

SEQUENCE LISTING

<110> NOVARTIS AG

<120> METHOD OF MANUFACTURING BISPECIFIC ANTIBODIES, BISPECIFIC ANTIBODIES AND THERAPEUTIC USE OF SUCH ANTIBODIES

<130> PAT057716-WO-PCT

<140>

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<150> 62/518,090

<151> 2017-06-12

<160> 104

<170> PatentIn version 3.5

<210> 1

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 1

Ser Tyr Ala Ile Ser

1 5

<210> 2

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 2

Asn Ile Ile Pro Met Thr Gly Gln Thr Tyr Tyr Ala Gln Lys Phe Gln

1 5 10 15

Gly

<210> 3
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 3
Ala Ala Tyr His Pro Leu Val Phe Asp Asn
1 5 10

<210> 4
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

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Gly Gly Thr Phe Lys Ser Tyr
1 5

<210> 5
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 5
Ile Pro Met Thr Gly Gln
1 5

<210> 6
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
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<223> /note="Description of Artificial Sequence: Synthetic peptide"

peptide"

<400> 6

Ala Ala Tyr His Pro Leu Val Phe Asp Asn
1 5 10

<210> 7

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

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Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Ser Tyr
20 25 30

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

Gly Asn Ile Ile Pro Met Thr Gly Gln Thr Tyr Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Ala Ala Tyr His Pro Leu Val Phe Asp Asn Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 8

<211> 356

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 8

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agctgcaagg  ccagcggcgg  caccttcaag  agctacgcca  tcagctgggt  gaggcaggcc      120
cccgccagg  gcctggagtg  gatgggcaac  atcatcccca  tgaccggcca  gacctactac      180
gcccagaagt  tccagggcag  ggtgaccatc  accgccgacg  agagcaccag  caccgcctac      240
atggagctga  gcagcctgag  gagcgaggac  accgccgtgt  actactgcgc  cagggccgcc      300
taccaccccc  tggtgttcga  caactgggcc  agggcacctt  ggtgaccgtg  agcagc          356
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<210> 9

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 9

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1              5              10             15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Ser Tyr
              20             25             30

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

Gly Asn Ile Ile Pro Met Thr Gly Gln Thr Tyr Tyr Ala Gln Lys Phe
              50             55             60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65              70              75             80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
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85

90

95

Ala Arg Ala Ala Tyr His Pro Leu Val Phe Asp Asn Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
 115 120 125

Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu
 130 135 140

Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160

Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
 165 170 175

Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
 180 185 190

Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
 195 200 205

Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys
 210 215 220

Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro
 225 230 235 240

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 245 250 255

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
 260 265 270

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 275 280 285

Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val
 290 295 300

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
305 310 315 320

Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys
325 330 335

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
340 345 350

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
355 360 365

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
370 375 380

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
385 390 395 400

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
405 410 415

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
420 425 430

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

<210> 10

<211> 1347

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

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cccggccagg gcctggagtg gatgggcaac atcatcccca tgaccggcca gacctactac	180
gcccagaagt tccagggcag ggtgaccatc accgccgacg agagcaccag caccgcctac	240
atggagctga gcagcctgag gagcaggac accgccgtgt actactgcgc cagggccgcc	300
taccaccccc tgggtgttcga caactggggc cagggcaccc tggtgaccgt gagcagcgcc	360
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accgccgccc tgggctgcct ggtgaaggac tacttccccg agcccgtgac cgtgagctgg	480
aacagcggcg ccctgaccag cggcgtgcac accttccccg ccgtgctgca gagcagcggc	540
ctgtacagcc tgagcagcgt ggtgaccgtg cccagcagca gcctgggcac ccagacctac	600
atctgcaacg tgaaccacaa gcccagcaac accaaggtgg acaagagggt ggagcccaag	660
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tacaagtgca aggtgagcaa caaggccctg cccgccccca tcgagaagac catcagcaag	1020
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accaagaacc aggtgagcct gacctgcctg gtgaagggt tctaccccag cgacatcgcc	1140
gtggagtggg agagcaacgg ccagcccag aacaactaca agaccacccc ccccgctgctg	1200
gacagcgacg gcagcttctt cctgtacagc aagctgaccg tggacaagag caggtggcag	1260
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<210> 11

