

SEQUENCE LISTING

<110> Eutilex Co., Ltd.

<120> CHIMERIC ANTIGEN RECEPTOR THAT BINDS HLA-DR AND CAR-T CELL

<130> 47683-0032002

<140> 16/715,462

<141> 2019-12-16

<150> 62/717,267

<151> 2018-08-10

<150> 62/867,503

<151> 2019-06-27

<150> PCT/KR2019/010244

<151> 2019-08-12

<160> 30

<170> PatentIn version 3.5

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<213> Artificial

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Gln Gln Tyr Trp Ser Thr Pro Phe Thr
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<210> 7

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<400> 7

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
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Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

Ser Val His Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
35 40 45

Gly Met Ile Trp Gly Gly Gly Ser Thr Asp Tyr Asn Ser Ala Leu Lys
50 55 60

Ser Arg Leu Thr Ile Ser Lys Asp Asn Ser Lys Asn Gln Val Ser Leu
65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Asn Glu Gly Asp Thr Thr Ala Gly Thr Trp Phe Ala Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser

115

120

<210> 8

<211> 107

<212> PRT

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<220>

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<400> 8

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

Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Asp His Ile Asn Asn Trp
 20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45

Ser Gly Ala Thr Ser Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Lys Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Trp Ser Thr Pro Phe
 85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 9

<211> 243

<212> PRT

<213> Artificial

<220>

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<400> 9

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20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Ser Gly Ala Thr Ser Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Lys Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Trp Ser Thr Pro Phe
85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly Gly Gly Gly Ser
100 105 110

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu Gln Glu
115 120 125

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

Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr Ser Val His Trp Ile Arg
145 150 155 160

Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu Gly Met Ile Trp Gly Gly
165 170 175

Gly Ser Thr Asp Tyr Asn Ser Ala Leu Lys Ser Arg Leu Thr Ile Ser
180 185 190

Lys Asp Asn Ser Lys Asn Gln Val Ser Leu Lys Leu Ser Ser Val Thr
195 200 205

Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asn Glu Gly Asp Thr
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Thr Ala Gly Thr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
225 230 235 240

Val Ser Ser

<210> 10
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<212> PRT
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<400> 10

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
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Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
20 25 30

Ser Val His Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Met Ile Trp Gly Gly Gly Ser Thr Asp Tyr Asn Ser Ala Leu Lys
50 55 60

Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Asn Glu Gly Asp Thr Thr Ala Gly Thr Trp Phe Ala Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

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<212> PRT
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Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Asp His Ile Asn Asn Trp
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Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Leu
35 40 45

Tyr Gly Ala Thr Arg Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Trp Ser Thr Pro Phe
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105

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<220>
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Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Asp His Ile Asn Asn Trp
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Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Leu
35 40 45

Tyr Gly Ala Thr Arg Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Trp Ser Thr Pro Phe
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Gly Gly Gly Gly Ser
100 105 110

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu Gln Glu
115 120 125

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

Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr Ser Val His Trp Ile Arg
145 150 155 160

Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile Gly Met Ile Trp Gly Gly
165 170 175

Gly Ser Thr Asp Tyr Asn Ser Ala Leu Lys Ser Arg Val Thr Ile Ser
180 185 190

Val Asp Thr Ser Lys Asn Gln Phe Ser Leu Lys Leu Ser Ser Val Thr
195 200 205

Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asn Glu Gly Asp Thr
210 215 220

Thr Ala Gly Thr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
225 230 235 240

Val Ser Ser

<210> 13
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<212> PRT
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<220>
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<400> 13

Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe Lys Gln Pro Phe Met
1 5 10 15

Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly Cys Ser Cys Arg Phe
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Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu
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<213> Artificial

<220>

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Arg Phe Ser Val Val Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe
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Lys Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly
20 25 30

Cys Ser Cys Arg Phe Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu
35 40 45

