Gly	Phe	Lys Leu Glu
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Cys	Arg	Lys	Thr	Thr	Cys	Asn	Pro	Cys	Pro	Leu	Gly	Tyr Lys Glu
	1565					1570					1575	
Glu	Asn	Asn	Thr	Gly	Glu	Cys	Cys	Gly	Arg	Cys	Leu	Pro Thr Ala
	1580					1585					1590	
Cys	Thr	Ile	Gln	Leu	Arg	Gly	Gly	Gln	Ile	Met	Thr	Leu Lys Arg
	1595					1600					1605	
Asp	Glu	Thr	Leu	Gln	Asp	Gly	Cys	Asp	Thr	His	Phe	Cys Lys Val
	1610					1615					1620	
Asn	Glu	Arg	Gly	Glu	Tyr	Phe	Trp	Glu	Lys	Arg	Val	Thr Gly Cys
	1625					1630					1635	
Pro	Pro	Phe	Asp	Glu	His	Lys	Cys	Leu	Ala	Glu	Gly	Gly Lys Ile
	1640					1645					1650	
Met	Lys	Ile	Pro	Gly	Thr	Cys	Cys	Asp	Thr	Cys	Glu	Glu Pro Glu
	1655					1660					1665	
Cys	Asn	Asp	Ile	Thr	Ala	Arg	Leu	Gln	Tyr	Val	Lys	Val Gly Ser
	1670					1675					1680	
Cys	Lys	Ser	Glu	Val	Glu	Val	Asp	Ile	His	Tyr	Cys	Gln Gly Lys
	1685					1690					1695	
Cys	Ala	Ser	Lys	Ala	Met	Tyr	Ser	Ile	Asp	Ile	Asn	Asp Val Gln
	1700					1705					1710	
Asp	Gln	Cys	Ser	Cys	Cys	Ser	Pro	Thr	Arg	Thr	Glu	Pro Met Gln
	1715					1720					1725	
Val	Ala	Leu	His	Cys	Thr	Asn	Gly	Ser	Val	Val	Tyr	His Glu Val
	1730					1735					1740	
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 <212> DNA
 <213> Artificial Sequence

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<220>

<223> Fusion Protein

<220>

<221> CDS

<222> (1)..(4740)

<400> 153

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Met	Glu	Ile	Glu	Leu	Ser	Thr	Cys	Phe	Phe	Leu	Cys	Leu	Leu	Arg	Phe	
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tgc	ttt	agt	gcc	acc	aga	aga	tac	tac	ctg	ggc	gca	gtg	gaa	ctg	tca	96
Cys	Phe	Ser	Ala	Thr	Arg	Arg	Tyr	Tyr	Leu	Gly	Ala	Val	Glu	Leu	Ser	
			20					25					30			

tgg	gac	tat	atg	caa	agt	gat	ctc	ggc	gag	ctg	cct	gtg	gac	gca	aga	144
Trp	Asp	Tyr	Met	Gln	Ser	Asp	Leu	Gly	Glu	Leu	Pro	Val	Asp	Ala	Arg	
		35					40					45				

ttt	cct	cct	aga	gtg	cca	aaa	tct	ttt	cca	ttc	aac	acc	tca	gtc	gtg	192
Phe	Pro	Pro	Arg	Val	Pro	Lys	Ser	Phe	Pro	Phe	Asn	Thr	Ser	Val	Val	
	50					55					60					

tac	aaa	aag	act	ctg	ttt	gta	gaa	ttc	acg	gat	cac	ctt	ttc	aac	atc	240
Tyr	Lys	Lys	Thr	Leu	Phe	Val	Glu	Phe	Thr	Asp	His	Leu	Phe	Asn	Ile	
65					70					75					80	

gct	aag	cca	agg	cca	ccc	tgg	atg	ggc	ctg	cta	ggc	cct	acc	atc	cag	288
Ala	Lys	Pro	Arg	Pro	Pro	Trp	Met	Gly	Leu	Leu	Gly	Pro	Thr	Ile	Gln	
				85					90					95		

gct	gag	gtt	tat	gat	aca	gtg	gtc	att	aca	ctt	aag	aac	atg	gct	tcc	336
Ala	Glu	Val	Tyr	Asp	Thr	Val	Val	Ile	Thr	Leu	Lys	Asn	Met	Ala	Ser	
			100					105					110			

cat	cct	gtc	agt	ctt	cat	gct	gtt	ggc	gta	tcc	tac	tgg	aaa	gct	tct	384
His	Pro	Val	Ser	Leu	His	Ala	Val	Gly	Val	Ser	Tyr	Trp	Lys	Ala	Ser	
		115					120					125				

gag	gga	gct	gaa	tat	gat	gat	cag	acc	agt	caa	agg	gag	aaa	gaa	gat	432
Glu	Gly	Ala	Glu	Tyr	Asp	Asp	Gln	Thr	Ser	Gln	Arg	Glu	Lys	Glu	Asp	
	130					135					140					

gat	aaa	gtc	ttc	cct	ggc	gga	agc	cat	aca	tat	gtc	tgg	cag	gtc	ctg	480
Asp	Lys	Val	Phe	Pro	Gly	Gly	Ser	His	Thr	Tyr	Val	Trp	Gln	Val	Leu	
145					150					155					160	

aaa	gag	aat	ggc	cca	atg	gcc	tct	gac	cca	ctg	tgc	ctt	acc	tac	tca	528
Lys	Glu	Asn	Gly	Pro	Met	Ala	Ser	Asp	Pro	Leu	Cys	Leu	Thr	Tyr	Ser	
				165					170					175		

tat	ctt	tct	cat	gtg	gac	ctg	gta	aaa	gac	ttg	aat	tca	ggc	ctc	att	576
Tyr	Leu	Ser	His	Val	Asp	Leu	Val	Lys	Asp	Leu	Asn	Ser	Gly	Leu	Ile	
			180					185					190			

gga	gcc	cta	cta	gta	tgt	aga	gaa	ggg	agt	ctg	gcc	aag	gaa	aag	aca	624
Gly	Ala	Leu	Leu	Val	Cys	Arg	Glu	Gly	Ser	Leu	Ala	Lys	Glu	Lys	Thr	
		195					200					205				

cag	acc	ttg	cac	aaa	ttt	ata	cta	ctt	ttt	gct	gta	ttt	gat	gaa	ggg	672
Gln	Thr	Leu	His	Lys	Phe	Ile	Leu	Leu	Phe	Ala	Val	Phe	Asp	Glu	Gly	
	210					215					220					

aaa	agt	tgg	cac	tca	gaa	aca	aag	aac	tcc	ttg	atg	cag	gat	agg	gat	720
Lys	Ser	Trp	His	Ser	Glu	Thr	Lys	Asn	Ser	Leu	Met	Gln	Asp	Arg	Asp	
225					230					235					240	

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gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggg Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val	816
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile	864
ttc Phe	ctc Leu 290	gaa Glu	ggg Gly	cac His	aca Thr	ttt Phe 295	ctt Leu	gtg Val	agg Arg	aac Asn	cat His 300	cgc Arg	cag Gln	gcg Ala	tcc Ser	912
ttg Leu 305	gaa Glu	atc Ile	tcg Ser	cca Pro	ata Ile 310	act Thr	ttc Phe	ctt Leu	act Thr	gct Ala 315	caa Gln	aca Thr	ctc Leu	ttg Leu	atg Met 320	960
gac Asp	ctt Leu	gga Gly	cag Gln	ttt Phe 325	cta Leu	ctg Leu	ttt Phe	tgt Cys	cat His 330	atc Ile	tct Ser	tcc Ser	cac His	caa Gln 335	cat His	1008
gat Asp	ggc Gly	atg Met	gaa Glu 340	gct Ala	tat Tyr	gtc Val	aaa Lys	gta Val 345	gac Asp	agc Ser	tgt Cys	cca Pro	gag Glu 350	gaa Glu	ccc Pro	1056
caa Gln	cta Leu	cga Arg 355	atg Met	aaa Lys	aat Asn	aat Asn	gaa Glu 360	gaa Glu	gcg Ala	gaa Glu	gac Asp	tat Tyr 365	gat Asp	gat Asp	gat Asp	1104
ctt Leu	act Thr 370	gat Asp	tct Ser	gaa Glu	atg Met	gat Asp 375	gtg Val	gtc Val	agg Arg	ttt Phe	gat Asp 380	gat Asp	gac Asp	aac Asn	tct Ser	1152
cct Pro 385	tcc Ser	ttt Phe	atc Ile	caa Gln	att Ile 390	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 395	aag Lys	cat His	cct Pro	aaa Lys	act Thr 400	1200
tgg Trp	gta Val	cat His	tac Tyr	att Ile 405	gct Ala	gct Ala	gaa Glu	gag Glu	gag Glu 410	gac Asp	tgg Trp	gac Asp	tat Tyr	gct Ala 415	ccc Pro	1248
tta Leu	gtc Val	ctc Leu	gcc Ala 420	ccc Pro	gat Asp	gac Asp	aga Arg	agt Ser 425	tat Tyr	aaa Lys	agt Ser	caa Gln	tat Tyr 430	ttg Leu	aac Asn	1296
aat Asn	ggc Gly	cct Pro 435	cag Gln	cgg Arg	att Ile	ggg Gly	agg Arg 440	aag Lys	tac Tyr	aaa Lys	aaa Lys	gtc Val 445	cga Arg	ttt Phe	atg Met	1344
gca Ala	tac Tyr 450	aca Thr	gat Asp	gaa Glu	acc Thr	ttt Phe 455	aag Lys	act Thr	cgt Arg	gaa Glu	gct Ala 460	att Ile	cag Gln	cat His	gaa Glu	1392
tca Ser 465	gga Gly	atc Ile	ttg Leu	gga Gly	cct Pro 470	tta Leu	ctt Leu	tat Tyr	ggg Gly	gaa Glu 475	ggt Val	gga Gly	gac Asp	aca Thr	ctg Leu 480	1440
ttg Leu	att Ile	ata Ile	ttt Phe	aag Lys 485	aat Asn	caa Gln	gca Ala	agc Ser	aga Arg 490	cca Pro	tat Tyr	aac Asn	atc Ile	tac Tyr 495	cct Pro	1488
cac His	gga Gly	atc Ile	act Thr 500	gat Asp	gtc Val	cgt Arg	cct Pro	ttg Leu 505	tat Tyr	tca Ser	agg Arg	aga Arg	tta Leu 510	cca Pro	aaa Lys	1536

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aaa Lys	tat Tyr 530	aaa Lys	tgg Trp	aca Thr	gtg Val	act Thr 535	gta Val	gaa Glu	gat Asp	ggg Gly	cca Pro 540	act Thr	aaa Lys	tca Ser	gat Asp	1632
cct Pro 545	cgg Arg	tgc Cys	ctg Leu	acc Thr	cgc Arg 550	tat Tyr	tac Tyr	tct Ser	agt Ser	ttc Phe 555	gtt Val	aat Asn	atg Met	gag Glu	aga Arg 560	1680
gat Asp	cta Leu	gct Ala	tca Ser	gga Gly 565	ctc Leu	att Ile	ggc Gly	cct Pro	ctc Leu 570	ctc Leu	atc Ile	tgc Cys	tac Tyr	aaa Lys 575	gaa Glu	1728
tct Ser	gta Val	gat Asp	caa Gln 580	aga Arg	gga Gly	aac Asn	cag Gln	ata Ile 585	atg Met	tca Ser	gac Asp	aag Lys	agg Arg 590	aat Asn	gtc Val	1776
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aat Asn 610	ata Ile	caa Gln	cgc Arg	ttt Phe	ctc Leu	ccc Pro 615	aat Asn	cca Pro	gct Ala	gga Gly	gtg Val 620	cag Gln	ctt Leu	gag Glu	gat Asp	1872
cca Pro 625	gag Glu	ttc Phe	caa Gln	gcc Ala	tcc Ser 630	aac Asn	atc Ile	atg Met	cac His	agc Ser 635	atc Ile	aat Asn	ggc Gly	tat Tyr	gtt Val 640	1920
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tac Tyr	att Ile	cta Leu	agc Ser 660	att Ile	gga Gly	gca Ala	cag Gln	act Thr 665	gac Asp	ttc Phe	ctt Leu	tct Ser	gtc Val 670	ttc Phe	ttc Phe	2016
tct Ser	gga Gly	tat Tyr 675	acc Thr	ttc Phe	aaa Lys	cac His	aaa Lys 680	atg Met	gtc Val	tat Tyr	gaa Glu	gac Asp 685	aca Thr	ctc Leu	acc Thr	2064
cta Leu	ttc Phe 690	cca Pro	ttc Phe	tca Ser	gga Gly	gaa Glu 695	act Thr	gtc Val	ttc Phe	atg Met	tgc Ser 700	atg Met	gaa Glu	aac Asn	cca Pro	2112
ggt Gly 705	cta Leu	tgg Trp	att Ile	ctg Leu	ggg Gly 710	tgc Cys	cac His	aac Asn	tca Ser	gac Asp 715	ttt Phe	cgg Arg	aac Asn	aga Arg	ggc Gly 720	2160
atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggt Gly 735	gat Asp	2208
tat Tyr	tac Tyr	gag Glu	gac Asp 740	agt Ser	tat Tyr	gaa Glu	gat Asp	att Ile 745	tca Ser	gca Ala	tac Tyr	ttg Leu	ctg Leu 750	agt Ser	aaa Lys	2256
aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro	2304
agc Ser 770	act Thr	agg Arg	caa Gln	aag Lys	caa Gln	ttt Phe 775	aat Asn	gcc Ala	acc Thr	aca Thr	att Ile 780	cca Pro	gaa Glu	aat Asn	act Thr	2352

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gtt Val	gaa Glu	atg Met	aag Lys	aag Lys 805	gaa Glu	gat Asp	ttt Phe	gac Asp	att Ile 810	tat Tyr	gat Asp	gag Glu	gat Asp	gaa Glu 815	aat Asn	2448
cag Gln	agc Ser	ccc Pro	cgc Arg 820	agc Ser	ttt Phe	caa Gln	aag Lys	aaa Lys 825	aca Thr	cga Arg	cac His	tat Tyr	ttt Phe 830	att Ile	gct Ala	2496
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gaa Glu	gtt Val	gaa Glu	gat Asp 900	aat Asn	atc Ile	atg Met	gta Val	act Thr 905	ttc Phe	aga Arg	aat Asn	cag Gln	gcc Ala 910	tct Ser	cgt Arg	2736
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caa Gln 930	gga Gly	gca Ala	gaa Glu	cct Pro	aga Arg	aaa Lys 935	aac Asn	ttt Phe	gtc Val	aag Lys	cct Pro 940	aat Asn	gaa Glu	acc Thr	aaa Lys	2832
act Thr 945	tac Tyr	ttt Phe	tgg Trp	aaa Lys	gtg Val 950	caa Gln	cat His	cat His	atg Met	gca Ala 955	ccc Pro	act Thr	aaa Lys	gat Asp	gag Glu 960	2880
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gat Asp	gtg Val	cac His	tca Ser 980	ggc Gly	ctg Leu	att Ile	gga Gly	ccc Pro 985	ctt Leu	ctg Leu	gtc Val	tgc Cys	cac His	act Thr	aac Asn	2976
aca Thr	ctg Leu	aac Asn 995	cct Pro	gct Ala	cat His	ggg Gly	aga Arg 1000	caa Gln	gtg Val	aca Thr	gta Val	cag Gln 1005	gaa Glu	ttt Phe	gct Ala	3024
ctg Leu	ttt Phe 1010	ttc Phe	acc Thr	atc Ile	ttt Phe	gat Asp 1015	gag Glu	acc Thr	aaa Lys	agc Ser	tgg Trp 1020	tac Tyr	ttc Phe	act Thr		3069
gaa Glu 1025	aat Asn	atg Met	gaa Glu	aga Arg	aac Asn	tgc Cys 1030	agg Arg	gct Ala	ccc Pro	tgc Cys	aat Asn 1035	atc Ile	cag Gln	atg Met		3114
gaa Glu 1040	gat Asp	ccc Pro	act Thr	ttt Phe	aaa Lys	gag Glu 1045	aat Asn	tat Tyr	cgc Arg	ttc Phe	cat His 1050	gca Ala	atc Ile	aat Asn		3159

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caa Gln	agg Arg 1070	att Ile	cga Arg	tgg Trp	tat Tyr	ctg Leu 1075	ctc Leu	agc Ser	atg Met	ggc Gly	agc Ser 1080	aat Asn	gaa Glu	aac Asn	3249
atc Ile	cat His 1085	tct Ser	att Ile	cat His	ttc Phe	agt Ser 1090	gga Gly	cat His	gtg Val	ttc Phe	act Thr 1095	gta Val	cga Arg	aaa Lys	3294
aaa Lys	gag Glu 1100	gag Glu	tat Tyr	aaa Lys	atg Met	gca Ala 1105	ctg Leu	tac Tyr	aat Asn	ctc Leu	tat Tyr 1110	cca Pro	ggt Gly	gtt Val	3339
ttt Phe	gag Glu 1115	aca Thr	gtg Val	gaa Glu	atg Met	tta Leu 1120	cca Pro	tcc Ser	aaa Lys	gct Ala	gga Gly 1125	att Ile	tgg Trp	cgg Arg	3384
gtg Val	gaa Glu 1130	tgc Cys	ctt Leu	att Ile	ggc Gly	gag Glu 1135	cat His	cta Leu	cat His	gct Ala	ggg Gly 1140	atg Met	agc Ser	aca Thr	3429
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ggt Gly	gcc Ala 1220	cgt Arg	cag Gln	aag Lys	ttc Phe	tcc Ser 1225	agc Ser	ctc Leu	tac Tyr	atc Ile	tct Ser 1230	cag Gln	ttt Phe	atc Ile	3699
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tct Ser	ggg Gly 1265	ata Ile	aaa Lys	cac His	aat Asn	att Ile 1270	ttt Phe	aac Asn	cct Pro	cca Pro	att Ile 1275	att Ile	gct Ala	cga Arg	3834
tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu	3879
cgc Arg	atg Met 1295	gag Glu	ttg Leu	atg Met	ggc Gly	tgt Cys 1300	gat Asp	tta Leu	aat Asn	agt Ser	tgc Cys 1305	agc Ser	atg Met	cca Pro	3924

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tca Ser	tcc Ser 1325	tac Tyr	ttt Phe	acc Thr	aat Asn	atg Met 1330	ttt Phe	gcc Ala	acc Thr	tgg Trp	tct Ser 1335	cct Pro	tca Ser	aaa Lys	4014
gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln	4059
gtg Val	aat Asn 1355	aat Asn	cca Pro	aaa Lys	gag Glu	tgg Trp 1360	ctg Leu	caa Gln	gtg Val	gac Asp	ttc Phe 1365	cag Gln	aag Lys	aca Thr	4104
atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu	4149
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ggc Gly	cat His 1400	cag Gln	tgg Trp	act Thr	ctc Leu	ttt Phe 1405	ttt Phe	cag Gln	aat Asn	ggc Gly	aaa Lys 1410	gta Val	aag Lys	gtt Val	4239
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gac Asp	cca Pro 1430	ccg Pro	tta Leu	ctg Leu	act Thr	cgc Arg 1435	tac Tyr	ctt Leu	cga Arg	att Ile	cac His 1440	ccc Pro	cag Gln	agt Ser	4329
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gca Ala	cag Gln 1460	gac Asp	ctc Leu	tac Tyr	acc Thr	ggg Gly 1465	gat Asp	gac Asp	aac Asn	tct Ser	cct Pro 1470	tcc Ser	ttt Phe	atc Ile	4419
caa Gln	att Ile 1475	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 1480	aag Lys	cat His	cct Pro	aaa Lys	act Thr 1485	tgg Trp	acc Thr	ggg Gly	4464
tgc Cys	aac Asn 1490	gac Asp	atc Ile	act Thr	gcc Ala	agg Arg 1495	ctg Leu	cag Gln	tat Tyr	gtc Val	aag Lys 1500	gtg Val	gga Gly	agc Ser	4509
tgt Cys	aag Lys 1505	tct Ser	gaa Glu	gta Val	gag Glu	gtg Val 1510	gat Asp	atc Ile	cac His	tac Tyr	tgc Cys 1515	cag Gln	ggc Gly	aaa Lys	4554
tgt Cys	gcc Ala 1520	agc Ser	aaa Lys	gcc Ala	atg Met	tac Tyr 1525	tcc Ser	att Ile	gac Asp	atc Ile	aac Asn 1530	gat Asp	gtg Val	cag Gln	4599
gac Asp	cag Gln 1535	tgc Cys	tcc Ser	tgc Cys	tgc Cys	tct Ser 1540	ccg Pro	aca Thr	cgg Arg	acg Thr	gag Glu 1545	ccc Pro	atg Met	cag Gln	4644
gtg Val	gcc Ala 1550	ctg Leu	cac His	tgc Cys	acc Thr	aat Asn 1555	ggc Gly	tct Ser	gtt Val	gtg Val	tac Tyr 1560	cat His	gag Glu	gtt Val	4689

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tga tag 4740

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
 50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
 65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
 85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
 100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
 115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
 130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
 145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
 165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
 180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
 195 200 205

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Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
275 280 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
290 295 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
325 330 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
340 345 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
355 360 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
370 375 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385 390 395 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
405 410 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
420 425 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
435 440 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
450 455 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465 470 475 480

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Leu Ile Ile Phe Lys₄₈₅ Asn Gln Ala Ser Arg₄₉₀ Pro Tyr Asn Ile Tyr₄₉₅ Pro
 His Gly Ile Thr₅₀₀ Asp Val Arg Pro Leu₅₀₅ Tyr Ser Arg Arg Leu₅₁₀ Pro Lys
 Gly Val Lys₅₁₅ His Leu Lys Asp Phe₅₂₀ Pro Ile Leu Pro Gly₅₂₅ Glu Ile Phe
 Lys Tyr₅₃₀ Lys Trp Thr Val Thr₅₃₅ Val Glu Asp Gly Pro Thr Lys Ser Asp
 Pro₅₄₅ Arg Cys Leu Thr Arg₅₅₀ Tyr Tyr Ser Ser Phe₅₅₅ Val Asn Met Glu Arg₅₆₀
 Asp Leu Ala Ser Gly₅₆₅ Leu Ile Gly Pro Leu₅₇₀ Leu Ile Cys Tyr Lys₅₇₅ Glu
 Ser Val Asp Gln₅₈₀ Arg Gly Asn Gln Ile₅₈₅ Met Ser Asp Lys Arg₅₉₀ Asn Val
 Ile Leu Phe₅₉₅ Ser Val Phe Asp Glu₆₀₀ Asn Arg Ser Trp Tyr₆₀₅ Leu Thr Glu
 Asn Ile₆₁₀ Gln Arg Phe Leu Pro₆₁₅ Asn Pro Ala Gly Val₆₂₀ Gln Leu Glu Asp
 Pro₆₂₅ Glu Phe Gln Ala Ser₆₃₀ Asn Ile Met His Ser₆₃₅ Ile Asn Gly Tyr Val₆₄₀
 Phe Asp Ser Leu Gln₆₄₅ Leu Ser Val Cys Leu₆₅₀ His Glu Val Ala Tyr₆₅₅ Trp
 Tyr Ile Leu Ser₆₆₀ Ile Gly Ala Gln Thr₆₆₅ Asp Phe Leu Ser Val₆₇₀ Phe Phe
 Ser Gly Tyr₆₇₅ Thr Phe Lys His Lys₆₈₀ Met Val Tyr Glu Asp₆₈₅ Thr Leu Thr
 Leu Phe₆₉₀ Pro Phe Ser Gly Glu₆₉₅ Thr Val Phe Met Ser₇₀₀ Met Glu Asn Pro
 Gly₇₀₅ Leu Trp Ile Leu Gly₇₁₀ Cys His Asn Ser Asp₇₁₅ Phe Arg Asn Arg Gly₇₂₀
 Met Thr Ala Leu Leu₇₂₅ Lys Val Ser Ser Cys₇₃₀ Asp Lys Asn Thr Gly₇₃₅ Asp
 Tyr Tyr Glu Asp₇₄₀ Ser Tyr Glu Asp Ile₇₄₅ Ser Ala Tyr Leu Leu₇₅₀ Ser Lys

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Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
 755 760 765
 Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
 770 775 780
 Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
 785 790 795 800
 Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
 805 810 815
 Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
 820 825 830
 Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
 835 840 845
 Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
 850 855 860
 Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
 865 870 875 880
 Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
 885 890 895
 Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
 900 905 910
 Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
 915 920 925
 Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
 930 935 940
 Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
 945 950 955 960
 Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
 965 970 975
 Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
 980 985 990
 Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
 995 1000 1005
 Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
 1010 1015 1020

