

SEQUENCE LISTING

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Vartiainen, Suvi

<120> Alternative Oxidase and Uses Thereof

<130> A9584PCO

<150> US 61/103,441
<151> 2008-10-07

<150> US 61/141,613
<151> 2008-12-30

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<170> PatentIn version 3.5

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Lys Ile Asp Asp Lys Asn Lys Ser Glu His Phe Lys Ile Glu Thr Asn
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Asp Ser Thr Asp Glu Pro Asn Ile Glu Val Glu Asn Phe Pro His Phe
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Page 2

245

250

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Trp Ser Thr Gln Pro His Ser Arg Leu Leu His Ser Cys Gln Gln Leu
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Lys Ile Asp Asp Lys Asn Lys Ser Glu His Phe Lys Ile Glu Thr Asn
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 Ala Val Glu Tyr Trp₃₂₅ Lys Leu Pro Asp Asp₃₃₀ Ala Met Met Arg Asp₃₃₅ Val
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<400> 21

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 35 40 45

Thr Phe Gln His Phe Ser Phe Leu Lys Arg Met Tyr Val Thr Gln Leu
 50 55 60

Asn Arg Ser His Asn Gln Gln Val Arg Pro Lys Pro Glu Pro Val Ala
 65 70 75 80

Ser Pro Phe Leu Glu Lys Thr Ser Ser Gly Gln Ala Lys Ala Glu Ile
 85 90 95

Tyr Glu Met Arg Pro Leu Ser Pro Pro Ser Leu Ser Leu Ser Arg Lys

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Asp	Ser ₁₃₀	Ile	Asp	Val	Gly	Lys ₁₃₅	Glu	Thr	Lys	Glu	Glu ₁₄₀	Lys	Arg	Trp	Lys
Glu ₁₄₅	Met	Lys	Leu	Gln	Val ₁₅₀	Tyr	Asp	Leu	Pro	Gly ₁₅₅	Ile	Leu	Ala	Arg	Leu ₁₆₀
Ser	Lys	Ile	Lys	Leu ₁₆₅	Thr	Ala	Leu	Val	Val ₁₇₀	Ser	Thr	Thr	Ala	Ala ₁₇₅	Gly
Phe	Ala	Leu	Ala ₁₈₀	Pro	Gly	Pro	Phe	Asp ₁₈₅	Trp	Pro	Cys	Phe	Leu ₁₉₀	Leu	Thr
Ser	Val	Gly ₁₉₅	Thr	Gly	Leu	Ala	Ser ₂₀₀	Cys	Ala	Ala	Asn	Ser ₂₀₅	Ile	Asn	Gln
Phe	Phe ₂₁₀	Glu	Val	Pro	Phe	Asp ₂₁₅	Ser	Asn	Met	Asn	Arg ₂₂₀	Thr	Lys	Asn	Arg
Pro ₂₂₅	Leu	Val	Arg	Gly	Gln ₂₃₀	Ile	Ser	Pro	Leu	Leu ₂₃₅	Ala	Val	Ser	Phe	Ala ₂₄₀
Thr	Cys	Cys	Ala	Val ₂₄₅	Pro	Gly	Val	Ala	Ile ₂₅₀	Leu	Thr	Leu	Gly	Val ₂₅₅	Asn
Pro	Leu	Thr	Gly ₂₆₀	Ala	Leu	Gly	Leu	Phe ₂₆₅	Asn	Ile	Phe	Leu	Tyr ₂₇₀	Thr	Cys
Cys	Tyr	Thr ₂₇₅	Pro	Leu	Lys	Arg	Ile ₂₈₀	Ser	Ile	Ala	Asn	Thr ₂₈₅	Trp	Val	Gly
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Tyr	Ser	Arg	Gly ₃₄₀	Gly	Tyr	Cys	Met	Met ₃₄₅	Ser	Val	Thr	His	Pro ₃₅₀	Gly	Leu
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Ala	Ala ₃₇₀	Ala	Pro	Val	Leu	Asp ₃₇₅	Ile	Thr	Thr	Trp	Thr ₃₈₀	Phe	Pro	Ile	Met

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<400> 23

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Cys	Ile	Arg	Arg	Pro	Leu	Arg	Pro	Gly	Gln	Tyr	Ser	Thr	Ile	Ser	Glu
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Val	Ala	Leu	Gln	Ser	Gly	Arg	Gly	Thr	Val	Ser	Leu	Pro	Ser	Lys	Ala
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Ala	Glu	Arg	Val	Val	Gly	Arg	Trp	Leu	Leu	Val	Cys	Ser	Gly	Thr	Val
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Ala	Gly	Ala	Val	Ile	Leu	Gly	Gly	Val	Thr	Arg	Leu	Thr	Glu	Ser	Gly
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Leu	Ser	Met	Val	Asp	Trp	His	Leu	Ile	Lys	Glu	Met	Lys	Pro	Pro	Thr
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 Glu Phe Lys Ile Leu Asn His Asp Met Thr Leu Thr Glu Phe Lys Phe
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 Ile Trp Tyr Met Glu Tyr Ser His Arg Met Trp Gly Arg Leu Val Gly
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 Leu Val Tyr Ile Leu Pro Ala Ala Tyr Phe Trp Arg Lys Gly Trp Leu
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 Ser Arg Gly Met Lys Gly Arg Val Leu Ala Leu Cys Gly Leu Val Cys
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 Phe Gln Gly Leu Leu Gly Trp Tyr Met Val Lys Ser Gly Leu Glu Glu
 195 200 205
 Lys Ser Asp Ser His Asp Ile Pro Arg Val Ser Gln Tyr Arg Leu Ala
 210 215 220
 Ala His Leu Gly Ser Ala Leu Val Leu Tyr Cys Ala Ser Leu Trp Thr
 225 230 235 240
 Ser Leu Ser Leu Leu Leu Pro Pro His Lys Leu Pro Glu Thr His Gln
 245 250 255
 Leu Leu Gln Leu Arg Arg Phe Ala His Gly Thr Ala Gly Leu Val Phe
 260 265 270
 Leu Thr Ala Leu Ser Gly Ala Phe Val Ala Gly Leu Asp Ala Gly Leu
 275 280 285
 Val Tyr Asn Ser Phe Pro Lys Met Gly Glu Ser Trp Ile Pro Glu Asp
 290 295 300
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 305 310 315 320
 Met Val Gln Phe Asp His Arg Ile Leu Gly Ile Thr Ser Val Thr Ala
 325 330 335
 Ile Thr Val Leu Tyr Phe Leu Ser Arg Arg Ile Pro Leu Pro Arg Arg
 340 345 350
 Thr Lys Met Ala Ala Val Thr Leu Leu Ala Leu Ala Tyr Thr Gln Gly
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<400> 25

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Ala Glu Gly Thr Ala Arg Val Leu Leu Arg Gln Phe Cys Ala Arg Gln
 35 40 45

Ala Glu Ala Trp Arg Ala Ser Gly Arg Pro Gly Tyr Cys Leu Gly Thr
 50 55 60

Arg Pro Leu Ser Thr Ala Arg Pro Pro Pro Trp Ser Gln Lys Gly
 65 70 75 80

Pro Gly Asp Ser Thr Arg Pro Ser Lys Pro Gly Pro Val Ser Trp Lys
 85 90 95

Ser Leu Ala Ile Thr Phe Ala Ile Gly Gly Ala Leu Leu Ala Gly Met
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Lys His Val Lys Lys Glu Lys Ala Glu Lys Leu Glu Lys Glu Arg Gln
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Arg His Ile Gly Lys Pro Leu Leu Gly Gly Pro Phe Ser Leu Thr Thr
 130 135 140

His Thr Gly Glu Arg Lys Thr Asp Lys Asp Tyr Leu Gly Gln Trp Leu
 145 150 155 160

Leu Ile Tyr Phe Gly Phe Thr His Cys Pro Asp Val Cys Pro Glu Glu
 165 170 175

Leu Glu Lys Met Ile Gln Val Val Asp Glu Ile Asp Ser Ile Thr Thr
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Leu Pro Asp Leu Thr Pro Leu Phe Ile Ser Ile Asp Pro Glu Arg Asp
 195 200 205

Thr Lys Glu Ala Ile Ala Asn Tyr Val Lys Glu Phe Ser Pro Lys Leu
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Val Gly Leu Thr Gly Thr Arg Glu Glu Val Asp Gln Val Ala Arg Ala
 225 230 235 240

Tyr Arg Val Tyr Tyr Ser Pro Gly Pro Lys Asp Glu Asp Glu Asp Tyr

245

250

255

Ile Val Asp His Thr Ile Ile Met Tyr Leu Ile Gly Pro Asp Gly Glu
 260 265 270

Phe Leu Asp Tyr Phe Gly Gln Asn Lys Arg Lys Gly Glu Ile Ala Ala
 275 280 285

Ser Ile Ala Thr His Met Arg Pro Tyr Arg Lys Lys Ser
 290 295 300

<210> 26
 <211> 814
 <212> DNA
 <213> Homo sapiens

<400> 26
 gatccatgct gctgctgact cggagcccca cagcttggca caggctctct cagctcaagc 60
 ctccggtcct ccctgggacc ctgggaggcc aggccctgca tctgaggtcc tggcttttgt 120
 caaggcaggg ccctgcagag acaggtgggc agggccagcc ccagggccct gggcttcgaa 180
 cccggctgct gatcacaggc ctgttcgggg ctggactcgg tggggcctgg ctggccctga 240
 gggctgagaa ggagaggctg cagcagcaaa agcgaacaga agccctgcgc caggcagctg 300
 tgggccaggg cgacttcac ctgctggatc acagaggccg ggctcgctgc aaggctgact 360
 tccggggcca gtgggtgctg atgtactttg gcttcactca ctgccctgac atctgccag 420
 acgagctgga gaagctggtg caggtggtgc ggcagctgga agcagagcct ggtttgccctc 480
 cagtgcagcc tgtcttcac actgtggacc ccgagcggga cgacgttgaa gccatggccc 540
 gctacgtcca ggacttcac ccaagactgt tgggtctgac cggctccacc aaacaggttg 600
 cccaggctag tcacagttac cgcgtgtact acaatgccgg cccaaggat gaggaccagg 660
 actacatcgt ggaccactcc attgccatct acctgctcaa ccctgacggc ctcttcacgg 720
 attactacgg ccggagcaga tcggctgagc agatctcaga cagtgtgcgg cggcacatgg 780
 cggctttccg cagtgtcctg tcttgagcca ctgc 814

<210> 27
 <211> 266
 <212> PRT
 <213> Homo sapiens

<400> 27

Met Leu Leu Leu Thr Arg Ser Pro Thr Ala Trp His Arg Leu Ser Gln
 1 5 10 15

Leu Lys Pro Pro Val Leu Pro Gly Thr Leu Gly Gly Gln Ala Leu His
 20 25 30

Leu Arg Ser Trp Leu Leu Ser Arg Gln Gly Pro Ala Glu Thr Gly Gly
 35 40 45

Gln Gly Gln Pro Gln Gly Pro Gly Leu Arg Thr Arg Leu Leu Ile Thr
50 55 60

Gly Leu Phe Gly Ala Gly Leu Gly Gly Ala Trp Leu Ala Leu Arg Ala
65 70 75 80

Glu Lys Glu Arg Leu Gln Gln Gln Lys Arg Thr Glu Ala Leu Arg Gln
85 90 95

Ala Ala Val Gly Gln Gly Asp Phe His Leu Leu Asp His Arg Gly Arg
100 105 110

Ala Arg Cys Lys Ala Asp Phe Arg Gly Gln Trp Val Leu Met Tyr Phe
115 120 125

Gly Phe Thr His Cys Pro Asp Ile Cys Pro Asp Glu Leu Glu Lys Leu
130 135 140

Val Gln Val Val Arg Gln Leu Glu Ala Glu Pro Gly Leu Pro Pro Val
145 150 155 160

Gln Pro Val Phe Ile Thr Val Asp Pro Glu Arg Asp Asp Val Glu Ala
165 170 175

Met Ala Arg Tyr Val Gln Asp Phe His Pro Arg Leu Leu Gly Leu Thr
180 185 190

Gly Ser Thr Lys Gln Val Ala Gln Ala Ser His Ser Tyr Arg Val Tyr
195 200 205

Tyr Asn Ala Gly Pro Lys Asp Glu Asp Gln Asp Tyr Ile Val Asp His
210 215 220

Ser Ile Ala Ile Tyr Leu Leu Asn Pro Asp Gly Leu Phe Thr Asp Tyr
225 230 235 240

Tyr Gly Arg Ser Arg Ser Ala Glu Gln Ile Ser Asp Ser Val Arg Arg
245 250 255

His Met Ala Ala Phe Arg Ser Val Leu Ser
260 265

<210> 28
<211> 1037
<212> DNA
<213> Homo sapiens

<400> 28
gcggtcccggga agcgcccgcg gggccgggtg cgatggcggc ggtggctgcg ttgcagctgg 60
ggctgcgggc ggcggggctg ggacgggccc cggccagcgc cgcctggagg agcgctctca 120
gggtctcccc gcgcccaggg gtggcctgga ggccaagcag atgtggcagt tctgcagcag 180
aagcatctgc cacaaaagcg gaagatgact cttttcttca gtgggtcctg ctctcatcc 240

ctgtgactgc ctttggcttg gggacatggc aggtccagcg tcggaagtgg aagctgaacc	300
tgattgcaga gttggagtcc agagtcttgg ctgagcctgt ccctctgcca gccgacccaa	360
tggaactgaa aaatctggag tataggccag tgaaggctag ggggtgcttt gaccattcca	420
aggagctgta tatgatgccc cggaccatgg tggaccctgt ccgggaggcc cgggagggcg	480
gcctcatctc ctctcaact cagagtgggg cctatgtggt cactcccttc cactgcaccg	540
acctgggagt caccatcctg gtaaataagag ggttcgttcc caggaagaaa gtgaatcctg	600
aaacccggca gaaaggccag attgaggag aagtggacct cattgggatg gtgaggctga	660
cagaaaccag gcagcctttt gtccctgaga acaatccaga aaggaaccac tggcattatc	720
gagacctgga agctatggcc agaatacacag gcgcagagcc catcttcatt gatgccaact	780
tccagagcac agtccctgga ggaccattg gagggcaaac cagagttact ctgaggaacg	840
agcatctgca gtacatcgtg acctggtatg gactctctgc agctacatcc tacctgtggt	900
ttaagaaatt cctacgtggg acacctggtg tgtgacagat cagctgctga agccctgtcc	960
ctggataatg cagtatttca agactgcctt tatgctggat catgtgctac tggataaag	1020
ttctggcctt ctacctt	1037

<210> 29
 <211> 300
 <212> PRT
 <213> Homo sapiens

<400> 29

Met	Ala	Ala	Val	Ala	Ala	Leu	Gln	Leu	Gly	Leu	Arg	Ala	Ala	Gly	Leu
1				5					10					15	