<210> 15

<211> 1401

<212> DNA

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<220>

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<400> 15

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atcacctgca aggccagtga ccacatcaac aactggctgg cctgggtatca acagaaacca 120

ggaaaagctc cgaaactact gatcagcggc gccacctctc tggaaaccgg agtcccttct 180

cgcttctctg gttccggatc tgggaaggat tacactctga ccatcagcag tctgcagccg 240

gaagacttcg caacttatta ctgtcagcag tactgggtcca ccccttcac cttcggacag	300
ggtaccaagg tggagatcaa aggcggaggc ggatctggcg gcggaggaag tggcggaggg	360
ggatctcagg tgcagctgca ggagtcgggc ccaggactgg tgaagccttc ggagaccctg	420
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cagccccag ggaagggact ggagtggctg gggatgatct ggggaggcgg cagcaccgac	540
tacaacagcg ccctgaagtc ccgactgacc atatcaaagg acaactccaa gaaccaggtg	600
tccttgaagc tgagctctgt gaccgctgcg gacacggccg tgtattactg tgcgagaaat	660
gagggcgata ccaccgccgg cacttggttt gcctattggg gccagggaac cctggtcacc	720
gtctcctcaa ccacgacgcc agcgccgcga ccaccaacac cggcgccac catcgctagc	780
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gtccttctcc tgtcactggt tatcaccctt tactgcaaac ggggcagaaa gaaactcctg	960
tatatattca aacaaccatt tatgagacca gtacaaacta ctcaagagga agatggctgt	1020
agctgccgat ttccagaaga agaagaagga ggatgtgaac tgagagtga gttcagcagg	1080
agcgcagacg ccccgcgta caagcagggc cagaaccagc tctataacga gctcaatcta	1140
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ggaaagccga gaaggaagaa ccctcaggaa ggcctgtaca atgaactgca gaaagataag	1260
atggcggagg cctacagtga gattgggatg aaaggcgagc gccggagggg caaggggcac	1320
gatggccttt accaggtct cagtacagcc accaaggaca cctacgacgc ccttcacatg	1380
caggccctgc cccctcgcta a	1401

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<400> 16

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ggaaaagctc cgaaactact gatcagcggc gccacctctc tggaaaccgg agtcccttct	180
cgcttctctg gttccggatc tgggaaggat tacactctga ccatcagcag tctgcagccg	240
gaagacttcg caacttatta ctgtcagcag tactgggtcca ccccttcac cttcggacag	300
ggtaccaagg tggagatcaa aggcggaggc ggatctggcg gcggaggaag tggcggaggg	360
ggatctcagg tgcagctgca ggagtcgggc ccaggactgg tgaagccttc ggagaccctg	420
tccctcacct gcactgtctc tggtttctcc ctgagtcggt actctgtgca ttggatccgg	480
cagccccag ggaagggact ggagtggctg gggatgatct ggggaggcgg cagcaccgac	540
tacaacagcg ccctgaagtc ccgactgacc atatcaaagg acaactccaa gaaccaggtg	600
tccttgaagc tgagctctgt gaccgctgcg gacacggccg tgtattactg tgcgagaaat	660

gagggcgata ccaccgccgg cacttgggtt gcctattggg gccagggAAC cctggtcacc	720
gtctcctcaa ccacgacgcc agcgccgcga ccaccaacac cggcgccac catcgctagc	780
cagcccctgt ccctgcgccc agaggcgtgc cggccagcgg cggggggcgc agtgcacacg	840
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gtccttctcc tgtcactggt tatcaccctt tactgccgtt tctctgttgt taaacggggc	960
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 <211> 1398
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 <213> Artificial