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Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn
	1040					1045					1050			
Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp
	1055					1060					1065			
Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn
	1070					1075					1080			
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys
	1085					1090					1095			
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
	1100					1105					1110			
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg
	1115					1120					1125			
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr
	1130					1135					1140			
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met
	1145					1150					1155			
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
	1160					1165					1170			
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
	1175					1180					1185			
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
	1190					1195					1200			
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
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Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
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Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
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Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
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Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg
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Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
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Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
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Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
	1310					1315					1320			
Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys
	1325					1330					1335			
Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg	Pro	Gln
	1340					1345					1350			
Val	Asn	Asn	Pro	Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln	Lys	Thr
	1355					1360					1365			
Met	Lys	Val	Thr	Gly	Val	Thr	Thr	Gln	Gly	Val	Lys	Ser	Leu	Leu
	1370					1375					1380			
Thr	Ser	Met	Tyr	Val	Lys	Glu	Phe	Leu	Ile	Ser	Ser	Ser	Gln	Asp
	1385					1390					1395			
Gly	His	Gln	Trp	Thr	Leu	Phe	Phe	Gln	Asn	Gly	Lys	Val	Lys	Val
	1400					1405					1410			
Phe	Gln	Gly	Asn	Gln	Asp	Ser	Phe	Thr	Pro	Val	Val	Asn	Ser	Leu
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Asp	Pro	Pro	Leu	Leu	Thr	Arg	Tyr	Leu	Arg	Ile	His	Pro	Gln	Ser
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Trp	Val	His	Gln	Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly	Cys	Glu
	1445					1450					1455			
Ala	Gln	Asp	Leu	Tyr	Thr	Gly	Asp	Asp	Asn	Ser	Pro	Ser	Phe	Ile
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Gln	Ile	Arg	Ser	Val	Ala	Lys	Lys	His	Pro	Lys	Thr	Trp	Thr	Gly
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Cys	Asn	Asp	Ile	Thr	Ala	Arg	Leu	Gln	Tyr	Val	Lys	Val	Gly	Ser
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Cys	Lys	Ser	Glu	Val	Glu	Val	Asp	Ile	His	Tyr	Cys	Gln	Gly	Lys
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Cys	Ala	Ser	Lys	Ala	Met	Tyr	Ser	Ile	Asp	Ile	Asn	Asp	Val	Gln
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Val Ala Leu His Cys Thr Asn Gly Ser Val Val Tyr His Glu Val
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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser	
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg	
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val	
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile	
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gct aag cca agg cca ccc tgg atg ggt ctg cta ggt cct acc atc cag	288
Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln	
85 90 95	
gct gag gtt tat gat aca gtg gtc att aca ctt aag aac atg gct tcc	336
Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser	
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cat cct gtc agt ctt cat gct gtt ggt gta tcc tac tgg aaa gct tct	384
His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser	
115 120 125	
gag gga gct gaa tat gat gat cag acc agt caa agg gag aaa gaa gat	432
Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp	
130 135 140	
gat aaa gtc ttc cct ggt gga agc cat aca tat gtc tgg cag gtc ctg	480
Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu	
145 150 155 160	

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tat Tyr	ctt Leu	tct Ser	cat His 180	gtg Val	gac Asp	ctg Leu	gta Val	aaa Lys 185	gac Asp	ttg Leu	aat Asn	tca Ser	ggc Gly 190	ctc Leu	att Ile		576
gga Gly	gcc Ala	cta Leu 195	cta Leu	gta Val	tgt Cys	aga Arg	gaa Glu 200	ggg Gly	agt Ser	ctg Leu	gcc Ala	aag Lys 205	gaa Glu	aag Lys	aca Thr		624
cag Gln	acc Thr 210	ttg Leu	cac His	aaa Lys	ttt Phe	ata Ile 215	cta Leu	ctt Leu	ttt Phe	gct Ala	gta Val 220	ttt Phe	gat Asp	gaa Glu	ggg Gly		672
aaa Lys 225	agt Ser	tgg Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240		720
gct Ala	gca Ala	tct Ser	gct Ala	cgg Arg 245	gcc Ala	tgg Trp	cct Pro	aaa Lys	atg Met 250	cac His	aca Thr	gtc Val	aat Asn	ggg Gly 255	tat Tyr		768
gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggt Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val		816
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile		864
ttc Phe	ctc Leu 290	gaa Glu	ggt Gly	cac His	aca Thr	ttt Phe 295	ctt Leu	gtg Val	agg Arg	aac Asn	cat His 300	cgc Arg	cag Gln	gcg Ala	tcc Ser		912
ttg Leu 305	gaa Glu	atc Ile	tcg Ser	cca Pro	ata Ile 310	act Thr	ttc Phe	ctt Leu	act Thr	gct Ala 315	caa Gln	aca Thr	ctc Leu	ttg Leu	atg Met 320		960
gac Asp	ctt Leu	gga Gly	cag Gln	ttt Phe 325	cta Leu	ctg Leu	ttt Phe	tgt Cys	cat His 330	atc Ile	tct Ser	tcc Ser	cac His	caa Gln 335	cat His		1008
gat Asp	ggc Gly	atg Met	gaa Glu 340	gct Ala	tat Tyr	gtc Val	aaa Lys	gta Val 345	gac Asp	agc Ser	tgt Cys	cca Pro	gag Glu 350	gaa Glu	ccc Pro		1056
caa Gln	cta Leu	cga Arg 355	atg Met	aaa Lys	aat Asn	aat Asn	gaa Glu 360	gaa Glu	gcg Ala	gaa Glu	gac Asp	tat Tyr 365	gat Asp	gat Asp	gat Asp		1104
ctt Leu	act Thr 370	gat Asp	tct Ser	gaa Glu	atg Met	gat Asp 375	gtg Val	gtc Val	agg Arg	ttt Phe	gat Asp 380	gat Asp	gac Asp	aac Asn	tct Ser		1152
cct Pro 385	tcc Ser	ttt Phe	atc Ile	caa Gln	att Ile 390	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 395	aag Lys	cat His	cct Pro	aaa Lys	act Thr 400		1200
tgg Trp	gta Val	cat His	tac Tyr	att Ile 405	gct Ala	gct Ala	gaa Glu	gag Glu	gag Glu 410	gac Asp	tgg Trp	gac Asp	tat Tyr	gct Ala 415	ccc Pro		1248
tta Leu	gtc Val	ctc Leu	gcc Ala 420	ccc Pro	gat Asp	gac Asp	aga Arg	agt Ser 425	tat Tyr	aaa Lys	agt Ser	caa Gln	tat Tyr 430	ttg Leu	aac Asn		1296

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aat Asn	ggc Gly	cct Pro 435	cag Gln	cgg Arg	att Ile	ggt Gly	agg Arg 440	aag Lys	tac Tyr	aaa Lys	aaa Lys	gtc Val 445	cga Arg	ttt Phe	atg Met	1344
gca Ala	tac Tyr 450	aca Thr	gat Asp	gaa Glu	acc Thr	ttt Phe 455	aag Lys	act Thr	cgt Arg	gaa Glu	gct Ala 460	att Ile	cag Gln	cat His	gaa Glu	1392
tca Ser 465	gga Gly	atc Ile	ttg Leu	gga Gly	cct Pro 470	tta Leu	ctt Leu	tat Tyr	ggg Gly	gaa Glu 475	ggt Val	gga Gly	gac Asp	aca Thr	ctg Leu 480	1440
ttg Leu	att Ile	ata Ile	ttt Phe	aag Lys 485	aat Asn	caa Gln	gca Ala	agc Ser	aga Arg 490	cca Pro	tat Tyr	aac Asn	atc Ile	tac Tyr 495	cct Pro	1488
cac His	gga Gly	atc Ile	act Thr 500	gat Asp	gtc Val	cgt Arg	cct Pro	ttg Leu 505	tat Tyr	tca Ser	agg Arg	aga Arg	tta Leu 510	cca Pro	aaa Lys	1536
ggt Gly	gta Val	aaa Lys 515	cat His	ttg Leu	aag Lys	gat Asp	ttt Phe 520	cca Pro	att Ile	ctg Leu	cca Pro	gga Gly 525	gaa Glu	ata Ile	ttc Phe	1584
aaa Lys	tat Tyr 530	aaa Lys	tgg Trp	aca Thr	gtg Val	act Thr 535	gta Val	gaa Glu	gat Asp	ggg Gly	cca Pro 540	act Thr	aaa Lys	tca Ser	gat Asp	1632
cct Pro 545	cgg Arg	tgc Cys	ctg Leu	acc Thr	cgc Arg 550	tat Tyr	tac Tyr	tct Ser	agt Ser	ttc Phe 555	gtt Val	aat Asn	atg Met	gag Glu	aga Arg 560	1680
gat Asp	cta Leu	gct Ala	tca Ser	gga Gly 565	ctc Leu	att Ile	ggc Gly	cct Pro	ctc Leu 570	ctc Leu	atc Ile	tgc Cys	tac Tyr	aaa Lys 575	gaa Glu	1728
tct Ser	gta Val	gat Asp	caa Gln 580	aga Arg	gga Gly	aac Asn	cag Gln	ata Ile 585	atg Met	tca Ser	gac Asp	aag Lys	agg Arg 590	aat Asn	gtc Val	1776
atc Ile	ctg Leu	ttt Phe 595	tct Ser	gta Val	ttt Phe	gat Asp	gag Glu 600	aac Asn	cga Arg	agc Ser	tgg Trp	tac Tyr 605	ctc Leu	aca Thr	gag Glu	1824
aat Asn 610	ata Ile	caa Gln	cgc Arg	ttt Phe	ctc Leu	ccc Pro 615	aat Asn	cca Pro	gct Ala	gga Gly	gtg Val 620	cag Gln	ctt Leu	gag Glu	gat Asp	1872
cca Pro 625	gag Glu	ttc Phe	caa Gln	gcc Ala	tcc Ser 630	aac Asn	atc Ile	atg Met	cac His	agc Ser 635	atc Ile	aat Asn	ggc Gly	tat Tyr	gtt Val 640	1920
ttt Phe	gat Asp	agt Ser	ttg Leu	cag Gln 645	ttg Leu	tca Ser	gtt Val	tgt Cys	ttg Leu 650	cat His	gag Glu	gtg Val	gca Ala	tac Tyr 655	tgg Trp	1968
tac Tyr	att Ile	cta Leu	agc Ser 660	att Ile	gga Gly	gca Ala	cag Gln	act Thr 665	gac Asp	ttc Phe	ctt Leu	tct Ser	gtc Val 670	ttc Phe	ttc Phe	2016
tct Ser	gga Gly	tat Tyr 675	acc Thr	ttc Phe	aaa Lys	cac His	aaa Lys 680	atg Met	gtc Val	tat Tyr	gaa Glu	gac Asp 685	aca Thr	ctc Leu	acc Thr	2064
cta Leu 690	ttc Phe	cca Pro	ttc Phe	tca Ser	gga Gly	gaa Glu 695	act Thr	gtc Val	ttc Phe	atg Met	tcg Ser 700	atg Met	gaa Glu	aac Asn	cca Pro	2112

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atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggg Gly 735	gat Asp	2208
tat Tyr	tac Tyr	gag Glu	gac Asp 740	agt Ser	tat Tyr	gaa Glu	gat Asp	att Ile 745	tca Ser	gca Ala	tac Tyr	ttg Leu	ctg Leu 750	agt Ser	aaa Lys	2256
aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro	2304
agc Ser 770	act Thr	agg Arg	caa Gln	aag Lys	caa Gln	ttt Phe 775	aat Asn	gcc Ala	acc Thr	aca Thr	att Ile 780	cca Pro	gaa Glu	aat Asn	act Thr	2352
act Thr 785	ctt Leu	cag Gln	tca Ser	gat Asp	caa Gln 790	gag Glu	gaa Glu	att Ile	gac Asp	tat Tyr 795	gat Asp	gat Asp	acc Thr	ata Ile	tca Ser 800	2400
gtt Val	gaa Glu	atg Met	aag Lys	aag Lys 805	gaa Glu	gat Asp	ttt Phe	gac Asp	att Ile 810	tat Tyr	gat Asp	gag Glu	gat Asp	gaa Glu 815	aat Asn	2448
cag Gln	agc Ser	ccc Pro	cgc Arg 820	agc Ser	ttt Phe	caa Gln	aag Lys	aaa Lys 825	aca Thr	cga Arg	cac His	tat Tyr	ttt Phe 830	att Ile	gct Ala	2496
gca Ala	gtg Val	gag Glu 835	agg Arg	ctc Leu	tgg Trp	gat Asp	tat Tyr 840	ggg Gly	atg Met	agt Ser	agc Ser	tcc Ser 845	cca Pro	cat His	gtt Val	2544
cta Leu	aga Arg 850	aac Asn	agg Arg	gct Ala	cag Gln	agt Ser 855	ggc Gly	agt Ser	gtc Val	cct Pro	cag Gln 860	ttc Phe	aag Lys	aaa Lys	gtt Val	2592
gtt Val 865	ttc Phe	cag Gln	gaa Glu	ttt Phe	act Thr 870	gat Asp	ggc Gly	tcc Ser	ttt Phe	act Thr 875	cag Gln	ccc Pro	tta Leu	tac Tyr	cgt Arg 880	2640
gga Gly	gaa Glu	cta Leu	aat Asn	gaa Glu 885	cat His	ttg Leu	gga Gly	ctc Leu	ctg Leu 890	ggg Gly	cca Pro	tat Tyr	ata Ile	aga Arg 895	gca Ala	2688
gaa Glu	gtt Val	gaa Glu	gat Asp 900	aat Asn	atc Ile	atg Met	gta Val	act Thr 905	ttc Phe	aga Arg	aat Asn	cag Gln	gcc Ala 910	tct Ser	cgt Arg	2736
ccc Pro	tat Tyr	tcc Ser 915	ttc Phe	tat Tyr	tct Ser	agc Ser	ctt Leu 920	att Ile	tct Ser	tat Tyr	gag Glu	gaa Glu 925	gat Asp	cag Gln	agg Arg	2784
caa Gln	gga Gly 930	gca Ala	gaa Glu	cct Pro	aga Arg	aaa Lys 935	aac Asn	ttt Phe	gtc Val	aag Lys	cct Pro 940	aat Asn	gaa Glu	acc Thr	aaa Lys	2832
act Thr 945	tac Tyr	ttt Phe	tgg Trp	aaa Lys	gtg Val 950	caa Gln	cat His	cat His	atg Met	gca Ala 955	ccc Pro	act Thr	aaa Lys	gat Asp	gag Glu 960	2880
ttt Phe	gac Asp	tgc Cys	aaa Lys	gcc Ala 965	tgg Trp	gct Ala	tat Tyr	ttc Phe	tct Ser 970	gat Asp	gtt Val	gac Asp	ctg Leu	gaa Glu 975	aaa Lys	2928

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Asp	Val	His	Ser	Gly	Leu	Ile	Gly	Pro	Leu	Leu	Val	Cys	His	Thr	Asn	
			980					985					990			
aca	ctg	aac	cct	gct	cat	ggg	aga	caa	gtg	aca	gta	cag	gaa	ttt	gct	3024
Thr	Leu	Asn	Pro	Ala	His	Gly	Arg	Gln	Val	Thr	Val	Gln	Glu	Phe	Ala	
		995					1000					1005				
ctg	ttt	ttc	acc	atc	ttt	gat	gag	acc	aaa	agc	tgg	tac	ttc	act		3069
Leu	Phe	Phe	Thr	Ile	Phe	Asp	Glu	Thr	Lys	Ser	Trp	Tyr	Phe	Thr		
	1010					1015					1020					
gaa	aat	atg	gaa	aga	aac	tgc	agg	gct	ccc	tgc	aat	atc	cag	atg		3114
Glu	Asn	Met	Glu	Arg	Asn	Cys	Arg	Ala	Pro	Cys	Asn	Ile	Gln	Met		
	1025					1030					1035					
gaa	gat	ccc	act	ttt	aaa	gag	aat	tat	cgc	ttc	cat	gca	atc	aat		3159
Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn		
	1040					1045					1050					
ggc	tac	ata	atg	gat	aca	cta	cct	ggc	tta	gta	atg	gct	cag	gat		3204
Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp		
	1055					1060					1065					
caa	agg	att	cga	tgg	tat	ctg	ctc	agc	atg	ggc	agc	aat	gaa	aac		3249
Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn		
	1070					1075					1080					
atc	cat	tct	att	cat	ttc	agt	gga	cat	gtg	ttc	act	gta	cga	aaa		3294
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys		
	1085					1090					1095					
aaa	gag	gag	tat	aaa	atg	gca	ctg	tac	aat	ctc	tat	cca	ggt	gtt		3339
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val		
	1100					1105					1110					
ttt	gag	aca	gtg	gaa	atg	tta	cca	tcc	aaa	gct	gga	att	tgg	cgg		3384
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg		
	1115					1120					1125					
gtg	gaa	tgc	ctt	att	ggc	gag	cat	cta	cat	gct	ggg	atg	agc	aca		3429
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr		
	1130					1135					1140					
ctt	ttt	ctg	gtg	tac	agc	aat	aag	tgt	cag	act	ccc	ctg	gga	atg		3474
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met		
	1145					1150					1155					
gct	tct	gga	cac	att	aga	gat	ttt	cag	att	aca	gct	tca	gga	caa		3519
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln		
	1160					1165					1170					
tat	gga	cag	tgg	gcc	cca	aag	ctg	gcc	aga	ctt	cat	tat	tcc	gga		3564
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly		
	1175					1180					1185					
tca	atc	aat	gcc	tgg	agc	acc	aag	gag	ccc	ttt	tct	tgg	atc	aag		3609
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys		
	1190					1195					1200					
gtg	gat	ctg	ttg	gca	cca	atg	att	att	cac	ggc	atc	aag	acc	cag		3654
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln		
	1205					1210					1215					
ggt	gcc	cgt	cag	aag	ttc	tcc	agc	ctc	tac	atc	tct	cag	ttt	atc		3699
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile		
	1220					1225					1230					

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aat Asn	tcc Ser 1250	act Thr	gga Gly	acc Thr	tta Leu	atg Met 1255	gtc Val	ttc Phe	ttt Phe	ggc Gly	aat Asn 1260	gtg Val	gat Asp	tca Ser	3789
tct Ser	ggg Gly 1265	ata Ile	aaa Lys	cac His	aat Asn	att Ile 1270	ttt Phe	aac Asn	cct Pro	cca Pro	att Ile 1275	att Ile	gct Ala	cga Arg	3834
tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu	3879
cgc Arg	atg Met 1295	gag Glu	ttg Leu	atg Met	ggc Gly	tgt Cys 1300	gat Asp	tta Leu	aat Asn	agt Ser	tgc Cys 1305	agc Ser	atg Met	cca Pro	3924
ttg Leu	gga Gly 1310	atg Met	gag Glu	agt Ser	aaa Lys	gca Ala 1315	ata Ile	tca Ser	gat Asp	gca Ala	cag Gln 1320	att Ile	act Thr	gct Ala	3969
tca Ser	tcc Ser 1325	tac Tyr	ttt Phe	acc Thr	aat Asn	atg Met 1330	ttt Phe	gcc Ala	acc Thr	tgg Trp	tct Ser 1335	cct Pro	tca Ser	aaa Lys	4014
gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln	4059
gtg Val	aat Asn 1355	aat Asn	cca Pro	aaa Lys	gag Glu	tgg Trp 1360	ctg Leu	caa Gln	gtg Val	gac Asp	ttc Phe 1365	cag Gln	aag Lys	aca Thr	4104
atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu	4149
acc Thr	agc Ser 1385	atg Met	tat Tyr	gtg Val	aag Lys	gag Glu 1390	ttc Phe	ctc Leu	atc Ile	tcc Ser	agc Ser 1395	agt Ser	caa Gln	gat Asp	4194
ggc Gly	cat His 1400	cag Gln	tgg Trp	act Thr	ctc Leu	ttt Phe 1405	ttt Phe	cag Gln	aat Asn	ggc Gly	aaa Lys 1410	gta Val	aag Lys	gtt Val	4239
ttt Phe	cag Gln 1415	gga Gly	aat Asn	caa Gln	gac Asp	tcc Ser 1420	ttc Phe	aca Thr	cct Pro	gtg Val	gtg Val 1425	aac Asn	tct Ser	cta Leu	4284
gac Asp	cca Pro 1430	ccg Pro	tta Leu	ctg Leu	act Thr	cgc Arg 1435	tac Tyr	ctt Leu	cga Arg	att Ile	cac His 1440	ccc Pro	cag Gln	agt Ser	4329
tgg Trp	gtg Val 1445	cac His	cag Gln	att Ile	gcc Ala	ctg Leu 1450	agg Arg	atg Met	gag Glu	gtt Val	ctg Leu 1455	ggc Gly	tgc Cys	gag Glu	4374
gca Ala	cag Gln 1460	gac Asp	ctc Leu	tac Tyr	acc Thr	ggt Gly 1465	gat Asp	gag Glu	gat Asp	gaa Glu	aat Asn 1470	cag Gln	agc Ser	ccc Pro	4419
cgc Arg	agc Ser 1475	ttt Phe	caa Gln	aag Lys	aaa Lys	aca Thr 1480	cga Arg	cac His	tat Tyr	ttt Phe	att Ile 1485	gct Ala	gca Ala	gtg Val	4464

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tcc Ser	gct Ala 1535	cct Pro	gct Ala	gcc Ala	tct Ser	ccc Pro 1540	gct Ala	gca Ala	cct Pro	gct Ala	cca Pro 1545	gca Ala	agc Ser	cct Pro	4644
gct Ala	gca Ala 1550	cca Pro	gct Ala	ccg Pro	tcc Ser	gct Ala 1555	cct Pro	gct Ala	gcc Ala	tct Ser	cca Pro 1560	gct Ala	gca Ala	cct Pro	4689
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tct Ser	cca Pro 1580	gct Ala	gca Ala	cct Pro	gct Ala	cca Pro 1585	gca Ala	agc Ser	cct Pro	gct Ala	gca Ala 1590	cca Pro	gct Ala	ccg Pro	4779
tcc Ser	gct Ala 1595	cct Pro	gct Ala	gcc Ala	tct Ser	cca Pro 1600	gct Ala	gca Ala	cct Pro	gct Ala	cca Pro 1605	gca Ala	agc Ser	cct Pro	4824
gct Ala	gca Ala 1610	cca Pro	gct Ala	ccg Pro	tcc Ser	gct Ala 1615	cct Pro	gct Ala	gcc Ala	tct Ser	cca Pro 1620	gct Ala	gca Ala	cct Pro	4869
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tct Ser	ccc Pro 1640	gct Ala	gca Ala	cct Pro	gct Ala	cca Pro 1645	gca Ala	agc Ser	cct Pro	gct Ala	gca Ala 1650	cca Pro	gct Ala	ccg Pro	4959
tcc Ser	gct Ala 1655	cct Pro	gct Ala	gcc Ala	tct Ser	cca Pro 1660	gct Ala	gca Ala	cct Pro	gct Ala	cca Pro 1665	gca Ala	agc Ser	cct Pro	5004
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cca Pro	gct Ala 1700	gca Ala	cct Pro	gct Ala	cca Pro	gca Ala 1705	agc Ser	cct Pro	gct Ala	gca Ala	cca Pro 1710	gct Ala	ccg Pro	tcc Ser	5139
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cca Pro	gca Ala 1865	agc Ser	cct Pro	gct Ala	gca Ala	cca Pro 1870	gct Ala	ccg Pro	tcc Ser	gct Ala	cct Pro 1875	gct Ala	gcc Ala	tct Ser	5634
cca Pro	gct Ala 1880	gca Ala	cct Pro	gct Ala	cca Pro	gca Ala 1885	agc Ser	cct Pro	gct Ala	gca Ala	cca Pro 1890	gct Ala	cgc Arg	gct Ala	5679
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tgc Cys	atg Met 2105	gtg Val	cag Gln	gtg Val	ggg Gly	gtc Val 2110	atc Ile	tct Ser	gga Gly	ttc Phe	aag Lys 2115	ctg Leu	gag Glu	tgc Cys	6354
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ccc Pro	ttt Phe 2195	gat Asp	gaa Glu	cac His	aag Lys	tgt Cys 2200	ctg Leu	gct Ala	gag Glu	gga Gly	ggt Gly 2205	aaa Lys	att Ile	atg Met	6624
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Gln	Cys	Ser	Cys	Cys	Ser	Pro	Thr	Arg	Thr	Glu	Pro	Met	Gln	Val	
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aat	gcc	atg	gag	tgc	aaa	tgc	tcc	ccc	agg	aag	tgc	agc	aag	tga	6939
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 <213> Artificial Sequence