Gly	Arg	Ala	Pro	Ala	Ser	Ala	Ala	Trp	Arg	Ser	Val	Leu	Arg	Val	Ser
			20					25					30		

Pro	Arg	Pro	Gly	Val	Ala	Trp	Arg	Pro	Ser	Arg	Cys	Gly	Ser	Ser	Ala
		35					40					45			

Ala	Glu	Ala	Ser	Ala	Thr	Lys	Ala	Glu	Asp	Asp	Ser	Phe	Leu	Gln	Trp
	50					55					60				

Val	Leu	Leu	Leu	Ile	Pro	Val	Thr	Ala	Phe	Gly	Leu	Gly	Thr	Trp	Gln
65					70					75					80

Val	Gln	Arg	Arg	Lys	Trp	Lys	Leu	Asn	Leu	Ile	Ala	Glu	Leu	Glu	Ser
				85					90					95	

Arg	Val	Leu	Ala	Glu	Pro	Val	Pro	Leu	Pro	Ala	Asp	Pro	Met	Glu	Leu
			100					105					110		

Lys	Asn	Leu	Glu	Tyr	Arg	Pro	Val	Lys	Val	Arg	Gly	Cys	Phe	Asp	His
		115					120					125			

Ser Lys Glu Leu Tyr Met Met Pro Arg Thr Met Val Asp Pro Val Arg
 130 135 140
 Glu Ala Arg Glu Gly Gly Leu Ile Ser Ser Ser Thr Gln Ser Gly Ala
 145 150 155 160
 Tyr Val Val Thr Pro Phe His Cys Thr Asp Leu Gly Val Thr Ile Leu
 165 170 175
 Val Asn Arg Gly Phe Val Pro Arg Lys Lys Val Asn Pro Glu Thr Arg
 180 185 190
 Gln Lys Gly Gln Ile Glu Gly Glu Val Asp Leu Ile Gly Met Val Arg
 195 200 205
 Leu Thr Glu Thr Arg Gln Pro Phe Val Pro Glu Asn Asn Pro Glu Arg
 210 215 220
 Asn His Trp His Tyr Arg Asp Leu Glu Ala Met Ala Arg Ile Thr Gly
 225 230 235 240
 Ala Glu Pro Ile Phe Ile Asp Ala Asn Phe Gln Ser Thr Val Pro Gly
 245 250 255
 Gly Pro Ile Gly Gly Gln Thr Arg Val Thr Leu Arg Asn Glu His Leu
 260 265 270
 Gln Tyr Ile Val Thr Trp Tyr Gly Leu Ser Ala Ala Thr Ser Tyr Leu
 275 280 285
 Trp Phe Lys Lys Phe Leu Arg Gly Thr Pro Gly Val
 290 295 300

<210> 30
 <211> 1542
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found at bases 5905 to 7446

<400> 30
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 ttattcggcg catgagctgg agtcctaggc acagctctaa gcctccttat tcgagccgag 120
 ctgggccagc caggcaacct tctaggtaac gaccacatct acaacgttat cgtcacagcc 180
 catgcatttg taataatctt cttcatagta atacccatca taatcggagg ctttggaac 240
 tgactagttc ccctaataat cggtgcccc gatatggcgt ttccccgcat aaacaacata 300
 agcttctgac tcttacctcc ctctctccta ctctgctcg catctgctat agtggaggcc 360
 ggagcaggaa cagggtgaac agtctaccct cccttagcag ggaactactc ccaccctgga 420

gcctccgtag acctaaccat cttctcctta cacctagcag gtgtctcctc tatcttaggg	480
gccatcaatt tcatcacaac aattatcaat ataaaacccc ctgccataac ccaataccaa	540
acgccccctct tcgtctgac cgtcctaatac acagcagtcc tacttctcct atctctccca	600
gtcctagctg ctggcatcac tatactacta acagaccgca acctcaacac caccttcttc	660
gaccccgccg gaggaggaga cccatttcta taccaacacc tattctgatt tttcggtcac	720
cctgaagttt atattcttat cctaccaggc ttcggaataa tctcccatat tgtaacttac	780
tactccggaa aaaaagaacc atttggatac ataggtatgg tctgagctat gatatcaatt	840
ggcttcctag ggtttatcgt gtgagcacac catatattta cagtaggaat agacgtagac	900
acacgagcat atttcacctc cgctaccata atcatcgcta tccccaccgg cgtcaaagta	960
tttagctgac tcgccacact ccacggaagc aatatgaaat gatctgctgc agtgctctga	1020
gccctaggat tcatctttct tttcacgta ggtggcctga ctggcattgt attagcaaac	1080
tcatcactag acatcgctact acacgacacg tactacgttg tagctcactt ccactatgtc	1140
ctatcaatag gagctgtatt tgccatcata ggaggcttca ttcactgatt tcccctattc	1200
tcaggctaca ccctagacca aacctacgcc aaaatccatt tcactatcat attcatcggc	1260
gtaaactctaa ctttcttccc acaacacttt ctcggcctat ccggaatgcc cgcacgttac	1320
tcggactacc ccgatgcata caccacatga aacatcctat catctgtagg ctcattcatt	1380
tctctaacag cagtaatat aataattttc atgatttgag aagccttcgc ttcgaagcga	1440
aaagtcctaa tagtagaaga accctccata aacctggagt gactatatgg atgccccca	1500
ccctaccaca cattcgaaga acccgataac ataaaatcta ga	1542

<210> 31
 <211> 512
 <212> PRT
 <213> Homo sapiens

<400> 31

Met	Phe	Ala	Asp	Arg	Trp	Leu	Phe	Ser	Thr	Asn	His	Lys	Asp	Ile	Gly
1			5						10					15	

Thr	Leu	Tyr	Leu	Leu	Phe	Gly	Ala	Trp	Ala	Gly	Val	Leu	Gly	Thr	Ala
			20					25					30		

Leu	Ser	Leu	Leu	Ile	Arg	Ala	Glu	Leu	Gly	Gln	Pro	Gly	Asn	Leu	Leu
		35					40					45			

Gly	Asn	Asp	His	Ile	Tyr	Asn	Val	Ile	Val	Thr	Ala	His	Ala	Phe	Val
50						55					60				

Met	Ile	Phe	Phe	Met	Val	Met	Pro	Ile	Met	Ile	Gly	Gly	Phe	Gly	Asn
65					70					75					80

Trp	Leu	Val	Pro	Leu	Met	Ile	Gly	Ala	Pro	Asp	Met	Ala	Phe	Pro	Arg
				85					90					95	

Met Asn Asn Met Ser Phe Trp Leu Leu Pro Pro Ser Leu Leu Leu
 100 105 110
 Leu Ala Ser Ala Met Val Glu Ala Gly Ala Gly Thr Gly Trp Thr Val
 115 120 125
 Tyr Pro Pro Leu Ala Gly Asn Tyr Ser His Pro Gly Ala Ser Val Asp
 130 135 140
 Leu Thr Ile Phe Ser Leu His Leu Ala Gly Val Ser Ser Ile Leu Gly
 145 150 155 160
 Ala Ile Asn Phe Ile Thr Thr Ile Ile Asn Met Lys Pro Pro Ala Met
 165 170 175
 Thr Gln Tyr Gln Thr Pro Leu Phe Val Trp Ser Val Leu Ile Thr Ala
 180 185 190
 Val Leu Leu Leu Leu Ser Leu Pro Val Leu Ala Ala Gly Ile Thr Met
 195 200 205
 Leu Leu Thr Asp Arg Asn Leu Asn Thr Thr Phe Phe Asp Pro Ala Gly
 210 215 220
 Gly Gly Asp Pro Ile Leu Tyr Gln His Leu Phe Trp Phe Phe Gly His
 225 230 235 240
 Pro Glu Val Tyr Ile Leu Ile Leu Pro Gly Phe Gly Met Ile Ser His
 245 250 255
 Ile Val Thr Tyr Tyr Ser Gly Lys Lys Glu Pro Phe Gly Tyr Met Gly
 260 265 270
 Met Val Trp Ala Met Met Ser Ile Gly Phe Leu Gly Phe Ile Val Trp
 275 280 285
 Ala His His Met Phe Thr Val Gly Met Asp Val Asp Thr Arg Ala Tyr
 290 295 300
 Phe Thr Ser Ala Thr Met Ile Ile Ala Ile Pro Thr Gly Val Lys Val
 305 310 315 320
 Phe Ser Trp Leu Ala Thr Leu His Gly Ser Asn Met Lys Trp Ser Ala
 325 330 335
 Ala Val Leu Trp Ala Leu Gly Phe Ile Phe Leu Phe Thr Val Gly Gly
 340 345 350
 Leu Thr Gly Ile Val Leu Ala Asn Ser Ser Leu Asp Ile Val Leu His
 355 360 365

Asp Thr Tyr Tyr Val Val Ala His Phe His Tyr Val Leu Ser Met Gly
370 375 380

Ala Val Phe Ala Ile Met Gly Gly Phe Ile His Trp Phe Pro Leu Phe
385 390 395 400

Ser Gly Tyr Thr Leu Asp Gln Thr Tyr Ala Lys Ile His Phe Thr Ile
405 410 415

Met Phe Ile Gly Val Asn Leu Thr Phe Phe Pro Gln His Phe Leu Gly
420 425 430

Leu Ser Gly Met Pro Arg Arg Tyr Ser Asp Tyr Pro Asp Ala Tyr Thr
435 440 445

Thr Trp Asn Ile Leu Ser Ser Val Gly Ser Phe Ile Ser Leu Thr Ala
450 455 460

Val Met Leu Met Ile Phe Met Ile Trp Glu Ala Phe Ala Ser Lys Arg
465 470 475 480

Lys Val Leu Met Val Glu Glu Pro Ser Met Asn Leu Glu Trp Leu Tyr
485 490 495

Gly Cys Pro Pro Pro Tyr His Thr Phe Glu Glu Pro Val Tyr Met Lys
500 505 510

<210> 32
<211> 684
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<223> Gene found at bases 7587 to 8270

<400> 32
atggcacatg cagcgcaagt aggtctacaa gacgctactt cccctatcat agaagagctt 60
atcacctttc atgatcacgc cctcataatc attttcctta tctgcttcct agtcctgtat 120
gcccttttcc taacactcac aacaaaacta actaatacta acatctcaga cgctcaggaa 180
atagaaaccg tctgaactat cctgcccgcc atcatcctag tcctcatcgc cctcccatcc 240
ctacgcatcc ttacataac agacgaggtc aacgatccct cccttaccat caaatcaatt 300
ggccaccaat ggtactgaac ctacgagtac accgactacg gcggactaat cttcaactcc 360
tacatacttc cccattatt cctagaacca ggcgacctgc gactccttga cgttgacaat 420
cgagtagtac tcccgattga agccccatt cgtataataa ttacatcaca agacgtcttg 480
cactcatgag ctgtccccac attaggctta aaaacagatg caattcccgg acgtctaaac 540
caaaccactt tcaccgctac acgaccgggg gtatactacg gtcaatgctc tgaaatctgt 600
ggagcaaacc acagtttcat gcccatcgtc ctagaattaa ttcccctaaa aatctttgaa 660

atagggcccg tatttacct atag

684

<210> 33
<211> 227
<212> PRT
<213> Homo sapiens

<400> 33

Met Ala His Ala Ala Gln Val Gly Leu Gln Asp Ala Thr Ser Pro Ile
1 5 10 15

Met Glu Glu Leu Ile Thr Phe His Asp His Ala Leu Met Ile Ile Phe
20 25 30

Leu Ile Cys Phe Leu Val Leu Tyr Ala Leu Phe Leu Thr Leu Thr Thr
35 40 45

Lys Leu Thr Asn Thr Asn Ile Ser Asp Ala Gln Glu Met Glu Thr Val
50 55 60

Trp Thr Ile Leu Pro Ala Ile Ile Leu Val Leu Ile Ala Leu Pro Ser
65 70 75 80

Leu Arg Ile Leu Tyr Met Thr Asp Glu Val Asn Asp Pro Ser Leu Thr
85 90 95

Ile Lys Ser Ile Gly His Gln Trp Tyr Trp Thr Tyr Glu Tyr Thr Asp
100 105 110

Tyr Gly Gly Leu Ile Phe Asn Ser Tyr Met Leu Pro Pro Leu Phe Leu
115 120 125

Glu Pro Gly Asp Leu Arg Leu Leu Asp Val Asp Asn Arg Val Val Leu
130 135 140

Pro Ile Glu Ala Pro Ile Arg Met Met Ile Thr Ser Gln Asp Val Leu
145 150 155 160

His Ser Trp Ala Val Pro Thr Leu Gly Leu Lys Thr Asp Ala Ile Pro
165 170 175

Gly Arg Leu Asn Gln Thr Thr Phe Thr Ala Thr Arg Pro Gly Val Tyr
180 185 190

Tyr Gly Gln Cys Ser Glu Ile Cys Gly Ala Asn His Ser Phe Met Pro
195 200 205

Ile Val Leu Glu Leu Ile Pro Leu Lys Ile Phe Glu Met Gly Pro Val
210 215 220

Phe Thr Leu
225

<210> 34
 <211> 781
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found at bases 9208 to 9988

<400> 34
 atgacccacc aatcacatgc ctatcatata gtaaaaccca gcccatgacc cctaacaggg 60
 gccctctcag ccctcctaata gacctccggc ctagccatgt gatttcactt ccaactccata 120
 acgctcctca tactaggcct actaaccaac acactaacca tataccaatg gtggcgcgat 180
 gtaacacgag aaagcacata ccaaggccac cacacaccac ctgtccaaaa aggcccttcga 240
 tacgggataa tcctatttat tacctcagaa gtttttttct tcgcaggatt tttctgagcc 300
 ttttaccact ccagcctagc ccctaccccc caactaggag ggcactggcc cccaacaggg 360
 atcaccccg c taaatcccct agaagtccca ctccctaaaca catccgtatt actcgcatca 420
 ggagtatcaa tcacctgagc tcaccatagt ctaatagaaa acaaccgaaa ccaaataatt 480
 caagcactgc ttattacaat ttactgggt ctctatttta ccctcctaca agcctcagag 540
 tacttcgagt ctcccttcac catttccgac ggcattctac gctcaacatt ttttgtagcc 600
 acaggcttcc acggacttca cgtcattatt ggctcaactt tcctcactat ctgcttcac 660
 cgccaactaa tatttcactt tacatccaaa catcactttg gcttcgaagc cgccgcctga 720
 tactggcatt ttgtagatgt ggtttgacta tttctgtatg tctccatcta ttgatgaggg 780
 t 781

<210> 35
 <211> 226
 <212> PRT
 <213> Homo sapiens

<400> 35
 Met Asn Glu Asn Leu Phe Ala Ser Phe Ile Ala Pro Thr Ile Leu Gly
 1 5 10 15
 Leu Pro Ala Ala Val Leu Ile Ile Leu Phe Pro Pro Leu Leu Ile Pro
 20 25 30
 Thr Ser Lys Tyr Leu Ile Asn Asn Arg Leu Ile Thr Thr Gln Gln Trp
 35 40 45
 Leu Ile Lys Leu Thr Ser Lys Gln Met Met Ala Met His Asn Thr Lys
 50 55 60
 Gly Arg Thr Trp Ser Leu Met Leu Val Ser Leu Ile Ile Phe Ile Ala
 65 70 75 80
 Thr Thr Asn Leu Leu Gly Leu Leu Pro His Ser Phe Thr Pro Thr Thr