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 11
Ser Gly Ser Ser Ser Asn Ile Gly Asn His Tyr Val Asn
1 5 10

<210> 12
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 12
Arg Asn Asn His Arg Pro Ser
1 5

<210> 13
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 13
Gln Ser Trp Asp Tyr Ser Gly Phe Ser Thr Val
1 5 10

<210> 14
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 14
Ser Ser Ser Asn Ile Gly Asn His Tyr
1 5

<210> 15
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 15
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<210> 16
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 16
Trp Asp Tyr Ser Gly Phe Ser Thr
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<210> 17
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 17
Asp Ile Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln
1 5 10 15

Arg Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn His
20 25 30

Tyr Val Asn Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu
35 40 45

Ile Tyr Arg Asn Asn His Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
 50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln
 65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Trp Asp Tyr Ser Gly
 85 90 95

Phe Ser Thr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
 100 105 110

<210> 18
 <211> 330
 <212> DNA
 <213> Artificial Sequence

<220>
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 <223> /note="Description of Artificial Sequence: Synthetic
 polynucleotide"

<400> 18
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 cccggcaccg cccctaagct gctgatctat agaaacaatc accggcctag cggcgtgccc 180
 gatagggttta gcggatctaa gtcaggcact agcgctagtc tggctatcac cggactgcag 240
 tcagaggacg aggccgacta ctactgtcag tcctgggact atagcggctt tagcaccgtg 300
 ttcggcggag gcactaagct gaccgtgctg 330

<210> 19
 <211> 216
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic
 polypeptide"

<400> 19
 Asp Ile Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln

1	5	10	15
Arg Val Thr	Ile Ser Cys Ser Gly	Ser Ser Ser Asn Ile Gly	Asn His
	20	25	30
Tyr Val Asn Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu			
	35	40	45
Ile Tyr Arg Asn Asn His Arg Pro Ser Gly Val Pro Asp Arg Phe Ser			
	50	55	60
Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln			
65	70	75	80
Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Trp Asp Tyr Ser Gly			
	85	90	95
Phe Ser Thr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln			
	100	105	110
Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu			
	115	120	125
Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr			
	130	135	140
Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys			
145	150	155	160
Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr			
	165	170	175
Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His			
	180	185	190
Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys			
	195	200	205
Thr Val Ala Pro Thr Glu Cys Ser			
	210	215	

<210> 20
<211> 648
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

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cccggcaccg cccctaagct gctgatctat agaaacaatc accggcctag cggcgtgccc 180
gatagggttta gcggatctaa gtcaggcact agcgtagtc tggctatcac cggactgcag 240
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ctgttcccc ccagcagcga ggagctgcag gccacaagg ccaccctggt gtgcctgata 420
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gccggcgtgg agaccaccac cccagcaag cagagcaaca acaagtacgc cgccagcagc 540
tacctgagcc tgacccccga gcagtgggaag agccacaggt cctacagctg ccaggtgacc 600
cacgagggca gcaccgtgga aaagaccgtg gcccgaaccg agtcagc 648

<210> 21
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 21
Val Tyr Gly Met Asn
1 5

<210> 22
<211> 17

<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 22
Ile Ile Trp Tyr Asp Gly Asp Asn Gln Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 23
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 23
Asp Leu Arg Thr Gly Pro Phe Asp Tyr
1 5

<210> 24
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 24
Gly Phe Thr Phe Ser Val Tyr
1 5

<210> 25
<211> 6
<212> PRT
<213> Artificial Sequence

<220>

<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 25
Trp Tyr Asp Gly Asp Asn
1 5

<210> 26
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 26
Asp Leu Arg Thr Gly Pro Phe Asp Tyr
1 5

<210> 27
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 27
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
1 5 10 15