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 <223> Synthetic Construct

<400> 156

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 35 40 45

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
 50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
 65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
 85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
 100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
 115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
 130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
 145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
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165

170

175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
275 280 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
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Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
305 310 315 320

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
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Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
340 345 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
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Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
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Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
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Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
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Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
420 425 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
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435

440

445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
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Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
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Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
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His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
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Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
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Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
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Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
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Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
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Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
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Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
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Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
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Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly

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705											710	715			720
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Tyr	Tyr	Glu	Asp ₇₄₀	Ser	Tyr	Glu	Asp	Ile ₇₄₅	Ser	Ala	Tyr	Leu	Leu ₇₅₀	Ser	Lys
Asn	Asn	Ala ₇₅₅	Ile	Glu	Pro	Arg	Ser ₇₆₀	Phe	Ser	Gln	Asn	Ser ₇₆₅	Arg	His	Pro
Ser	Thr ₇₇₀	Arg	Gln	Lys	Gln	Phe ₇₇₅	Asn	Ala	Thr	Thr	Ile ₇₈₀	Pro	Glu	Asn	Thr
Thr ₇₈₅	Leu	Gln	Ser	Asp	Gln ₇₉₀	Glu	Glu	Ile	Asp	Tyr ₇₉₅	Asp	Asp	Thr	Ile	Ser ₈₀₀
Val	Glu	Met	Lys	Lys ₈₀₅	Glu	Asp	Phe	Asp	Ile ₈₁₀	Tyr	Asp	Glu	Asp	Glu ₈₁₅	Asn
Gln	Ser	Pro	Arg ₈₂₀	Ser	Phe	Gln	Lys	Lys ₈₂₅	Thr	Arg	His	Tyr	Phe ₈₃₀	Ile	Ala
Ala	Val	Glu ₈₃₅	Arg	Leu	Trp	Asp	Tyr ₈₄₀	Gly	Met	Ser	Ser	Ser ₈₄₅	Pro	His	Val
Leu	Arg ₈₅₀	Asn	Arg	Ala	Gln	Ser ₈₅₅	Gly	Ser	Val	Pro	Gln ₈₆₀	Phe	Lys	Lys	Val
Val	Phe	Gln	Glu	Phe	Thr ₈₇₀	Asp	Gly	Ser	Phe	Thr ₈₇₅	Gln	Pro	Leu	Tyr	Arg ₈₈₀
Gly	Glu	Leu	Asn	Glu ₈₈₅	His	Leu	Gly	Leu	Leu ₈₉₀	Gly	Pro	Tyr	Ile	Arg ₈₉₅	Ala
Glu	Val	Glu	Asp ₉₀₀	Asn	Ile	Met	Val	Thr ₉₀₅	Phe	Arg	Asn	Gln	Ala ₉₁₀	Ser	Arg
Pro	Tyr	Ser ₉₁₅	Phe	Tyr	Ser	Ser	Leu ₉₂₀	Ile	Ser	Tyr	Glu	Glu ₉₂₅	Asp	Gln	Arg
Gln	Gly ₉₃₀	Ala	Glu	Pro	Arg	Lys ₉₃₅	Asn	Phe	Val	Lys	Pro ₉₄₀	Asn	Glu	Thr	Lys
Thr ₉₄₅	Tyr	Phe	Trp	Lys	Val ₉₅₀	Gln	His	His	Met	Ala ₉₅₅	Pro	Thr	Lys	Asp	Glu ₉₆₀
Phe	Asp	Cys	Lys	Ala ₉₆₅	Trp	Ala	Tyr	Phe	Ser ₉₇₀	Asp	Val	Asp	Leu	Glu ₉₇₅	Lys
Asp	Val	His	Ser	Gly	Leu	Ile	Gly	Pro	Leu	Leu	Val	Cys	His	Thr	Asn

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980

985

990

Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
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Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
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Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
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Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp
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Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn
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Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg Lys
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1100 1105 1110

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

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Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser
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Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro
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Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg
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Thr	Ser	Met	Tyr	Val	Lys	Glu	Phe	Leu	Ile	Ser	Ser	Ser
1385						1390					1395	Gln
Gly	His	Gln	Trp	Thr	Leu	Phe	Phe	Gln	Asn	Gly	Lys	Val
1400						1405					1410	Lys
Phe	Gln	Gly	Asn	Gln	Asp	Ser	Phe	Thr	Pro	Val	Val	Asn
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Asp	Pro	Pro	Leu	Leu	Thr	Arg	Tyr	Leu	Arg	Ile	His	Pro
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Trp	Val	His	Gln	Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly
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Ala	Gln	Asp	Leu	Tyr	Thr	Gly	Asp	Glu	Asp	Glu	Asn	Gln
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Arg	Ser	Phe	Gln	Lys	Lys	Thr	Arg	His	Tyr	Phe	Ile	Ala
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Glu	Arg	Leu	Trp	Thr	Gly	Gly	Ser	Ser	Ala	Ser	Pro	Ala
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Pro	Ala	Ser	Pro	Ala	Ala	Pro	Ala	Pro	Ser	Ala	Pro	Ala
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Gln	Lys	Pro	Cys	Glu	Asp	Ser	Cys	Arg	Ser	Gly	Phe	Thr
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Leu	His	Glu	Gly	Glu	Cys	Cys	Gly	Arg	Cys	Leu	Pro	Ser
1985						1990					1995	
Glu	Val	Val	Thr	Gly	Ser	Pro	Arg	Gly	Asp	Ser	Gln	Ser
												Trp

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2000				2005				2010						
Lys	Ser	Val	Gly	Ser	Gln	Trp	Ala	Ser	Pro	Glu	Asn	Pro	Cys	Leu
	2015					2020					2025			
Ile	Asn	Glu	Cys	Val	Arg	Val	Lys	Glu	Glu	Val	Phe	Ile	Gln	Gln
	2030					2035					2040			
Arg	Asn	Val	Ser	Cys	Pro	Gln	Leu	Glu	Val	Pro	Val	Cys	Pro	Ser
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Cys	Met	Val	Gln	Val	Gly	Val	Ile	Ser	Gly	Phe	Lys	Leu	Glu	Cys
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2255

2260

2265

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Ile	His 1085	Ser	Ile	His	Phe	Ser 1090	Gly	His	Val	Phe	Thr 1095	Val	Arg	Lys			
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Ser	Ile 1190	Asn	Ala	Trp	Ser	Thr 1195	Lys	Glu	Pro	Phe	Ser 1200	Trp	Ile	Lys			
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aat Asn	tcc Ser 1250	act Thr	gga Gly	acc Thr	tta Leu	atg Met 1255	gtc Val	ttc Phe	ttt Phe	ggc Gly	aat Asn 1260	gtg Val	gat Asp	tca Ser
tct Ser	ggg Gly 1265	ata Ile	aaa Lys	cac His	aat Asn	att Ile 1270	ttt Phe	aac Asn	cct Pro	cca Pro	att Ile 1275	att Ile	gct Ala	cga Arg
tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu
cgc Arg	atg Met 1295	gag Glu	ttg Leu	atg Met	ggc Gly	tgt Cys 1300	gat Asp	tta Leu	aat Asn	agt Ser	tgc Cys 1305	agc Ser	atg Met	cca Pro
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gca	cag	gac	ctc	tac	acc	ggg	agc	cta	tcc	tgt	cgg	ccc	ccc	atg

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cat	gag	aac	aga	tgt	gtg	gcc	ctg	gaa	agg	tgt	ccc	tgc	ttc	cat
His	Glu	Asn	Arg	Cys	Val	Ala	Leu	Glu	Arg	Cys	Pro	Cys	Phe	His
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 <213> Artificial Sequence

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<220>

<223> Synthetic Construct

<400> 159

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
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His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
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Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
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Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
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Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

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Val Asn Arg Ser₂₆₀ Leu Pro Gly Leu Ile₂₆₅ Gly Cys His Arg Lys₂₇₀ Ser Val
 Tyr Trp His₂₇₅ Val Ile Gly Met Gly₂₈₀ Thr Thr Pro Glu Val₂₈₅ His Ser Ile
 Phe Leu₂₉₀ Glu Gly His Thr Phe₂₉₅ Leu Val Arg Asn His₃₀₀ Arg Gln Ala Ser
 Leu₃₀₅ Glu Ile Ser Pro Ile₃₁₀ Thr Phe Leu Thr Ala₃₁₅ Gln Thr Leu Leu Met₃₂₀
 Asp Leu Gly Gln Phe₃₂₅ Leu Leu Phe Cys His₃₃₀ Ile Ser Ser His Gln₃₃₅ His
 Asp Gly Met Glu₃₄₀ Ala Tyr Val Lys Val₃₄₅ Asp Ser Cys Pro Glu₃₅₀ Glu Pro
 Gln Leu Arg₃₅₅ Met Lys Asn Asn Glu₃₆₀ Glu Ala Glu Asp Tyr₃₆₅ Asp Asp Asp
 Leu Thr₃₇₀ Asp Ser Glu Met Asp₃₇₅ Val Val Arg Phe Asp₃₈₀ Asp Asp Asn Ser
 Pro₃₈₅ Ser Phe Ile Gln Ile₃₉₀ Arg Ser Val Ala Lys₃₉₅ Lys His Pro Lys Thr₄₀₀
 Trp Val His Tyr Ile₄₀₅ Ala Ala Glu Glu Glu₄₁₀ Asp Trp Asp Tyr Ala₄₁₅ Pro
 Leu Val Leu Ala₄₂₀ Pro Asp Asp Arg Ser₄₂₅ Tyr Lys Ser Gln Tyr₄₃₀ Leu Asn
 Asn Gly Pro₄₃₅ Gln Arg Ile Gly Arg₄₄₀ Lys Tyr Lys Lys Val₄₄₅ Arg Phe Met
 Ala Tyr₄₅₀ Thr Asp Glu Thr Phe₄₅₅ Lys Thr Arg Glu Ala₄₆₀ Ile Gln His Glu
 Ser₄₆₅ Gly Ile Leu Gly Pro₄₇₀ Leu Leu Tyr Gly Glu₄₇₅ Val Gly Asp Thr Leu₄₈₀
 Leu Ile Ile Phe Lys₄₈₅ Asn Gln Ala Ser Arg₄₉₀ Pro Tyr Asn Ile Tyr₄₉₅ Pro
 His Gly Ile Thr₅₀₀ Asp Val Arg Pro Leu₅₀₅ Tyr Ser Arg Arg Leu₅₁₀ Pro Lys
 Gly Val Lys₅₁₅ His Leu Lys Asp Phe₅₂₀ Pro Ile Leu Pro Gly₅₂₅ Glu Ile Phe

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Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
 530 535 540
 Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
 545 550 555 560
 Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
 565 570 575
 Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
 580 585 590
 Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
 595 600 605
 Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
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 Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
 625 630 635 640
 Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
 645 650 655
 Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
 660 665 670
 Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
 675 680 685
 Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
 690 695 700
 Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
 705 710 715 720
 Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
 725 730 735
 Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
 740 745 750
 Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
 755 760 765
 Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
 770 775 780
 Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
 785 790 795 800

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Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
 805 810 815
 Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
 820 825 830
 Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
 835 840 845
 Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
 850 855 860
 Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
 865 870 875 880
 Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
 885 890 895
 Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
 900 905 910
 Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
 915 920 925
 Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
 930 935 940
 Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
 945 950 955 960
 Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
 965 970 975
 Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
 980 985 990
 Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
 995 1000 1005
 Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
 1010 1015 1020
 Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met
 1025 1030 1035
 Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
 1040 1045 1050
 Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp
 1055 1060 1065

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Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn
	1070					1075					1080			
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys
	1085					1090					1095			
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
	1100					1105					1110			
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg
	1115					1120					1125			
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr
	1130					1135					1140			
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met
	1145					1150					1155			
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
	1160					1165					1170			
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
	1175					1180					1185			
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
	1190					1195					1200			
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
	1205					1210					1215			
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
	1220					1225					1230			
Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
	1235					1240					1245			
Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
	1250					1255					1260			
Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg
	1265					1270					1275			
Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
	1280					1285					1290			
Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
	1295					1300					1305			
Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
	1310					1315					1320			

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Ser	Ser 1325	Tyr	Phe	Thr	Asn	Met 1330	Phe	Ala	Thr	Trp	Ser 1335	Pro	Ser	Lys
Ala	Arg 1340	Leu	His	Leu	Gln	Gly 1345	Arg	Ser	Asn	Ala	Trp 1350	Arg	Pro	Gln
Val	Asn 1355	Asn	Pro	Lys	Glu	Trp 1360	Leu	Gln	Val	Asp	Phe 1365	Gln	Lys	Thr
Met	Lys 1370	Val	Thr	Gly	Val	Thr 1375	Thr	Gln	Gly	Val	Lys 1380	Ser	Leu	Leu
Thr	Ser 1385	Met	Tyr	Val	Lys	Glu 1390	Phe	Leu	Ile	Ser	Ser 1395	Ser	Gln	Asp
Gly	His 1400	Gln	Trp	Thr	Leu	Phe 1405	Phe	Gln	Asn	Gly	Lys 1410	Val	Lys	Val
Phe	Gln 1415	Gly	Asn	Gln	Asp	Ser 1420	Phe	Thr	Pro	Val	Val 1425	Asn	Ser	Leu
Asp	Pro 1430	Pro	Leu	Leu	Thr	Arg 1435	Tyr	Leu	Arg	Ile	His 1440	Pro	Gln	Ser
Trp	Val 1445	His	Gln	Ile	Ala	Leu 1450	Arg	Met	Glu	Val	Leu 1455	Gly	Cys	Glu
Ala	Gln 1460	Asp	Leu	Tyr	Thr	Gly 1465	Ser	Leu	Ser	Cys	Arg 1470	Pro	Pro	Met
Val	Lys 1475	Leu	Val	Cys	Pro	Ala 1480	Asp	Asn	Leu	Arg	Ala 1485	Glu	Gly	Leu
Glu	Cys 1490	Thr	Lys	Thr	Cys	Gln 1495	Asn	Tyr	Asp	Leu	Glu 1500	Cys	Met	Ser
Met	Gly 1505	Cys	Val	Ser	Gly	Cys 1510	Leu	Cys	Pro	Pro	Gly 1515	Met	Val	Arg
His	Glu 1520	Asn	Arg	Cys	Val	Ala 1525	Leu	Glu	Arg	Cys	Pro 1530	Cys	Phe	His
Gln	Gly 1535	Lys	Glu	Tyr	Ala	Pro 1540	Gly	Glu	Thr	Val	Lys 1545	Ile	Gly	Cys
Asn	Thr 1550	Cys	Val	Cys	Arg	Asp 1555	Arg	Lys	Trp	Asn	Cys 1560	Thr	Asp	His
Val	Cys 1565	Asp	Ala	Thr	Cys	Ser 1570	Thr	Ile	Gly	Met	Ala 1575	His	Tyr	Leu

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Thr	Phe 1580	Asp	Gly	Leu	Lys	Tyr 1585	Leu	Phe	Pro	Gly	Glu 1590	Cys	Gln	Tyr
Val	Leu 1595	Val	Gln	Asp	Tyr	Cys 1600	Gly	Ser	Asn	Pro	Gly 1605	Thr	Phe	Arg
Ile	Leu 1610	Val	Gly	Asn	Lys	Gly 1615	Cys	Ser	His	Pro	Ser 1620	Val	Lys	Cys
Lys	Lys 1625	Arg	Val	Thr	Ile	Leu 1630	Val	Glu	Gly	Gly	Glu 1635	Ile	Glu	Leu
Phe	Asp 1640	Gly	Glu	Val	Asn	Val 1645	Lys	Arg	Pro	Met	Lys 1650	Asp	Glu	Thr
His	Phe 1655	Glu	Val	Val	Glu	Ser 1660	Gly	Arg	Tyr	Ile	Ile 1665	Leu	Leu	Leu
Gly	Lys 1670	Ala	Leu	Ser	Val	Val 1675	Trp	Asp	Arg	His	Leu 1680	Ser	Ile	Ser
Val	Val 1685	Leu	Lys	Gln	Thr	Tyr 1690	Gln	Glu	Lys	Val	Cys 1695	Gly	Leu	Cys
Gly	Asn 1700	Phe	Asp	Gly	Ile	Gln 1705	Asn	Asn	Asp	Leu	Thr 1710	Ser	Ser	Asn
Leu	Gln 1715	Val	Glu	Glu	Asp	Pro 1720	Val	Asp	Phe	Gly	Asn 1725	Ser	Trp	Lys
Val	Ser 1730	Ser	Gln	Cys	Ala	Asp 1735	Thr	Arg	Lys	Val	Pro 1740	Leu	Asp	Ser
Ser	Pro 1745	Ala	Thr	Cys	His	Asn 1750	Asn	Ile	Met	Lys	Gln 1755	Thr	Met	Val
Asp	Ser 1760	Ser	Cys	Arg	Ile	Leu 1765	Thr	Ser	Asp	Val	Phe 1770	Gln	Asp	Cys
Asn	Lys 1775	Leu	Val	Asp	Pro	Glu 1780	Pro	Tyr	Leu	Asp	Val 1785	Cys	Ile	Tyr
Asp	Thr 1790	Cys	Ser	Cys	Glu	Ser 1795	Ile	Gly	Asp	Cys	Ala 1800	Cys	Phe	Cys
Asp	Thr 1805	Ile	Ala	Ala	Tyr	Ala 1810	His	Val	Cys	Ala	Gln 1815	His	Gly	Lys
Val	Val 1820	Thr	Trp	Arg	Thr	Ala 1825	Thr	Leu	Cys	Pro	Gln 1830	Ser	Cys	Glu

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 Asn Ser Cys Ala Pro Ala Cys Gln Val Thr Cys Gln His Pro Glu
 1850 1855 1860
 Pro Leu Ala Cys Pro Val Gln Cys Val Glu Gly Cys His Ala His
 1865 1870 1875
 Cys Pro Pro Gly Lys Ile Leu Asp Glu Leu Leu Gln Thr Cys Val
 1880 1885 1890
 Asp Pro Glu Asp Cys Pro Val Cys Glu Val Ala Gly Arg Arg Phe
 1895 1900 1905
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 1940

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 tgc ttt agt gcc acc aga aga tac tac ctg ggt gca gtg gaa ctg tca 96
 Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
 20 25 30
 tgg gac tat atg caa agt gat ctc ggt gag ctg cct gtg gac gca aga 144
 Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
 35 40 45
 ttt cct cct aga gtg cca aaa tct ttt cca ttc aac acc tca gtc gtg 192
 Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
 50 55 60
 tac aaa aag act ctg ttt gta gaa ttc acg gat cac ctt ttc aac atc 240
 Tyr Lys Lys Thr Leu Val Glu Phe Thr Asp His Leu Phe Asn Ile
 65 70 75 80

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gct Ala	gag Glu	gtt Val	tat Tyr 100	gat Asp	aca Thr	gtg Val	gtc Val	att Ile 105	aca Thr	ctt Leu	aag Lys	aac Asn	atg Met 110	gct Ala	tcc Ser	336
cat His	cct Pro	gtc Val 115	agt Ser	ctt Leu	cat His	gct Ala	gtt Val 120	ggt Gly	gta Val	tcc Ser	tac Tyr	tgg Trp 125	aaa Lys	gct Ala	tct Ser	384
gag Glu	gga Gly 130	gct Ala	gaa Glu	tat Tyr	gat Asp	gat Asp 135	cag Gln	acc Thr	agt Ser	caa Gln	agg Arg 140	gag Glu	aaa Lys	gaa Glu	gat Asp	432
gat Asp 145	aaa Lys	gtc Val	ttc Phe	cct Pro	ggt Gly 150	gga Gly	agc Ser	cat His	aca Thr	tat Tyr 155	gtc Val	tgg Trp	cag Gln	gtc Val	ctg Leu 160	480
aaa Lys	gag Glu	aat Asn	ggt Gly	cca Pro 165	atg Met	gcc Ala	tct Ser	gac Asp	cca Pro 170	ctg Leu	tgc Cys	ctt Leu	acc Thr	tac Tyr 175	tca Ser	528
tat Tyr	ctt Leu	tct Ser	cat His 180	gtg Val	gac Asp	ctg Leu	gta Val	aaa Lys 185	gac Asp	ttg Leu	aat Asn	tca Ser	ggc Gly 190	ctc Leu	att Ile	576
gga Gly	gcc Ala	cta Leu 195	cta Leu	gta Val	tgt Cys	aga Arg	gaa Glu 200	ggg Gly	agt Ser	ctg Leu	gcc Ala	aag Lys 205	gaa Glu	aag Lys	aca Thr	624
cag Gln	acc Thr 210	ttg Leu	cac His	aaa Lys	ttt Phe	ata Ile 215	cta Leu	ctt Leu	ttt Phe	gct Ala	gta Val 220	ttt Phe	gat Asp	gaa Glu	ggg Gly	672
aaa Lys 225	agt Ser	tgg Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240	720
gct Ala	gca Ala	tct Ser	gct Ala	cgg Arg 245	gcc Ala	tgg Trp	cct Pro	aaa Lys	atg Met 250	cac His	aca Thr	gtc Val	aat Asn	ggt Gly 255	tat Tyr	768
gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggt Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val	816
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile	864
ttc Phe	ctc Leu 290	gaa Glu	ggt Gly	cac His	aca Thr	ttt Phe 295	ctt Leu	gtg Val	agg Arg	aac Asn	cat His 300	cgc Arg	cag Gln	gcg Ala	tcc Ser	912
ttg Leu 305	gaa Glu	atc Ile	tcg Ser	cca Pro	ata Ile 310	act Thr	ttc Phe	ctt Leu	act Thr	gct Ala 315	caa Gln	aca Thr	ctc Leu	ttg Leu	atg Met 320	960
gac Asp	ctt Leu	gga Gly	cag Gln	ttt Phe 325	cta Leu	ctg Leu	ttt Phe	tgt Cys	cat His 330	atc Ile	tct Ser	tcc Ser	cac His	caa Gln 335	cat His	1008
gat Asp	ggc Gly	atg Met	gaa Glu 340	gct Ala	tat Tyr	gtc Val	aaa Lys	gta Val 345	gac Asp	agc Ser	tgt Cys	cca Pro	gag Glu 350	gaa Glu	ccc Pro	1056

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ctt Leu	act Thr 370	gat Asp	tct Ser	gaa Glu	atg Met	gat Asp 375	gtg Val	gtc Val	agg Arg	ttt Phe	gat Asp 380	gat Asp	gac Asp	aac Asn	tct Ser	1152
cct Pro 385	tcc Ser	ttt Phe	atc Ile	caa Gln	att Ile 390	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 395	aag Lys	cat His	cct Pro	aaa Lys	act Thr 400	1200
tgg Trp	gta Val	cat His	tac Tyr	att Ile 405	gct Ala	gct Ala	gaa Glu	gag Glu	gag Glu 410	gac Asp	tgg Trp	gac Asp	tat Tyr	gct Ala 415	ccc Pro	1248
tta Leu	gtc Val	ctc Leu	gcc Ala 420	ccc Pro	gat Asp	gac Asp	aga Arg	agt Ser 425	tat Tyr	aaa Lys	agt Ser	caa Gln	tat Tyr 430	ttg Leu	aac Asn	1296
aat Asn	ggc Gly	cct Pro 435	cag Gln	cgg Arg	att Ile	ggt Gly	agg Arg 440	aag Lys	tac Tyr	aaa Lys	aaa Lys	gtc Val 445	cga Arg	ttt Phe	atg Met	1344
gca Ala	tac Tyr 450	aca Thr	gat Asp	gaa Glu	acc Thr	ttt Phe 455	aag Lys	act Thr	cgf Arg	gaa Glu	gct Ala 460	att Ile	cag Gln	cat His	gaa Glu	1392
tca Ser 465	gga Gly	atc Ile	ttg Leu	gga Gly	cct Pro 470	tta Leu	ctt Leu	tat Tyr	ggg Gly	gaa Glu 475	ggt Val	gga Gly	gac Asp	aca Thr	ctg Leu 480	1440
ttg Leu	att Ile	ata Ile	ttt Phe	aag Lys 485	aat Asn	caa Gln	gca Ala	agc Ser	aga Arg 490	cca Pro	tat Tyr	aac Asn	atc Ile	tac Tyr 495	cct Pro	1488
cac His	gga Gly	atc Ile	act Thr 500	gat Asp	gtc Val	cgf Arg	cct Pro	ttg Leu 505	tat Tyr	tca Ser	agg Arg	aga Arg	tta Leu 510	cca Pro	aaa Lys	1536
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cct Pro 545	cgg Arg	tgc Cys	ctg Leu	acc Thr	cgf Arg 550	tat Tyr	tac Tyr	tct Ser	agt Ser	ttc Phe 555	ggt Val	aat Asn	atg Met	gag Glu	aga Arg 560	1680
gat Asp	cta Leu	gct Ala	tca Ser	gga Gly 565	ctc Leu	att Ile	ggc Gly	cct Pro	ctc Leu 570	ctc Leu	atc Ile	tgc Cys	tac Tyr	aaa Lys 575	gaa Glu	1728
tct Ser	gta Val	gat Asp	caa Gln 580	aga Arg	gga Gly	aac Asn	cag Gln	ata Ile 585	atg Met	tca Ser	gac Asp	aag Lys	agg Arg 590	aat Asn	gtc Val	1776
atc Ile	ctg Leu	ttt Phe 595	tct Ser	gta Val	ttt Phe	gat Asp	gag Glu 600	aac Asn	cga Arg	agc Ser	tgg Trp	tac Tyr 605	ctc Leu	aca Thr	gag Glu	1824
aat Asn	ata Ile 610	caa Gln	cgf Arg	ttt Phe	ctc Leu	ccc Pro 615	aat Asn	cca Pro	gct Ala	gga Gly	gtg Val 620	cag Gln	ctt Leu	gag Glu	gat Asp	1872