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 gatggaactg ttaaactcct gatctaccat acatcaagat tacactcagg agtcccatca 180
 aggttcagtg gcagtgggtc tggaacagat tattctctca ccattagcaa cctggagcaa 240
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 cagcctccac gaaagggctt ggagtggctg ggagtaatat ggggtagtga aaccacatac 540
 tataattcag ctctcaaatc cagactgacc atcatcaagg acaactccaa gagccaagtt 600
 ttcttaaaaa tgaacagtct gcaaactgat gacacagcca ttactactg tgccaaacat 660
 tattactacg gtggtagcta tgctatggac tactggggcc aaggaaacctc agtcaccgtc 720
 tcctcaacca cgacgccagc gccgcgacca ccaacaccgg cgcccaccat cgctagccag 780
 cccctgtccc tgcgcccaga ggcgtgccgg ccagcggcgg ggggcgcagt gcacacgagg 840
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 cttctcctgt cactggttat caccctttac tgcaaacggg gcagaaagaa actcctgtat 960
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 tgccgatttc cagaagaaga agaaggagga tgtgaactga gagtgaagtt cagcaggagc 1080
 gcagacgccc ccgcgtacaa gcagggccag aaccagctct ataacgagct caatctagga 1140

cgaagagagg agtacgatgt tttggacaag agacgtggcc gggaccctga gatgggggga	1200
aagccgagaa ggaagaaccc tcaggaaggc ctgtacaatg aactgcagaa agataaatg	1260
gcggaggcct acagtgagat tgggatgaaa ggcgagcgcc ggaggggcaa ggggcacgat	1320
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gccctgcccc ctcgctaa	1398

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atcagttgca gggcaagtca ggacattagt aaatatttaa attggtatca gcagaaacca	120
gatggaactg ttaaactcct gatctaccat acatcaagat tacactcagg agtcccatca	180
aggttcagtg gcagtgggtc tggaacagat tattctctca ccattagcaa cctggagcaa	240
gaagatattg ccacttactt ttgccaacag ggtaatacgc ttccgtacac gttcggaggg	300
gggaccaagc tggagatcac aggtggcggg ggctcgggcg gtggtgggtc ggggtggcggc	360
ggatctgagg tgaaactgca ggagtcagga cctggcctgg tggcgccctc acagagcctg	420
tccgtcacat gcactgtctc aggggtctca ttacccgact atggtgtaag ctggattcgc	480
cagcctccac gaaaggggtct ggagtggctg ggagtaatat ggggtagtga aaccacatac	540
tataattcag ctctcaaadc cagactgacc atcatcaagg acaactccaa gagccaagtt	600
ttcttaaaaa tgaacagtct gcaaactgat gacacagcca ttactactg tgccaaacat	660
tattactacg gtggtagcta tgctatggac tactggggcc aaggaaacctc agtcaccgtc	720
tcctcaacca cgacgccagc gccgcgacca ccaacaccgg cgcccaccat cgctagccag	780
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gggctggact tgcctgtga tatctacatc tgggcgccct tggccgggac ttgtggggtc	900
cttctcctgt cactgggttat caccctttac tgccgtttct ctgttggtta acgggggcaga	960
aagaaactcc tgtatatatt caaacaacca tttatgagac cagtacaaac tactcaagag	1020
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cagaaagata agatggcgga ggcctacagt gagattggga tgaaaggcga gcgccggagg	1320
ggcaaggggc acgatggcct ttaccagggt ctcagtacag ccaccaagga cacctacgac	1380
gcccttcaca tgcaggccct gccccctcgc taagtcgaca	1420

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 <211> 1184
 <212> DNA
 <213> Artificial