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

Gly Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Ile Ile Trp Tyr Asp Gly Asp Asn Gln Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Asp Leu Arg Thr Gly Pro Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 28
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 28
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cccggcaagg gcctggagtg ggtggccatc atctggtacg acggcgacaa ccagtactac 180
gccgacagcg tgaagggcag gttcaccatc agcagggaca acagcaagaa caccctgtac 240
ctgcagatga acggcctgag ggccgaggac accgccgtgt actactgcgc cagggacctg 300
aggaccggcc ccttcgacta ctggggccag ggcaccctgg tgaccgtgag cagc 354

<210> 29
<211> 448
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 29
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
1 5 10 15

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

Gly Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Ile Ile Trp Tyr Asp Gly Asp Asn Gln Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Asp Leu Arg Thr Gly Pro Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
115 120 125

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
130 135 140

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
145 150 155 160

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
165 170 175

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
180 185 190

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr
210 215 220

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser

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

<210> 30
 <211> 1344
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic
 polynucleotide"

<400> 30
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 cccggcaagg gcctggagtg ggtggccatc atctggtacg acggcgacaa ccagtactac 180
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 aggaccggcc ctttcgacta ctggggccag ggcaccctgg tgaccgtgag cagcgccagc 360
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 tgcaacgtga accacaagcc cagcaacacc aaggtggaca agagggtgga gcccaagagc 660
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 gtgttcctgt tccccccaa gcccaaggac accctgatga tcagcaggac ccccgaggtg 780
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agcgacggca gcttcttcct gtacagcaag ctgaccgtgg acaagagcag gtggcagcag 1260
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agcctgagcc tgagccccgg caag 1344

<210> 31
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 31
Arg Ala Ser Gln Ser Ile Gly Ser Ser Leu His
1 5 10

<210> 32
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
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<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 32
Tyr Ala Ser Gln Ser Phe Ser
1 5

<210> 33
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 33
His Gln Ser Ser Ser Leu Pro Phe Thr
1 5

<210> 34

<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 34
Ser Gln Ser Ile Gly Ser Ser
1 5

<210> 35
<211> 3
<212> PRT
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<220>
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<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 35
Tyr Ala Ser
1

<210> 36
<211> 6
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<220>
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<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 36
Ser Ser Ser Leu Pro Phe
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<210> 37
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 37

Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Ser Ser
20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile
35 40 45

Lys Tyr Ala Ser Gln Ser Phe Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Glu Ala
65 70 75 80

Glu Asp Ala Ala Ala Tyr Tyr Cys His Gln Ser Ser Ser Leu Pro Phe
85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

<210> 38

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 38

gagatcgtgc tgaccagtc acccgacttt cagtcagtga cccctaaaga aaaagtgact 60
atcacctgta gggcctccca gtctatcggc tctagcctgc actggtatca gcagaagccc 120
gatcagtcac ctaagctgct gattaagtac gcctctcagt ccttttagcgg cgtgccctct 180
aggttttagcg gctcaggctc aggcaccgac ttcaccctga ctatcaatag cctggaagcc 240
gaggacgccg ctgcctacta ctgtcatcag tcaagtagcc tgcccttcac cttcgggcct 300
ggcactaaag tggatattaa g 321

<210> 39
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 39
Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Ser Ser
20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile
35 40 45

Lys Tyr Ala Ser Gln Ser Phe Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Glu Ala
65 70 75 80

Glu Asp Ala Ala Ala Tyr Tyr Cys His Gln Ser Ser Ser Leu Pro Phe
85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys Arg Thr Val Ala Ala
100 105 110

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

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

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

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser

165

170

175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
 180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
 195 200 205

Phe Asn Arg Gly Glu Cys
 210

<210> 40

<211> 642

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
 polynucleotide"