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ttt Phe	gat Asp	agt Ser	ttg Leu	cag Gln 645	ttg Leu	tca Ser	gtt Val	tgt Cys	ttg Leu 650	cat His	gag Glu	gtg Val	gca Ala	tac Tyr 655	tgg Trp	1968
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tct Ser	gga Gly	tat Tyr 675	acc Thr	ttc Phe	aaa Lys	cac His	aaa Lys 680	atg Met	gtc Val	tat Tyr	gaa Glu	gac Asp 685	aca Thr	ctc Leu	acc Thr	2064
cta Leu	ttc Phe 690	cca Pro	ttc Phe	tca Ser	gga Gly	gaa Glu 695	act Thr	gtc Val	ttc Phe	atg Met	tgc Ser 700	atg Met	gaa Glu	aac Asn	cca Pro	2112
ggt Gly 705	cta Leu	tgg Trp	att Ile	ctg Leu	ggg Gly 710	tgc Cys	cac His	aac Asn	tca Ser	gac Asp 715	ttt Phe	cgg Arg	aac Asn	aga Arg	ggc Gly 720	2160
atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggt Gly 735	gat Asp	2208
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aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro	2304
agc Ser	act Thr 770	agg Arg	caa Gln	aag Lys	caa Gln	ttt Phe 775	aat Asn	gcc Ala	acc Thr	aca Thr	att Ile 780	cca Pro	gaa Glu	aat Asn	act Thr	2352
act Thr 785	ctt Leu	cag Gln	tca Ser	gat Asp	caa Gln 790	gag Glu	gaa Glu	att Ile	gac Asp	tat Tyr 795	gat Asp	gat Asp	acc Thr	ata Ile	tca Ser 800	2400
gtt Val	gaa Glu	atg Met	aag Lys	aag Lys 805	gaa Glu	gat Asp	ttt Phe	gac Asp	att Ile 810	tat Tyr	gat Asp	gag Glu	gat Asp	gaa Glu 815	aat Asn	2448
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gca Ala	gtg Val	gag Glu 835	agg Arg	ctc Leu	tgg Trp	gat Asp	tat Tyr 840	ggg Gly	atg Met	agt Ser	agc Ser	tcc Ser 845	cca Pro	cat His	gtt Val	2544
cta Leu	aga Arg 850	aac Asn	agg Arg	gct Ala	cag Gln	agt Ser 855	ggc Gly	agt Ser	gtc Val	cct Pro	cag Gln 860	ttc Phe	aag Lys	aaa Lys	gtt Val	2592
gtt Val 865	ttc Phe	cag Gln	gaa Glu	ttt Phe	act Thr 870	gat Asp	ggc Gly	tcc Ser	ttt Phe	act Thr 875	cag Gln	ccc Pro	tta Leu	tac Tyr	cgt Arg 880	2640
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Phe	Asp	Cys	Lys	Ala	Trp	Ala	Tyr	Phe	Ser	Asp	Val	Asp	Leu	Glu	Lys	
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Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn		
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Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn		
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Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val		
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tat Tyr	gga Gly 1175	cag Gln	tgg Trp	gcc Ala	cca Pro	aag Lys 1180	ctg Leu	gcc Ala	aga Arg	ctt Leu	cat His 1185	tat Tyr	tcc Ser	gga Gly	3564
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atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu	4149
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tgc Cys	aag Lys 1730	aaa Lys	cgg Arg	gtc Val	acc Thr	atc Ile 1735	ctg Leu	gtg Val	gag Glu	gga Gly	gga Gly 1740	gag Glu	att Ile	gag Glu	5229
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<220>
 <223> Synthetic Construct

<400> 161

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
 50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
 65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
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90

85

95

Ala Glu Val Tyr₁₀₀ Asp Thr Val Val Ile₁₀₅ Thr Leu Lys Asn Met₁₁₀ Ala Ser
His Pro Val₁₁₅ Ser Leu His Ala Val₁₂₀ Gly Val Ser Tyr Trp₁₂₅ Lys Ala Ser
Glu Gly₁₃₀ Ala Glu Tyr Asp Asp₁₃₅ Gln Thr Ser Gln Arg₁₄₀ Glu Lys Glu Asp
Asp₁₄₅ Lys Val Phe Pro Gly₁₅₀ Gly Ser His Thr Tyr₁₅₅ Val Trp Gln Val Leu₁₆₀
Lys Glu Asn Gly₁₆₅ Pro Met Ala Ser Asp Pro₁₇₀ Leu Cys Leu Thr Tyr₁₇₅ Ser
Tyr Leu Ser His₁₈₀ Val Asp Leu Val Lys₁₈₅ Asp Leu Asn Ser Gly₁₉₀ Leu Ile
Gly Ala Leu₁₉₅ Leu Val Cys Arg Glu₂₀₀ Gly Ser Leu Ala Lys₂₀₅ Glu Lys Thr
Gln Thr₂₁₀ Leu His Lys Phe Ile₂₁₅ Leu Leu Phe Ala Val₂₂₀ Phe Asp Glu Gly
Lys₂₂₅ Ser Trp His Ser Glu₂₃₀ Thr Lys Asn Ser Leu₂₃₅ Met Gln Asp Arg Asp₂₄₀
Ala Ala Ser Ala Arg₂₄₅ Ala Trp Pro Lys Met₂₅₀ His Thr Val Asn Gly₂₅₅ Tyr
Val Asn Arg Ser₂₆₀ Leu Pro Gly Leu Ile₂₆₅ Gly Cys His Arg Lys₂₇₀ Ser Val
Tyr Trp His₂₇₅ Val Ile Gly Met Gly₂₈₀ Thr Thr Pro Glu Val₂₈₅ His Ser Ile
Phe Leu₂₉₀ Glu Gly His Thr Phe₂₉₅ Leu Val Arg Asn His₃₀₀ Arg Gln Ala Ser
Leu Glu Ile Ser Pro Ile₃₁₀ Thr Phe Leu Thr Ala₃₁₅ Gln Thr Leu Leu Met₃₂₀
Asp Leu Gly Gln Phe₃₂₅ Leu Leu Phe Cys His₃₃₀ Ile Ser Ser His Gln₃₃₅ His
Asp Gly Met Glu₃₄₀ Ala Tyr Val Lys Val₃₄₅ Asp Ser Cys Pro Glu₃₅₀ Glu Pro
Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
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355

360

365

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Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
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Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
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Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
420 425 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
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Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
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Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465 470 475 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
485 490 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
500 505 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
515 520 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
530 535 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
610 615 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
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Leu	Phe	Pro	Phe	Ser	Gly	Glu	Thr	Val	Phe	Met	Ser	Met	Glu	Asn	Pro
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Met	Thr	Ala	Leu	Leu	Lys	Val	Ser	Ser	Cys	Asp	Lys	Asn	Thr	Gly	Asp
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Tyr	Tyr	Glu	Asp	Ser	Tyr	Glu	Asp	Ile	Ser	Ala	Tyr	Leu	Leu	Ser	Lys
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Ser	Thr	Arg	Gln	Lys	Gln	Phe	Asn	Ala	Thr	Thr	Ile	Pro	Glu	Asn	Thr
	770					775					780				
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785					790				795						800
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900

905

910

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Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
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Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
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Ala Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala Ser Gly Gln

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Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln
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Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr
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Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val
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Val	Asn	Asn	Pro	Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln
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Thr	Ser	Met	Tyr	Val	Lys	Glu	Phe	Leu	Ile	Ser	Ser	Ser
	1385					1390					1395	Gln
Gly	His	Gln	Trp	Thr	Leu	Phe	Phe	Gln	Asn	Gly	Lys	Val
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Phe Ala Ser Gly Lys Lys Val Thr Leu Asn Pro Ser Asp Pro Glu
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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
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ctg ttt ttc acc atc ttt gat gag acc aaa agc tgg tac ttc act Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr 1010 1015 1020	3069
gaa aat atg gaa aga aac tgc agg gct ccc tgc aat atc cag atg Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met 1025 1030 1035	3114
gaa gat ccc act ttt aaa gag aat tat cgc ttc cat gca atc aat Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn 1040 1045 1050	3159
ggc tac ata atg gat aca cta cct ggc tta gta atg gct cag gat Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp 1055 1060 1065	3204
caa agg att cga tgg tat ctg ctc agc atg ggc agc aat gaa aac Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn 1070 1075 1080	3249
atc cat tct att cat ttc agt gga cat gtg ttc act gta cga aaa Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg Lys 1085 1090 1095	3294
aaa gag gag tat aaa atg gca ctg tac aat ctc tat cca ggt gtt Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val 1100 1105 1110	3339
ttt gag aca gtg gaa atg tta cca tcc aaa gct gga att tgg cgg Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg 1115 1120 1125	3384
gtg gaa tgc ctt att ggc gag cat cta cat gct ggg atg agc aca Val Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met Ser Thr 1130 1135 1140	3429
ctt ttt ctg gtg tac agc aat aag tgt cag act ccc ctg gga atg Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu Gly Met 1145 1150 1155	3474

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gct Ala	tct Ser 1160	gga Gly	cac His	att Ile	aga Arg	gat Asp 1165	ttt Phe	cag Gln	att Ile	aca Thr	gct Ala 1170	tca Ser	gga Gly	caa Gln	3519
tat Tyr	gga Gly 1175	cag Gln	tgg Trp	gcc Ala	cca Pro	aag Lys 1180	ctg Leu	gcc Ala	aga Arg	ctt Leu	cat His 1185	tat Tyr	tcc Ser	gga Gly	3564
tca Ser	atc Ile 1190	aat Asn	gcc Ala	tgg Trp	agc Ser	acc Thr 1195	aag Lys	gag Glu	ccc Pro	ttt Phe	tct Ser 1200	tgg Trp	atc Ile	aag Lys	3609
gtg Val	gat Asp 1205	ctg Leu	ttg Leu	gca Ala	cca Pro	atg Met 1210	att Ile	att Ile	cac His	ggc Gly	atc Ile 1215	aag Lys	acc Thr	cag Gln	3654
ggt Gly	gcc Ala 1220	cgt Arg	cag Gln	aag Lys	ttc Phe	tcc Ser 1225	agc Ser	ctc Leu	tac Tyr	atc Ile	tct Ser 1230	cag Gln	ttt Phe	atc Ile	3699
atc Ile	atg Met 1235	tat Tyr	agt Ser	ctt Leu	gat Asp	ggg Gly 1240	aag Lys	aag Lys	tgg Trp	cag Gln	act Thr 1245	tat Tyr	cga Arg	gga Gly	3744
aat Asn	tcc Ser 1250	act Thr	gga Gly	acc Thr	tta Leu	atg Met 1255	gtc Val	ttc Phe	ttt Phe	ggc Gly	aat Asn 1260	gtg Val	gat Asp	tca Ser	3789
tct Ser	ggg Gly 1265	ata Ile	aaa Lys	cac His	aat Asn	att Ile 1270	ttt Phe	aac Asn	cct Pro	cca Pro	att Ile 1275	att Ile	gct Ala	cga Arg	3834
tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu	3879
cgc Arg	atg Met 1295	gag Glu	ttg Leu	atg Met	ggc Gly	tgt Cys 1300	gat Asp	tta Leu	aat Asn	agt Ser	tgc Cys 1305	agc Ser	atg Met	cca Pro	3924
ttg Leu	gga Gly 1310	atg Met	gag Glu	agt Ser	aaa Lys	gca Ala 1315	ata Ile	tca Ser	gat Asp	gca Ala	cag Gln 1320	att Ile	act Thr	gct Ala	3969
tca Ser	tcc Ser 1325	tac Tyr	ttt Phe	acc Thr	aat Asn	atg Met 1330	ttt Phe	gcc Ala	acc Thr	tgg Trp	tct Ser 1335	cct Pro	tca Ser	aaa Lys	4014
gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln	4059
gtg Val	aat Asn 1355	aat Asn	cca Pro	aaa Lys	gag Glu	tgg Trp 1360	ctg Leu	caa Gln	gtg Val	gac Asp	ttc Phe 1365	cag Gln	aag Lys	aca Thr	4104
atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu	4149
acc Thr	agc Ser 1385	atg Met	tat Tyr	gtg Val	aag Lys	gag Glu 1390	ttc Phe	ctc Leu	atc Ile	tcc Ser	agc Ser 1395	agt Ser	caa Gln	gat Asp	4194
ggc Gly	cat His 1400	cag Gln	tgg Trp	act Thr	ctc Leu	ttt Phe 1405	ttt Phe	cag Gln	aat Asn	ggc Gly	aaa Lys 1410	gta Val	aag Lys	gtt Val	4239

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Phe	Gln	Gly	Asn	Gln	Asp	Ser	Phe	Thr	Pro	Val	Val	Asn	Ser	Leu	
	1415					1420					1425				
gac	cca	ccg	tta	ctg	act	cgc	tac	ctt	cga	att	cac	ccc	cag	agt	4329
Asp	Pro	Pro	Leu	Leu	Thr	Arg	Tyr	Leu	Arg	Ile	His	Pro	Gln	Ser	
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tgg	gtg	cac	cag	att	gcc	ctg	agg	atg	gag	ggt	ctg	ggc	tgc	gag	4374
Trp	Val	His	Gln	Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly	Cys	Glu	
	1445					1450					1455				
gca	cag	gac	ctc	tac	acc	ggt	gat	gac	aac	tct	cct	tcc	ttt	atc	4419
Ala	Gln	Asp	Leu	Tyr	Thr	Gly	Asp	Asp	Asn	Ser	Pro	Ser	Phe	Ile	
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caa	att	cgc	tca	gtt	gcc	aag	aag	cat	cct	aaa	act	tgg	cct	cga	4464
Gln	Ile	Arg	Ser	Val	Ala	Lys	Lys	His	Pro	Lys	Thr	Trp	Pro	Arg	
	1475					1480					1485				
ggg	ggt	ggg	agt	gga	ggg	tct	gga	ggg	tca	ggc	ggg	tct	ggc	ggg	4509
Gly	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	
	1490					1495					1500				
tct	ggt	ggt	tcc	ggc	ggt	tca	gga	ggg	agc	gga	ggg	agt	ggc	ggc	4554
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	
	1505					1510					1515				
agt	gga	ggt	agc	ggt	ggc	agc	ggt	ggc	tcc	gga	gga	tct	ggc	ggc	4599
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	
	1520					1525					1530				
tcc	gga	ggc	agc	gga	ggc	tcc	ggg	tcc	caa	tgc	aac	gac	atc	act	4644
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Ser	Gln	Cys	Asn	Asp	Ile	Thr	
	1535					1540					1545				
gcc	agg	ctg	cag	tat	gtc	aag	gtg	gga	agc	tgt	aag	tct	gaa	gta	4689
Ala	Arg	Leu	Gln	Tyr	Val	Lys	Val	Gly	Ser	Cys	Lys	Ser	Glu	Val	
	1550					1555					1560				
gag	gtg	gat	atc	cac	tac	tgc	cag	ggc	aaa	tgt	gcc	agc	aaa	gcc	4734
Glu	Val	Asp	Ile	His	Tyr	Cys	Gln	Gly	Lys	Cys	Ala	Ser	Lys	Ala	
	1565					1570					1575				
atg	tac	tcc	att	gac	atc	aac	gat	gtg	cag	gac	cag	tgc	tcc	tgc	4779
Met	Tyr	Ser	Ile	Asp	Ile	Asn	Asp	Val	Gln	Asp	Gln	Cys	Ser	Cys	
	1580					1585					1590				
tgc	tct	ccg	aca	cgg	acg	gag	ccc	atg	cag	gtg	gcc	ctg	cac	tgc	4824
Cys	Ser	Pro	Thr	Arg	Thr	Glu	Pro	Met	Gln	Val	Ala	Leu	His	Cys	
	1595					1600					1605				
acc	aat	ggc	tct	gtt	gtg	tac	cat	gag	ggt	ctc	aat	gcc	atg	gag	4869
Thr	Asn	Gly	Ser	Val	Val	Tyr	His	Glu	Val	Leu	Asn	Ala	Met	Glu	
	1610					1615					1620				
tgc	aaa	tgc	tcc	ccc	agg	aag	tgc	agc	aag	tga					4902
Cys	Lys	Cys	Ser	Pro	Arg	Lys	Cys	Ser	Lys						
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<220>

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<223> Synthetic Construct

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 35 40 45
 Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
 50 55 60
 Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
 65 70 75 80
 Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
 85 90 95
 Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
 100 105 110
 His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
 115 120 125
 Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
 130 135 140
 Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
 145 150 155 160
 Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
 165 170 175
 Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
 180 185 190
 Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
 195 200 205
 Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
 210 215 220
 Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
 225 230 235 240
 Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
 245 250 255

Val Asn Arg Ser₂₆₀ Leu Pro Gly Leu Ile₂₆₅ Gly Cys His Arg Lys₂₇₀ Ser Val
 Tyr Trp His₂₇₅ Val Ile Gly Met Gly₂₈₀ Thr Thr Pro Glu Val₂₈₅ His Ser Ile
 Phe Leu₂₉₀ Glu Gly His Thr Phe₂₉₅ Leu Val Arg Asn His₃₀₀ Arg Gln Ala Ser
 Leu₃₀₅ Glu Ile Ser Pro Ile₃₁₀ Thr Phe Leu Thr Ala₃₁₅ Gln Thr Leu Leu Met₃₂₀
 Asp Leu Gly Gln Phe₃₂₅ Leu Leu Phe Cys His₃₃₀ Ile Ser Ser His Gln₃₃₅ His
 Asp Gly Met Glu₃₄₀ Ala Tyr Val Lys Val₃₄₅ Asp Ser Cys Pro Glu₃₅₀ Glu Pro
 Gln Leu Arg₃₅₅ Met Lys Asn Asn Glu₃₆₀ Glu Ala Glu Asp Tyr₃₆₅ Asp Asp Asp
 Leu Thr₃₇₀ Asp Ser Glu Met Asp₃₇₅ Val Val Arg Phe Asp₃₈₀ Asp Asp Asn Ser
 Pro₃₈₅ Ser Phe Ile Gln Ile₃₉₀ Arg Ser Val Ala Lys₃₉₅ Lys His Pro Lys Thr₄₀₀
 Trp Val His Tyr Ile₄₀₅ Ala Ala Glu Glu Glu₄₁₀ Asp Trp Asp Tyr Ala₄₁₅ Pro
 Leu Val Leu Ala₄₂₀ Pro Asp Asp Arg Ser₄₂₅ Tyr Lys Ser Gln Tyr₄₃₀ Leu Asn
 Asn Gly Pro₄₃₅ Gln Arg Ile Gly Arg₄₄₀ Lys Tyr Lys Lys Val₄₄₅ Arg Phe Met
 Ala Tyr₄₅₀ Thr Asp Glu Thr Phe₄₅₅ Lys Thr Arg Glu Ala₄₆₀ Ile Gln His Glu
 Ser₄₆₅ Gly Ile Leu Gly Pro₄₇₀ Leu Leu Tyr Gly Glu₄₇₅ Val Gly Asp Thr Leu₄₈₀
 Leu Ile Ile Phe Lys₄₈₅ Asn Gln Ala Ser Arg₄₉₀ Pro Tyr Asn Ile Tyr₄₉₅ Pro
 His Gly Ile Thr₅₀₀ Asp Val Arg Pro Leu₅₀₅ Tyr Ser Arg Arg Leu₅₁₀ Pro Lys
 Gly Val Lys₅₁₅ His Leu Lys Asp Phe₅₂₀ Pro Ile Leu Pro Gly₅₂₅ Glu Ile Phe

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
 530 535 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
 545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
 565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
 580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
 595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
 610 615 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
 625 630 635 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
 645 650 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
 660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
 675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
 690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
 705 710 715 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
 725 730 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
 740 745 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
 755 760 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
 770 775 780

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
 785 790 795 800

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Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
805 810 815

Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
820 825 830

Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
835 840 845

Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
850 855 860

Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
865 870 875 880

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
885 890 895

Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
900 905 910

Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
915 920 925

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
930 935 940

Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
945 950 955 960

Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
965 970 975

Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
980 985 990

Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
995 1000 1005

Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
1010 1015 1020

Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met
1025 1030 1035

Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
1040 1045 1050

Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp
1055 1060 1065

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Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys
	1085					1090					1095			
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
	1100					1105					1110			
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg
	1115					1120					1125			
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr
	1130					1135					1140			
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met
	1145					1150					1155			
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
	1160					1165					1170			
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
	1175					1180					1185			
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
	1190					1195					1200			
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
	1205					1210					1215			
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
	1220					1225					1230			
Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
	1235					1240					1245			
Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
	1250					1255					1260			
Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg
	1265					1270					1275			
Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
	1280					1285					1290			
Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
	1295					1300					1305			
Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
	1310					1315					1320			

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Ala	Arg 1340	Leu	His	Leu	Gln	Gly 1345	Arg	Ser	Asn	Ala	Trp 1350	Arg	Pro	Gln
Val	Asn 1355	Asn	Pro	Lys	Glu	Trp 1360	Leu	Gln	Val	Asp	Phe 1365	Gln	Lys	Thr
Met	Lys 1370	Val	Thr	Gly	Val	Thr 1375	Thr	Gln	Gly	Val	Lys 1380	Ser	Leu	Leu
Thr	Ser 1385	Met	Tyr	Val	Lys	Glu 1390	Phe	Leu	Ile	Ser	Ser 1395	Ser	Gln	Asp
Gly	His 1400	Gln	Trp	Thr	Leu	Phe 1405	Phe	Gln	Asn	Gly	Lys 1410	Val	Lys	Val
Phe	Gln 1415	Gly	Asn	Gln	Asp	Ser 1420	Phe	Thr	Pro	Val	Val 1425	Asn	Ser	Leu
Asp	Pro 1430	Pro	Leu	Leu	Thr	Arg 1435	Tyr	Leu	Arg	Ile	His 1440	Pro	Gln	Ser
Trp	Val 1445	His	Gln	Ile	Ala	Leu 1450	Arg	Met	Glu	Val	Leu 1455	Gly	Cys	Glu
Ala	Gln 1460	Asp	Leu	Tyr	Thr	Gly 1465	Asp	Asp	Asn	Ser	Pro 1470	Ser	Phe	Ile
Gln	Ile 1475	Arg	Ser	Val	Ala	Lys 1480	Lys	His	Pro	Lys	Thr 1485	Trp	Pro	Arg
Gly	Gly 1490	Gly	Ser	Gly	Gly	Ser 1495	Gly	Gly	Ser	Gly	Gly 1500	Ser	Gly	Gly
Ser	Gly 1505	Gly	Ser	Gly	Gly	Ser 1510	Gly	Gly	Ser	Gly	Gly 1515	Ser	Gly	Gly
Ser	Gly 1520	Gly	Ser	Gly	Gly	Ser 1525	Gly	Gly	Ser	Gly	Gly 1530	Ser	Gly	Gly
Ser	Gly 1535	Gly	Ser	Gly	Gly	Ser 1540	Gly	Ser	Gln	Cys	Asn 1545	Asp	Ile	Thr
Ala	Arg 1550	Leu	Gln	Tyr	Val	Lys 1555	Val	Gly	Ser	Cys	Lys 1560	Ser	Glu	Val
Glu	Val 1565	Asp	Ile	His	Tyr	Cys 1570	Gln	Gly	Lys	Cys	Ala 1575	Ser	Lys	Ala