	85		90		95										
Gln	Leu	Ser	Met	Asn	Leu	Ala	Met	Ala	Ile	Pro	Leu	Trp	Ala	Gly	Ala
			100					105					110		
Val	Ile	Met	Gly	Phe	Arg	Ser	Lys	Ile	Lys	Asn	Ala	Leu	Ala	His	Phe
		115					120					125			
Leu	Pro	Gln	Gly	Thr	Pro	Thr	Pro	Leu	Ile	Pro	Met	Leu	Val	Ile	Ile
	130					135					140				
Glu	Thr	Ile	Ser	Leu	Leu	Ile	Gln	Pro	Met	Ala	Leu	Ala	Val	Arg	Leu
145					150					155					160
Thr	Ala	Asn	Ile	Thr	Ala	Gly	His	Leu	Leu	Met	His	Leu	Ile	Gly	Ser
				165					170					175	
Ala	Thr	Leu	Ala	Met	Ser	Thr	Ile	Asn	Leu	Pro	Ser	Thr	Leu	Ile	Ile
			180					185					190		
Phe	Thr	Ile	Leu	Ile	Leu	Leu	Thr	Ile	Leu	Glu	Ile	Ala	Val	Ala	Leu
		195					200					205			
Ile	Gln	Ala	Tyr	Val	Phe	Thr	Leu	Leu	Val	Ser	Leu	Tyr	Leu	His	Asp
	210					215					220				
Asn	Thr														
225															

<210> 36
 <211> 532
 <212> DNA
 <213> Homo sapiens

<400> 36	
aggagaaccc gtttgacccc tgacctccgg gccctgctga cgtcaggaac ttctgacccc	60
cgggcccgag tgacttatgg gacccccagt ctctgggccc ggttgctctgt tggggtcact	120
gaaccccgag catgcccgaac gtctgggacc ccgggtcccc gggcacaact gactgcggtg	180
accccgagata ccaggacccg ggaggcctca gagaactctg gaaccggttc gcgcgcgtgg	240
ctggcggtgg cgctgggcgc tgggggggca gtgctgttgt tgttgtgggg cgggggtcgg	300
ggctcctccg ccgtcctcgc cgccgtccct agcccgcgc ccgttctcc ccggagtcag	360
tacaacttca tcgcagatgt ggtggagaag acagcacctg ccgtggtcta tatcgagatc	420
ctggaccggt aatggtgggg gtagaccggg aggcactgaa gccacaggct ggagggcggg	480
cgggtaggag gggtcagagc ctctcttat ctgtgctttc cctccatttc ag	532

<210> 37
 <211> 143
 <212> PRT
 <213> Homo sapiens

<400> 37

Arg Arg Thr Arg Leu Thr Pro Asp Leu Arg Ala Leu Leu Thr Ser Gly
1 5 10 15

Thr Ser Asp Pro Arg Ala Arg Val Thr Tyr Gly Thr Pro Ser Leu Trp
20 25 30

Ala Arg Leu Ser Val Gly Val Thr Glu Pro Arg Ala Cys Pro Thr Ser
35 40 45

Gly Thr Pro Gly Pro Arg Ala Gln Leu Thr Ala Val Thr Pro Asp Thr
50 55 60

Arg Thr Arg Glu Ala Ser Glu Asn Ser Gly Thr Arg Ser Arg Ala Trp
65 70 75 80

Leu Ala Val Ala Leu Gly Ala Gly Gly Ala Val Leu Leu Leu Leu Trp
85 90 95

Gly Gly Gly Arg Gly Pro Pro Ala Val Leu Ala Ala Val Pro Ser Pro
100 105 110

Pro Pro Ala Ser Pro Arg Ser Gln Tyr Asn Phe Ile Ala Asp Val Val
115 120 125

Glu Lys Thr Ala Pro Ala Val Val Tyr Ile Glu Ile Leu Asp Arg
130 135 140

<210> 38

<211> 7584

<212> DNA

<213> Homo sapiens

<400> 38

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gtcaggctga acaatgtcca ggaaggaaaa cagatagaaa cgctgggtcca aatcctggag	120
gatctgctgg tgttcacgta ctccgagcac gcctccaagt tatttcaagg caaaaatatc	180
catgtgcctc tgttgatcgt cttggactcc tatatgagag tcgcgagtgt gcagcagggtg	240
ggttgggtcac ttctgtgcaa attaatagaa gtctgtccag gtacaatgca aagcttaatg	300
ggaccccagg atgttggaag tgattgggaa gtccttggtg ttcaccaatt gattcttaaa	360
atgctaacag ttcataatgc cagtgtaaac ttgtcagtga ttggactgaa gaccttagat	420
ctcctcctaa cttcaggtaa aatcaccttg ctgatactgg atgaagaaag tgatattttc	480
atgttaattt ttgatgcat gcactcattt ccagccaatg atgaagtcca gaaacttgga	540
tgcaaagctt tacatgtgct gtttgagaga gtctcagagg agcaactgac tgaatttggt	600
gagaacaaag attatatgat attgttaagt gcgtaacaa attttaaaga tgaagaggaa	660
attgtgcttc atgtgctgca ttgtttacat tccctagcga ttccttgcaa taatgtggaa	720
gtcctcatga gtggcaatgt cagggtgttat aatattgtgg tggaagctat gaaagcattc	780

cctatgagtg aaagaattca agaagtgagt tgctgtttgc tccataggct tacattaggt	840
aatTTTTTca atattcctggt attaaacgaa gtccatgagt ttgtggtgaa agctgtgcag	900
cagtaccag agaatgcagc attgcagatc tcagcgctca gctgtttggc ctcctcact	960
gagactatTT tcttaaatca agatttagag gaaaagaatg agaatcaaga gaatgatgat	1020
gagggggaag aagataaaatt gttttggctg gaagcctggt acaaagcatt aacgtggcat	1080
agaaagaaca agcacgtgca ggaggccgca tgctgggcac taaataatct ctttatgtac	1140
caaaacagtt tacatgagaa gattggagat gaagatggcc atttcccagc tcatagggaa	1200
gtgatgctct ccatgctgat gcattcttca tcaaaggaag ttttccaggc atctgcgaat	1260
gcattgtcaa ctctcttaga acaaaatggt aatttcagaa aaatactggt atcaaaagga	1320
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<400> 39

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 35 40 45

Glu His Ala Ser Lys Leu Phe Gln Gly Lys Asn Ile His Val Pro Leu
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Leu Ile Val Leu Asp Ser Tyr Met Arg Val Ala Ser Val Gln Gln Val
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Gly Trp Ser Leu Leu Cys Lys Leu Ile Glu Val Cys Pro Gly Thr Met
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Gln Ser Leu Met Gly Pro Gln Asp Val Gly Asn Asp Trp Glu Val Leu
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Gly Val His Gln Leu Ile Leu Lys Met Leu Thr Val His Asn Ala Ser
 115 120 125

Val Asn Leu Ser Val Ile Gly Leu Lys Thr Leu Asp Leu Leu Leu Thr
 130 135 140

Ser Gly Lys Ile Thr Leu Leu Ile Leu Asp Glu Glu Ser Asp Ile Phe
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 Glu Glu Gln₁₉₅ Leu Thr Glu Phe Val₂₀₀ Glu Asn Lys Asp Tyr₂₀₅ Met Ile Leu
 Leu Ser₂₁₀ Ala Ser Thr Asn Phe₂₁₅ Lys Asp Glu Glu Glu₂₂₀ Ile Val Leu His
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 Val Leu Met Ser Gly₂₄₅ Asn Val Arg Cys Tyr₂₅₀ Asn Ile Val Val Glu₂₅₅ Ala
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 Asn Glu₂₉₀ Val His Glu Phe Val₂₉₅ Val Lys Ala Val Gln₃₀₀ Gln Tyr Pro Glu
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 Val Met Leu Ser Met₄₀₅ Leu Met His Ser Ser₄₁₀ Ser Lys Glu Val Phe₄₁₅ Gln
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His	Cys	Glu	Asn	Ser	Glu	Ile	Ile	Ile	Arg	Leu	Tyr	Glu	Met	Pro
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Gly Glu 1820	Glu His Gln Lys	Ile Leu Leu Asp Asp 1825	Leu Met Lys Lys 1830										
Ala Glu 1835	Glu Gly Asp Leu	Leu Val Asn Pro Asp 1840	Gln Pro Arg Leu 1845										
Thr Ile 1850	Pro Ile Ser Gln	Ile Ala Pro Asp Leu 1855	Ile Leu Ala Asp 1860										
Leu Pro 1865	Arg Asn Ile Met	Leu Asn Asn Asp Glu 1870	Leu Glu Phe Glu 1875										
Gln Ala 1880	Pro Glu Phe Leu	Leu Gly Asp Gly Ser 1885	Phe Gly Ser Val 1890										
Tyr Arg 1895	Ala Ala Tyr Glu	Gly Glu Glu Val Ala 1900	Val Lys Ile Phe 1905										
Asn Lys 1910	His Thr Ser Leu	Arg Leu Leu Arg Gln 1915	Glu Leu Val Val 1920										
Leu Cys 1925	His Leu His His	Pro Ser Leu Ile Ser 1930	Leu Leu Ala Ala 1935										
Gly Ile 1940	Arg Pro Arg Met	Leu Val Met Glu Leu 1945	Ala Ser Lys Gly 1950										
Ser Leu 1955	Asp Arg Leu Leu	Gln Gln Asp Lys Ala 1960	Ser Leu Thr Arg 1965										
Thr Leu 1970	Gln His Arg Ile	Ala Leu His Val Ala 1975	Asp Gly Leu Arg 1980										
Tyr Leu 1985	His Ser Ala Met	Ile Ile Tyr Arg Asp 1990	Leu Lys Pro His 1995										
Asn Val 2000	Leu Leu Phe Thr	Leu Tyr Pro Asn Ala 2005	Ala Ile Ile Ala 2010										
Lys Ile 2015	Ala Asp Tyr Gly	Ile Ala Gln Tyr Cys 2020	Cys Arg Met Gly 2025										

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Trp	Pro 2105	Met	Val	Glu	Lys	Leu 2110	Ile	Lys	Gln	Cys	Leu 2115	Lys	Glu	Asn
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Asp	Gly 2270	Lys	Leu	Ala	Ile	Phe 2275	Glu	Asp	Lys	Thr	Val 2280	Lys	Leu	Lys

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 2390 2395 2400
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Glu Leu Arg Asn Asp Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln
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Ser Ile Val His Ile Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met
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Asn Ala Thr Gly Gly Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu
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Arg Glu Pro Gln Ser Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu
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Pro Gly Asp Ser Val Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg
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Ser Phe Tyr Val Tyr Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly
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Lys Leu Arg Val Gln Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu
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Thr Gln Gly Pro Ser Cys Trp Asp Asp Val Leu Ile Pro Asn Arg Met
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Ser Gly Glu Cys Gln Ser Pro His Cys Pro Gly Thr Ser Ala Glu Phe
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Phe Phe Lys Cys Gly Ala His Pro Thr Ser Asp Lys Glu Thr Ser Val
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Ala Leu His Leu Ile Ala Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr

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Cys	Val 290	Ala	Gly	Cys	Pro	Asn 295	Ser	Leu	Ile	Lys	Glu 300	Leu	His	His	Phe		
Arg 305	Ile	Leu	Gly	Glu	Glu 310	Gln	Tyr	Asn	Arg	Tyr 315	Gln	Gln	Tyr	Gly	Ala 320		
Glu	Glu	Cys	Val	Leu 325	Gln	Met	Gly	Gly	Val 330	Leu	Cys	Pro	Arg	Pro 335	Gly		
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Ala	Arg	Trp	Glu	Ala 405	Ala	Ser	Lys	Glu	Thr 410	Ile	Lys	Lys	Thr	Thr 415	Lys		
Pro	Cys	Pro	Arg 420	Cys	His	Val	Pro	Val 425	Glu	Lys	Asn	Gly	Gly 430	Cys	Met		
His	Met	Lys 435	Cys	Pro	Gln	Pro	Gln 440	Cys	Arg	Leu	Glu	Trp 445	Cys	Trp	Asn		
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Gln	Ala	Ile	Phe	Thr	Gln	Lys	Ser	Lys	Pro	Gly	Pro	Asp	Pro	Leu	Asp
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Thr	Arg	Arg	Leu	Gln	Gly	Phe	Arg	Leu	Glu	Glu	Tyr	Leu	Ile	Gly	Gln
145					150					155					160

Ser Ile Gly Lys Gly Cys Ser Ala Ala Val Tyr Glu Ala Thr Met Pro
 165 170 175
 Thr Leu Pro Gln Asn Leu Glu Val Thr Lys Ser Thr Gly Leu Leu Pro
 180 185 190
 Gly Arg Gly Pro Gly Thr Ser Ala Pro Gly Glu Gly Gln Glu Arg Ala
 195 200 205
 Pro Gly Ala Pro Ala Phe Pro Leu Ala Ile Lys Met Met Trp Asn Ile
 210 215 220
 Ser Ala Gly Ser Ser Ser Glu Ala Ile Leu Asn Thr Met Ser Gln Glu
 225 230 235 240
 Leu Val Pro Ala Ser Arg Val Ala Leu Ala Gly Glu Tyr Gly Ala Val
 245 250 255
 Thr Tyr Arg Lys Ser Lys Arg Gly Pro Lys Gln Leu Ala Pro His Pro
 260 265 270
 Asn Ile Ile Arg Val Leu Arg Ala Phe Thr Ser Ser Val Pro Leu Leu
 275 280 285
 Pro Gly Ala Leu Val Asp Tyr Pro Asp Val Leu Pro Ser Arg Leu His
 290 295 300
 Pro Glu Gly Leu Gly His Gly Arg Thr Leu Phe Leu Val Met Lys Asn
 305 310 315 320
 Tyr Pro Cys Thr Leu Arg Gln Tyr Leu Cys Val Asn Thr Pro Ser Pro
 325 330 335
 Arg Leu Ala Ala Met Met Leu Leu Gln Leu Leu Glu Gly Val Asp His
 340 345 350
 Leu Val Gln Gln Gly Ile Ala His Arg Asp Leu Lys Ser Asp Asn Ile
 355 360 365
 Leu Val Glu Leu Asp Pro Asp Gly Cys Pro Trp Leu Val Ile Ala Asp
 370 375 380
 Phe Gly Cys Cys Leu Ala Asp Glu Ser Ile Gly Leu Gln Leu Pro Phe
 385 390 395 400
 Ser Ser Trp Tyr Val Asp Arg Gly Gly Asn Gly Cys Leu Met Ala Pro
 405 410 415
 Glu Val Ser Thr Ala Arg Pro Gly Pro Arg Ala Val Ile Asp Tyr Ser
 420 425 430
 Lys Ala Asp Ala Trp Ala Val Gly Ala Ile Ala Tyr Glu Ile Phe Gly
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435