<400> 40

gagatcgtgc tgaccagtc acccgacttt cagtcagtga cccctaaaga aaaagtgact	60
atcacctgta gggcctccca gtctatcggc tctagcctgc actggtatca gcagaagccc	120
gatcagtcac ctaagctgct gattaagtac gcctctcagt cctttagcgg cgtgccctct	180
aggttttagcg gctcaggctc aggcaccgac ttcaccctga ctatcaatag cctggaagcc	240
gaggacgccg ctgcctacta ctgtcatcag tcaagtagcc tgcccttcac cttcggccct	300
ggcactaaag tggatattaa gcgtacggtg gccgctccca gcgtgttcat cttccccccc	360
agcgacgagc agctgaagag cggcaccgcc agcgtggtgt gcctgctgaa caacttctac	420
ccccgggagg ccaaggtgca gtggaagggtg gacaacgccc tgcagagcgg caacagccag	480
gagagcgtca ccgagcagga cagcaaggac tccacctaca gcctgagcag caccctgacc	540
ctgagcaagg ccgactacga gaagcataag gtgtacgcct gcgaggtgac ccaccagggc	600
ctgtccagcc ccgtgaccaa gagcttcaac aggggcgagt gc	642

<210> 41

<211> 10

<212> PRT

<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 41
Gly Phe Thr Phe Ser Val Tyr Gly Met Asn
1 5 10

<210> 42
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 42
Ile Ile Trp Tyr Asp Gly Asp Asn Gln Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 43
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 43
Asp Leu Arg Thr Gly Pro Phe Asp Tyr
1 5

<210> 44
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

peptide"

<400> 44

Val Tyr Gly Met Asn

1 5

<210> 45

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 45

Ile Ile Trp Tyr Asp Gly Asp Asn Gln Tyr Tyr Ala Asp Ser Val Lys

1 5 10 15

Gly

<210> 46

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 46

Asp Leu Arg Thr Gly Pro Phe Asp Tyr

1 5

<210> 47

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 47

Gly Phe Thr Phe Ser Val Tyr

1

5

<210> 48

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 48

Trp Tyr Asp Gly Asp Asn

1

5

<210> 49

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 49

Asp Leu Arg Thr Gly Pro Phe Asp Tyr

1

5

<210> 50

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 50

Gly Phe Thr Phe Ser Val Tyr Gly

1

5

<210> 51

<211> 8

<212> PRT

<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 51
Ile Trp Tyr Asp Gly Asp Asn Gln
1 5

<210> 52
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 52
Ala Arg Asp Leu Arg Thr Gly Pro Phe Asp Tyr
1 5 10

<210> 53
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 53
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
1 5 10 15

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

Gly Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Ile Ile Trp Tyr Asp Gly Asp Asn Gln Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr

65		70		75		80									
Leu	Gln	Met	Asn	Gly	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85						90					95	
Ala	Arg	Asp	Leu	Arg	Thr	Gly	Pro	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Leu	Val	Thr	Val	Ser	Ser										
			115												

<210> 54
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 54	
caggtgcagc tggtggaatc aggcggcgga gtggtgcagc ctggtagatc actgagactg	60
agctgcgctg ctagtggctt cacctttagc gtctacggaa tgaactgggt ccgacaggcc	120
cctgggaaag gcctggagt ggtggcaatt atctggtacg acggcgataa tcagtactac	180
gccgatagcg tgaagggacg gttcactatc tctagggata actctaagaa caccctgtac	240
ctgcagatga acggcctgag agccgaggac accgccgtct actactgcgc tagggacctg	300
agaaccggcc ccttcgacta ctggggacag ggcaccctgg tcaccgtgtc tagc	354

<210> 55
 <211> 448
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 55	
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg	
1	15
	5
	10

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

Gly Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Ile Ile Trp Tyr Asp Gly Asp Asn Gln Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Asp Leu Arg Thr Gly Pro Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
115 120 125