<220>
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aaagtgatgt cgtgtactgg ctccgccttt ttcccagggt tgggggagaa ccgtatataa	180
gtgcagtagt cgccgtgaac gttctttttc gcaacgggtt tgccgccaga acacaggtaa	240
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gaattacttc cacctggctg cagtacgtga ttcttgatcc cgagcttcgg gttggaagtg	360
ggtgggagag ttcgaggcct tgcgcttaag gagccccttc gcctcgtgct tgagttgagg	420

cctggcctgg gcgctggggc cgccgcgtgc gaatctggtg gcaccttcgc gcctgtctcg	480
ctgctttcga taagtctcta gccatttaaa atttttgatg acctgctgcg acgctttttt	540
tctggcaaga tagtcttgta aatgcggggc aagatctgca cactggtatt tcggtttttg	600
gggccgcggg cgggcgacggg gcccgtgcgt cccagcgcac atgttcggcg aggcggggcc	660
tgcgagcgcg gccaccgaga atcggacggg ggtagtctca agctggccgg cctgctctgg	720
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caccagttgc gtgagcggaa agatggccgc ttcccggccc tgctgcaggg agtcaaaat	840
ggaggacgcg gcgctcggga gagcggggcg gtgagtcacc cacacaaagg aaaagggcct	900
ttccgtcctc agccgtcgct tcatgtgact ccactgagta ccgggcgccg tccaggcacc	960
tcgattagtt ctcgagcttt tggagtacgt cgtctttagg ttggggggag gggttttatg	1020
cgatggagtt tccccacact gagtgggtgg agactgaagt taggccagct tggcacttga	1080
tgtaattctc cttggaattt gccctttttg agtttggatc ttggttcatt ctcaagcctc	1140
agacagtggg tcaaagtttt tttcttccat ttcagggtgc gtga	1184

<210> 20
 <211> 69
 <212> DNA
 <213> Artificial

<220>
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<400> 20	
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gccaggccg	69

<210> 21
 <211> 24
 <212> DNA
 <213> Artificial

<220>
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<400> 21
 gactacaagg acgacgatga caag 24

<210> 22
 <211> 726
 <212> DNA
 <213> Artificial

<220>
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<400> 22
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 gatggaactg ttaaactcct gatctaccat acatcaagat tacactcagg agtcccatca 180
 aggttcagtg gcagtgggtc tggaacagat tattctctca ccattagcaa cctggagcaa 240
 gaagatattg ccacttactt ttgccaacag ggtaatacgc ttccgtacac gttcggaggg 300
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 tataattcag ctctcaaatac cagactgacc atcatcaagg acaactccaa gagccaagtt 600
 ttcttaaaaa tgaacagtct gcaaactgat gacacagcca ttactactg tgccaaacat 660
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<210> 23
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<211> 339
<212> DNA
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<220>
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cgggaccctg agatgggggg aaagccgaga aggaagaacc ctcaggaagg cctgtacaat 180
gaactgcaga aagataagat ggcggaggcc tacagtgaga ttgggatgaa aggcgagcgc 240
cggagggggca aggggcacga tggcctttac cagggtctca gtacagccac caaggacacc 300
tacgacgccc ttcacatgca ggccctgccc cctcgctaa 339

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<211> 591
<212> DNA
<213> Artificial

<220>
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<400> 25
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Ser Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

Ser Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
35 40 45

Gly Met Ile Trp Gly Gly Gly Ser Thr Asp Tyr Asn Ser Ala Leu Lys
50 55 60

Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Leu
65 70 75 80

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

Gly Tyr Ile Tyr Tyr Asn Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
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Arg Val Met Gly Ile Ala Ala Ala Gly Tyr Tyr Phe Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

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Gly Arg Val Thr Ile Thr Cys Lys Ala Ser Asp His Ile Asn Asn Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Asn Ala Pro Arg Leu Leu Ile
35 40 45

Ser Gly Ala Thr Ser Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Lys Asp Tyr Thr Leu Ser Ile Thr Ser Leu Gln Thr

65		70		75		80
Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Tyr Trp Ser Thr Pro Phe						
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Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys						
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Val Asn Thr Ala						
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Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile						
		35		40		45
Tyr Ser Ala Ser Phe Leu Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly						
		50		55		60
Ser Arg Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro						
65		70		75		80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Tyr Thr Thr Pro Pro						
		85		90		95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys						
		100		105		