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Met Tyr Ser Ile Asp Ile Asn Asp Val Gln Asp Gln Cys Ser Cys
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Cys Ser Pro Thr Arg Thr Glu Pro Met Gln Val Ala Leu His Cys
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Cys Lys Cys Ser Pro Arg Lys Cys Ser Lys
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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
20 25 30
tgg gac tat atg caa agt gat ctc ggt gag ctg cct gtg gac gca aga 144
Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
35 40 45
ttt cct cct aga gtg cca aaa tct ttt cca ttc aac acc tca gtc gtg 192
Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60
tac aaa aag act ctg ttt gta gaa ttc acg gat cac ctt ttc aac atc 240
Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80
gct aag cca agg cca ccc tgg atg ggt ctg cta ggt cct acc atc cag 288
Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95
gct gag gtt tat gat aca gtg gtc att aca ctt aag aac atg gct tcc 336
Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110
cat cct gtc agt ctt cat gct gtt ggt gta tcc tac tgg aaa gct tct 384
His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125
gag gga gct gaa tat gat gat cag acc agt caa agg gag aaa gaa gat 432
Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140
gat aaa gtc ttc cct ggt gga agc cat aca tat gtc tgg cag gtc ctg 480
Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu

145			150			eolf-seq1			155			160				
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tat Tyr	ctt Leu	tct Ser	cat His 180	gtg Val	gac Asp	ctg Leu	gta Val	aaa Lys 185	gac Asp	ttg Leu	aat Asn	tca Ser	ggc Gly 190	ctc Leu	att Ile	576
gga Gly	gcc Ala	cta Leu 195	cta Leu	gta Val	tgt Cys	aga Arg	gaa Glu 200	ggg Gly	agt Ser	ctg Leu	gcc Ala	aag Lys 205	gaa Glu	aag Lys	aca Thr	624
cag Gln	acc Thr 210	ttg Leu	cac His	aaa Lys	ttt Phe	ata Ile 215	cta Leu	ctt Leu	ttt Phe	gct Ala	gta Val 220	ttt Phe	gat Asp	gaa Glu	ggg Gly	672
aaa Lys 225	agt Ser	tgg Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240	720
gct Ala	gca Ala	tct Ser	gct Ala	cgg Arg 245	gcc Ala	tgg Trp	cct Pro	aaa Lys	atg Met 250	cac His	aca Thr	gtc Val	aat Asn	ggc Gly 255	tat Tyr	768
gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggt Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val	816
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile	864
ttc Phe	ctc Leu 290	gaa Glu	ggt Gly	cac His	aca Thr	ttt Phe 295	ctt Leu	gtg Val	agg Arg	aac Asn	cat His 300	cgc Arg	cag Gln	gcg Ala	tcc Ser	912
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gac Asp	ctt Leu	gga Gly	cag Gln	ttt Phe 325	cta Leu	ctg Leu	ttt Phe	tgt Cys	cat His 330	atc Ile	tct Ser	tcc Ser	cac His	caa Gln 335	cat His	1008
gat Asp	ggc Gly	atg Met	gaa Glu 340	gct Ala	tat Tyr	gtc Val	aaa Lys	gta Val 345	gac Asp	agc Ser	tgt Cys	cca Pro	gag Glu 350	gaa Glu	ccc Pro	1056
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ctt Leu	act Thr 370	gat Asp	tct Ser	gaa Glu	atg Met	gat Asp 375	gtg Val	gtc Val	agg Arg	ttt Phe	gat Asp 380	gat Asp	gac Asp	aac Asn	tct Ser	1152
cct Pro 385	tcc Ser	ttt Phe	atc Ile	caa Gln	att Ile 390	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 395	aag Lys	cat His	cct Pro	aaa Lys	act Thr 400	1200
tgg Trp	gta Val	cat His	tac Tyr	att Ile 405	gct Ala	gct Ala	gaa Glu	gag Glu	gag Glu 410	gac Asp	tgg Trp	gac Asp	tat Tyr	gct Ala 415	ccc Pro	1248
tta Leu	gtc Val	ctc Leu	gcc Ala	ccc Pro	gat Asp	gac Asp	aga Arg	agt Ser	tat Tyr	aaa Lys	agt Ser	caa Gln	tat Tyr	ttg Leu	aac Asn	1296

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Ala	Tyr	Thr	Asp	Glu	Thr	Phe	Lys	Thr	Arg	Glu	Ala	Ile	Gln	His	Glu	
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Ser	Gly	Ile	Leu	Gly	Pro	Leu	Leu	Tyr	Gly	Glu	Val	Gly	Asp	Thr	Leu	
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Leu	Ile	Ile	Phe	Lys	Asn	Gln	Ala	Ser	Arg	Pro	Tyr	Asn	Ile	Tyr	Pro	
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His	Gly	Ile	Thr	Asp	Val	Arg	Pro	Leu	Tyr	Ser	Arg	Arg	Leu	Pro	Lys	
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Lys	Tyr	Lys	Trp	Thr	Val	Thr	Val	Glu	Asp	Gly	Pro	Thr	Lys	Ser	Asp	
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Pro	Arg	Cys	Leu	Thr	Arg	Tyr	Tyr	Ser	Ser	Phe	Val	Asn	Met	Glu	Arg	
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Ser	Val	Asp	Gln	Arg	Gly	Asn	Gln	Ile	Met	Ser	Asp	Lys	Arg	Asn	Val	
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Ile	Leu	Phe	Ser	Val	Phe	Asp	Glu	Asn	Arg	Ser	Trp	Tyr	Leu	Thr	Glu	
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Asn	Ile	Gln	Arg	Phe	Leu	Pro	Asn	Pro	Ala	Gly	Val	Gln	Leu	Glu	Asp	
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Phe	Asp	Ser	Leu	Gln	Leu	Ser	Val	Cys	Leu	His	Glu	Val	Ala	Tyr	Trp	
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Ser	Gly	Tyr	Thr	Phe	Lys	His	Lys	Met	Val	Tyr	Glu	Asp	Thr	Leu	Thr	
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cta	ttc	cca	ttc	tca	gga	gaa	act	gtc	ttc	atg	tcg	atg	gaa	aac	cca	2112
Leu	Phe	Pro	Phe	Ser	Gly	Glu	Thr	Val	Phe	Met	Ser	Met	Glu	Asn	Pro	

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atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggt Gly 735	gat Asp	2208
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aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro	2304
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act Thr 785	ctt Leu	cag Gln	tca Ser	gat Asp	caa Gln 790	gag Glu	gaa Glu	att Ile	gac Asp	tat Tyr 795	gat Asp	gat Asp	acc Thr	ata Ile	tca Ser 800	2400
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ccc Pro	tat Tyr	tcc Ser 915	ttc Phe	tat Tyr	tct Ser	agc Ser	ctt Leu 920	att Ile	tct Ser	tat Tyr	gag Glu	gaa Glu 925	gat Asp	cag Gln	agg Arg	2784
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tct Ser	ggg Gly 1265	ata Ile	aaa Lys	cac His	aat Asn	att Ile 1270	ttt Phe	aac Asn	cct Pro	cca Pro	att Ile 1275	att Ile	gct Ala	cga Arg	3834
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gtg Val	gga Gly 1610	agc Ser	tgt Cys	aag Lys	tct Ser	gaa Glu 1615	gta Val	gag Glu	gtg Val	gat Asp	atc Ile 1620	cac His	tac Tyr	tgc Cys	4869
cag Gln	ggc Gly 1625	aaa Lys	tgt Cys	gcc Ala	agc Ser	aaa Lys 1630	gcc Ala	atg Met	tac Tyr	tcc Ser	att Ile 1635	gac Asp	atc Ile	aac Asn	4914
gat Asp	gtg Val 1640	cag Gln	gac Asp	cag Gln	tgc Cys	tcc Ser 1645	tgc Cys	tgc Cys	tct Ser	ccg Pro	aca Thr 1650	cgg Arg	acg Thr	gag Glu	4959
ccc Pro	atg Met 1655	cag Gln	gtg Val	gcc Ala	ctg Leu	cac His 1660	tgc Cys	acc Thr	aat Asn	ggc Gly	tct Ser 1665	gtt Val	gtg Val	tac Tyr	5004
cat His	gag Glu 1670	gtt Val	ctc Leu	aat Asn	gcc Ala	atg Met 1675	gag Glu	tgc Cys	aaa Lys	tgc Cys	tcc Ser 1680	ccc Pro	agg Arg	aag Lys	5049
tgc Cys	agc Ser 1685	aag Lys	tga												5061

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 <211> 1686
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic Construct

 <400> 165

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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
20 25 30

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

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Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
 275 280 285
 Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
 290 295 300
 Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
 305 310 315 320
 Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
 325 330 335
 Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
 340 345 350
 Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
 355 360 365
 Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
 370 375 380
 Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
 385 390 395 400
 Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
 405 410 415
 Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
 420 425 430
 Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
 435 440 445
 Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
 450 455 460
 Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
 465 470 475 480
 Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
 485 490 495
 His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
 500 505 510
 Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
 515 520 525
 Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
 530 535 540

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Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
610 615 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625 630 635 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
645 650 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705 710 715 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
725 730 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
740 745 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
755 760 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
770 775 780

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
785 790 795 800

Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
805 810 815

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Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
820 825 830

Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
835 840 845

Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
850 855 860

Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
865 870 875 880

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
885 890 895

Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
900 905 910

Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
915 920 925

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
930 935 940

Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
945 950 955 960

Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
965 970 975

Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
980 985 990

Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
995 1000 1005

Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
1010 1015 1020

Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met
1025 1030 1035

Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
1040 1045 1050

Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp
1055 1060 1065

Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn
1070 1075 1080

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Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys
	1085					1090					1095			
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
	1100					1105					1110			
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg
	1115					1120					1125			
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr
	1130					1135					1140			
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met
	1145					1150					1155			
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
	1160					1165					1170			
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
	1175					1180					1185			
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
	1190					1195					1200			
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
	1205					1210					1215			
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
	1220					1225					1230			
Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
	1235					1240					1245			
Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
	1250					1255					1260			
Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg
	1265					1270					1275			
Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
	1280					1285					1290			
Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
	1295					1300					1305			
Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
	1310					1315					1320			
Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys
	1325					1330					1335			

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Ala	Arg 1340	Leu	His	Leu	Gln	Gly 1345	Arg	Ser	Asn	Ala	Trp 1350	Arg	Pro	Gln
Val	Asn 1355	Asn	Pro	Lys	Glu	Trp 1360	Leu	Gln	Val	Asp	Phe 1365	Gln	Lys	Thr
Met	Lys 1370	Val	Thr	Gly	Val	Thr 1375	Thr	Gln	Gly	Val	Lys 1380	Ser	Leu	Leu
Thr	Ser 1385	Met	Tyr	Val	Lys	Glu 1390	Phe	Leu	Ile	Ser	Ser 1395	Ser	Gln	Asp
Gly	His 1400	Gln	Trp	Thr	Leu	Phe 1405	Phe	Gln	Asn	Gly	Lys 1410	Val	Lys	Val
Phe	Gln 1415	Gly	Asn	Gln	Asp	Ser 1420	Phe	Thr	Pro	Val	Val 1425	Asn	Ser	Leu
Asp	Pro 1430	Pro	Leu	Leu	Thr	Arg 1435	Tyr	Leu	Arg	Ile	His 1440	Pro	Gln	Ser
Trp	Val 1445	His	Gln	Ile	Ala	Leu 1450	Arg	Met	Glu	Val	Leu 1455	Gly	Cys	Glu
Ala	Gln 1460	Asp	Leu	Tyr	Thr	Gly 1465	Asp	Asp	Asn	Ser	Pro 1470	Ser	Phe	Ile
Gln	Ile 1475	Arg	Ser	Val	Ala	Lys 1480	Lys	His	Pro	Lys	Thr 1485	Trp	Pro	Arg
Gly	Gly 1490	Gly	Ser	Gly	Gly	Ser 1495	Gly	Gly	Ser	Gly	Gly 1500	Ser	Gly	Gly
Ser	Gly 1505	Gly	Ser	Gly	Gly	Ser 1510	Gly	Gly	Ser	Gly	Gly 1515	Ser	Gly	Gly
Ser	Gly 1520	Gly	Ser	Gly	Gly	Ser 1525	Gly	Gly	Ser	Gly	Gly 1530	Ser	Gly	Gly
Ser	Gly 1535	Gly	Ser	Gly	Gly	Ser 1540	Gly	Gly	Ser	Gly	Gly 1545	Ser	Gly	Gly
Ser	Gly 1550	Gly	Ser	Gly	Gly	Ser 1555	Gly	Gly	Ser	Gly	Gly 1560	Ser	Gly	Gly
Ser	Gly 1565	Gly	Ser	Gly	Gly	Ser 1570	Gly	Gly	Ser	Gly	Gly 1575	Ser	Gly	Gly
Ser	Gly 1580	Gly	Ser	Gly	Gly	Ser 1585	Gly	Gly	Ser	Gly	Gly 1590	Ser	Gly	Ser

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Gly Ser Gln Cys Asn Asp Ile Thr Ala Arg Leu Gln Tyr Val Lys
1595 1600 1605

Val Gly Ser Cys Lys Ser Glu Val Glu Val Asp Ile His Tyr Cys
1610 1615 1620

Gln Gly Lys Cys Ala Ser Lys Ala Met Tyr Ser Ile Asp Ile Asn
1625 1630 1635

Asp Val Gln Asp Gln Cys Ser Cys Cys Ser Pro Thr Arg Thr Glu
1640 1645 1650

Pro Met Gln Val Ala Leu His Cys Thr Asn Gly Ser Val Val Tyr
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His Glu Val Leu Asn Ala Met Glu Cys Lys Cys Ser Pro Arg Lys
1670 1675 1680

Cys Ser Lys
1685

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tgc ttt agt gcc acc aga aga tac tac ctg ggt gca gtg gaa ctg tca	96
Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser	
20 25 30	
tgg gac tat atg caa agt gat ctc ggt gag ctg cct gtg gac gca aga	144
Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg	
35 40 45	
ttt cct cct aga gtg cca aaa tct ttt cca ttc aac acc tca gtc gtg	192
Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val	
50 55 60	
tac aaa aag act ctg ttt gta gaa ttc acg gat cac ctt ttc aac atc	240
Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile	
65 70 75 80	
gct aag cca agg cca ccc tgg atg ggt ctg cta ggt cct acc atc cag	288
Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln	
85 90 95	
gct gag gtt tat gat aca gtg gtc att aca ctt aag aac atg gct tcc	336

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Ala	Glu	Val	Tyr 100	Asp	Thr	Val	Val	Ile 105	Thr	Leu	Lys	Asn	Met 110	Ala	Ser
cat His	cct Pro	gtc Val 115	agt Ser	ctt Leu	cat His	gct Ala	gtt Val 120	ggg Gly	gta Val	tcc Ser	tac Tyr	tgg Trp 125	aaa Lys	gct Ala	tct Ser
gag Glu	gga Gly 130	gct Ala	gaa Glu	tat Tyr	gat Asp	gat Asp 135	cag Gln	acc Thr	agt Ser	caa Gln	agg Arg 140	gag Glu	aaa Lys	gaa Glu	gat Asp
gat Asp 145	aaa Lys	gtc Val	ttc Phe	cct Pro	ggg Gly 150	gga Gly	agc Ser	cat His	aca Thr	tat Tyr 155	gtc Val	tgg Trp	cag Gln	gtc Val	ctg Leu 160
aaa Lys	gag Glu	aat Asn	ggg Gly	cca Pro 165	atg Met	gcc Ala	tct Ser	gac Asp	cca Pro 170	ctg Leu	tgc Cys	ctt Leu	acc Thr	tac Tyr 175	tca Ser
tat Tyr	ctt Leu	tct Ser	cat His 180	gtg Val	gac Asp	ctg Leu	gta Val	aaa Lys 185	gac Asp	ttg Leu	aat Asn	tca Ser	ggc Gly 190	ctc Leu	att Ile
gga Gly	gcc Ala	cta Leu 195	cta Leu	gta Val	tgt Cys	aga Arg	gaa Glu 200	ggg Gly	agt Ser	ctg Leu	gcc Ala	aag Lys 205	gaa Glu	aag Lys	aca Thr
cag Gln	acc Thr 210	ttg Leu	cac His	aaa Lys	ttt Phe	ata Ile 215	cta Leu	ctt Leu	ttt Phe	gct Ala	gta Val 220	ttt Phe	gat Asp	gaa Glu	ggg Gly
aaa Lys 225	agt Ser	tgg Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240
gct Ala	gca Ala	tct Ser	gct Ala	cgg Arg 245	gcc Ala	tgg Trp	cct Pro	aaa Lys	atg Met 250	cac His	aca Thr	gtc Val	aat Asn	ggg Gly 255	tat Tyr
gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggg Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile
ttc Phe	ctc Leu 290	gaa Glu	ggg Gly	cac His	aca Thr	ttt Phe 295	ctt Leu	gtg Val	agg Arg	aac Asn	cat His 300	cgc Arg	cag Gln	gcg Ala	tcc Ser
ttg Leu 305	gaa Glu	atc Ile	tcg Ser	cca Pro	ata Ile 310	act Thr	ttc Phe	ctt Leu	act Thr	gct Ala 315	caa Gln	aca Thr	ctc Leu	ttg Leu	atg Met 320
gac Asp	ctt Leu	gga Gly	cag Gln	ttt Phe 325	cta Leu	ctg Leu	ttt Phe	tgt Cys	cat His 330	atc Ile	tct Ser	tcc Ser	cac His	caa Gln 335	cat His
gat Asp	ggc Gly	atg Met	gaa Glu 340	gct Ala	tat Tyr	gtc Val	aaa Lys	gta Val 345	gac Asp	agc Ser	tgt Cys	cca Pro	gag Glu 350	gaa Glu	ccc Pro
caa Gln	cta Leu	cga Arg 355	atg Met	aaa Lys	aat Asn	aat Asn	gaa Glu 360	gaa Glu	gcg Ala	gaa Glu	gac Asp	tat Tyr 365	gat Asp	gat Asp	gat Asp
ctt	act	gat	tct	gaa	atg	gat	gtg	gtc	agg	ttt	gat	gat	gac	aac	tct

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Leu	Thr	Asp	Ser	Glu	Met	Asp	Val	Val	Arg	Phe	Asp	Asp	Asp	Asn	Ser
370						375					380				
cct	tcc	ttt	atc	caa	att	cg	tca	gtt	gcc	aag	aag	cat	cct	aaa	act
Pro	Ser	Phe	Ile	Gln	Ile	Arg	Ser	Val	Ala	Lys	Lys	His	Pro	Lys	Thr
385					390					395					400
tgg	gta	cat	tac	att	gct	gct	gaa	gag	gag	gac	tgg	gac	tat	gct	ccc
Trp	Val	His	Tyr	Ile	Ala	Ala	Glu	Glu	Glu	Asp	Trp	Asp	Tyr	Ala	Pro
				405					410					415	
tta	gtc	ctc	gcc	ccc	gat	gac	aga	agt	tat	aaa	agt	caa	tat	ttg	aac
Leu	Val	Leu	Ala	Pro	Asp	Asp	Arg	Ser	Tyr	Lys	Ser	Gln	Tyr	Leu	Asn
			420					425					430		
aat	ggc	cct	cag	cg	att	gg	agg	aag	tac	aaa	aaa	gtc	cga	ttt	atg
Asn	Gly	Pro	Gln	Arg	Ile	Gly	Arg	Lys	Tyr	Lys	Lys	Val	Arg	Phe	Met
			435				440					445			
gca	tac	aca	gat	gaa	acc	ttt	aag	act	cg	gaa	gct	att	cag	cat	gaa
Ala	Tyr	Thr	Asp	Glu	Thr	Phe	Lys	Thr	Arg	Glu	Ala	Ile	Gln	His	Glu
	450					455					460				
tca	gga	atc	ttg	gga	cct	tta	ctt	tat	ggg	gaa	ggt	gga	gac	aca	ctg
Ser	Gly	Ile	Leu	Gly	Pro	Leu	Leu	Tyr	Gly	Glu	Val	Gly	Asp	Thr	Leu
465					470					475					480
ttg	att	ata	ttt	aag	aat	caa	gca	agc	aga	cca	tat	aac	atc	tac	cct
Leu	Ile	Ile	Phe	Lys	Asn	Gln	Ala	Ser	Arg	Pro	Tyr	Asn	Ile	Tyr	Pro
				485					490					495	
cac	gga	atc	act	gat	gtc	cg	cct	ttg	tat	tca	agg	aga	tta	cca	aaa
His	Gly	Ile	Thr	Asp	Val	Arg	Pro	Leu	Tyr	Ser	Arg	Arg	Leu	Pro	Lys
			500					505					510		
ggt	gta	aaa	cat	ttg	aag	gat	ttt	cca	att	ctg	cca	gga	gaa	ata	ttc
Gly	Val	Lys	His	Leu	Lys	Asp	Phe	Pro	Ile	Leu	Pro	Gly	Glu	Ile	Phe
			515				520					525			
aaa	tat	aaa	tgg	aca	gtg	act	gta	gaa	gat	ggg	cca	act	aaa	tca	gat
Lys	Tyr	Lys	Trp	Thr	Val	Thr	Val	Glu	Asp	Gly	Pro	Thr	Lys	Ser	Asp
	530					535					540				
cct	cg	tgc	ctg	acc	cg	tat	tac	tct	agt	ttc	ggt	aat	atg	gag	aga
Pro	Arg	Cys	Leu	Thr	Arg	Tyr	Tyr	Ser	Ser	Phe	Val	Asn	Met	Glu	Arg
545					550					555					560
gat	cta	gct	tca	gga	ctc	att	ggc	cct	ctc	ctc	atc	tgc	tac	aaa	gaa
Asp	Leu	Ala	Ser	Gly	Leu	Ile	Gly	Pro	Leu	Leu	Ile	Cys	Tyr	Lys	Glu
				565					570					575	
tct	gta	gat	caa	aga	gga	aac	cag	ata	atg	tca	gac	aag	agg	aat	gtc
Ser	Val	Asp	Gln	Arg	Gly	Asn	Gln	Ile	Met	Ser	Asp	Lys	Arg	Asn	Val
			580					585					590		
atc	ctg	ttt	tct	gta	ttt	gat	gag	aac	cga	agc	tgg	tac	ctc	aca	gag
Ile	Leu	Phe	Ser	Val	Phe	Asp	Glu	Asn	Arg	Ser	Trp	Tyr	Leu	Thr	Glu
			595				600					605			
aat	ata	caa	cg	ttt	ctc	ccc	aat	cca	gct	gga	gtg	cag	ctt	gag	gat
Asn	Ile	Gln	Arg	Phe	Leu	Pro	Asn	Pro	Ala	Gly	Val	Gln	Leu	Glu	Asp
	610					615					620				
cca	gag	ttc	caa	gcc	tcc	aac	atc	atg	cac	agc	atc	aat	ggc	tat	gtt
Pro	Glu	Phe	Gln	Ala	Ser	Asn	Ile	Met	His	Ser	Ile	Asn	Gly	Tyr	Val
625					630					635					640
ttt	gat	agt	ttg	cag	ttg	tca	gtt	tgt	ttg	cat	gag	gtg	gca	tac	tgg

eolf-seql															
Phe	Asp	Ser	Leu	Gln	Leu	Ser	Val	Cys	Leu	His	Glu	Val	Ala	Tyr	Trp
				645					650					655	
tac	att	cta	agc	att	gga	gca	cag	act	gac	ttc	ctt	tct	gtc	ttc	ttc
Tyr	Ile	Leu	Ser	Ile	Gly	Ala	Gln	Thr	Asp	Phe	Leu	Ser	Val	Phe	Phe
			660					665					670		
tct	gga	tat	acc	ttc	aaa	cac	aaa	atg	gtc	tat	gaa	gac	aca	ctc	acc
Ser	Gly	Tyr	Thr	Phe	Lys	His	Lys	Met	Val	Tyr	Glu	Asp	Thr	Leu	Thr
		675					680					685			
cta	ttc	cca	ttc	tca	gga	gaa	act	gtc	ttc	atg	tcg	atg	gaa	aac	cca
Leu	Phe	Pro	Phe	Ser	Gly	Glu	Thr	Val	Phe	Met	Ser	Met	Glu	Asn	Pro
	690					695					700				
ggt	cta	tgg	att	ctg	ggg	tgc	cac	aac	tca	gac	ttt	cgg	aac	aga	ggc
Gly	Leu	Trp	Ile	Leu	Gly	Cys	His	Asn	Ser	Asp	Phe	Arg	Asn	Arg	Gly
705					710					715					720
atg	acc	gcc	tta	ctg	aag	gtt	tct	agt	tgt	gac	aag	aac	act	ggt	gat
Met	Thr	Ala	Leu	Leu	Lys	Val	Ser	Ser	Cys	Asp	Lys	Asn	Thr	Gly	Asp
				725					730					735	
tat	tac	gag	gac	agt	tat	gaa	gat	att	tca	gca	tac	ttg	ctg	agt	aaa
Tyr	Tyr	Glu	Asp	Ser	Tyr	Glu	Asp	Ile	Ser	Ala	Tyr	Leu	Leu	Ser	Lys
			740					745					750		
aac	aat	gcc	att	gaa	cca	aga	agc	ttc	tcc	cag	aat	tca	aga	cac	cct
Asn	Asn	Ala	Ile	Glu	Pro	Arg	Ser	Phe	Ser	Gln	Asn	Ser	Arg	His	Pro
		755					760					765			
agc	act	agg	caa	aag	caa	ttt	aat	gcc	acc	aca	att	cca	gaa	aat	act
Ser	Thr	Arg	Gln	Lys	Gln	Phe	Asn	Ala	Thr	Thr	Ile	Pro	Glu	Asn	Thr
	770					775					780				
act	ctt	cag	tca	gat	caa	gag	gaa	att	gac	tat	gat	gat	acc	ata	tca
Thr	Leu	Gln	Ser	Asp	Gln	Glu	Glu	Ile	Asp	Tyr	Asp	Asp	Thr	Ile	Ser
785					790					795					800
gtt	gaa	atg	aag	aag	gaa	gat	ttt	gac	att	tat	gat	gag	gat	gaa	aat
Val	Glu	Met	Lys	Lys	Glu	Asp	Phe	Asp	Ile	Tyr	Asp	Glu	Asp	Glu	Asn
				805					810					815	
cag	agc	ccc	cgc	agc	ttt	caa	aag	aaa	aca	cga	cac	tat	ttt	att	gct
Gln	Ser	Pro	Arg	Ser	Phe	Gln	Lys	Lys	Thr	Arg	His	Tyr	Phe	Ile	Ala
			820					825					830		
gca	gtg	gag	agg	ctc	tgg	gat	tat	ggg	atg	agt	agc	tcc	cca	cat	gtt
Ala	Val	Glu	Arg	Leu	Trp	Asp	Tyr	Gly	Met	Ser	Ser	Ser	Pro	His	Val
		835					840					845			
cta	aga	aac	agg	gct	cag	agt	ggc	agt	gtc	cct	cag	ttc	aag	aaa	gtt
Leu	Arg	Asn	Arg	Ala	Gln	Ser	Gly	Ser	Val	Pro	Gln	Phe	Lys	Lys	Val
	850					855					860				
gtt	ttc	cag	gaa	ttt	act	gat	ggc	tcc	ttt	act	cag	ccc	tta	tac	cgt
Val	Phe	Gln	Glu	Phe	Thr	Asp	Gly	Ser	Phe	Thr	Gln	Pro	Leu	Tyr	Arg
865					870					875					880
gga	gaa	cta	aat	gaa	cat	ttg	gga	ctc	ctg	ggg	cca	tat	ata	aga	gca
Gly	Glu	Leu	Asn	Glu	His	Leu	Gly	Leu	Leu	Gly	Pro	Tyr	Ile	Arg	Ala
				885					890					895	
gaa	gtt	gaa	gat	aat	atc	atg	gta	act	ttc	aga	aat	cag	gcc	tct	cgt
Glu	Val	Glu	Asp	Asn	Ile	Met	Val	Thr	Phe	Arg	Asn	Gln	Ala	Ser	Arg
			900					905					910		
ccc	tat	tcc	ttc	tat	tct	agc	ctt	att	tct	tat	gag	gaa	gat	cag	agg