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
130 135 140

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
145 150 155 160

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
165 170 175

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
180 185 190

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr
210 215 220

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro Ser
 225 230 235 240

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

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
 260 265 270

Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
 275 280 285

Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val
 290 295 300

Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 305 310 315 320

Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
 325 330 335

Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Cys Thr Leu
 340 345 350

Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Ser Cys
 355 360 365

Ala Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 370 375 380

Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 385 390 395 400

Ser Asp Gly Ser Phe Phe Leu Val Ser Lys Leu Thr Val Asp Lys Ser
 405 410 415

Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
 420 425 430

Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys

<210> 56

<211> 1344

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 56

caggtgcagc tggtggaatc aggcggcgga gtggtgcagc ctggtagatc actgagactg	60
agctgcgctg ctagtggcctt caccttttagc gtctacggaa tgaactgggt ccgacaggcc	120
cctgggaaag gcctggagtg ggtggcaatt atctggtacg acggcgataa tcagtactac	180
gccgatagcg tgaagggacg gttcactatc tctagggata actctaagaa caccctgtac	240
ctgcagatga acggcctgag agccgaggac accgccgtct actactgcgc tagggacctg	300
agaaccggcc ctttcgacta ctggggacag ggcaccctgg tcaccgtgtc tagcgcctct	360
actaagggcc caagcgtgtt ccccctggcc cctagctcta agtctactag cggaggcacc	420
gccgctctgg gctgcctggt caaggactac ttccccgagc ccgtgaccgt cagctggaat	480
agcggcgctc tgactagcgg agtgcacacc ttccccgccg tgctgcagtc tagcggcctg	540
tatagcctgt ctagcgtcgt gaccgtgcct agctctagcc tgggcactca gacctatc	600
tgtaacgtga accacaagcc ctctaact aaggtggaca agcgggtgga acctaagtcc	660
tgcgataaga ctcacacctg tcctccctgc cctgcccctg aggctgccgg aggacctagc	720
gtgttcctgt tcccacctaa gcctaaagac accctgatga tctctaggac cccgaagtg	780
acctgcgtgg tggtggacgt ctcacacgag gaccctgaag tgaagtttaa ttggtacgtg	840
gacggcgtgg aagtgcacaa cgctaagact aagcctagag aggaacagta taactctacc	900
tatagggtcg tcagcgtgct gacagtgtg caccaggact ggctgaacgg gaaagagtat	960
aagtgtaaag tgtctaacia ggccctgcc gcccctatcg aaaagactat ctctaaggct	1020
aaggggcagc ctagagaacc ccaagtgtgc actctgcccc ctagtagaga agagatgact	1080
aagaatcagg tgtcactgag ctgtgccgtg aagggttctt accctagcga tatcgccgtg	1140
gagtgggaga gcaacggcca gcccgagaac aactacaaga ccaccccccc agtgctggac	1200

agcgacggca gcttcttcct ggtgagcaag ctgaccgtgg acaagtccag gtggcagcag 1260
 ggcaacgtgt tcagctgcag cgtgatgcac gaggccctgc acaaccacta cacccagaag 1320
 tccctgagcc tgagccccgg caag 1344

<210> 57
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 57
 Arg Ala Ser Gln Ser Ile Gly Ser Ser Leu His
 1 5 10

<210> 58
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 58
 Tyr Ala Ser Gln Ser Phe Ser
 1 5

<210> 59
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 59
 His Gln Ser Ser Ser Leu Pro Phe Thr
 1 5

<210> 60
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 60
Arg Ala Ser Gln Ser Ile Gly Ser Ser Leu His
1 5 10

<210> 61
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 61
Tyr Ala Ser Gln Ser Phe Ser
1 5

<210> 62
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 62
His Gln Ser Ser Ser Leu Pro Phe Thr
1 5

<210> 63
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

peptide"

<400> 63

Ser Gln Ser Ile Gly Ser Ser
1 5

<210> 64

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 64

Tyr Ala Ser
1

<210> 65

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 65

Ser Ser Ser Leu Pro Phe
1 5

<210> 66

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 66

Gln Ser Ile Gly Ser Ser
1 5

<210> 67

<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 67
Tyr Ala Ser Gln Ser Phe Ser Gly Val Pro
1 5 10

<210> 68
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 68
His Gln Ser Ser Ser Leu Pro Phe Thr
1 5

<210> 69
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 69
Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Ser Ser
20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile
35 40 45

Lys Tyr Ala Ser Gln Ser Phe Ser Gly Val Pro Ser Arg Phe Ser Gly

50

55

60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Glu Ala
65 70 75 80

Glu Asp Ala Ala Ala Tyr Tyr Cys His Gln Ser Ser Ser Leu Pro Phe
85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