440

445

Leu Val Asn Pro Phe Tyr Gly Gln Gly Lys Ala His Leu Glu Ser Arg
450 455 460

Ser Tyr Gln Glu Ala Gln Leu Pro Ala Leu Pro Glu Ser Val Pro Pro
465 470 475 480

Asp Val Arg Gln Leu Val Arg Ala Leu Leu Gln Arg Glu Ala Ser Lys
485 490 495

Arg Pro Ser Ala Arg Val Ala Ala Asn Val Leu His Leu Ser Leu Trp
500 505 510

Gly Glu His Ile Leu Ala Leu Lys Asn Leu Lys Leu Asp Lys Met Val
515 520 525

Gly Trp Leu Leu Gln Gln Ser Ala Ala Thr Leu Leu Ala Asn Arg Leu
530 535 540

Thr Glu Lys Cys Cys Val Glu Thr Lys Met Lys Met Leu Phe Leu Ala
545 550 555 560

Asn Leu Glu Cys Glu Thr Leu Cys Gln Ala Ala Leu Leu Leu Cys Ser
565 570 575

Trp Arg Ala Ala Leu
580

<210> 44
<211> 707
<212> DNA
<213> Homo sapiens

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gcgacgaagg ccgtgtgcgt gctgaagggc gacggcccag tgcagggcat catcaatttc 120
gagcagaagg aaagtaatgg accagtgaag gtgtggggaa gcattaaagg actgactgaa 180
ggcctgcatg gattccatgt tcatgagttt ggagataata cagcaggctg taccagtgca 240
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gttgagact tgggcaatgt gactgctgac aaagatggtg tggccgatgt gtctattgaa 360
gattctgtga tctcactctc aggagaccat tgcattcattg gccgcacact ggtggtccat 420
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tctgaggccc cttaactcat ctgttatcct gctagctgta gaaatgtatc ctgataaaca 600
ttaaacactg taatcttaaa agtgtaattg tgtgactttt tcagagttgc tttaaagtac 660
ctgtagtgag aaactgattt atgatcactt ggaagatttg tatagtt 707

<210> 45
 <211> 154
 <212> PRT
 <213> Homo sapiens

<400> 45

Met Ala Thr Lys Ala Val Cys Val Leu Lys Gly Asp Gly Pro Val Gln
 1 5 10 15

Gly Ile Ile Asn Phe Glu Gln Lys Glu Ser Asn Gly Pro Val Lys Val
 20 25 30

Trp Gly Ser Ile Lys Gly Leu Thr Glu Gly Leu His Gly Phe His Val
 35 40 45

His Glu Phe Gly Asp Asn Thr Ala Gly Cys Thr Ser Ala Gly Pro His
 50 55 60

Phe Asn Pro Leu Ser Arg Lys His Gly Gly Pro Lys Asp Glu Glu Arg
 65 70 75 80

His Val Gly Asp Leu Gly Asn Val Thr Ala Asp Lys Asp Gly Val Ala
 85 90 95

Asp Val Ser Ile Glu Asp Ser Val Ile Ser Leu Ser Gly Asp His Cys
 100 105 110

Ile Ile Gly Arg Thr Leu Val Val His Glu Lys Ala Asp Asp Leu Gly
 115 120 125

Lys Gly Gly Asn Glu Glu Ser Thr Lys Thr Gly Asn Ala Gly Ser Arg
 130 135 140

Leu Ala Cys Gly Val Ile Gly Ile Ala Gln
 145 150

<210> 46
 <211> 2493
 <212> DNA
 <213> Homo sapiens

<400> 46

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aaaatgtgca aggaagaata atggaagccc ctgaatacct tgatttggat gaaattgact	180
ttagtgatga catatcttat tcagtcacat cactcaagac gatcccagaa ctgtgccgaa	240
gatgtgatac gcaaaacgaa gacagatcag aatgggtcagt tggagtgcgt acgctggatg	300
gtgagcgaag cagaagccat tgcagaactg agttgttcta aggattttcc aagccttatt	360
cattacgcag gttgctatgg ccaggaaaag attcttctgt ggcttcttca gtttatgcaa	420
gaacagggca tctcgttgga tgaagtagac caggatggca acagtgccgt tcacgtagcc	480

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atgcagaacc acgctgggga aaagccctcc cagagcgccg agcggcaggg gcacaccctg	600
tgctccaggt acctgggtgt ggtggagacc tgcattgtcg tggcctctca agtgggtgaag	660
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caattttctag aagcccagaa atcagagggc aagtcactcc cttcttcacc cagttcacca	780
tcctcacctg cctccagaaa gtcccagtgg aaatctccag atgcagatga tgattctgta	840
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accttggcat caggggggac caggtttcct ttcagcatca aggcctccaa atccctggat	1320
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cgatctatca tggagacact aagtggcaac caaaacaata ataataacta ccaggcagcc	1740
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gacatcaata gaaaaatgaa gaaatcctac agcataaagc acattgctga gccagagtca	1980
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cagaagaaca gaatatcagg atgccttaaa tttatagtag tagactgtaa aagattcatt	2160
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agccactgat accattttat atttcatcaa ttgcatgagt atttgcta atgttgattgaa	2340
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aaacaatgtt aacagccaaa aaaaaaaaaa aaa	2493

<210> 47
 <211> 603
 <212> PRT
 <213> Homo sapiens

<400> 47

Met Thr Tyr Leu Ile Gln Ser His His Ser Arg Arg Ser Gln Asn Cys
 1 5 10 15

Ala Glu Asp Val Ile Arg Lys Thr Lys Thr Asp Gln Asn Gly Gln Leu
 20 25 30

Glu Cys Val Arg Trp Met Val Ser Glu Thr Glu Ala Ile Ala Glu Leu
 35 40 45

Ser Cys Ser Lys Asp Phe Pro Ser Leu Ile His Tyr Ala Gly Cys Tyr
 50 55 60

Gly Gln Glu Lys Ile Leu Leu Trp Leu Leu Gln Phe Met Gln Glu Gln
 65 70 75 80

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

Val Ala Ser Gln His Gly Tyr Leu Gly Cys Ile Gln Thr Leu Val Glu
 100 105 110

Tyr Gly Ala Asn Val Thr Met Gln Asn His Ala Gly Glu Lys Pro Ser
 115 120 125

Gln Ser Ala Glu Arg Gln Gly His Thr Leu Cys Ser Arg Tyr Leu Val
 130 135 140

Val Val Glu Thr Cys Met Ser Leu Ala Ser Gln Val Val Lys Leu Thr
 145 150 155 160

Lys Gln Leu Lys Glu Gln Thr Val Glu Arg Val Thr Leu Gln Asn Gln
 165 170 175

Leu Gln Gln Phe Leu Glu Ala Gln Lys Ser Glu Gly Lys Ser Leu Pro
 180 185 190

Ser Ser Pro Ser Ser Pro Ser Ser Pro Ala Ser Arg Lys Ser Gln Trp
 195 200 205

Lys Ser Pro Asp Ala Asp Asp Ser Val Ala Lys Ser Lys Pro Gly
 210 215 220

Val Gln Glu Gly Ile Gln Val Leu Gly Ser Leu Ser Ala Ser Ser Arg
 225 230 235 240

Ala Arg Pro Lys Ala Lys Asp Glu Asp Ser Asp Lys Ile Leu Arg Gln
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Thr Ser Leu Gly Arg Lys Thr Asp Ala Lys Gly Asn Pro Ala Ser Ser
 530 535 540

Ala Ser Lys Gly Lys Asn Lys Ala Glu Met Tyr Ser Ser Cys Ile Asn
 545 550 555 560

Leu Ser Ser Asn Met Leu Ile Glu Glu His Leu Cys Asn Asp Thr Arg
 565 570 575

His Asn Asp Ile Asn Arg Lys Met Lys Lys Ser Tyr Ser Ile Lys His
 580 585 590

Ile Ala Glu Pro Glu Ser Lys Glu Leu Phe Leu
 595 600

<210> 48
 <211> 802
 <212> DNA
 <213> Homo sapiens

<400> 48
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 gacaccgggt gtagagggcg gtcgcggcgg gcagtggcgg cagaatgttg gctaccaggg 180
 tatttagcct agttggcaag cgagcaattt ccacctctgt gtgtgtacga gctcatgaaa 240
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 tgccggagggt ggcccatgtc aagcacctgt ctgccagcca gaaggcactg aaggagaagg 360
 agaaggcctc ctggagcagc ctctccatgg atgagaaagt cgagttgtat cgcattaagt 420
 tcaaggagag ctttgctgag atgaacaggg gctcgaacga gtggaagacg gttgtgggcg 480
 gtgccatgtt cttcatcggg ttcaccgcgc tcgttatcat gtggcagaag cactatgtgt 540
 acggccccct cccgcaaagc tttgacaaag agtgggtggc caagcagacc aagaggatgc 600
 tggacatgaa ggtgaacccc atccagggt tagcctcaa gtgggactac gaaaagaacg 660
 agtgggaagaa gtgagagatg ctggcctgcg cctgcacctg cgcttggtc tgtcaccgcc 720
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 taaatgacca gtttacctga aa 802

<210> 49
 <211> 169
 <212> PRT
 <213> Homo sapiens

<400> 49
 Met Leu Ala Thr Arg Val Phe Ser Leu Val Gly Lys Arg Ala Ile Ser
 1 5 10 15

Thr Ser Val Cys Val Arg Ala His Glu Ser Val Val Lys Ser Glu Asp
 Page 57

20

25

30

Phe Ser Leu Pro Ala Tyr Met Asp Arg Arg Asp His Pro Leu Pro Glu
 35 40 45

Val Ala His Val Lys His Leu Ser Ala Ser Gln Lys Ala Leu Lys Glu
 50 55 60

Lys Glu Lys Ala Ser Trp Ser Ser Leu Ser Met Asp Glu Lys Val Glu
 65 70 75 80

Leu Tyr Arg Ile Lys Phe Lys Glu Ser Phe Ala Glu Met Asn Arg Gly
 85 90 95

Ser Asn Glu Trp Lys Thr Val Val Gly Gly Ala Met Phe Phe Ile Gly
 100 105 110

Phe Thr Ala Leu Val Ile Met Trp Gln Lys His Tyr Val Tyr Gly Pro
 115 120 125

Leu Pro Gln Ser Phe Asp Lys Glu Trp Val Ala Lys Gln Thr Lys Arg
 130 135 140

Met Leu Asp Met Lys Val Asn Pro Ile Gln Gly Leu Ala Ser Lys Trp
 145 150 155 160

Asp Tyr Glu Lys Asn Glu Trp Lys Lys
 165

<210> 50
 <211> 684
 <212> DNA
 <213> Homo sapiens

<400> 50
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 tgccgagccc gcgagatgct cccagagct gcctggagct tgggtgctgag gaaaggtgga 120
 ggtggaagac gagggatgca cagctcagaa ggcaccaccc gtggtggggg gaagatgtcc 180
 ccctacacca actgctatgc ccagcgctac taccatgc cagaagagcc cttctgcaca 240
 gaactcaacg ctgaggagca ggccctgaag gagaaggaga agggaagctg gaccagctg 300
 acccagccg aaaaggtggc cttgtaccg ctccagttca atgagacctt tgcggagatg 360
 aaccgtcgct ccaatgagtg gaagacagt atgggttggt tcttcttctt cattggattc 420
 gcagctctgg tgatttggtg gcagcgggtc tacgtatttc ctcaaagcc gatcaccttg 480
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 cagggcctgg cctcccgctg ggactatgag aagaagcagt ggaagaagt acttgcattc 600
 ccagctgtct ccctgaggct ccgccctggc tgggagcctc tggcgggccc tcccctccc 660
 tgcccttaac ccagtaaag ctcc 684

<210> 51
 <211> 171
 <212> PRT
 <213> Homo sapiens

<400> 51

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

Gly Arg Arg Gly Met His Ser Ser Glu Gly Thr Thr Arg Gly Gly Gly
 20 25 30

Lys Met Ser Pro Tyr Thr Asn Cys Tyr Ala Gln Arg Tyr Tyr Pro Met
 35 40 45

Pro Glu Glu Pro Phe Cys Thr Glu Leu Asn Ala Glu Glu Gln Ala Leu
 50 55 60

Lys Glu Lys Glu Lys Gly Ser Trp Thr Gln Leu Thr His Ala Glu Lys
 65 70 75 80

Val Ala Leu Tyr Arg Leu Gln Phe Asn Glu Thr Phe Ala Glu Met Asn
 85 90 95

Arg Arg Ser Asn Glu Trp Lys Thr Val Met Gly Cys Val Phe Phe Phe
 100 105 110

Ile Gly Phe Ala Ala Leu Val Ile Trp Trp Gln Arg Val Tyr Val Phe
 115 120 125

Pro Pro Lys Pro Ile Thr Leu Thr Asp Glu Arg Lys Ala Gln Gln Leu
 130 135 140

Gln Arg Met Leu Asp Met Lys Val Asn Pro Val Gln Gly Leu Ala Ser
 145 150 155 160

Arg Trp Asp Tyr Glu Lys Lys Gln Trp Lys Lys
 165 170

<210> 52
 <211> 784
 <212> DNA
 <213> Homo sapiens

<400> 52

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ccaccggggc cgaccctcga ggcctcctgc actccgcccg gacccccggc cccgccgtgg 240

ctatccagtc agttcgtgc tattcccatg ggtcacagga gacagatgag gagtttgatg 300

ctcgctgggt aacatacttc aacaagccag atatagatgc ctgggaattg cgtaaagggg 360

taaacacact tgttacctat gatatggttc cagagcccaa aatcattgat gctgctttgc	420
gggcatgcag acgggttaa at gattttgcta gtacagttcg taccctagag gttgttaagg	480
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ggatgggctt cccaaggat ttattgacat tgctacttga gtgtgaacag ttacctggaa	660
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aaaa	784