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Pro	Tyr	Ser	Phe	Tyr	Ser	Ser	Leu	Ile	Ser	Tyr	Glu	Glu	Asp	Gln	Arg	
		915					920					925				
caa	gga	gca	gaa	cct	aga	aaa	aac	ttt	gtc	aag	cct	aat	gaa	acc	aaa	2832
Gln	Gly	Ala	Glu	Pro	Arg	Lys	Asn	Phe	Val	Lys	Pro	Asn	Glu	Thr	Lys	
	930					935					940					
act	tac	ttt	tgg	aaa	gtg	caa	cat	cat	atg	gca	ccc	act	aaa	gat	gag	2880
Thr	Tyr	Phe	Trp	Lys	Val	Gln	His	His	Met	Ala	Pro	Thr	Lys	Asp	Glu	
945					950					955					960	
ttt	gac	tgc	aaa	gcc	tgg	gct	tat	ttc	tct	gat	ggt	gac	ctg	gaa	aaa	2928
Phe	Asp	Cys	Lys	Ala	Trp	Ala	Tyr	Phe	Ser	Asp	Val	Asp	Leu	Glu	Lys	
				965					970					975		
gat	gtg	cac	tca	ggc	ctg	att	gga	ccc	ctt	ctg	gtc	tgc	cac	act	aac	2976
Asp	Val	His	Ser	Gly	Leu	Ile	Gly	Pro	Leu	Leu	Val	Cys	His	Thr	Asn	
			980					985					990			
aca	ctg	aac	cct	gct	cat	ggg	aga	caa	gtg	aca	gta	cag	gaa	ttt	gct	3024
Thr	Leu	Asn	Pro	Ala	His	Gly	Arg	Gln	Val	Thr	Val	Gln	Glu	Phe	Ala	
		995					1000					1005				
ctg	ttt	ttc	acc	atc	ttt	gat	gag	acc	aaa	agc	tgg	tac	ttc	act		3069
Leu	Phe	Phe	Thr	Ile	Phe	Asp	Glu	Thr	Lys	Ser	Trp	Tyr	Phe	Thr		
	1010					1015					1020					
gaa	aat	atg	gaa	aga	aac	tgc	agg	gct	ccc	tgc	aat	atc	cag	atg		3114
Glu	Asn	Met	Glu	Arg	Asn	Cys	Arg	Ala	Pro	Cys	Asn	Ile	Gln	Met		
	1025					1030					1035					
gaa	gat	ccc	act	ttt	aaa	gag	aat	tat	cgc	ttc	cat	gca	atc	aat		3159
Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn		
	1040					1045					1050					
ggc	tac	ata	atg	gat	aca	cta	cct	ggc	tta	gta	atg	gct	cag	gat		3204
Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp		
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caa	agg	att	cga	tgg	tat	ctg	ctc	agc	atg	ggc	agc	aat	gaa	aac		3249
Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn		
	1070					1075					1080					
atc	cat	tct	att	cat	ttc	agt	gga	cat	gtg	ttc	act	gta	cga	aaa		3294
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys		
	1085					1090					1095					
aaa	gag	gag	tat	aaa	atg	gca	ctg	tac	aat	ctc	tat	cca	ggt	gtt		3339
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val		
	1100					1105					1110					
ttt	gag	aca	gtg	gaa	atg	tta	cca	tcc	aaa	gct	gga	att	tgg	cgg		3384
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg		
	1115					1120					1125					
gtg	gaa	tgc	ctt	att	ggc	gag	cat	cta	cat	gct	ggg	atg	agc	aca		3429
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met	Ser	Thr		
	1130					1135					1140					
ctt	ttt	ctg	gtg	tac	agc	aat	aag	tgt	cag	act	ccc	ctg	gga	atg		3474
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu	Gly	Met		
	1145					1150					1155					
gct	tct	gga	cac	att	aga	gat	ttt	cag	att	aca	gct	tca	gga	caa		3519
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln		
	1160					1165					1170					
tat	gga	cag	tgg	gcc	cca	aag	ctg	gcc	aga	ctt	cat	tat	tcc	gga		3564

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Tyr	Gly 1175	Gln	Trp	Ala	Pro	Lys 1180	Leu	Ala	Arg	Leu	His 1185	Tyr	Ser	Gly
tca Ser	atc Ile 1190	aat Asn	gcc Ala	tgg Trp	agc Ser	acc Thr 1195	aag Lys	gag Glu	ccc Pro	ttt Phe	tct Ser 1200	tgg Trp	atc Ile	aag Lys
gtg Val	gat Asp 1205	ctg Leu	ttg Leu	gca Ala	cca Pro	atg Met 1210	att Ile	att Ile	cac His	ggc Gly	atc Ile 1215	aag Lys	acc Thr	cag Gln
ggt Gly	gcc Ala 1220	cgt Arg	cag Gln	aag Lys	ttc Phe	tcc Ser 1225	agc Ser	ctc Leu	tac Tyr	atc Ile	tct Ser 1230	cag Gln	ttt Phe	atc Ile
atc Ile	atg Met 1235	tat Tyr	agt Ser	ctt Leu	gat Asp	ggg Gly 1240	aag Lys	aag Lys	tgg Trp	cag Gln	act Thr 1245	tat Tyr	cga Arg	gga Gly
aat Asn	tcc Ser 1250	act Thr	gga Gly	acc Thr	tta Leu	atg Met 1255	gtc Val	ttc Phe	ttt Phe	ggc Gly	aat Asn 1260	gtg Val	gat Asp	tca Ser
tct Ser	ggg Gly 1265	ata Ile	aaa Lys	cac His	aat Asn	att Ile 1270	ttt Phe	aac Asn	cct Pro	cca Pro	att Ile 1275	att Ile	gct Ala	cga Arg
tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu
cgc Arg	atg Met 1295	gag Glu	ttg Leu	atg Met	ggc Gly	tgt Cys 1300	gat Asp	tta Leu	aat Asn	agt Ser	tgc Cys 1305	agc Ser	atg Met	cca Pro
ttg Leu	gga Gly 1310	atg Met	gag Glu	agt Ser	aaa Lys	gca Ala 1315	ata Ile	tca Ser	gat Asp	gca Ala	cag Gln 1320	att Ile	act Thr	gct Ala
tca Ser	tcc Ser 1325	tac Tyr	ttt Phe	acc Thr	aat Asn	atg Met 1330	ttt Phe	gcc Ala	acc Thr	tgg Trp	tct Ser 1335	cct Pro	tca Ser	aaa Lys
gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln
gtg Val	aat Asn 1355	aat Asn	cca Pro	aaa Lys	gag Glu	tgg Trp 1360	ctg Leu	caa Gln	gtg Val	gac Asp	ttc Phe 1365	cag Gln	aag Lys	aca Thr
atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu
acc Thr	agc Ser 1385	atg Met	tat Tyr	gtg Val	aag Lys	gag Glu 1390	ttc Phe	ctc Leu	atc Ile	tcc Ser	agc Ser 1395	agt Ser	caa Gln	gat Asp
ggc Gly	cat His 1400	cag Gln	tgg Trp	act Thr	ctc Leu	ttt Phe 1405	ttt Phe	cag Gln	aat Asn	ggc Gly	aaa Lys 1410	gta Val	aag Lys	gtt Val
ttt Phe	cag Gln 1415	gga Gly	aat Asn	caa Gln	gac Asp	tcc Ser 1420	ttc Phe	aca Thr	cct Pro	gtg Val	gtg Val 1425	aac Asn	tct Ser	cta Leu
gac	cca	ccg	tta	ctg	act	cgc	tac	ctt	cga	att	cac	ccc	cag	agt

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Asp	Pro 1430	Pro	Leu	Leu	Thr	Arg 1435	Tyr	Leu	Arg	Ile	His 1440	Pro	Gln	Ser
tgg Trp	gtg Val 1445	cac His	cag Gln	att Ile	gcc Ala	ctg Leu 1450	agg Arg	atg Met	gag Glu	gtt Val	ctg Leu 1455	ggc Gly	tgc Cys	gag Glu
gca Ala	cag Gln 1460	gac Asp	ctc Leu	tac Tyr	acc Thr	ggc Gly 1465	gat Asp	gac Asp	aac Asn	tct Ser	cct Pro 1470	tcc Ser	ttt Phe	atc Ile
caa Gln	att Ile 1475	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 1480	aag Lys	cat His	cct Pro	aaa Lys	act Thr 1485	tgg Trp	cct Pro	cga Arg
ggg Gly	ggc Gly 1490	ggg Gly	agt Ser	ggc Gly	ggc Gly	tcc Ser 1495	ggc Gly	ggg Gly	agc Ser	ggc Gly	ggc Gly 1500	tct Ser	ggc Gly	ggc Gly
agt Ser	gga Gly 1505	gga Gly	agt Ser	gga Gly	ggc Gly	tct Ser 1510	ggc Gly	gga Gly	agc Ser	gga Gly	ggc Gly 1515	tcc Ser	ggc Gly	ggg Gly
tcc Ser	gga Gly 1520	ggc Gly	tcc Ser	ggc Gly	ggg Gly	tct Ser 1525	ggc Gly	gga Gly	tca Ser	ggc Gly	ggc Gly 1530	tca Ser	ggc Gly	ggg Gly
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agc Ser	gga Gly 1550	ggc Gly	tct Ser	ggc Gly	ggc Gly	tca Ser 1555	ggc Gly	ggc Gly	tct Ser	gga Gly	ggc Gly 1560	agt Ser	ggc Gly	ggc Gly
tca Ser	ggc Gly 1565	ggc Gly	tca Ser	ggc Gly	gga Gly	agt Ser 1570	ggc Gly	ggg Gly	agt Ser	ggc Gly	ggg Gly 1575	tca Ser	gga Gly	ggc Gly
agc Ser	gga Gly 1580	gga Gly	tca Ser	gga Gly	ggc Gly	agc Ser 1585	ggc Gly	ggc Gly	tca Ser	ggc Gly	ggg Gly 1590	tct Ser	ggc Gly	ggc Gly
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tca Ser	ggc Gly 1625	gga Gly	agt Ser	gga Gly	gga Gly	agc Ser 1630	gga Gly	ggg Gly	agc Ser	ggc Gly	gga Gly 1635	agc Ser	gga Gly	ggg Gly
tcc Ser	ggc Gly 1640	ggc Gly	tct Ser	ggc Gly	tcc Ser	ggg Gly 1645	tcc Ser	caa Gln	tgc Cys	aac Asn	gac Asp 1650	atc Ile	act Thr	gcc Ala
agg Arg	ctg Leu 1655	cag Gln	tat Tyr	gtc Val	aag Lys	gtg Val 1660	gga Gly	agc Ser	tgt Cys	aag Lys	tct Ser 1665	gaa Glu	gta Val	gag Glu
gtg Val	gat Asp 1670	atc Ile	cac His	tac Tyr	tgc Cys	cag Gln 1675	ggc Gly	aaa Lys	tgt Cys	gcc Ala	agc Ser 1680	aaa Lys	gcc Ala	atg Met
tac	tcc	att	gac	atc	aac	gat	gtg	cag	gac	cag	tgc	tcc	tgc	tgc

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Tyr	Ser	Ile	Asp	Ile	Asn	Asp	Val	Gln	Asp	Gln	Cys	Ser	Cys	Cys	
1685						1690					1695				
tct	ccg	aca	cgg	acg	gag	ccc	atg	cag	gtg	gcc	ctg	cac	tgc	acc	5139
Ser	Pro	Thr	Arg	Thr	Glu	Pro	Met	Gln	Val	Ala	Leu	His	Cys	Thr	
	1700					1705					1710				
aat	ggc	tct	gtt	gtg	tac	cat	gag	gtt	ctc	aat	gcc	atg	gag	tgc	5184
Asn	Gly	Ser	Val	Val	Tyr	His	Glu	Val	Leu	Asn	Ala	Met	Glu	Cys	
	1715					1720					1725				
aaa	tgc	tcc	ccc	agg	aag	tgc	agc	aag	tga						5214
Lys	Cys	Ser	Pro	Arg	Lys	Cys	Ser	Lys							
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 <211> 1737
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Construct

<400> 167

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Cys	Phe	Ser	Ala	Thr	Arg	Arg	Tyr	Tyr	Leu	Gly	Ala	Val	Glu	Leu	Ser
			20					25					30		

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

Phe	Pro	Pro	Arg	Val	Pro	Lys	Ser	Phe	Pro	Phe	Asn	Thr	Ser	Val	Val
	50					55					60				

Tyr	Lys	Lys	Thr	Leu	Phe	Val	Glu	Phe	Thr	Asp	His	Leu	Phe	Asn	Ile
65					70					75					80

Ala	Lys	Pro	Arg	Pro	Pro	Trp	Met	Gly	Leu	Leu	Gly	Pro	Thr	Ile	Gln
				85					90					95	

Ala	Glu	Val	Tyr	Asp	Thr	Val	Val	Ile	Thr	Leu	Lys	Asn	Met	Ala	Ser
			100					105					110		

His	Pro	Val	Ser	Leu	His	Ala	Val	Gly	Val	Ser	Tyr	Trp	Lys	Ala	Ser
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Glu	Gly	Ala	Glu	Tyr	Asp	Asp	Gln	Thr	Ser	Gln	Arg	Glu	Lys	Glu	Asp
	130					135					140				

Asp	Lys	Val	Phe	Pro	Gly	Gly	Ser	His	Thr	Tyr	Val	Trp	Gln	Val	Leu
145					150					155					160

Lys	Glu	Asn	Gly	Pro	Met	Ala	Ser	Asp	Pro	Leu	Cys	Leu	Thr	Tyr	Ser
				165					170					175	

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Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
 180 185 190
 Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
 195 200 205
 Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
 210 215 220
 Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
 225 230 235 240
 Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
 245 250 255
 Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
 260 265 270
 Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
 275 280 285
 Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
 290 295 300
 Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
 305 310 315 320
 Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
 325 330 335
 Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
 340 345 350
 Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
 355 360 365
 Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
 370 375 380
 Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
 385 390 395 400
 Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
 405 410 415
 Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
 420 425 430
 Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
 435 440 445

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Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
450 455 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465 470 475 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
485 490 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
500 505 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
515 520 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
530 535 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
610 615 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625 630 635 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
645 650 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705 710 715 720

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Met Thr Ala Leu Leu₇₂₅ Lys Val Ser Ser Cys₇₃₀ Asp Lys Asn Thr Gly₇₃₅ Asp
Tyr Tyr Glu Asp₇₄₀ Ser Tyr Glu Asp Ile₇₄₅ Ser Ala Tyr Leu Leu₇₅₀ Ser Lys
Asn Asn Ala Ile Glu Pro Arg Ser₇₆₀ Phe Ser Gln Asn Ser₇₆₅ Arg His Pro
Ser Thr Arg Gln Lys Gln Phe₇₇₅ Asn Ala Thr Thr Ile₇₈₀ Pro Glu Asn Thr
Thr₇₈₅ Leu Gln Ser Asp Gln₇₉₀ Glu Glu Ile Asp Tyr₇₉₅ Asp Asp Thr Ile Ser₈₀₀
Val Glu Met Lys Lys₈₀₅ Glu Asp Phe Asp Ile₈₁₀ Tyr Asp Glu Asp Glu₈₁₅ Asn
Gln Ser Pro Arg₈₂₀ Ser Phe Gln Lys Lys₈₂₅ Thr Arg His Tyr Phe₈₃₀ Ile Ala
Ala Val Glu₈₃₅ Arg Leu Trp Asp Tyr₈₄₀ Gly Met Ser Ser Ser₈₄₅ Pro His Val
Leu Arg₈₅₀ Asn Arg Ala Gln Ser₈₅₅ Gly Ser Val Pro Gln₈₆₀ Phe Lys Lys Val
Val₈₆₅ Phe Gln Glu Phe Thr₈₇₀ Asp Gly Ser Phe Thr₈₇₅ Gln Pro Leu Tyr Arg₈₈₀
Gly Glu Leu Asn Glu₈₈₅ His Leu Gly Leu Leu₈₉₀ Gly Pro Tyr Ile Arg₈₉₅ Ala
Glu Val Glu Asp₉₀₀ Asn Ile Met Val Thr₉₀₅ Phe Arg Asn Gln Ala₉₁₀ Ser Arg
Pro Tyr Ser₉₁₅ Phe Tyr Ser Ser Leu₉₂₀ Ile Ser Tyr Glu Glu₉₂₅ Asp Gln Arg
Gln Gly₉₃₀ Ala Glu Pro Arg Lys₉₃₅ Asn Phe Val Lys Pro₉₄₀ Asn Glu Thr Lys
Thr₉₄₅ Tyr Phe Trp Lys Val₉₅₀ Gln His His Met Ala₉₅₅ Pro Thr Lys Asp Glu₉₆₀
Phe Asp Cys Lys Ala₉₆₅ Trp Ala Tyr Phe Ser₉₇₀ Asp Val Asp Leu Glu₉₇₅ Lys
Asp Val His Ser₉₈₀ Gly Leu Ile Gly Pro₉₈₅ Leu Leu Val Cys His₉₉₀ Thr Asn

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Thr	Leu	Asn	Pro	Ala	His	Gly	Arg	Gln	Val	Thr	Val	Gln	Glu	Phe	Ala
		995					1000					1005			
Leu	Phe	Phe	Thr	Ile	Phe	Asp	Glu	Thr	Lys	Ser	Trp	Tyr	Phe	Thr	
	1010					1015					1020				
Glu	Asn	Met	Glu	Arg	Asn	Cys	Arg	Ala	Pro	Cys	Asn	Ile	Gln	Met	
	1025					1030					1035				
Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn	
	1040					1045					1050				
Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp	
	1055					1060					1065				
Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn	
	1070					1075					1080				
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys	
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Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val	
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
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Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
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His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115    120    125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
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Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
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Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
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Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
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Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195    200    205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
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Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
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Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
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Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
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Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
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Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
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Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
340 345 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
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Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
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Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
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Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
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Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
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Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
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Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
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Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
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His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
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Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
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Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
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Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
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Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
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Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
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Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
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Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
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Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
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Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
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Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
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Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
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Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
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Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
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Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
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945 950 955 960

Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
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Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
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Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
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Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met
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Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
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Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val
	1100					1105					1110			
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Trp	Val 1445	His	Gln	Ile	Ala	Leu 1450	Arg	Met	Glu	Val	Leu 1455	Gly	Cys	Glu
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Asp Gln Cys Ser Cys Cys Ser Pro Thr Arg Thr Glu Pro Met Gln
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cct Pro 545	cgg Arg	tgc Cys	ctg Leu	acc Thr	cgc Arg 550	tat Tyr	tac Tyr	tct Ser	agt Ser	ttc Phe 555	gtt Val	aat Asn	atg Met	gag Glu	aga Arg 560
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tct Ser	gga Gly 675	tat Tyr	acc Thr	ttc Phe	aaa Lys	cac His 680	aaa Lys	atg Met	gtc Val	tat Tyr	gaa Glu	gac Asp 685	aca Thr	ctc Leu	acc Thr
cta Leu 690	ttc Phe	cca Pro	ttc Phe	tca Ser	gga Gly 695	gaa Glu 695	act Thr	gtc Val	ttc Phe	atg Met	tcg Ser 700	atg Met	gaa Glu	aac Asn	cca Pro
ggg Gly 705	cta Leu	tgg Trp	att Ile	ctg Leu	ggg Gly 710	tgc Cys	cac His	aac Asn	tca Ser	gac Asp 715	ttt Phe	cgg Arg	aac Asn	aga Arg	ggc Gly 720
atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggg Gly 735	gat Asp
tat Tyr	tac Tyr	gag Glu	gac Asp 740	agt Ser	tat Tyr	gaa Glu	gat Asp	att Ile 745	tca Ser	gca Ala	tac Tyr	ttg Leu	ctg Leu 750	agt Ser	aaa Lys
aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro
agc Ser	act Thr 770	agg Arg	caa Gln	aag Lys	caa Gln	ttt Phe 775	aat Asn	gcc Ala	acc Thr	aca Thr	att Ile 780	cca Pro	gaa Glu	aat Asn	act Thr
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gca Ala	gtg Val	gag Glu 835	agg Arg	ctc Leu	tgg Trp	gat Asp	tat Tyr 840	ggg Gly	atg Met	agt Ser	agc Ser	tcc Ser 845	cca Pro	cat His	gtt Val	2544
cta Leu	aga Arg 850	aac Asn	agg Arg	gct Ala	cag Gln	agt Ser 855	ggc Gly	agt Ser	gtc Val	cct Pro	cag Gln 860	ttc Phe	aag Lys	aaa Lys	gtt Val	2592
gtt Val 865	ttc Phe	cag Gln	gaa Glu	ttt Phe	act Thr 870	gat Asp	ggc Gly	tcc Ser	ttt Phe	act Thr 875	cag Gln	ccc Pro	tta Leu	tac Tyr	cgt Arg 880	2640
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gaa Glu	gtt Val	gaa Glu	gat Asp 900	aat Asn	atc Ile	atg Met	gta Val	act Thr 905	ttc Phe	aga Arg	aat Asn	cag Gln	gcc Ala 910	tct Ser	cgt Arg	2736
ccc Pro	tat Tyr	tcc Ser 915	ttc Phe	tat Tyr	tct Ser	agc Ser	ctt Leu 920	att Ile	tct Ser	tat Tyr	gag Glu	gaa Glu 925	gat Asp	cag Gln	agg Arg	2784
caa Gln	gga Gly 930	gca Ala	gaa Glu	cct Pro	aga Arg	aaa Lys 935	aac Asn	ttt Phe	gtc Val	aag Lys	cct Pro 940	aat Asn	gaa Glu	acc Thr	aaa Lys	2832
act Thr 945	tac Tyr	ttt Phe	tgg Trp	aaa Lys	gtg Val 950	caa Gln	cat His	cat His	atg Met	gca Ala 955	ccc Pro	act Thr	aaa Lys	gat Asp	gag Glu 960	2880
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gat Asp	gtg Val	cac His	tca Ser 980	ggc Gly	ctg Leu	att Ile	gga Gly	ccc Pro 985	ctt Leu	ctg Leu	gtc Val	tgc Cys	cac His 990	act Thr	aac Asn	2976
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gaa Glu 1025	aat Asn	atg Met	gaa Glu	aga Arg	aac Asn	tgc Cys 1030	agg Arg	gct Ala	ccc Pro	tgc Cys	aat Asn 1035	atc Ile	cag Gln	atg Met		3114
gaa Glu	gat Asp 1040	ccc Pro	act Thr	ttt Phe	aaa Lys	gag Glu 1045	aat Asn	tat Tyr	cgc Arg	ttc Phe	cat His 1050	gca Ala	atc Ile	aat Asn		3159
ggc	tac	ata	atg	gat	aca	cta	cct	ggc	tta	gta	atg	gct	cag	gat		3204