<210> 70

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 70

gagatcgtgc tgaccagtc acccgacttt cagtcagtga cccctaaaga aaaagtgact 60
atcacctgta gggcctccca gtctatcggc tctagcctgc actggtatca gcagaagccc 120
gatcagtcac ctaagctgct gattaagtac gcctctcagt ccttttagcgg cgtgccctct 180
aggttttagcg gctcaggctc aggcaccgac ttcaccctga ctatcaatag cctggaagcc 240
gaggacgccg ctgcctacta ctgtcatcag tcaagtagcc tgcccttcac cttcggccct 300
ggcactaaag tggatattaa g 321

<210> 71

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 71

Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Ser Ser
20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile
35 40 45

Lys Tyr Ala Ser Gln Ser Phe Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Glu Ala
65 70 75 80

Glu Asp Ala Ala Ala Tyr Tyr Cys His Gln Ser Ser Ser Leu Pro Phe
85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys Arg Thr Val Ala Ala
100 105 110

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

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

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

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205

Phe Asn Arg Gly Glu Cys
210

<210> 72
<211> 642
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 72
gagatcgtgc tgaccagtc acccgacttt cagtcagtga cccctaaaga aaaagtgact 60
atcacctgta gggcctccca gtctatcggc tctagcctgc actggtatca gcagaagccc 120
gatcagtcac ctaagctgct gattaagtac gcctctcagt ccttttagcgg cgtgccctct 180
aggttttagcg gctcaggctc aggcaccgac ttcaccctga ctatcaatag cctggaagcc 240
gaggacgccg ctgcctacta ctgtcatcag tcaagtagcc tgcccttcac cttcggccct 300
ggcactaaag tggatattaa gcgtacgggtg gccgctccca gcgtgttcat cttccccccc 360
agcgacgagc agctgaagag cggcaccgcc agcgtgggtgt gcctgctgaa caacttctac 420
ccccgggagg ccaaggtgca gtggaagggtg gacaacgccc tgcagagcgg caacagccag 480
gagagcgtca ccgagcagga cagcaaggac tccacctaca gcctgagcag caccctgacc 540
ctgagcaagg ccgactacga gaagcataag gtgtacgcct gcgaggtgac ccaccagggc 600
ctgtccagcc ccgtgaccaa gagcttcaac aggggcgagt gc 642

<210> 73
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 73
Gly Gly Thr Phe Lys Ser Tyr Ala Ile Ser
1 5 10

<210> 74
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 74
Asn Ile Ile Pro Met Thr Gly Gln Thr Tyr Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 75
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 75
Ala Ala Tyr His Pro Leu Val Phe Asp Asn
1 5 10

<210> 76
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 76
Ser Tyr Ala Ile Ser
1 5

<210> 77
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

peptide"

<400> 77

Asn Ile Ile Pro Met Thr Gly Gln Thr Tyr Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 78

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 78

Ala Ala Tyr His Pro Leu Val Phe Asp Asn
1 5 10

<210> 79

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 79

Gly Gly Thr Phe Lys Ser Tyr
1 5

<210> 80

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 80

Ile Pro Met Thr Gly Gln

<210> 81
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 81
Ala Ala Tyr His Pro Leu Val Phe Asp Asn
1 5 10

<210> 82
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 82
Gly Gly Thr Phe Lys Ser Tyr Ala
1 5

<210> 83
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 83
Ile Ile Pro Met Thr Gly Gln Thr
1 5

<210> 84
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 84
Ala Arg Ala Ala Tyr His Pro Leu Val Phe Asp Asn
1 5 10

<210> 85
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 85
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Ser Tyr
20 25 30