<210> 53
 <211> 150
 <212> PRT
 <213> Homo sapiens

<400> 53

Met Leu Gly Ala Ala Leu Arg Arg Cys Ala Val Ala Ala Thr Thr Arg
 1 5 10 15

Ala Asp Pro Arg Gly Leu Leu His Ser Ala Arg Thr Pro Gly Pro Ala
 20 25 30

Val Ala Ile Gln Ser Val Arg Cys Tyr Ser His Gly Ser Gln Glu Thr
 35 40 45

Asp Glu Glu Phe Asp Ala Arg Trp Val Thr Tyr Phe Asn Lys Pro Asp
 50 55 60

Ile Asp Ala Trp Glu Leu Arg Lys Gly Ile Asn Thr Leu Val Thr Tyr
 65 70 75 80

Asp Met Val Pro Glu Pro Lys Ile Ile Asp Ala Ala Leu Arg Ala Cys
 85 90 95

Arg Arg Leu Asn Asp Phe Ala Ser Thr Val Arg Ile Leu Glu Val Val
 100 105 110

Lys Asp Lys Ala Gly Pro His Lys Glu Ile Tyr Pro Tyr Val Ile Gln
 115 120 125

Glu Leu Arg Pro Thr Leu Asn Glu Leu Gly Ile Ser Thr Pro Glu Glu
 130 135 140

Leu Gly Leu Asp Lys Val
 145 150

<210> 54
 <211> 523
 <212> DNA
 <213> Homo sapiens

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 tggcatctgg aggtggtgtt cccactgatg aagagcaggc gactgggttg gagagggaga 180
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 gcatctgtga agaggacaat accagcgctg tctgggttttg gctgcacaaa ggcgaggccc 360
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 cattgcattg gtccttctc ccataaaaaa aaaaaaaaaa aaa 523

<210> 55
 <211> 129
 <212> PRT
 <213> Homo sapiens

<400> 55
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 20 25 30
 Ser Gly Gly Gly Val Pro Thr Asp Glu Glu Gln Ala Thr Gly Leu Glu
 35 40 45
 Arg Glu Ile Met Leu Ala Ala Lys Lys Gly Leu Asp Pro Tyr Asn Val
 50 55 60
 Leu Ala Pro Lys Gly Ala Ser Gly Thr Arg Glu Asp Pro Asn Leu Val
 65 70 75 80
 Pro Ser Ile Ser Asn Lys Arg Ile Val Gly Cys Ile Cys Glu Glu Asp
 85 90 95
 Asn Thr Ser Val Val Trp Phe Trp Leu His Lys Gly Glu Ala Gln Arg
 100 105 110
 Cys Pro Arg Cys Gly Ala His Tyr Lys Leu Val Pro Gln Gln Leu Ala
 115 120 125

His

<210> 56
 <211> 548
 <212> DNA
 <213> Homo sapiens

<400> 56
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agggctcagc tcgcatgtgg aagactctca ctttcttcgt cgcgctcccc ggggtggcag 180
tcagcatgct gaatgtgtac ctgaagtcgc accacggaga gcacgagaga cccgagttca 240
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catggaccag aaaaagtata tgggacctta agctaaccctt ctttacttgt atcaaagat 480
gactgggata ctgggtctcc atccctttgc ttgtggcagg agatggctta aataaataac 540
ttaaactt 548

<210> 57
<211> 109
<212> PRT
<213> Homo sapiens

<400> 57
Met Ala Val Val Gly Val Ser Ser Val Ser Arg Leu Leu Gly Arg Ser
1 5 10 15
Arg Pro Gln Leu Gly Arg Pro Met Ser Ser Gly Ala His Gly Glu Glu
20 25 30
Gly Ser Ala Arg Met Trp Lys Thr Leu Thr Phe Phe Val Ala Leu Pro
35 40 45
Gly Val Ala Val Ser Met Leu Asn Val Tyr Leu Lys Ser His His Gly
50 55 60
Glu His Glu Arg Pro Glu Phe Ile Ala Tyr Pro His Leu Arg Ile Arg
65 70 75 80
Thr Lys Pro Phe Pro Trp Gly Asp Gly Asn His Thr Leu Phe His Asn
85 90 95
Pro His Val Asn Pro Leu Pro Thr Gly Tyr Glu Asp Glu
100 105

<210> 58
<211> 425
<212> DNA
<213> Homo sapiens

<400> 58
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gccaaaggag gccacggagg agcaggagct cgtacctggc gtctgctgac cttcgtgctg 180

gcgctgcca gcgtggccct ctgcaccttc aactcctatc tccactcggg ccaccgccc	240
cgccccgagt tccgtcccta ccaacacctc cgcattccgca ccaagcccta cccctggggg	300
gacggcaacc acactctgtt ccacaatagc cacgtgaacc ctctgcccac gggctacgaa	360
cacccctgag gccccggacg cccccggaca caataaaggt gtgaagctta aaaaaaaaaa	420
aaaaa	425

<210> 59
 <211> 97
 <212> PRT
 <213> Homo sapiens

<400> 59

Met Ala Leu Pro Leu Arg Pro Leu Thr Arg Gly Leu Ala Ser Ala Ala
 1 5 10 15

Lys Gly Gly His Gly Gly Ala Gly Ala Arg Thr Trp Arg Leu Leu Thr
 20 25 30

Phe Val Leu Ala Leu Pro Ser Val Ala Leu Cys Thr Phe Asn Ser Tyr
 35 40 45

Leu His Ser Gly His Arg Pro Arg Pro Glu Phe Arg Pro Tyr Gln His
 50 55 60

Leu Arg Ile Arg Thr Lys Pro Tyr Pro Trp Gly Asp Gly Asn His Thr
 65 70 75 80

Leu Phe His Asn Ser His Val Asn Pro Leu Pro Thr Gly Tyr Glu His
 85 90 95

Pro

<210> 60
 <211> 578
 <212> DNA
 <213> Homo sapiens

<400> 60

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tccggctggt agtagttccg cttcctgtcc gactgtggtg tctttgctga gggtcacatt	120
gagctgcagg ttgaatccgg ggtgccttta ggattcagca ccatggcgga agacatggag	180
acaaaaatca agaactacaa gaccgcccct tttgacagcc gcttccccaa ccagaaccag	240
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aaaggaggcg atatctctgt gtgcgaatgg taccagcgtg tgtaccagtc cctctgcccc	360
acatcctggg tcacagactg ggatgagcaa cgggctgaag gcacgtttcc cggaagatc	420
tgaactggct gcatctccct ttcctctgtc ctccatcctt ctcccaggat ggtgaagggg	480
gacctggtac ccagtgatcc ccacccagg atcctaaatc atgacttacc tgctaataaa	540

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578

<210> 61
<211> 86
<212> PRT
<213> Homo sapiens

<400> 61

Met Ala Glu Asp Met Glu Thr Lys Ile Lys Asn Tyr Lys Thr Ala Pro
1 5 10 15

Phe Asp Ser Arg Phe Pro Asn Gln Asn Gln Thr Arg Asn Cys Trp Gln
20 25 30

Asn Tyr Leu Asp Phe His Arg Cys Gln Lys Ala Met Thr Ala Lys Gly
35 40 45

Gly Asp Ile Ser Val Cys Glu Trp Tyr Gln Arg Val Tyr Gln Ser Leu
50 55 60

Cys Pro Thr Ser Trp Val Thr Asp Trp Asp Glu Gln Arg Ala Glu Gly
65 70 75 80

Thr Phe Pro Gly Lys Ile
85

<210> 62
<211> 444
<212> DNA
<213> Homo sapiens

<400> 62

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gtggctgatc aaagaaagaa ggcatacgca gatttctaca gaaactacga tgtcatgaaa	240
gattttgagg agatgaggaa ggctggtatc tttcagagtg taaagtaatc ttggaatata	300
aagaatttct tcaggttgaa ttacctagaa gtttgtcact gacttgtgtt cctgaactat	360
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ctttgaaaaa aaaaaaaaaa aaaa	444

<210> 63
<211> 75
<212> PRT
<213> Homo sapiens

<400> 63

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

Arg Arg Leu Arg Asn His Met Ala Val Ala Phe Val Leu Ser Leu Gly
20 25 30

Val Ala Ala Leu Tyr Lys Phe Arg Val Ala Asp Gln Arg Lys Lys Ala
35 40 45

Tyr Ala Asp Phe Tyr Arg Asn Tyr Asp Val Met Lys Asp Phe Glu Glu
50 55 60

Met Arg Lys Ala Gly Ile Phe Gln Ser Val Lys
65 70 75

<210> 64
<211> 783
<212> DNA
<213> Homo sapiens

<400> 64
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aaa 783

<210> 65
<211> 79
<212> PRT
<213> Homo sapiens

<400> 65

Met Gln Ala Leu Arg Val Ser Gln Ala Leu Ile Arg Ser Phe Ser Ser
1 5 10 15

Thr Ala Arg Asn Arg Phe Gln Asn Arg Val Arg Glu Lys Gln Lys Leu
20 25 30

Phe Gln Glu Asp Asn Asp Ile Pro Leu Tyr Leu Lys Gly Gly Ile Val
35 40 45

Asp Asn Ile Leu Tyr Arg Val Thr Met Thr Leu Cys Leu Gly Gly Thr
 50 55 60

Val Tyr Ser Leu Tyr Ser Leu Gly Trp Ala Ser Phe Pro Arg Asn
 65 70 75

<210> 66
 <211> 470
 <212> DNA
 <213> Homo sapiens

<400> 66
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<210> 67
 <211> 83
 <212> PRT
 <213> Homo sapiens

<400> 67
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 1 5 10 15

Ser Thr Ala Ser Arg Arg His Phe Lys Asn Lys Val Pro Glu Lys Gln
 20 25 30

Lys Leu Phe Gln Glu Asp Asp Glu Ile Pro Leu Tyr Leu Lys Gly Gly
 35 40 45

Val Ala Asp Ala Leu Leu Tyr Arg Ala Thr Met Ile Leu Thr Val Gly
 50 55 60

Gly Thr Ala Tyr Ala Ile Tyr Glu Leu Ala Val Ala Ser Phe Pro Lys
 65 70 75 80

Lys Gln Glu

<210> 68
 <211> 623
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found as bases 98042975 to 98043295

<400> 68
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<210> 69

<400> 69
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<210> 70
 <211> 566
 <212> DNA
 <213> Homo sapiens

<400> 70
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 cagtaaccat cacagttgct gtaatgacag aattgtttta aaaaccaact tgtcatgtaa 480
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 taaaaaaaaa aaaaaaaaaa aaaaaa 566

<210> 71
 <211> 81
 <212> PRT
 <213> Homo sapiens

<400> 71

Met Met Phe Pro Leu Ala Arg Asn Ala Leu Ser Ser Leu Lys Ile Gln
 1 5 10 15

Ser Ile Leu Gln Ser Met Ala Arg His Ser His Val Lys His Ser Pro
 20 25 30

Asp Phe His Asp Lys Tyr Gly Asn Ala Val Leu Ala Ser Gly Thr Ala
 35 40 45

Phe Cys Val Ala Thr Trp Val Phe Thr Ala Thr Gln Ile Gly Ile Glu
 50 55 60

Trp Asn Leu Ser Pro Val Gly Arg Val Thr Pro Lys Glu Trp Lys His
 65 70 75 80

Gln

<210> 72
 <211> 448
 <212> DNA
 <213> Homo sapiens

<400> 72
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 cctctgtggt ccgtaggagc cactatgagg agggccctgg gaagaatttg ccattttcag 180
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 ctcatatgcc atactagata tgtttgtaa taaacttatg acgtgaaaaa aaaaaaaaaa 420
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 448

<210> 73
 <211> 63
 <212> PRT
 <213> Homo sapiens

<400> 73
 Met Leu Gly Gln Ser Ile Arg Arg Phe Thr Thr Ser Val Val Arg Arg
 1 5 10 15

Ser His Tyr Glu Glu Gly Pro Gly Lys Asn Leu Pro Phe Ser Val Glu
 20 25 30

Asn Lys Trp Ser Leu Leu Ala Lys Met Cys Leu Tyr Phe Gly Ser Ala
 35 40 45

Phe Ala Thr Pro Phe Leu Val Val Arg His Gln Leu Leu Lys Thr
 50 55 60

<210> 74

<211> 241
 <212> DNA
 <213> Homo sapiens

<400> 74
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 gccggagggg aagcttggga tcatggaatt ggccgttggg cttacctcct gcttcgtgac 180
 cttcctcctg ccagcgggct ggatcctgtc acacctggag acctacagga ggccagagtg 240
 a 241

<210> 75
 <211> 69
 <212> PRT
 <213> Homo sapiens

<400> 75
 Met Ser Val Leu Thr Pro Leu Leu Leu Arg Gly Leu Thr Gly Ser Ala
 1 5 10 15
 Arg Arg Leu Pro Val Pro Arg Ala Lys Ile His Ser Leu Pro Pro Glu
 20 25 30
 Gly Lys Leu Gly Ile Met Glu Leu Ala Val Gly Leu Thr Ser Cys Phe
 35 40 45
 Val Thr Phe Leu Leu Pro Ala Gly Trp Ile Leu Ser His Leu Glu Thr
 50 55 60
 Tyr Arg Arg Pro Glu
 65

<210> 76
 <211> 2717
 <212> DNA
 <213> Homo sapiens

<400> 76
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 gtgccgagag aggactgagg tggcttggga catggaagcg ctgcagcctt cgagcccggc 240
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2717

<210> 77
<211> 276
<212> PRT
<213> Homo sapiens

<400> 77

Met Gly Gly Leu Trp Arg Pro Gly Trp Arg Cys Val Pro Phe Cys Gly
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Trp Arg Trp Ile His Pro Gly Ser Pro Thr Arg Ala Ala Glu Arg Val
20 25 30

Glu Pro Phe Leu Arg Pro Glu Trp Ser Gly Thr Gly Gly Ala Glu Arg
35 40 45

Gly Leu Arg Trp Leu Gly Thr Trp Lys Arg Cys Ser Leu Arg Ala Arg
50 55 60

His Pro Ala Leu Gln Pro Pro Arg Arg Pro Lys Ser Ser Asn Pro Phe
65 70 75 80

Thr Arg Ala Gln Glu Glu Glu Arg Arg Arg Gln Asn Lys Thr Thr Leu
85 90 95

Thr Tyr Val Ala Ala Val Ala Val Gly Met Leu Gly Ala Ser Tyr Ala
100 105 110

Ala Val Pro Leu Tyr Arg Leu Tyr Cys Gln Thr Thr Gly Leu Gly Gly
115 120 125

Ser Ala Val Ala Gly His Ala Ser Asp Lys Ile Glu Asn Met Val Pro
130 135 140

Val Lys Asp Arg Ile Ile Lys Ile Ser Phe Asn Ala Asp Val His Ala
145 150 155 160

Ser Leu Gln Trp Asn Phe Arg Pro Gln Gln Thr Glu Ile Tyr Val Val
165 170 175

Pro Gly Glu Thr Ala Leu Ala Phe Tyr Arg Ala Lys Asn Pro Thr Asp
180 185 190

Lys Pro Val Ile Gly Ile Ser Thr Tyr Asn Ile Val Pro Phe Glu Ala
195 200 205

Gly Gln Tyr Phe Asn Lys Ile Gln Cys Phe Cys Phe Glu Glu Gln Arg
210 215 220

Leu Asn Pro Gln Glu Glu Val Asp Met Pro Val Phe Phe Tyr Ile Asp
225 230 235 240

Pro Glu Phe Ala Glu Asp Pro Arg Met Ile Lys Val Asp Leu Ile Thr
245 250 255

Leu Ser Tyr Thr Phe Phe Glu Ala Lys Glu Gly His Lys Leu Pro Val
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Pro Gly Tyr Asn
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<210> 78
<211> 6009
<212> DNA
<213> Homo sapiens