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Gly	Tyr 1055	Ile	Met	Asp	Thr	Leu 1060	Pro	Gly	Leu	Val	Met 1065	Ala	Gln	Asp	
caa Gln	agg Arg 1070	att Ile	cga Arg	tgg Trp	tat Tyr	ctg Leu 1075	ctc Leu	agc Ser	atg Met	ggc Gly	agc Ser 1080	aat Asn	gaa Glu	aac Asn	3249
atc Ile	cat His 1085	tct Ser	att Ile	cat His	ttc Phe	agt Ser 1090	gga Gly	cat His	gtg Val	ttc Phe	act Thr 1095	gta Val	cga Arg	aaa Lys	3294
aaa Lys	gag Glu 1100	gag Glu	tat Tyr	aaa Lys	atg Met	gca Ala 1105	ctg Leu	tac Tyr	aat Asn	ctc Leu	tat Tyr 1110	cca Pro	ggt Gly	gtt Val	3339
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gct Ala	tct Ser 1160	gga Gly	cac His	att Ile	aga Arg	gat Asp 1165	ttt Phe	cag Gln	att Ile	aca Thr	gct Ala 1170	tca Ser	gga Gly	caa Gln	3519
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tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu	3879
cgc Arg	atg Met 1295	gag Glu	ttg Leu	atg Met	ggc Gly	tgt Cys 1300	gat Asp	tta Leu	aat Asn	agt Ser	tgc Cys 1305	agc Ser	atg Met	cca Pro	3924
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gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln
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acc Thr	agc Ser 1385	atg Met	tat Tyr	gtg Val	aag Lys	gag Glu 1390	ttc Phe	ctc Leu	atc Ile	tcc Ser	agc Ser 1395	agt Ser	caa Gln	gat Asp
ggc Gly	cat His 1400	cag Gln	tgg Trp	act Thr	ctc Leu	ttt Phe 1405	ttt Phe	cag Gln	aat Asn	ggc Gly	aaa Lys 1410	gta Val	aag Lys	gtt Val
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caa Gln	att Ile 1475	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 1480	aag Lys	cat His	cct Pro	aaa Lys	act Thr 1485	tgg Trp	cct Pro	cga Arg
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	1610					1615					1620			4869
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	1730					1735					1740			5229
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Ser	Gly	Ser	Gln	Cys	Asn	Asp	Ile	Thr	Ala	Arg	Leu	Gln	Tyr	Val
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Lys	Val	Gly	Ser	Cys	Lys	Ser	Glu	Val	Glu	Val	Asp	Ile	His	Tyr
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Cys	Gln	Gly	Lys	Cys	Ala	Ser	Lys	Ala	Met	Tyr	Ser	Ile	Asp	Ile
	1775					1780					1785			5364
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Asn	Asp	Val	Gln	Asp	Gln	Cys	Ser	Cys	Cys	Ser	Pro	Thr	Arg	Thr
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Glu	Pro	Met	Gln	Val	Ala	Leu	His	Cys	Thr	Asn	Gly	Ser	Val	Val
	1805					1810					1815			5454
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 Lys Cys Ser Lys
 1835

5514

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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Construct

<400> 171

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

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
 50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
 65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
 85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
 100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
 115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
 130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
 145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
 165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
 180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
 195 200 205

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Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
275 280 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
290 295 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
325 330 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
340 345 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
355 360 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
370 375 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385 390 395 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
405 410 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
420 425 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
435 440 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
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Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
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Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
 485 490 495
 His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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 Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
 515 520 525
 Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
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 Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
 545 550 555 560
 Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
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 Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
 580 585 590
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 595 600 605
 Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
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 Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
 625 630 635 640
 Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
 645 650 655
 Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
 660 665 670
 Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
 675 680 685
 Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
 690 695 700
 Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
 705 710 715 720
 Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
 725 730 735
 Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
 740 745 750

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Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
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 Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
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 Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
 785 790 795 800
 Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
 805 810 815
 Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
 820 825 830
 Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
 835 840 845
 Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
 850 855 860
 Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
 865 870 875 880
 Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
 885 890 895
 Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
 900 905 910
 Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
 915 920 925
 Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
 930 935 940
 Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
 945 950 955 960
 Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
 965 970 975
 Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
 980 985 990
 Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
 995 1000 1005
 Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
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Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp
	1055					1060					1065			
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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
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gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln	4059
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atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu	4149
acc Thr	agc Ser 1385	atg Met	tat Tyr	gtg Val	aag Lys	gag Glu 1390	ttc Phe	ctc Leu	atc Ile	tcc Ser	agc Ser 1395	agt Ser	caa Gln	gat Asp	4194
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gac Asp	cca Pro 1430	ccg Pro	tta Leu	ctg Leu	act Thr	cgc Arg 1435	tac Tyr	ctt Leu	cga Arg	att Ile	cac His 1440	ccc Pro	cag Gln	agt Ser	4329
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gtg Val	gat Asp 1820	atc Ile	cac His	tac Tyr	tgc Cys	cag Gln 1825	ggc Gly	aaa Lys	tgt Cys	gcc Ala	agc Ser 1830	aaa Lys	gcc Ala	atg Met	5499
tac Tyr	tcc Ser 1835	att Ile	gac Asp	atc Ile	aac Asn	gat Asp 1840	gtg Val	cag Gln	gac Asp	cag Gln	tgc Cys 1845	tcc Ser	tgc Cys	tgc Cys	5544
tct Ser	ccg Pro 1850	aca Thr	cgg Arg	acg Thr	gag Glu	ccc Pro 1855	atg Met	cag Gln	gtg Val	gcc Ala	ctg Leu 1860	cac His	tgc Cys	acc Thr	5589
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val

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60

50

55

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
275 280 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
290 295 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
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330

325

335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
340 345 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
355 360 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
370 375 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385 390 395 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
405 410 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
420 425 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
435 440 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
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Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465 470 475 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
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His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
515 520 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
530 535 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu

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 Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
 625 630 635 640
 Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
 645 650 655
 Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
 660 665 670
 Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
 675 680 685
 Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
 690 695 700
 Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
 705 710 715 720
 Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
 725 730 735
 Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
 740 745 750
 Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
 755 760 765
 Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
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 Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
 785 790 795 800
 Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
 805 810 815
 Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
 820 825 830
 Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
 835 840 845
 Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
 850 855 860
 Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
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Glu	Val	Glu	Asp	Asn	Ile	Met	Val	Thr	Phe	Arg	Asn	Gln	Ala	Ser	Arg
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Pro	Tyr	Ser	Phe	Tyr	Ser	Ser	Leu	Ile	Ser	Tyr	Glu	Glu	Asp	Gln	Arg
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Gln	Gly	Ala	Glu	Pro	Arg	Lys	Asn	Phe	Val	Lys	Pro	Asn	Glu	Thr	Lys
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Thr	Tyr	Phe	Trp	Lys	Val	Gln	His	His	Met	Ala	Pro	Thr	Lys	Asp	Glu
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Phe	Asp	Cys	Lys	Ala	Trp	Ala	Tyr	Phe	Ser	Asp	Val	Asp	Leu	Glu	Lys
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Asp	Val	His	Ser	Gly	Leu	Ile	Gly	Pro	Leu	Leu	Val	Cys	His	Thr	Asn
			980					985					990		
Thr	Leu	Asn	Pro	Ala	His	Gly	Arg	Gln	Val	Thr	Val	Gln	Glu	Phe	Ala
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Leu	Phe	Phe	Thr	Ile	Phe	Asp	Glu	Thr	Lys	Ser	Trp	Tyr	Phe	Thr	
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Glu	Asn	Met	Glu	Arg	Asn	Cys	Arg	Ala	Pro	Cys	Asn	Ile	Gln	Met	
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Glu	Asp	Pro	Thr	Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn	
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Gly	Tyr	Ile	Met	Asp	Thr	Leu	Pro	Gly	Leu	Val	Met	Ala	Gln	Asp	
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Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn	
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Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys	
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Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro	Gly	Val	
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Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile	Trp	Arg	
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Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu Gly Met
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Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser Gly Gln
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Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr Ser Gly
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Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp Ile Lys
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Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys Thr Gln
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Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val Asp Ser
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Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile Ala Arg
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Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser Met Pro
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Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile Thr Ala
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Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro Ser Lys
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Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg Pro Gln
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Val	Asn	Asn	Pro	Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln Lys Thr
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Met	Lys	Val	Thr	Gly	Val	Thr	Thr	Gln	Gly	Val	Lys	Ser Leu Leu
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Trp	Val	His	Gln	Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly	Cys	Glu	
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Ser	Pro	Thr	Arg	Thr	Glu	Pro	Met	Gln	Val	Ala	Leu	His Cys Thr
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Asn	Gly	Ser	Val	Val	Tyr	His	Glu	Val	Leu	Asn	Ala	Met Glu Cys
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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
35 40 45
ttt cct cct aga gtg cca aaa tct ttt cca ttc aac acc tca gtc gtg 192
Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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tac aaa aag act ctg ttt gta gaa ttc acg gat cac ctt ttc aac atc 240
Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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gct gag gtt tat gat aca gtg gtc att aca ctt aag aac atg gct tcc 336
Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110
cat cct gtc agt ctt cat gct gtt ggt gta tcc tac tgg aaa gct tct 384
His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125
gag gga gct gaa tat gat gat cag acc agt caa agg gag aaa gaa gat 432
Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140
gat aaa gtc ttc cct ggt gga agc cat aca tat gtc tgg cag gtc ctg 480
Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160
aaa gag aat ggt cca atg gcc tct gac cca ctg tgc ctt acc tac tca 528
Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175
tat ctt tct cat gtg gac ctg gta aaa gac ttg aat tca ggc ctc att 576
Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190
gga gcc cta cta gta tgt aga gaa ggg agt ctg gcc aag gaa aag aca 624
Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205
cag acc ttg cac aaa ttt ata cta ctt ttt gct gta ttt gat gaa ggg 672
Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

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aaa Lys 225	agt Ser	tgg Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240	720
gct Ala	gca Ala	tct Ser	gct Ala	cgg Arg 245	gcc Ala	tgg Trp	cct Pro	aaa Lys	atg Met 250	cac His	aca Thr	gtc Val	aat Asn	ggg Gly 255	tat Tyr	768
gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	ggg Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val	816
tat Tyr	tgg Trp	cat His 275	gtg Val	att Ile	gga Gly	atg Met	ggc Gly 280	acc Thr	act Thr	cct Pro	gaa Glu	gtg Val 285	cac His	tca Ser	ata Ile	864
ttc Phe	ctc Leu 290	gaa Glu	ggg Gly	cac His	aca Thr	ttt Phe 295	ctt Leu	gtg Val	agg Arg	aac Asn	cat His 300	cgc Arg	cag Gln	gcg Ala	tcc Ser	912
ttg Leu 305	gaa Glu	atc Ile	tcg Ser	cca Pro	ata Ile 310	act Thr	ttc Phe	ctt Leu	act Thr	gct Ala 315	caa Gln	aca Thr	ctc Leu	ttg Leu	atg Met 320	960
gac Asp	ctt Leu	gga Gly	cag Gln	ttt Phe 325	cta Leu	ctg Leu	ttt Phe	tgt Cys	cat His 330	atc Ile	tct Ser	tcc Ser	cac His	caa Gln 335	cat His	1008
gat Asp	ggc Gly	atg Met	gaa Glu 340	gct Ala	tat Tyr	gtc Val	aaa Lys	gta Val 345	gac Asp	agc Ser	tgt Cys	cca Pro	gag Glu 350	gaa Glu	ccc Pro	1056
caa Gln	cta Leu	cga Arg 355	atg Met	aaa Lys	aat Asn	aat Asn	gaa Glu 360	gaa Glu	gcg Ala	gaa Glu	gac Asp	tat Tyr 365	gat Asp	gat Asp	gat Asp	1104
ctt Leu	act Thr 370	gat Asp	tct Ser	gaa Glu	atg Met	gat Asp 375	gtg Val	gtc Val	agg Arg	ttt Phe	gat Asp 380	gat Asp	gac Asp	aac Asn	tct Ser	1152
cct Pro 385	tcc Ser	ttt Phe	atc Ile	caa Gln	att Ile 390	cgc Arg	tca Ser	gtt Val	gcc Ala	aag Lys 395	aag Lys	cat His	cct Pro	aaa Lys	act Thr 400	1200
tgg Trp	gta Val	cat His	tac Tyr	att Ile 405	gct Ala	gct Ala	gaa Glu	gag Glu	gag Glu 410	gac Asp	tgg Trp	gac Asp	tat Tyr	gct Ala 415	ccc Pro	1248
tta Leu	gtc Val	ctc Leu	gcc Ala 420	ccc Pro	gat Asp	gac Asp	aga Arg	agt Ser 425	tat Tyr	aaa Lys	agt Ser	caa Gln	tat Tyr 430	ttg Leu	aac Asn	1296
aat Asn	ggc Gly	cct Pro 435	cag Gln	cgg Arg	att Ile	ggg Gly	agg Arg 440	aag Lys	tac Tyr	aaa Lys	aaa Lys	gtc Val 445	cga Arg	ttt Phe	atg Met	1344
gca Ala	tac Tyr 450	aca Thr	gat Asp	gaa Glu	acc Thr	ttt Phe 455	aag Lys	act Thr	cgt Arg	gaa Glu	gct Ala 460	att Ile	cag Gln	cat His	gaa Glu	1392
tca Ser 465	gga Gly	atc Ile	ttg Leu	gga Gly	cct Pro 470	tta Leu	ctt Leu	tat Tyr	ggg Gly	gaa Glu 475	gtt Val	gga Gly	gac Asp	aca Thr	ctg Leu 480	1440
ttg Leu	att Ile	ata Ile	ttt Phe	aag Lys 485	aat Asn	caa Gln	gca Ala	agc Ser	aga Arg 490	cca Pro	tat Tyr	aac Asn	atc Ile	tac Tyr 495	cct Pro	1488

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cac His	gga Gly	atc Ile	act Thr 500	gat Asp	gtc Val	cgt Arg	cct Pro	ttg Leu 505	tat Tyr	tca Ser	agg Arg	aga Arg	tta Leu 510	cca Pro	aaa Lys	1536
ggt Gly	gta Val	aaa Lys 515	cat His	ttg Leu	aag Lys	gat Asp	ttt Phe 520	cca Pro	att Ile	ctg Leu	cca Pro	gga Gly 525	gaa Glu	ata Ile	ttc Phe	1584
aaa Lys	tat Tyr 530	aaa Lys	tgg Trp	aca Thr	gtg Val	act Thr 535	gta Val	gaa Glu	gat Asp	ggg Gly	cca Pro 540	act Thr	aaa Lys	tca Ser	gat Asp	1632
cct Pro 545	cgg Arg	tgc Cys	ctg Leu	acc Thr	cgc Arg 550	tat Tyr	tac Tyr	tct Ser	agt Ser	ttc Phe 555	gtt Val	aat Asn	atg Met	gag Glu	aga Arg 560	1680
gat Asp	cta Leu	gct Ala	tca Ser	gga Gly 565	ctc Leu	att Ile	ggc Gly	cct Pro	ctc Leu 570	ctc Leu	atc Ile	tgc Cys	tac Tyr	aaa Lys 575	gaa Glu	1728
tct Ser	gta Val	gat Asp	caa Gln 580	aga Arg	gga Gly	aac Asn	cag Gln	ata Ile 585	atg Met	tca Ser	gac Asp	aag Lys	agg Arg 590	aat Asn	gtc Val	1776
atc Ile	ctg Leu	ttt Phe 595	tct Ser	gta Val	ttt Phe	gat Asp	gag Glu 600	aac Asn	cga Arg	agc Ser	tgg Trp	tac Tyr 605	ctc Leu	aca Thr	gag Glu	1824
aat Asn	ata Ile 610	caa Gln	cgc Arg	ttt Phe	ctc Leu	ccc Pro 615	aat Asn	cca Pro	gct Ala	gga Gly	gtg Val 620	cag Gln	ctt Leu	gag Glu	gat Asp	1872
cca Pro 625	gag Glu	ttc Phe	caa Gln	gcc Ala	tcc Ser 630	aac Asn	atc Ile	atg Met	cac His	agc Ser 635	atc Ile	aat Asn	ggc Gly	tat Tyr	gtt Val 640	1920
ttt Phe	gat Asp	agt Ser	ttg Leu	cag Gln 645	ttg Leu	tca Ser	gtt Val	tgt Cys	ttg Leu 650	cat His	gag Glu	gtg Val	gca Ala	tac Tyr 655	tgg Trp	1968
tac Tyr	att Ile	cta Leu	agc Ser 660	att Ile	gga Gly	gca Ala	cag Gln	act Thr 665	gac Asp	ttc Phe	ctt Leu	tct Ser	gtc Val 670	ttc Phe	ttc Phe	2016
tct Ser	gga Gly	tat Tyr 675	acc Thr	ttc Phe	aaa Lys	cac His	aaa Lys 680	atg Met	gtc Val	tat Tyr	gaa Glu	gac Asp 685	aca Thr	ctc Leu	acc Thr	2064
cta Leu	ttc Phe 690	cca Pro	ttc Phe	tca Ser	gga Gly	gaa Glu 695	act Thr	gtc Val	ttc Phe	atg Met	tgc Ser 700	atg Met	gaa Glu	aac Asn	cca Pro	2112
ggt Gly 705	cta Leu	tgg Trp	att Ile	ctg Leu	ggg Gly 710	tgc Cys	cac His	aac Asn	tca Ser	gac Asp 715	ttt Phe	cgg Arg	aac Asn	aga Arg	ggc Gly 720	2160
atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggt Gly 735	gat Asp	2208
tat Tyr	tac Tyr	gag Glu	gac Asp 740	agt Ser	tat Tyr	gaa Glu	gat Asp	att Ile 745	tca Ser	gca Ala	tac Tyr	ttg Leu	ctg Leu 750	agt Ser	aaa Lys	2256
aac Asn	aat Asn	gcc Ala 755	att Ile	gaa Glu	cca Pro	aga Arg	agc Ser 760	ttc Phe	tcc Ser	cag Gln	aat Asn	tca Ser 765	aga Arg	cac His	cct Pro	2304

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agc Ser	act Thr 770	agg Arg	caa Gln	aag Lys	caa Gln	ttt Phe 775	aat Asn	gcc Ala	acc Thr	aca Thr	att Ile 780	cca Pro	gaa Glu	aat Asn	act Thr	2352
act Thr 785	ctt Leu	cag Gln	tca Ser	gat Asp	caa Gln 790	gag Glu	gaa Glu	att Ile	gac Asp	tat Tyr 795	gat Asp	gat Asp	acc Thr	ata Ile	tca Ser 800	2400
gtt Val	gaa Glu	atg Met	aag Lys	aag Lys 805	gaa Glu	gat Asp	ttt Phe	gac Asp	att Ile 810	tat Tyr	gat Asp	gag Glu	gat Asp	gaa Glu 815	aat Asn	2448
cag Gln	agc Ser	ccc Pro	cgc Arg 820	agc Ser	ttt Phe	caa Gln	aag Lys	aaa Lys 825	aca Thr	cga Arg	cac His	tat Tyr	ttt Phe 830	att Ile	gct Ala	2496
gca Ala	gtg Val	gag Glu 835	agg Arg	ctc Leu	tgg Trp	gat Asp	tat Tyr 840	ggg Gly	atg Met	agt Ser	agc Ser	tcc Ser 845	cca Pro	cat His	gtt Val	2544
cta Leu	aga Arg 850	aac Asn	agg Arg	gct Ala	cag Gln	agt Ser 855	ggc Gly	agt Ser	gtc Val	cct Pro	cag Gln 860	ttc Phe	aag Lys	aaa Lys	gtt Val	2592
gtt Val 865	ttc Phe	cag Gln	gaa Glu	ttt Phe	act Thr 870	gat Asp	ggc Gly	tcc Ser	ttt Phe	act Thr 875	cag Gln	ccc Pro	tta Leu	tac Tyr	cgt Arg 880	2640
gga Gly	gaa Glu	cta Leu	aat Asn	gaa Glu 885	cat His	ttg Leu	gga Gly	ctc Leu	ctg Leu 890	ggg Gly	cca Pro	tat Tyr	ata Ile	aga Arg 895	gca Ala	2688
gaa Glu	gtt Val	gaa Glu	gat Asp 900	aat Asn	atc Ile	atg Met	gta Val	act Thr 905	ttc Phe	aga Arg	aat Asn	cag Gln	gcc Ala 910	tct Ser	cgt Arg	2736
ccc Pro	tat Tyr	tcc Ser 915	ttc Phe	tat Tyr	tct Ser	agc Ser	ctt Leu 920	att Ile	tct Ser	tat Tyr	gag Glu	gaa Glu 925	gat Asp	cag Gln	agg Arg	2784
caa Gln	gga Gly 930	gca Ala	gaa Glu	cct Pro	aga Arg	aaa Lys 935	aac Asn	ttt Phe	gtc Val	aag Lys	cct Pro 940	aat Asn	gaa Glu	acc Thr	aaa Lys	2832
act Thr 945	tac Tyr	ttt Phe	tgg Trp	aaa Lys	gtg Val 950	caa Gln	cat His	cat His	atg Met	gca Ala 955	ccc Pro	act Thr	aaa Lys	gat Asp	gag Glu 960	2880
ttt Phe	gac Asp	tgc Cys	aaa Lys	gcc Ala 965	tgg Trp	gct Ala	tat Tyr	ttc Phe	tct Ser 970	gat Asp	gtt Val	gac Asp	ctg Leu	gaa Glu 975	aaa Lys	2928
gat Asp	gtg Val	cac His	tca Ser 980	ggc Gly	ctg Leu	att Ile	gga Gly	ccc Pro 985	ctt Leu	ctg Leu	gtc Val	tgc Cys	cac His	act Thr	aac Asn	2976
aca Thr	ctg Leu	aac Asn 995	cct Pro	gct Ala	cat His	ggg Gly	aga Arg 1000	caa Gln	gtg Val	aca Thr	gta Val	cag Gln 1005	gaa Glu	ttt Phe	gct Ala	3024
ctg Leu	ttt Phe 1010	ttc Phe	acc Thr	atc Ile	ttt Phe	gat Asp 1015	gag Glu	acc Thr	aaa Lys	agc Ser	tgg Trp 1020	tac Tyr	ttc Phe	act Thr		3069
gaa Glu	aat Asn 1025	atg Met	gaa Glu	aga Arg	aac Asn	tgc Cys 1030	agg Arg	gct Ala	ccc Pro	tgc Cys	aat Asn 1035	atc Ile	cag Gln	atg Met		3114