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

Gly Asn Ile Ile Pro Met Thr Gly Gln Thr Tyr Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Ala Ala Tyr His Pro Leu Val Phe Asp Asn Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 86
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 86
gaggtgcagc tgggtgcagtc aggcgccgaa gtgaagaaac ccggctctag cgtgaaagtc 60
agctgtaaag ctagtggcgg caccttcaag tcctacgcta ttagctgggt cagacaggcc 120
ccaggtcagg gcctggagtg gatgggcaat attatcccta tgaccggtca gacctactac 180
gctcagaaat ttcagggtag agtgactatc accgccgacg agtctactag caccgcctat 240
atggaactgt ctagcctgag atcagaggac accgccgtct actactgcgc tagagccgcc 300
tatcaccccc tgggtgttcga taactgggggt cagggcaccc tggtcaccgt gtctagc 357

<210> 87
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 87
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Ser Tyr
20 25 30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Asn Ile Ile Pro Met Thr Gly Gln Thr Tyr Tyr Ala Gln Lys Phe
50 55 60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Ala Ala Tyr His Pro Leu Val Phe Asp Asn Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
115 120 125

Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu
130 135 140

Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
145 150 155 160

Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
165 170 175

Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
180 185 190

Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
195 200 205

Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys
210 215 220

Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro
225 230 235 240

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
245 250 255

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
260 265 270

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
275 280 285

Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val
290 295 300

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
305 310 315 320

Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys
325 330 335

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
340 345 350

Leu Pro Pro Cys Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Trp
355 360 365

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
370 375 380

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
385 390 395 400

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
405 410 415

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
420 425 430

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
435 440 445

Lys

<210> 88

<211> 1347

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic

polynucleotide"

<400> 88

gaggtgcagc	tggtgcagtc	aggcgccgaa	gtgaagaaac	ccggctctag	cgtgaaagtc	60
agctgtaaag	ctagtggcgg	caccttcaag	tcctacgcta	ttagctgggt	cagacaggcc	120
ccaggtcagg	gcctggagtg	gatgggcaat	attatcccta	tgaccggtca	gacctactac	180
gctcagaaat	ttcagggtag	agtgactatc	accgccgacg	agtctactag	caccgcctat	240
atggaactgt	ctagcctgag	atcagaggac	accgccgtct	actactgcgc	tagagccgcc	300
tatcaccccc	tggtgttcga	taactggggg	cagggcaccc	tggtcaccgt	gtctagcgct	360
agcactaagg	gcccctcagt	gttccccctg	gcccctagct	ctaagtctac	tagcggcggc	420
accgccgctc	tggtgtgcct	ggtgaaagac	tacttccccg	agcccgtgac	cgtgtcatgg	480
aatagcggcg	ctctgactag	cggagtgcac	accttccccg	ccgtgctgca	gtctagcggc	540
ctgtatagcc	tgtctagcgt	ggtgaccgtg	cctagctcta	gcctgggcac	tcagacctac	600
atctgtaacg	tgaaccacaa	gccctctaac	actaagggtg	acaagcgggt	ggaacctaag	660
tcctgcgata	agactcacac	ctgtcccccc	tgccctgccc	ctgaggctgc	cggaggacct	720
agcgtgttcc	tggtcccacc	taagcctaag	gacaccctga	tgatctctag	gacccccgaa	780
gtgacctgcg	tggtggtgga	tgtgtctcac	gaggaccctg	aagtgaagtt	caattggtac	840
gtggacggcg	tggaagtgca	caacgctaag	actaagccta	gagaggaaca	gtataactcc	900
acctatagag	tggtgtcagt	gctgaccgtg	ctgcatcagg	actggctgaa	cggcaaagag	960
tataagtgta	aagtctctaa	caaggccctg	ccagccccta	tcgaaaagac	tatctctaag	1020
gctaagggcc	agcctagaga	acctcaggtg	tacaccctgc	ccccctgtag	agaagagatg	1080
actaagaatc	aggtgtccct	gtggtgtctg	gtgaaaggct	tctaccctag	cgatatcgcc	1140
gtggaatggg	agtctaacgg	ccagcccag	aacaactata	agactacccc	ccctgtgctg	1200
gatagcgacg	gctcattctt	cctgtactct	aagctgaccg	tggacaagtc	taggtggcag	1260
cagggcaatg	tgtttagctg	tagcgtgatg	cacgaggccc	tgcataatca	ctacactcag	1320
aagtcactga	gcctgagccc	cggcaag				1347