<400> 78
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His Ala Arg Leu Gln Lys Cys Phe Leu Ser Arg Gly Cys Gly Ser Tyr
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Cys Ala Gly Ala Lys Ala Ser Pro Leu Pro Gly Lys Met Ala Met Gly
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Leu Met Cys Gly Arg Arg Glu Leu Leu Arg Leu Leu Gln Ser Gly Arg
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Arg Val His Ser Val Ala Gly Pro Ser Gln Trp Leu Gly Lys Pro Leu
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Thr Thr Arg Leu Leu Phe Pro Val Ala Pro Cys Cys Cys Arg Pro His
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Tyr Leu Phe Leu Ala Ala Ser Gly Pro Arg Ser Leu Ser Thr Ser Ala
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Ile Ser Phe Ala Glu Val Gln Val Gln Ala Pro Pro Val Val Ala Ala
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Thr Pro Ser Pro Thr Ala Val Pro Glu Val Ala Ser Gly Glu Thr Ala
145 150 155 160

Asp Val Val Gln Thr Ala Ala Glu Gln Ser Phe Ala Glu Leu Gly Leu
165 170 175

Gly Ser Tyr Thr Pro Val Gly Leu Ile Gln Asn Leu Leu Glu Phe Met
180 185 190

His Val Asp Leu Gly Leu Pro Trp Trp Gly Ala Ile Ala Ala Cys Thr
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 Val Phe Ala Arg Cys Leu Ile Phe Pro Leu Ile Val Thr Gly Gln Arg
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 Glu Ala Ala Arg Ile His Asn His Leu Pro Glu Ile Gln Lys Phe Ser
 225 230 235 240
 Ser Arg Ile Arg Glu Ala Lys Leu Ala Gly Asp His Ile Glu Tyr Tyr
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 Lys Ala Ser Ser Glu Met Ala Leu Tyr Gln Lys Lys His Gly Ile Lys
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 Leu Tyr Lys Pro Leu Ile Leu Pro Val Thr Gln Ala Pro Ile Phe Ile
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Ala Gly Gly Leu Leu Ser Pro Ala Arg Leu Tyr Ala Ile Ala Ala Lys
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Glu Lys Asp Ile Gln Glu Glu Ser Thr Phe Ser Ser Arg Lys Ile Ser
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Asn Gln Phe Asp Trp Ala Leu Met Arg Leu Asp Leu Ser Val Arg Arg
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Thr Gly Arg Ile Pro Lys Lys Leu Leu Gln Lys Val Phe Asn Asp Thr
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Cys Arg Ser Gly Gly Leu Gly Gly Ser His Ala Leu Leu Leu Arg
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Gln Met His Ser Phe Pro Leu Gln Phe Thr Leu His Cys Ala Leu Leu
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Val Gln Leu Thr Ser Ser Glu Leu Glu Ser Thr Leu Glu Thr Leu Lys
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Ala Glu Asn Gln Pro Ile Arg Asp Val Leu Lys Gln Leu Ile Leu Val
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Phe Lys Glu Lys Phe Met Lys Cys Leu His Asn Asn Asn Phe Glu Asn
 35 40 45

Ala Leu Cys Arg Lys Glu Ser Lys Glu Tyr Leu Glu Cys Arg Met Glu
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Leu Thr Ser Gly Lys Ser Glu Ala Lys Lys
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<400> 86

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 <212> PRT
 <213> Homo sapiens

<400> 87

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Gly Ser Thr Ser Asn Gln Ile Arg Gly Glu Ser Ser Val Ala Gln Gln
 Page 92

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Pro	Leu	His	Thr	Ala	Gln	Lys	Thr	Arg	Lys	Gly	Glu	His	Lys	Trp	Ala
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Asn	Gly	Gly	Glu	Ile	Leu	Asn	Glu	Thr	Arg	Ser	Phe	His	His	Lys	Leu
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Gly Cys Thr Met Ser Met Arg Asp Lys Glu Gly Lys Gln Asp Tyr Arg
325 330 335

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

Ser Leu Pro Ala Gly Ala Asp Pro Gln Gln Val Ile Asn Ile Asp Gln
355 360 365

Ile Arg Glu Thr Leu Pro Glu Leu Pro Ser Val Thr Arg Glu Lys Leu
370 375 380

Val Gln Gln Tyr Gly Met Leu Leu Glu His Ser Phe Thr Leu Leu Asn
385 390 395 400

Glu Val Gly Leu Leu Glu Phe Phe Gln Asn Val Ile Lys Glu Thr Arg
405 410 415

Ala Glu Pro Lys Lys Val Thr Ser Trp Val Leu Asn Thr Phe Leu Gly
420 425 430

Tyr Leu Lys Gln Gln Asn Leu Ala Val Ser Glu Ser Pro Val Thr Pro
435 440 445

Ser Ala Leu Ala Glu Leu Leu Asp Leu Leu Asp Ser Arg Thr Ile Ser
450 455 460

Ser Ser Ala Ala Lys Gln Val Phe Glu Glu Leu Trp Lys Arg Glu Gly
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Lys Thr Pro Gly Gln Ile Val Ser Glu Lys Gln Leu Glu Leu Met Gln
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Asp Gln Gly Ala Leu Glu Gln Leu Cys His Ser Val Met Glu Ala His
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Pro Gln Val Val Met Asp Val Lys Asn Arg Asn Pro Arg Ala Ile Asn
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<212> DNA
<213> Homo sapiens

<400> 88
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Page 94

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aaaaaaaaa	2589

<210> 89
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 <212> PRT
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<400> 89

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 35 40 45

Ile Thr Leu Glu Val Pro Ala Arg Asp Arg Ser Tyr Ala Trp Leu Leu
 50 55 60

Ser Trp Leu Thr Arg His Ser Thr Arg Thr Gln His Leu Ser Val Glu
 65 70 75 80

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

Phe Val Pro Ser Pro Gly Asn His Phe Ile Trp Tyr Arg Gly Lys Trp
 100 105 110

Ile Arg Val Glu Arg Ser Arg Glu Met Gln Met Ile Asp Leu Gln Thr
 115 120 125

Gly Thr Pro Trp Glu Ser Val Thr Phe Thr Ala Leu Gly Thr Asp Arg
 130 135 140

Lys Val Phe Phe Asn Ile Leu Glu Glu Ala Arg Glu Leu Ala Leu Gln
 145 150 155 160

Gln Glu Glu Gly Lys Thr Val Met Tyr Thr Ala Val Gly Ser Glu Trp
 165 170 175

Arg Pro Phe Gly Tyr Pro Arg Arg Arg Pro Leu Asn Ser Val Val
180 185 190

Leu Gln Gln Gly Leu Ala Asp Arg Ile Val Arg Asp Val Gln Glu Phe
195 200 205

Ile Asp Asn Pro Lys Trp Tyr Thr Asp Arg Gly Ile Pro Tyr Arg Arg
210 215 220

Gly Tyr Leu Leu Tyr Gly Pro Pro Gly Cys Gly Lys Ser Ser Phe Ile
225 230 235 240

Thr Ala Leu Ala Gly Glu Leu Glu His Ser Ile Cys Leu Leu Ser Leu
245 250 255

Thr Asp Ser Ser Leu Ser Asp Asp Arg Leu Asn His Leu Leu Ser Val
260 265 270

Ala Pro Gln Gln Ser Leu Val Leu Leu Glu Asp Val Asp Ala Ala Phe
275 280 285

Leu Ser Arg Asp Leu Ala Val Glu Asn Pro Val Lys Tyr Gln Gly Leu
290 295 300

Gly Arg Leu Thr Phe Ser Gly Leu Leu Asn Ala Leu Asp Gly Val Ala
305 310 315 320

Ser Thr Glu Ala Arg Ile Val Phe Met Thr Thr Asn His Val Asp Arg
325 330 335

Leu Asp Pro Ala Leu Ile Arg Pro Gly Arg Val Asp Leu Lys Glu Tyr
340 345 350

Val Gly Tyr Cys Ser His Trp Gln Leu Thr Gln Met Phe Gln Arg Phe
355 360 365

Tyr Pro Gly Gln Ala Pro Ser Leu Ala Glu Asn Phe Ala Glu His Val
370 375 380

Leu Arg Ala Thr Asn Gln Ile Ser Pro Ala Gln Val Gln Gly Tyr Phe
385 390 395 400

Met Leu Tyr Lys Asn Asp Pro Val Gly Ala Ile His Asn Ala Glu Ser
405 410 415

Leu Arg Arg

<210> 90

<400> 90
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<210> 91
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 <212> PRT
 <213> Homo sapiens

<400> 91

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

<210> 93
 <400> 93
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<210> 94
 <211> 70
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found at bases 8296 to 8365

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<210> 95
 <400> 95
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<210> 96
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 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found at bases 3308 to 4264

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<211> 318
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<213> Homo sapiens

<400> 97

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Leu Arg Lys Gly Pro Asn Val Val Gly Pro Tyr Gly Leu Leu Gln Pro
35 40 45

Phe Ala Asp Ala Met Lys Leu Phe Thr Lys Glu Pro Leu Lys Pro Ala
50 55 60

Thr Ser Thr Ile Thr Leu Tyr Ile Thr Ala Pro Thr Leu Ala Leu Thr
65 70 75 80

Ile Ala Leu Leu Leu Trp Thr Pro Leu Pro Met Pro Asn Pro Leu Val
85 90 95

Asn Leu Asn Leu Gly Leu Leu Phe Ile Leu Ala Thr Ser Ser Leu Ala
100 105 110

Val Tyr Ser Ile Leu Trp Ser Gly Trp Ala Ser Asn Ser Asn Tyr Ala
115 120 125

Leu Ile Gly Ala Leu Arg Ala Val Ala Gln Thr Ile Ser Tyr Glu Val
130 135 140

Thr Leu Ala Ile Ile Leu Leu Ser Thr Leu Leu Met Ser Gly Ser Phe
145 150 155 160

Asn Leu Ser Thr Leu Ile Thr Thr Gln Glu His Leu Trp Leu Leu Leu
165 170 175

Pro Ser Trp Pro Leu Ala Met Met Trp Phe Ile Ser Thr Leu Ala Glu
180 185 190

Thr Asn Arg Thr Pro Phe Asp Leu Ala Glu Gly Glu Ser Glu Leu Val
195 200 205

Ser Gly Phe Asn Ile Glu Tyr Ala Ala Gly Pro Phe Ala Leu Phe Phe
 210 215 220

Met Ala Glu Tyr Thr Asn Ile Ile Met Met Asn Thr Leu Thr Thr Thr
 225 230 235 240

Ile Phe Leu Gly Thr Thr Tyr Asp Ala Leu Ser Pro Glu Leu Tyr Thr
 245 250 255

Thr Tyr Phe Val Thr Lys Thr Leu Leu Leu Thr Ser Leu Phe Leu Trp
 260 265 270

Ile Arg Thr Ala Tyr Pro Arg Phe Arg Tyr Asp Gln Leu Met His Leu
 275 280 285

Leu Trp Lys Asn Phe Leu Pro Leu Thr Leu Ala Leu Leu Met Trp Tyr
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Val Ser Met Pro Ile Thr Ile Ser Ser Ile Pro Pro Gln Thr
 305 310 315

<210> 98
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 <212> DNA
 <213> Homo sapiens

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 <211> 264

<212> PRT
<213> Homo sapiens

<400> 99

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

Gly Asp Lys Lys Pro Asp Ala Lys
260

<210> 100
<211> 676
<212> DNA
<213> Homo sapiens

<400> 100
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gcagacgttg tggcggagaa gggcagtggc tgtagctgcc ctttccgttt ccagggttcc 120
gaccaggtcg ttgaggactt ccacatggag attggcacag gaccagactc aagacacaca 180
actcataaca gttgatgaaa aattggatat cactacttta actggagttc cagaagagca 240
tataaaaact agaaaagtca ggatctttgt tcctgctcgc aataacatgc agtctggagt 300
aaacaacaca aagaaatgga agatggagtt tgataccaga gagcgatggg aaaatccttt 360
gatgggttg gcatcaacgg ctgatccctt atccaacatg gttctaacct tcagtactaa 420
agaagatgca gtttcctttg cagaaaaaaa tggatggagc tatgacattg aagagaggaa 480
ggttccaaaa cccaagtcca agtcttatgg tgcaaacttt tcttgaaca aaagaacaag 540
agtatccaca aaataggttg gcactgacta tatctctgct tgactgtgaa taaagtcagc 600
tgtgcagtat ttatagtcca tgtataataa atacatctct taatctccta ataaattgga 660
cctttaaaact acagat 676

<210> 101
<211> 175
<212> PRT
<213> Homo sapiens

<400> 101
Met Ala Ala Val Ser Met Ser Val Val Leu Arg Gln Thr Leu Trp Arg
1 5 10 15
Arg Arg Ala Val Ala Val Ala Ala Leu Ser Val Ser Arg Val Pro Thr
20 25 30
Arg Ser Leu Arg Thr Ser Thr Trp Arg Leu Ala Gln Asp Gln Thr Gln
35 40 45
Asp Thr Gln Leu Ile Thr Val Asp Glu Lys Leu Asp Ile Thr Thr Leu
50 55 60
Thr Gly Val Pro Glu Glu His Ile Lys Thr Arg Lys Val Arg Ile Phe
65 70 75 80
Val Pro Ala Arg Asn Asn Met Gln Ser Gly Val Asn Asn Thr Lys Lys
85 90 95
Trp Lys Met Glu Phe Asp Thr Arg Glu Arg Trp Glu Asn Pro Leu Met
100 105 110

Gly Trp Ala Ser Thr Ala Asp Pro Leu Ser Asn Met Val Leu Thr Phe
115 120 125

Ser Thr Lys Glu Asp Ala Val Ser Phe Ala Glu Lys Asn Gly Trp Ser
130 135 140

Tyr Asp Ile Glu Glu Arg Lys Val Pro Lys Pro Lys Ser Lys Ser Tyr
145 150 155 160

Gly Ala Asn Phe Ser Trp Asn Lys Arg Thr Arg Val Ser Thr Lys
165 170 175

<210> 102
<211> 1812
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<223> Gene found at bases 12338 to 14149