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gaa Glu	gat Asp 1040	ccc Pro	act Thr	ttt Phe	aaa Lys	gag Glu 1045	aat Asn	tat Tyr	cgc Arg	ttc Phe	cat His 1050	gca Ala	atc Ile	aat Asn	3159
ggc Gly	tac Tyr 1055	ata Ile	atg Met	gat Asp	aca Thr	cta Leu 1060	cct Pro	ggc Gly	tta Leu	gta Val	atg Met 1065	gct Ala	cag Gln	gat Asp	3204
caa Gln	agg Arg 1070	att Ile	cga Arg	tgg Trp	tat Tyr	ctg Leu 1075	ctc Leu	agc Ser	atg Met	ggc Gly	agc Ser 1080	aat Asn	gaa Glu	aac Asn	3249
atc Ile	cat His 1085	tct Ser	att Ile	cat His	ttc Phe	agt Ser 1090	gga Gly	cat His	gtg Val	ttc Phe	act Thr 1095	gta Val	cga Arg	aaa Lys	3294
aaa Lys	gag Glu 1100	gag Glu	tat Tyr	aaa Lys	atg Met	gca Ala 1105	ctg Leu	tac Tyr	aat Asn	ctc Leu	tat Tyr 1110	cca Pro	ggt Gly	gtt Val	3339
ttt Phe	gag Glu 1115	aca Thr	gtg Val	gaa Glu	atg Met	tta Leu 1120	cca Pro	tcc Ser	aaa Lys	gct Ala	gga Gly 1125	att Ile	tgg Trp	cgg Arg	3384
gtg Val	gaa Glu 1130	tgc Cys	ctt Leu	att Ile	ggc Gly	gag Glu 1135	cat His	cta Leu	cat His	gct Ala	ggg Gly 1140	atg Met	agc Ser	aca Thr	3429
ctt Leu	ttt Phe 1145	ctg Leu	gtg Val	tac Tyr	agc Ser	aat Asn 1150	aag Lys	tgt Cys	cag Gln	act Thr	ccc Pro 1155	ctg Leu	gga Gly	atg Met	3474
gct Ala	tct Ser 1160	gga Gly	cac His	att Ile	aga Arg	gat Asp 1165	ttt Phe	cag Gln	att Ile	aca Thr	gct Ala 1170	tca Ser	gga Gly	caa Gln	3519
tat Tyr	gga Gly 1175	cag Gln	tgg Trp	gcc Ala	cca Pro	aag Lys 1180	ctg Leu	gcc Ala	aga Arg	ctt Leu	cat His 1185	tat Tyr	tcc Ser	gga Gly	3564
tca Ser	atc Ile 1190	aat Asn	gcc Ala	tgg Trp	agc Ser	acc Thr 1195	aag Lys	gag Glu	ccc Pro	ttt Phe	tct Ser 1200	tgg Trp	atc Ile	aag Lys	3609
gtg Val	gat Asp 1205	ctg Leu	ttg Leu	gca Ala	cca Pro	atg Met 1210	att Ile	att Ile	cac His	ggc Gly	atc Ile 1215	aag Lys	acc Thr	cag Gln	3654
ggt Gly	gcc Ala 1220	cgt Arg	cag Gln	aag Lys	ttc Phe	tcc Ser 1225	agc Ser	ctc Leu	tac Tyr	atc Ile	tct Ser 1230	cag Gln	ttt Phe	atc Ile	3699
atc Ile	atg Met 1235	tat Tyr	agt Ser	ctt Leu	gat Asp	ggg Gly 1240	aag Lys	aag Lys	tgg Trp	cag Gln	act Thr 1245	tat Tyr	cga Arg	gga Gly	3744
aat Asn	tcc Ser 1250	act Thr	gga Gly	acc Thr	tta Leu	atg Met 1255	gtc Val	ttc Phe	ttt Phe	ggc Gly	aat Asn 1260	gtg Val	gat Asp	tca Ser	3789
tct Ser	ggg Gly 1265	ata Ile	aaa Lys	cac His	aat Asn	att Ile 1270	ttt Phe	aac Asn	cct Pro	cca Pro	att Ile 1275	att Ile	gct Ala	cga Arg	3834
tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu	3879

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cg Arg	atg Met 1295	gag Glu	ttg Leu	atg Met	ggc Gly	tgt Cys 1300	gat Asp	tta Leu	aat Asn	agt Ser	tgc Cys 1305	agc Ser	atg Met	cca Pro	3924
ttg Leu	gga Gly 1310	atg Met	gag Glu	agt Ser	aaa Lys	gca Ala 1315	ata Ile	tca Ser	gat Asp	gca Ala	cag Gln 1320	att Ile	act Thr	gct Ala	3969
tca Ser	tcc Ser 1325	tac Tyr	ttt Phe	acc Thr	aat Asn	atg Met 1330	ttt Phe	gcc Ala	acc Thr	tgg Trp	tct Ser 1335	cct Pro	tca Ser	aaa Lys	4014
gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln	4059
gtg Val	aat Asn 1355	aat Asn	cca Pro	aaa Lys	gag Glu	tgg Trp 1360	ctg Leu	caa Gln	gtg Val	gac Asp	ttc Phe 1365	cag Gln	aag Lys	aca Thr	4104
atg Met	aaa Lys 1370	gtc Val	aca Thr	gga Gly	gta Val	act Thr 1375	act Thr	cag Gln	gga Gly	gta Val	aaa Lys 1380	tct Ser	ctg Leu	ctt Leu	4149
acc Thr	agc Ser 1385	atg Met	tat Tyr	gtg Val	aag Lys	gag Glu 1390	ttc Phe	ctc Leu	atc Ile	tcc Ser	agc Ser 1395	agt Ser	caa Gln	gat Asp	4194
ggc Gly	cat His 1400	cag Gln	tgg Trp	act Thr	ctc Leu	ttt Phe 1405	ttt Phe	cag Gln	aat Asn	ggc Gly	aaa Lys 1410	gta Val	aag Lys	gtt Val	4239
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gac Asp	cca Pro 1430	ccg Pro	tta Leu	ctg Leu	act Thr	cg Arg 1435	tac Tyr	ctt Leu	cga Arg	att Ile	cac His 1440	ccc Pro	cag Gln	agt Ser	4329
tgg Trp	gtg Val 1445	cac His	cag Gln	att Ile	gcc Ala	ctg Leu 1450	agg Arg	atg Met	gag Glu	gtt Val	ctg Leu 1455	ggc Gly	tgc Cys	gag Glu	4374
gca Ala	cag Gln 1460	gac Asp	ctc Leu	tac Tyr	acc Thr	gg Gly 1465	gat Asp	gac Asp	aac Asn	tct Ser	cct Pro 1470	tcc Ser	ttt Phe	atc Ile	4419
caa Gln	att Ile 1475	cg Arg	tca Ser	gtt Val	gcc Ala	aag Lys 1480	aag Lys	cat His	cct Pro	aaa Lys	act Thr 1485	tgg Trp	cct Pro	cga Arg	4464
ggg Gly	ggt Gly 1490	ggg Gly	agt Ser	gga Gly	gga Gly	tca Ser 1495	ggt Gly	ggc Gly	agt Ser	ggg Gly	ggg Gly 1500	tca Ser	ggc Gly	ggc Gly	4509
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agt Ser	ggt Gly 1565	ggc Gly	agt Ser	gga Gly	gga Gly	agt Ser 1570	ggc Gly	ggg Gly	tct Ser	ggc Gly	ggc Gly 1575	tct Ser	gga Gly	ggc Gly	4734
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agt Ser	ggt Gly 1775	ggg Gly	tca Ser	gga Gly	ggt Gly	agc Ser 1780	gga Gly	gga Gly	tca Ser	gga Gly	ggc Gly 1785	agc Ser	ggc Gly	ggt Gly	5364
tca Ser	ggt Gly 1790	ggg Gly	tct Ser	ggt Gly	ggt Gly	tct Ser 1795	ggt Gly	ggt Gly	tct Ser	gga Gly	ggc Gly 1800	agc Ser	ggc Gly	ggc Gly	5409

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tgc Cys	aac Asn 1850	gac Asp	atc Ile	act Thr	gcc Ala	agg Arg 1855	ctg Leu	cag Gln	tat Tyr	gtc Val	aag Lys 1860	gtg Val	gga Gly	agc Ser	5589
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tgt Cys	gcc Ala 1880	agc Ser	aaa Lys	gcc Ala	atg Met	tac Tyr 1885	tcc Ser	att Ile	gac Asp	atc Ile	aac Asn 1890	gat Asp	gtg Val	cag Gln	5679
gac Asp	cag Gln 1895	tgc Cys	tcc Ser	tgc Cys	tgc Cys	tct Ser 1900	ccg Pro	aca Thr	cgg Arg	acg Thr	gag Glu 1905	ccc Pro	atg Met	cag Gln	5724
gtg Val	gcc Ala 1910	ctg Leu	cac His	tgc Cys	acc Thr	aat Asn 1915	ggc Gly	tct Ser	gtt Val	gtg Val	tac Tyr 1920	cat His	gag Glu	gtt Val	5769
ctc Leu	aat Asn 1925	gcc Ala	atg Met	gag Glu	tgc Cys	aaa Lys 1930	tgc Cys	tcc Ser	ccc Pro	agg Arg	aag Lys 1935	tgc Cys	agc Ser	aag Lys	5814
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
 65 70 75 80

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Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
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Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225 230 235 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
260 265 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
275 280 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
290 295 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
325 330 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
340 345 350

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Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
355 360 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
370 375 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385 390 395 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
405 410 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
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Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
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Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
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Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
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Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
485 490 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
515 520 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
530 535 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
610 615 620

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Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625 630 635 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
645 650 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705 710 715 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
725 730 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
740 745 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
755 760 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
770 775 780

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
785 790 795 800

Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn
805 810 815

Gln Ser Pro Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala
820 825 830

Ala Val Glu Arg Leu Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val
835 840 845

Leu Arg Asn Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val
850 855 860

Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg
865 870 875 880

Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala
885 890 895

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Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg
900 905 910

Pro Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg
915 920 925

Gln Gly Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys
930 935 940

Thr Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu
945 950 955 960

Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys
965 970 975

Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn
980 985 990

Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala
995 1000 1005

Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr
1010 1015 1020

Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met
1025 1030 1035

Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn
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Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met Ala Gln Asp
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Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn Glu Asn
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Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg Lys
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Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val
1100 1105 1110

Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg
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Val Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met Ser Thr
1130 1135 1140

Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu Gly Met
1145 1150 1155

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Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser	Gly	Gln
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Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly
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Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp	Ile	Lys
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Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys	Thr	Gln
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Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln	Phe	Ile
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Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr	Arg	Gly
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Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val	Asp	Ser
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Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile	Ala	Arg
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Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser	Thr	Leu
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Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser	Met	Pro
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Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile	Thr	Ala
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Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys
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Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg	Pro	Gln
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Val	Asn	Asn	Pro	Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln	Lys	Thr
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Met	Lys	Val	Thr	Gly	Val	Thr	Thr	Gln	Gly	Val	Lys	Ser	Leu	Leu
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Thr	Ser	Met	Tyr	Val	Lys	Glu	Phe	Leu	Ile	Ser	Ser	Ser	Gln	Asp
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Gly	His	Gln	Trp	Thr	Leu	Phe	Phe	Gln	Asn	Gly	Lys	Val	Lys	Val
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Trp	Val	His	Gln	Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly	Cys	Glu
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Ala	Gln	Asp	Leu	Tyr	Thr	Gly	Asp	Asp	Asn	Ser	Pro	Ser	Phe	Ile
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Cys	Lys	Ser	Glu	Val	Glu	Val	Asp	Ile	His	Tyr	Cys	Gln	Gly	Lys
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Cys	Ala	Ser	Lys	Ala	Met	Tyr	Ser	Ile	Asp	Ile	Asn	Asp	Val	Gln
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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95
gct gag gtt tat gat aca gtg gtc att aca ctt aag aac atg gct tcc 336
Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
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cat cct gtc agt ctt cat gct gtt ggt gta tcc tac tgg aaa gct tct 384
His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125
gag gga gct gaa tat gat gat cag acc agt caa agg gag aaa gaa gat 432
Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
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gat aaa gtc ttc cct ggt gga agc cat aca tat gtc tgg cag gtc ctg 480
Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160
aaa gag aat ggt cca atg gcc tct gac cca ctg tgc ctt acc tac tca 528
Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
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Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

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cag Gln	acc Thr 210	ttg Leu	cac His	aaa Lys	ttt Phe	ata Ile 215	cta Leu	ctt Leu	ttt Phe	gct Ala	gta Val 220	ttt Phe	gat Asp	gaa Glu	ggg Gly	672
aaa Lys 225	agt Ser	tggt Trp	cac His	tca Ser	gaa Glu 230	aca Thr	aag Lys	aac Asn	tcc Ser	ttg Leu 235	atg Met	cag Gln	gat Asp	agg Arg	gat Asp 240	720
gct Ala	gca Ala	tct Ser	gct Ala	cgg Arg 245	gcc Ala	tggt Trp	cct Pro	aaa Lys	atg Met 250	cac His	aca Thr	gtc Val	aat Asn	gggt Gly 255	tat Tyr	768
gta Val	aac Asn	agg Arg	tct Ser 260	ctg Leu	cca Pro	gggt Gly	ctg Leu	att Ile 265	gga Gly	tgc Cys	cac His	agg Arg	aaa Lys 270	tca Ser	gtc Val	816
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cac His	gga Gly	atc Ile	act Thr 500	gat Asp	gtc Val	cgt Arg	cct Pro	ttg Leu 505	tat Tyr	tca Ser	agg Arg	aga Arg	tta Leu 510	cca Pro	aaa Lys	1536
ggt Gly	gta Val	aaa Lys 515	cat His	ttg Leu	aag Lys	gat Asp	ttt Phe 520	cca Pro	att Ile	ctg Leu	cca Pro	gga Gly 525	gaa Glu	ata Ile	ttc Phe	1584
aaa Lys	tat Tyr 530	aaa Lys	tgg Trp	aca Thr	gtg Val	act Thr 535	gta Val	gaa Glu	gat Asp	ggg Gly	cca Pro 540	act Thr	aaa Lys	tca Ser	gat Asp	1632
cct Pro 545	cgg Arg	tgc Cys	ctg Leu	acc Thr	cgc Arg 550	tat Tyr	tac Tyr	tct Ser	agt Ser	ttc Phe 555	gtt Val	aat Asn	atg Met	gag Glu	aga Arg 560	1680
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tct Ser	gta Val	gat Asp	caa Gln 580	aga Arg	gga Gly	aac Asn	cag Gln	ata Ile 585	atg Met	tca Ser	gac Asp	aag Lys	agg Arg 590	aat Asn	gtc Val	1776
atc Ile	ctg Leu	ttt Phe 595	tct Ser	gta Val	ttt Phe	gat Asp	gag Glu 600	aac Asn	cga Arg	agc Ser	tgg Trp	tac Tyr 605	ctc Leu	aca Thr	gag Glu	1824
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ggt Gly 705	cta Leu	tgg Trp	att Ile	ctg Leu	ggg Gly 710	tgc Cys	cac His	aac Asn	tca Ser	gac Asp 715	ttt Phe	cgg Arg	aac Asn	aga Arg	ggc Gly 720	2160
atg Met	acc Thr	gcc Ala	tta Leu	ctg Leu 725	aag Lys	gtt Val	tct Ser	agt Ser	tgt Cys 730	gac Asp	aag Lys	aac Asn	act Thr	ggt Gly 735	gat Asp	2208

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Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn	
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Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val	Arg	Lys	
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tac Tyr	atc Ile 1280	cgt Arg	ttg Leu	cac His	cca Pro	act Thr 1285	cat His	tat Tyr	agc Ser	att Ile	cgc Arg 1290	agc Ser	act Thr	ctt Leu	3879
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gct Ala	cga Arg 1340	ctt Leu	cac His	ctc Leu	caa Gln	ggg Gly 1345	agg Arg	agt Ser	aat Asn	gcc Ala	tgg Trp 1350	aga Arg	cct Pro	cag Gln	4059
gtg Val	aat Asn 1355	aat Asn	cca Pro	aaa Lys	gag Glu	tgg Trp 1360	ctg Leu	caa Gln	gtg Val	gac Asp	ttc Phe 1365	cag Gln	aag Lys	aca Thr	4104
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 <223> Synthetic Construct

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35 40 45

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
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Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
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Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
195 200 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
210 215 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
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Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
245 250 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val

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260

265

270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
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Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
 290 295 300

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

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
 325 330 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
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Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
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Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
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Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
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Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
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Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
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Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
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Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
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Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
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Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
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His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
 500 505 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
 515 520 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
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540

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535

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545 550 555 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
565 570 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
610 615 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625 630 635 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
645 650 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705 710 715 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
725 730 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
740 745 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
755 760 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr
770 775 780

Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser
785 790 795 800

Val Glu Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn

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805								810				815			
Gln	Ser	Pro	Arg 820	Ser	Phe	Gln	Lys	Lys 825	Thr	Arg	His	Tyr	Phe 830	Ile	Ala
Ala	Val	Glu 835	Arg	Leu	Trp	Asp	Tyr 840	Gly	Met	Ser	Ser	Ser 845	Pro	His	Val
Leu	Arg 850	Asn	Arg	Ala	Gln	Ser 855	Gly	Ser	Val	Pro	Gln 860	Phe	Lys	Lys	Val
Val 865	Phe	Gln	Glu	Phe	Thr 870	Asp	Gly	Ser	Phe	Thr 875	Gln	Pro	Leu	Tyr	Arg 880
Gly	Glu	Leu	Asn	Glu 885	His	Leu	Gly	Leu	Leu 890	Gly	Pro	Tyr	Ile	Arg 895	Ala
Glu	Val	Glu	Asp 900	Asn	Ile	Met	Val	Thr 905	Phe	Arg	Asn	Gln	Ala 910	Ser	Arg
Pro	Tyr	Ser 915	Phe	Tyr	Ser	Ser	Leu 920	Ile	Ser	Tyr	Glu	Glu 925	Asp	Gln	Arg
Gln	Gly 930	Ala	Glu	Pro	Arg	Lys 935	Asn	Phe	Val	Lys	Pro 940	Asn	Glu	Thr	Lys
Thr 945	Tyr	Phe	Trp	Lys	Val 950	Gln	His	His	Met	Ala 955	Pro	Thr	Lys	Asp	Glu 960
Phe	Asp	Cys	Lys	Ala 965	Trp	Ala	Tyr	Phe	Ser 970	Asp	Val	Asp	Leu	Glu 975	Lys
Asp	Val	His	Ser 980	Gly	Leu	Ile	Gly	Pro 985	Leu	Leu	Val	Cys	His 990	Thr	Asn
Thr	Leu	Asn 995	Pro	Ala	His	Gly	Arg 1000	Gln	Val	Thr	Val	Gln 1005	Glu	Phe	Ala
Leu	Phe 1010	Phe	Thr	Ile	Phe	Asp 1015	Glu	Thr	Lys	Ser	Trp 1020	Tyr	Phe	Thr	
Glu	Asn 1025	Met	Glu	Arg	Asn	Cys 1030	Arg	Ala	Pro	Cys	Asn 1035	Ile	Gln	Met	
Glu	Asp 1040	Pro	Thr	Phe	Lys	Glu 1045	Asn	Tyr	Arg	Phe	His 1050	Ala	Ile	Asn	
Gly	Tyr 1055	Ile	Met	Asp	Thr	Leu 1060	Pro	Gly	Leu	Val	Met 1065	Ala	Gln	Asp	
Gln	Arg	Ile	Arg	Trp	Tyr	Leu	Leu	Ser	Met	Gly	Ser	Asn	Glu	Asn	

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1070						1075						1080
Ile	His	Ser	Ile	His	Phe	Ser	Gly	His	Val	Phe	Thr	Val
1085						1090					1095	Arg
												Lys
Lys	Glu	Glu	Tyr	Lys	Met	Ala	Leu	Tyr	Asn	Leu	Tyr	Pro
1100						1105					1110	Gly
												Val
Phe	Glu	Thr	Val	Glu	Met	Leu	Pro	Ser	Lys	Ala	Gly	Ile
1115						1120					1125	Trp
												Arg
Val	Glu	Cys	Leu	Ile	Gly	Glu	His	Leu	His	Ala	Gly	Met
1130						1135					1140	Ser
												Thr
Leu	Phe	Leu	Val	Tyr	Ser	Asn	Lys	Cys	Gln	Thr	Pro	Leu
1145						1150					1155	Gly
												Met
Ala	Ser	Gly	His	Ile	Arg	Asp	Phe	Gln	Ile	Thr	Ala	Ser
1160						1165					1170	Gly
												Gln
Tyr	Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr
1175						1180					1185	Ser
												Gly
Ser	Ile	Asn	Ala	Trp	Ser	Thr	Lys	Glu	Pro	Phe	Ser	Trp
1190						1195					1200	Ile
												Lys
Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile	His	Gly	Ile	Lys
1205						1210					1215	Thr
												Gln
Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu	Tyr	Ile	Ser	Gln
1220						1225					1230	Phe
												Ile
Ile	Met	Tyr	Ser	Leu	Asp	Gly	Lys	Lys	Trp	Gln	Thr	Tyr
1235						1240					1245	Arg
												Gly
Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe	Phe	Gly	Asn	Val
1250						1255					1260	Asp
												Ser
Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn	Pro	Pro	Ile	Ile
1265						1270					1275	Ala
												Arg
Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr	Ser	Ile	Arg	Ser
1280						1285					1290	Thr
												Leu
Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu	Asn	Ser	Cys	Ser
1295						1300					1305	Met
												Pro
Leu	Gly	Met	Glu	Ser	Lys	Ala	Ile	Ser	Asp	Ala	Gln	Ile
1310						1315					1320	Thr
												Ala
Ser	Ser	Tyr	Phe	Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro
												Ser
												Lys

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1325						1330						1335
Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg
	1340					1345					1350	Pro
												Gln
Val	Asn	Asn	Pro	Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln
	1355					1360					1365	Lys
												Thr
Met	Lys	Val	Thr	Gly	Val	Thr	Thr	Gln	Gly	Val	Lys	Ser
	1370					1375					1380	Leu
												Leu
Thr	Ser	Met	Tyr	Val	Lys	Glu	Phe	Leu	Ile	Ser	Ser	Ser
	1385					1390					1395	Gln
												Asp
Gly	His	Gln	Trp	Thr	Leu	Phe	Phe	Gln	Asn	Gly	Lys	Val
	1400					1405					1410	Lys
												Val
Phe	Gln	Gly	Asn	Gln	Asp	Ser	Phe	Thr	Pro	Val	Val	Asn
	1415					1420					1425	Ser
												Leu
Asp	Pro	Pro	Leu	Leu	Thr	Arg	Tyr	Leu	Arg	Ile	His	Pro
	1430					1435					1440	Gln
												Ser
Trp	Val	His	Gln	Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly
	1445					1450					1455	Cys
												Glu
Ala	Gln	Asp	Leu	Tyr	Thr	Gly	Asp	Asp	Asn	Ser	Pro	Ser
	1460					1465					1470	Phe
												Ile
Gln	Ile	Arg	Ser	Val	Ala	Lys	Lys	His	Pro	Lys	Thr	Trp
	1475					1480					1485	Pro
												Arg
Gly	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser
	1490					1495					1500	Gly
												Gly
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser
	1505					1510					1515	Gly
												Gly
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser
	1520					1525					1530	Gly
												Gly
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser
	1535					1540					1545	Gly
												Gly
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser
	1550					1555					1560	Gly
												Gly
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser
	1565					1570					1575	Gly
												Gly
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser
												Gly

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1580

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1590

Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

1595

1600

1605

Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

1610

1615

1620

Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

1625

1630

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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1695

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1705

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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1770

Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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1780

1785

Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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1795

1800

Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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1825

1830

Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly

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1835						1840						1845		
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly
1850						1855						1860		
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly
1865						1870						1875		
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly
1880						1885						1890		
Ser	Gly	Ser	Gly	Ser	Gln	Cys	Asn	Asp	Ile	Thr	Ala	Arg	Leu	Gln
1895						1900						1905		
Tyr	Val	Lys	Val	Gly	Ser	Cys	Lys	Ser	Glu	Val	Glu	Val	Asp	Ile
1910						1915						1920		
His	Tyr	Cys	Gln	Gly	Lys	Cys	Ala	Ser	Lys	Ala	Met	Tyr	Ser	Ile
1925						1930						1935		
Asp	Ile	Asn	Asp	Val	Gln	Asp	Gln	Cys	Ser	Cys	Cys	Ser	Pro	Thr
1940						1945						1950		
Arg	Thr	Glu	Pro	Met	Gln	Val	Ala	Leu	His	Cys	Thr	Asn	Gly	Ser
1955						1960						1965		
Val	Val	Tyr	His	Glu	Val	Leu	Asn	Ala	Met	Glu	Cys	Lys	Cys	Ser
1970						1975						1980		
Pro	Arg	Lys	Cys	Ser	Lys									
1985														