<210> 89

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 89

Ser Gly Ser Ser Ser Asn Ile Gly Asn His Tyr Val Asn
1 5 10

<210> 90

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 90

Arg Asn Asn His Arg Pro Ser
1 5

<210> 91

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 91

Gln Ser Trp Asp Tyr Ser Gly Phe Ser Thr Val
1 5 10

<210> 92

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 92

Ser Gly Ser Ser Ser Asn Ile Gly Asn His Tyr Val Asn
1 5 10

<210> 93
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 93
Arg Asn Asn His Arg Pro Ser
1 5

<210> 94
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 94
Gln Ser Trp Asp Tyr Ser Gly Phe Ser Thr Val
1 5 10

<210> 95
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 95
Ser Ser Ser Asn Ile Gly Asn His Tyr
1 5

<210> 96
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 96
Arg Asn Asn
1

<210> 97
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 97
Trp Asp Tyr Ser Gly Phe Ser Thr
1 5

<210> 98
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 98
Ser Ser Asn Ile Gly Asn His Tyr
1 5

<210> 99
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 99
Arg Asn Asn

1

<210> 100
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 100
Gln Ser Trp Asp Tyr Ser Gly Phe Ser Thr Val
1 5 10

<210> 101
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 101
Asp Ile Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln
1 5 10 15

Arg Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn His
20 25 30

Tyr Val Asn Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu
35 40 45

Ile Tyr Arg Asn Asn His Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln
65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Trp Asp Tyr Ser Gly
85 90 95

Phe Ser Thr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

<210> 102
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 102
gatatcgtcc tgactcagcc ccctagcgctc agcggcgctc ccggtcagag agtgactatt 60
agctgtagcg gctctagctc taatatcggg aatcactacg tgaactggta tcagcagctg 120
cccggcaccg cccctaagct gctgatctat agaaacaatc accggcctag cggcgtgccc 180
gataggttta gcggatctaa gtcaggcact agcgctagtc tggctatcac cggactgcag 240
tcagaggacg aggccgacta ctactgtcag tcctgggact atagcggctt tagcaccgtg 300
ttcggcggag gcactaagct gaccgtgctg 330

<210> 103
<211> 216
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 103
Asp Ile Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln
1 5 10 15

Arg Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn His
20 25 30

Tyr Val Asn Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu
35 40 45

Ile Tyr Arg Asn Asn His Arg Pro Ser Gly Val Pro Asp Arg Phe Ser
50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln
65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Trp Asp Tyr Ser Gly
85 90 95

Phe Ser Thr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln
100 105 110

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

Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr
130 135 140

Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys
145 150 155 160

Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr
165 170 175

Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His
180 185 190

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

Thr Val Ala Pro Thr Glu Cys Ser
210 215

<210> 104

<211> 648

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 104

gatatcgtcc tgactcagcc ccctagcgtc agcggcgctc ccggtcagag agtgactatt	60
agctgtagcg gctctagctc taatatcggg aatcactacg tgaactggta tcagcagctg	120
cccggcaccg cccctaagct gctgatctat agaaacaatc accggcctag cggcgtgccc	180
gataggttta gcggatctaa gtcaggcact agcgctagtc tggctatcac cggactgcag	240
tcagaggacg aggccgacta ctactgtcag tcctgggact atagcggctt tagcaccgtg	300
ttcggcggag gcactaagct gaccgtgctg ggtcagccta aggctgcccc cagcgtgacc	360
ctgttcccc ccagcagcga ggagctgcag gccaacaagg ccaccctggg gtgcctgac	420
agcgacttct acccaggcgc cgtgaccgtg gcctggaagg ccgacagcag ccccgtaag	480
gccggcgtgg agaccaccac cccagcaag cagagcaaca acaagtacgc cgccagcagc	540
tacctgagcc tgacccccga gcagtggaag agccacaggt cctacagctg ccaggtgacc	600
cacgagggca gcaccgtgga aaagaccgtg gcccacaccg agtgcagc	648