<400> 102
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gcatccacct ttattatcag tctcttcccc acaacaatat tcatgtgcct agaccaagaa 180
gttattatct cgaactgaca ctgagccaca acccaaaca cccagctctc cctaagcttc 240
aaactagact acttctccat aatattcatc cctgtagcat tggttcgttac atggtccatc 300
atagaattct cactgtgata tataaactca gacccaaaca ttaatcagtt cttcaaatat 360
ctactcattt tcctaattac catactaate ttagttaccg ctaacaacct attccaactg 420
ttcatcggct gagagggcgt aggaattata tccttcttgc tcatcagttg atgatacgcc 480
cgagcagatg ccaacacagc agccattcaa gcagtcctat acaaccgtat cggcgatatc 540
ggtttcatcc tcgccttagc atgatttatc ctacactcca actcatgaga cccacaacaa 600
atagcccttc taaacgctaa tccaagcctc acccactac taggcctcct cctagcagca 660
gcaggcaaatt cagcccaatt aggtctccac ccctgactcc cctcagccat agaaggcccc 720
accccagtct cagccctact ccactcaagc actatagttg tagcaggaat cttcttactc 780
atccgcttcc accccctagc agaaaatagc ccactaatcc aaactctaac actatgctta 840
ggcgctatca ccactctggt cgcagcagtc tgcgccctta cacaaaatga catcaaaaaa 900
atcgtagcct tctccacttc aagtcaacta ggactcataa tagttacaat cggcatcaac 960
caaccacacc tagcattcct gcacatctgt acccagcct tcttcaaagc catactattt 1020
atgtgctccg ggtccatcat ccacaacctt aacaatgaac aagatattcg aaaaatagga 1080
ggactactca aaaccatacc tctcacttca acctccctca ccattggcag cctagcatta 1140
gcaggaatac ctttcctcac aggtttctac tccaaagacc acatcatcga aaccgcaaac 1200
atatcataca caaacgcctg agccctatct attactctca tcgtacctc cctgacaagc 1260

gcctatagca ctcgaataat tcttctcacc ctaacaggtc aacctcgctt cccaccctt 1320
 actaacatta acgaaaataa cccacccta ctaaacccta ttaaagcct ggcagccgga 1380
 agcctattcg caggatttct cattaactaac aacatttccc ccgcatcccc cttccaaaca 1440
 acaatcccc tctaccta aa actcacagcc ctcgctgtca ctttcctagg acttctaaca 1500
 gccctagacc tcaactacct aaccaacaaa cttaaaataa aatccccact atgcacattt 1560
 tatttctcca acatactcgg attctaccct agcatcacac accgcacaat cccctatcta 1620
 ggccttctta cgagccaaaa cctgccccta ctctcctag acctaacctg actagaaaag 1680
 ctattaccta aaacaatttc acagcaccaa atctccacct ccatcatcac ctcaacccaa 1740
 aaaggcataa ttaaacttta cttcctctct ttcttcttcc cactcatcct aaccctactc 1800
 ctaatcacat aa 1812

<210> 103
 <211> 603
 <212> PRT
 <213> Homo sapiens

<400> 103

Met Thr Met His Thr Thr Met Thr Thr Leu Thr Leu Thr Ser Leu Ile
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Pro Pro Ile Leu Thr Thr Leu Val Asn Pro Asn Lys Lys Asn Ser Tyr
 20 25 30

Pro His Tyr Val Lys Ser Ile Val Ala Ser Thr Phe Ile Ile Ser Leu
 35 40 45

Phe Pro Thr Thr Met Phe Met Cys Leu Asp Gln Glu Val Ile Ile Ser
 50 55 60

Asn Trp His Trp Ala Thr Thr Gln Thr Thr Gln Leu Ser Leu Ser Phe
 65 70 75 80

Lys Leu Asp Tyr Phe Ser Met Met Phe Ile Pro Val Ala Leu Phe Val
 85 90 95

Thr Trp Ser Ile Met Glu Phe Ser Leu Trp Tyr Met Asn Ser Asp Pro
 100 105 110

Asn Ile Asn Gln Phe Phe Lys Tyr Leu Leu Ile Phe Leu Ile Thr Met
 115 120 125

Leu Ile Leu Val Thr Ala Asn Asn Leu Phe Gln Leu Phe Ile Gly Trp
 130 135 140

Glu Gly Val Gly Ile Met Ser Phe Leu Leu Ile Ser Trp Trp Tyr Ala
 145 150 155 160

Arg Ala Asp Ala Asn Thr Ala Ala Ile Gln Ala Val Leu Tyr Asn Arg
 165 170 175
 Ile Gly Asp Ile Gly Phe Ile Leu Ala Leu Ala Trp Phe Ile Leu His
 180 185 190
 Ser Asn Ser Trp Asp Pro Gln Gln Met Ala Leu Leu Asn Ala Asn Pro
 195 200 205
 Ser Leu Thr Pro Leu Leu Gly Leu Leu Leu Ala Ala Ala Gly Lys Ser
 210 215 220
 Ala Gln Leu Gly Leu His Pro Trp Leu Pro Ser Ala Met Glu Gly Pro
 225 230 235 240
 Thr Pro Val Ser Ala Leu Leu His Ser Ser Thr Met Val Val Ala Gly
 245 250 255
 Ile Phe Leu Leu Ile Arg Phe His Pro Leu Ala Glu Asn Ser Pro Leu
 260 265 270
 Ile Gln Thr Leu Thr Leu Cys Leu Gly Ala Ile Thr Thr Leu Phe Ala
 275 280 285
 Ala Val Cys Ala Leu Thr Gln Asn Asp Ile Lys Lys Ile Val Ala Phe
 290 295 300
 Ser Thr Ser Ser Gln Leu Gly Leu Met Met Val Thr Ile Gly Ile Asn
 305 310 315 320
 Gln Pro His Leu Ala Phe Leu His Ile Cys Thr His Ala Phe Phe Lys
 325 330 335
 Ala Met Leu Phe Met Cys Ser Gly Ser Ile Ile His Asn Leu Asn Asn
 340 345 350
 Glu Gln Asp Ile Arg Lys Met Gly Gly Leu Leu Lys Thr Met Pro Leu
 355 360 365
 Thr Ser Thr Ser Leu Thr Ile Gly Ser Leu Ala Leu Ala Gly Met Pro
 370 375 380
 Phe Leu Thr Gly Phe Tyr Ser Lys Asp His Ile Ile Glu Thr Ala Asn
 385 390 395 400
 Met Ser Tyr Thr Asn Ala Trp Ala Leu Ser Ile Thr Leu Ile Ala Thr
 405 410 415
 Ser Leu Thr Ser Ala Tyr Ser Thr Arg Met Ile Leu Leu Thr Leu Thr
 420 425 430
 Gly Gln Pro Arg Phe Pro Thr Leu Thr Asn Ile Asn Glu Asn Asn Pro

435

440

445

Thr Leu Leu Asn Pro Ile Lys Arg Leu Ala Ala Gly Ser Leu Phe Ala
450 455 460

Gly Phe Leu Ile Thr Asn Asn Ile Ser Pro Ala Ser Pro Phe Gln Thr
465 470 475 480

Thr Ile Pro Leu Tyr Leu Lys Leu Thr Ala Leu Ala Val Thr Phe Leu
485 490 495

Gly Leu Leu Thr Ala Leu Asp Leu Asn Tyr Leu Thr Asn Lys Leu Lys
500 505 510

Met Lys Ser Pro Leu Cys Thr Phe Tyr Phe Ser Asn Met Leu Gly Phe
515 520 525

Tyr Pro Ser Ile Thr His Arg Thr Ile Pro Tyr Leu Gly Leu Leu Thr
530 535 540

Ser Gln Asn Leu Pro Leu Leu Leu Leu Asp Leu Thr Trp Leu Glu Lys
545 550 555 560

Leu Leu Pro Lys Thr Ile Ser Gln His Gln Ile Ser Thr Ser Ile Ile
565 570 575

Thr Ser Thr Gln Lys Gly Met Ile Lys Leu Tyr Phe Leu Ser Phe Phe
580 585 590

Phe Pro Leu Ile Leu Thr Leu Leu Leu Ile Thr
595 600

<210> 104
<211> 541
<212> DNA
<213> Homo sapiens

<400> 104
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ggtgtggcga ggcggcgcgg agcctgcccc tgggcgccag gtgttttcggg gtgcgggtct 120
cgccgaccgg ggagaaggct acgcacactg gccaggttta tgatgataaa gactacagga 180
gaattcgggt ttaggtcgt cagaaagagg tgaatgaaaa ctttgccatt gatttgatag 240
cagagcagcc cgtgagcga gtggagactc gggatgtagc gtgcgatggc ggcgggggag 300
ctcttgcca cccaaaagt tatataaact tggacaaaga aacaaaaacc ggcacatgcg 360
gttactgtgg gctccagttc agacagcacc accactagag cgtgtggcac gccgggggtc 420
ccgcagcatc ctgtgagcat ttccgcgggg aagctgagca cgtgaagctc gctggttctg 480
tgcgaagggt attcctggtg ctgaataaag ggtgttgctg tcaaggctga caaaaaaaaaa 540
a 541

<210> 105
 <211> 124
 <212> PRT
 <213> Homo sapiens

<400> 105

Met Ala Ala Ala Met Thr Phe Cys Arg Leu Leu Asn Arg Cys Gly Glu
 1 5 10 15

Ala Ala Arg Ser Leu Pro Leu Gly Ala Arg Cys Phe Gly Val Arg Val
 20 25 30

Ser Pro Thr Gly Glu Lys Val Thr His Thr Gly Gln Val Tyr Asp Asp
 35 40 45

Lys Asp Tyr Arg Arg Ile Arg Phe Val Gly Arg Gln Lys Glu Val Asn
 50 55 60

Glu Asn Phe Ala Ile Asp Leu Ile Ala Glu Gln Pro Val Ser Glu Val
 65 70 75 80

Glu Thr Arg Val Ile Ala Cys Asp Gly Gly Gly Gly Ala Leu Gly His
 85 90 95

Pro Lys Val Tyr Ile Asn Leu Asp Lys Glu Thr Lys Thr Gly Thr Cys
 100 105 110

Gly Tyr Cys Gly Leu Gln Phe Arg Gln His His His
 115 120

<210> 106
 <211> 781
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found at bases 9208 to 9988

<400> 106

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gccctctcag ccctcctaata gacctccggc ctagccatgt gatttcactt ccaactccata	120
acgctcctca tactaggcct actaaccaac aactaacca tataccaatg gtggcgcgat	180
gtaacacgag aaagcacata ccaaggccac cacacaccac ctgtccaaaa aggccttcga	240
tacgggataa tcctatttat tacctcagaa gtttttttct tcgcaggatt tttctgagcc	300
ttttaccact ccagcctagc ccctaccccc caactaggag ggcactggcc cccaacaggc	360
atcaccccg ctaaatccctt agaagtccca ctctaaaca catccgtatt actcgcatca	420
ggagtatcaa tcacctgagc tcaccatagt ctaatagaaa acaaccgaaa ccaataatt	480
caagcactgc ttattacaat ttactgggt ctctatttta ccctcctaca agcctcagag	540

tactttcgagt ctcccttcac catttccgac ggcattctacg gctcaacatt tttttagacc 600
acaggcttcc acggacttca cgtcattatt ggctcaactt tcctcactat ctgcttcac 660
cgccaactaa tattttcactt tacatccaaa catcactttg gcttcgaagc cgccgcctga 720
tactggcatt ttgtagatgt ggtttgacta tttctgtatg tctccatcta ttgatgaggg 780
t 781

<210> 107
<211> 226
<212> PRT
<213> Homo sapiens

<400> 107

Met Asn Glu Asn Leu Phe Ala Ser Phe Ile Ala Pro Thr Ile Leu Gly
1 5 10 15

Leu Pro Ala Ala Val Leu Ile Ile Leu Phe Pro Pro Leu Leu Ile Pro
20 25 30

Thr Ser Lys Tyr Leu Ile Asn Asn Arg Leu Ile Thr Thr Gln Gln Trp
35 40 45

Leu Ile Lys Leu Thr Ser Lys Gln Met Met Ala Met His Asn Thr Lys
50 55 60

Gly Arg Thr Trp Ser Leu Met Leu Val Ser Leu Ile Ile Phe Ile Ala
65 70 75 80

Thr Thr Asn Leu Leu Gly Leu Leu Pro His Ser Phe Thr Pro Thr Thr
85 90 95

Gln Leu Ser Met Asn Leu Ala Met Ala Ile Pro Leu Trp Ala Gly Ala
100 105 110

Val Ile Met Gly Phe Arg Ser Lys Ile Lys Asn Ala Leu Ala His Phe
115 120 125

Leu Pro Gln Gly Thr Pro Thr Pro Leu Ile Pro Met Leu Val Ile Ile
130 135 140

Glu Thr Ile Ser Leu Leu Ile Gln Pro Met Ala Leu Ala Val Arg Leu
145 150 155 160

Thr Ala Asn Ile Thr Ala Gly His Leu Leu Met His Leu Ile Gly Ser
165 170 175

Ala Thr Leu Ala Met Ser Thr Ile Asn Leu Pro Ser Thr Leu Ile Ile
180 185 190

Phe Thr Ile Leu Ile Leu Leu Thr Ile Leu Glu Ile Ala Val Ala Leu
195 200 205

Ile Gln Ala Tyr Val Phe Thr Leu Leu Val Ser Leu Tyr Leu His Asp
 210 215 220

Asn Thr
 225

<210> 108
 <211> 68
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found at bases 5513 to 5580

<400> 108
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 aatttctg 68

<210> 109

<400> 109
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<210> 110
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> Gene found at bases 1604 to 1672

<400> 110
 cagagtgtag cttaacacaa agcacccaac ttacacttag gagatttcaa cttaacttga 60
 ccgctctga 69

<210> 111

<400> 111
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<210> 112
 <211> 3417
 <212> DNA
 <213> Homo sapiens

<400> 112
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 tcctaggggg tcgtcgtggt ccagacagtt tagcagaaca gcctccgcgg ctccggggag 120
 aagcaatatg ttaaggatac ctgtaagaaa ggccttagta ggcctttcta agtctcctaa 180
 aggatgtggt cgaacaactg ccacagcagc aagcaacttg attgaagtat ttgttgatgg 240
 tcagtctgtc atggtggaac cgggaacgac cgtcctccaa gcttgtgaga aggttggcat 300
 gcagatccct cgattctggt atcatgaaag gttgtctggt gctggaaact gcaggatgtg 360

ccttgttgaa attgagaaag cccctaaggt tgtagctgct tgtgccatgc cagtaatgaa	420
gggttggaat atcctaacaa actcagaaaa atccaaaaaa gccaggggaag gtgtgatgga	480
gttcttatta gcaaatcacc cattggactg tcctattttgt gaccagggag gtgaatgtga	540
tctgcaggac cagtccatga tgtttggaag tgataggagc cgatttttag aggggaagcg	600
tgctgtggaa gacaagaaca ttgggccatt ggtaaagacc atcatgacaa gatgtataca	660
gtgtactcgc tgcacaggt ttgcaagtga gattgcagga gtagatgatt tgggaacaac	720
aggcagagga aatgatatgc aagttggcac atacattgaa aagatgttca tgtctgaact	780
gtctgggaat atcattgata tctgccctgt aggtgcccta acctctaagc cctatgcctt	840
tactgcccgg ccttgggaaa caagaaagac agaatccatt gatgtaatgg atgcggttgg	900
aagtaatatt gtggttagca caagaactgg agaagtgatg aggattttgc cacgtatgca	960
tgaggacatc aatgaagagt ggatctctga taaaaccaga tttgcctatg atgggctaaa	1020
acgtcaaaga cttaccgagc caatggtcag aaatgaaaaa gggcttttaa cctatacttc	1080
ttgggaggat gcgctctctc gcgtagctgg aatgttgcag agttttcaag gcaaagatgt	1140
ggcagcaatt gcaggtggct tgggtgatgc tgaagccctg gtagctctca aagatttgct	1200
taatagagtg gactctgaca ccttatgcac tgaagaggtc ttccccactg caggagctgg	1260
cacagatttg cgttccaatt atcttcttaa tactacaatt gctggtgtgg aagaggcaga	1320
tgttgttctt ctggttggtg caaaccacg ttttgaggca ccactgttta atgctagaat	1380
tcgaaagagc tggctgcata atgacttaaa agtggccctt ataggcagtc cagtggacct	1440
cacttacaca tatgaccacc tgggagactc ccccaaaatt cttcaagaca ttgcttcggg	1500
aagccatcca tttagccagg tcctaaagga agctaaaaaa ccaatggtgg ttttaggcag	1560
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aaagattcgg atgactagtg gtgttactgg tgattggaaa gttatgaata tccttcatag	1680
gattgcaagt caagtagctg ctttggacct tggctataag cctgggggtgg aagcaattcg	1740
gaagaaccct cccaaggtgc tgtttctcct gggagcagat ggaggttgta tcacacgaca	1800
ggatttgcca aaggattgtt tcattattta tcaaggacat catggtgatg ttggggctcc	1860
catagctgat gttattctcc caggagctgc ttacacagag aagtctgcta catatgtcaa	1920
cactgagggt agagctcagc agactaaggt agcagtgaca cctcctggct tggcaagaga	1980
agactggaaa attataagag cactctctga gattgctgga atgactcttc catatgatac	2040
tctggatcaa gtaaggaaca gattggaaga agtctctcct aatcttggtc gatatgatga	2100
tattgaaggg gctaattact tccagcaagc aaatgagctc tcaaagctag tgaaccagca	2160
gcttcttgct gaccacttg ttccacctca gctaactata aaagacttct acatgacaga	2220
ttcaattagc agagcctcac agacaatggc caaatgtgtc aaagctgtca cagaggggtgc	2280
ccaggcagta gaggaacat ccatatgctg aagcttctac taggatccca gttttgccgc	2340
agataattaa tggacaactg tagtgcagtg atcctttaca ggtttatttc tttgtaaaaa	2400
aaaataataa taatttgaat catgtaatat ttaaggttat actatgccta tttgaaaatg	2460

atattagtta tcaactttgc agtttgaaaa acatgtattg tgtgtaaagg ttaaataaca	2520
aaactatgca gatgctctta aaagcattga taacctttgt gacgaacata aagagatcct	2580
taaattatga gttgttggct tatcttcata aataatttgt ctgtaaaatg gatgaaatga	2640
aaagagggtc aattaaaacc tacttttttc tagtgctaaa gaaaagattt aagcaccttg	2700
tcaagctggg taaataggaa aaatacataa tcatgctcag atatgtatct aggataatta	2760
taattaataa taatcatagt aacaatggct aatgataatt tagctttatt atatgtgcta	2820
agcactctgg ttttcatgc attatcttct tttgttcttg ctacaaccct gtgagatagt	2880
agtattatct ctttttactg atgaagactg aagcctaggt atattaaata gcttgcccaa	2940
ggccacacag caaaagtcac caactcaaac ctacttctta tttactccaa agcctgttgt	3000
tcttaactgc aacatattat ttcgtctcat taatgttgat tctatagggt gttacttcta	3060
aaaattagta ttgagtttaa tggatgaacac atttttctat tttctcttga atctgcttct	3120
ataatgtcat ggtgatttat gtggcttttt tttttttata agttatacat gtatgcatgt	3180
atacttatga gacctccctt ggaatgaggg aggtctcaag agatataatt tagattctca	3240
ttgatgttct gtattcatta tcctaacacc atctgtagtg ttaaatacaac taaattattt	3300
cagcaatagg agacaaaaca accagctttc ataattttta attgtcaaaa ccaaaaggaa	3360
tcagaataag gatcactgag aatttaaaaa aataaaaaag gaagtaaaaa ttttaca	3417

<210> 113
 <211> 727
 <212> PRT
 <213> Homo sapiens

<400> 113

Met	Leu	Arg	Ile	Pro	Val	Arg	Lys	Ala	Leu	Val	Gly	Leu	Ser	Lys	Ser
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Pro	Lys	Gly	Cys	Val	Arg	Thr	Thr	Ala	Thr	Ala	Ala	Ser	Asn	Leu	Ile
			20					25					30		

Glu	Val	Phe	Val	Asp	Gly	Gln	Ser	Val	Met	Val	Glu	Pro	Gly	Thr	Thr
		35					40					45			

Val	Leu	Gln	Ala	Cys	Glu	Lys	Val	Gly	Met	Gln	Ile	Pro	Arg	Phe	Cys
	50					55					60				

Tyr	His	Glu	Arg	Leu	Ser	Val	Ala	Gly	Asn	Cys	Arg	Met	Cys	Leu	Val
65					70					75				80	

Glu	Ile	Glu	Lys	Ala	Pro	Lys	Val	Val	Ala	Ala	Cys	Ala	Met	Pro	Val
				85					90					95	

Met	Lys	Gly	Trp	Asn	Ile	Leu	Thr	Asn	Ser	Glu	Lys	Ser	Lys	Lys	Ala
			100					105					110		

Arg Glu Gly Val Met Glu Phe Leu Leu Ala Asn His Pro Leu Asp Cys
 115 120 125
 Pro Ile Cys Asp Gln Gly Gly Glu Cys Asp Leu Gln Asp Gln Ser Met
 130 135 140
 Met Phe Gly Asn Asp Arg Ser Arg Phe Leu Glu Gly Lys Arg Ala Val
 145 150 155 160
 Glu Asp Lys Asn Ile Gly Pro Leu Val Lys Thr Ile Met Thr Arg Cys
 165 170 175
 Ile Gln Cys Thr Arg Cys Ile Arg Phe Ala Ser Glu Ile Ala Gly Val
 180 185 190
 Asp Asp Leu Gly Thr Thr Gly Arg Gly Asn Asp Met Gln Val Gly Thr
 195 200 205
 Tyr Ile Glu Lys Met Phe Met Ser Glu Leu Ser Gly Asn Ile Ile Asp
 210 215 220
 Ile Cys Pro Val Gly Ala Leu Thr Ser Lys Pro Tyr Ala Phe Thr Ala
 225 230 235 240
 Arg Pro Trp Glu Thr Arg Lys Thr Glu Ser Ile Asp Val Met Asp Ala
 245 250 255
 Val Gly Ser Asn Ile Val Val Ser Thr Arg Thr Gly Glu Val Met Arg
 260 265 270
 Ile Leu Pro Arg Met His Glu Asp Ile Asn Glu Glu Trp Ile Ser Asp
 275 280 285
 Lys Thr Arg Phe Ala Tyr Asp Gly Leu Lys Arg Gln Arg Leu Thr Glu
 290 295 300
 Pro Met Val Arg Asn Glu Lys Gly Leu Leu Thr Tyr Thr Ser Trp Glu
 305 310 315 320
 Asp Ala Leu Ser Arg Val Ala Gly Met Leu Gln Ser Phe Gln Gly Lys
 325 330 335
 Asp Val Ala Ala Ile Ala Gly Gly Leu Val Asp Ala Glu Ala Leu Val
 340 345 350
 Ala Leu Lys Asp Leu Leu Asn Arg Val Asp Ser Asp Thr Leu Cys Thr
 355 360 365
 Glu Glu Val Phe Pro Thr Ala Gly Ala Gly Thr Asp Leu Arg Ser Asn
 370 375 380
 Tyr Leu Leu Asn Thr Thr Ile Ala Gly Val Glu Glu Ala Asp Val Val
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385					390					395				400
Leu	Leu	Val	Gly	Thr	Asn	Pro	Arg	Phe	Glu	Ala	Pro	Leu	Phe	Asn
				405					410					415
Arg	Ile	Arg	Lys	Ser	Trp	Leu	His	Asn	Asp	Leu	Lys	Val	Ala	Leu
			420					425					430	Ile
Gly	Ser	Pro	Val	Asp	Leu	Thr	Tyr	Thr	Tyr	Asp	His	Leu	Gly	Asp
		435					440					445		Ser
Pro	Lys	Ile	Leu	Gln	Asp	Ile	Ala	Ser	Gly	Ser	His	Pro	Phe	Ser
	450					455					460			Gln
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Leu	Gln	Arg	Asn	Asp	Gly	Ala	Ala	Ile	Leu	Ala	Ala	Val	Ser	Ser
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			500					505					510	Val
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Ala	Pro	Ile	Ala	Asp	Val	Ile	Leu	Pro	Gly	Ala	Ala	Tyr	Thr	Glu
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Ser	Ala	Thr	Tyr	Val	Asn	Thr	Glu	Gly	Arg	Ala	Gln	Gln	Thr	Lys
		595					600					605		Val
Ala	Val	Thr	Pro	Pro	Gly	Leu	Ala	Arg	Glu	Asp	Trp	Lys	Ile	Ile
	610					615					620			Arg
Ala	Leu	Ser	Glu	Ile	Ala	Gly	Met	Thr	Leu	Pro	Tyr	Asp	Thr	Leu
625					630					635				640
Gln	Val	Arg	Asn	Arg	Leu	Glu	Glu	Val	Ser	Pro	Asn	Leu	Val	Arg
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Asp	Asp	Ile	Glu	Gly	Ala	Asn	Tyr	Phe	Gln	Gln	Ala	Asn	Glu	Leu
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Leu Thr Ile Lys Asp Phe Tyr Met Thr Asp Ser Ile Ser Arg Ala Ser
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<213> Homo sapiens

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<400> 116

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35 40 45

Leu Glu Val Pro Ala Arg Asp Arg Ser Tyr Ala Trp Leu Leu Ser Trp
50 55 60

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

Pro Ser Pro Gly Asn His Phe Ile Trp Tyr Arg Gly Lys Trp Ile Arg
100 105 110

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

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

Asn Pro Lys Trp Tyr Thr Asp Arg Gly Ile Pro Tyr Arg Arg Gly Tyr
210 215 220

Leu Leu Tyr Gly Pro Pro Gly Cys Gly Lys Ser Ser Phe Ile Thr Ala
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Gly Glu Leu Glu His Ser Ile Cys Leu Leu Ser Leu Thr Asp Ser Ser
245 250 255

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 Phe Ser Gly Leu Leu Asn Ala Leu Asp Gly Val Ala Ser Thr Glu Ala
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 Ser His Trp Gln Leu Thr Gln Met Phe Gln Arg Phe Tyr Pro Gly Gln
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 Ala Pro Ser Leu Ala Glu Asn Phe Ala Glu His Val Leu Arg Ala Thr
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<400> 118

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35 40 45

Ala Gly Gly Leu Leu Ser Pro Ala Arg Leu Tyr Ala Ile Ala Ala Lys
50 55 60

Glu Lys Asp Ile Gln Glu Glu Ser Thr Phe Ser Ser Arg Lys Ile Ser
65 70 75 80

Asn Gln Phe Asp Trp Ala Leu Met Arg Leu Asp Leu Ser Val Arg Arg
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Thr Gly Arg Ile Pro Lys Lys Leu Leu Gln Lys Val Phe Asn Asp Thr
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Cys Arg Ser Gly Gly Leu Gly Gly Ser His Ala Leu Leu Leu Arg
115 120 125

Ser Cys Gly Ser Leu Leu Pro Glu Leu Lys Leu Glu Glu Arg Thr Glu
130 135 140

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

Asp Val Ser His Tyr Asn Ala Leu Leu Lys Val Tyr Leu Gln Asn Glu
165 170 175

Tyr Lys Phe Ser Pro Thr Asp Phe Leu Ala Lys Met Glu Glu Ala Asn
180 185 190

Ile Gln Pro Asn Arg Val Thr Tyr Gln Arg Leu Ile Ala Ser Tyr Cys
195 200 205

Asn Val Gly Asp Ile Glu Gly Ala Ser Lys Ile Leu Gly Phe Met Lys
210 215 220

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 Ile Leu Leu Ala Cys Pro Val Ser Lys Glu Asp Gly Pro Ser Val Phe
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Arg Arg Ser Met Asn Ile Asn Leu Trp Ser Glu Ile Thr Glu Leu Leu
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Tyr Lys Asp Gly Arg Tyr Cys Gln Glu Pro Arg Gly Pro Thr Glu Ala
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Val Gln Ala Lys Glu Glu His Leu Arg Gln Tyr Phe His Gln Leu Glu
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Lys Met Asn Val Lys Ile Pro Glu Asn Ile Tyr Arg Gly Ile Arg Asn
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Ser Ser Glu Leu Glu Ser Thr Leu Glu Thr Leu Lys Ala Glu Asn Gln
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Pro Ile Arg Asp Val Leu Lys Gln Leu Ile Leu Val Leu Cys Ser Glu
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Glu Asn Met Gln Lys Ala Leu Glu Leu Lys Ala Lys Tyr Glu Ser Asp
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Met Val Thr Gly Gly Tyr Ala Ala Leu Ile Asn Leu Cys Cys Arg His
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Asp Ser Ser Ala Val Leu Asp Thr Gly Lys Tyr Val Gly Leu Val Arg
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Glu Met Lys Glu Lys Asp Val Leu Ile Lys Asp Thr Thr Ala Leu Ser
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Phe Phe His Met Leu Asn Gly Ala Ala Leu Arg Gly Glu Ile Glu Thr
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Val Lys Gln Leu His Glu Ala Ile Val Thr Leu Gly Leu Ala Glu Pro
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Ser Thr Asn Ile Ser Phe Pro Leu Val Thr Val His Leu Glu Lys Gly
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Asn	Asp 1100	Ala	Ala	Asn	Ser	Arg 1105	Leu	Ile	Ile	Thr	Gln 1110	Val	Arg	Arg
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Glu	Glu 1220	Gln	Leu	Glu	Pro	Ala 1225	Val	Glu	Lys	Ile	Ser 1230	Ile	Met	Ala
Glu	Arg 1235	Leu	Ala	Asn	Gln	Phe 1240	Ala	Ile	Tyr	Lys	Pro 1245	Val	Thr	Asp
Phe	Phe 1250	Leu	Gln	Leu	Val	Asp 1255	Ala	Gly	Lys	Val	Asp 1260	Asp	Ala	Arg
Ala	Leu 1265	Leu	Gln	Arg	Cys	Gly 1270	Ala	Ile	Ala	Glu	Gln 1275	Thr	Pro	Ile
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Ser	Thr 1295	Val	Lys	Ser	Val	Leu 1300	Glu	Leu	Ile	Pro	Glu 1305	Leu	Asn	Glu
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Lys	Asp 1325	Val	Thr	Ser	Ala	Lys 1330	Ala	Leu	Tyr	Glu	His 1335	Leu	Thr	Ala
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