

SEQUENCE LISTING

<110> MORPHOSYS AG

<120> DISPLAY VECTORS AND METHODS AND USES THEREOF

<130> MS086PCT

<140> not yet known

<141> not yet known

<160> 18

<170> PatentIn version 3.5

<210> 1

<211> 339

<212> DNA

<213> Artificial Sequence

<220>

<221> source

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

<400> 1

gcagccacca	tggtgctcca	gaccaggtg	ttcatcagcc	tgctgctgtg	gatcagcggc	60
gcctacggcg	atatcgacgc	ctgcgccgac	gccgatgccg	acgctagcgc	cgagcagaag	120
ctgatcagcg	aagaggacct	gaacggagcc	gtggacgaac	agaaactgat	ctccgaggag	180
gatctgaacg	ccgtcggcca	ggacaccag	gaagtgatcg	tcgtcccca	cagcctgccc	240
ttcaaggtgg	tggtgatcag	cgccatcctg	gccctggtgg	tgctgaccat	catctccctg	300
atcatcctga	ttatgctgtg	gcagaagaag	ccccgttga			339

<210> 2

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 2

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

Val Val Ile Ser Ala Ile Leu Ala Leu Val Val Leu Thr Ile Ile Ser
85 90 95

Leu Ile Ile Leu Ile Met Leu Trp Gln Lys Lys Pro Arg
100 105

<210> 3
<211> 703
<212> DNA
<213> Artificial Sequence

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

<400> 3
cgccaccatg gcctgggctc tgctgctcct caccctcctc actcagggca caggatcctg 60
ggctgatatc gaactgacct agccgccttc agtgagcggt gcaccagggtc agaccgcgcg 120
tatctcgtgt agcggcgata atattggtaa taagtatggt tcttggtacc agcagaaacc 180
cgggcaggcg ccagttgttg tgatttatgg tgataataat cgtccctcag gcatcccgga 240
acgctttagc ggatccaaca gcggcaacac cgcgaccctg accattagcg gcactcaggc 300
ggaagacgaa gcggattatt attgctcttc ttatgattct tcttattttg tgtttggcgg 360
cggcacgaag ttaaccgtcc taggtcagcc caaggctgcc ccctcgggtca ctctgttccc 420
gccctcctct gaggagcttc aagccaacaa ggccacactg gtgtgtctca taagtgaactt 480
ctaccgggga gccgtgacag tggcctggaa ggcagatagc agccccgtca aggcgggagt 540
ggagaccacc acaccctcca aacaaagcaa caacaagtac gcggccagca gctatctgag 600
cctgacgcct gagcagtga agtcccacag aagctacagc tgccagggtca cgcataaagg 660
gagcaccgtg gagaagacag tggcccctac agaattgtca tag 703

<210> 4
<211> 1407
<212> DNA
<213> Artificial Sequence

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

<400> 4
atgaaacacc tgtggttctt cctcctgctg gtggcagctc ccagatgggt cctgtcccag 60
gtgcaattgg tggaaagcgg cggcggcctg gtgcaaccgg gcggcagcct gcgtctgagc 120
tgcgcggcct ccggatttac cttttcttct tatggtatgc attgggtgcg ccaagcccct 180
gggaagggtc tcgagtgggt gagcaatata tattctgatg gtagcaatac cttttatgag 240
gatagcgtga aaggccgttt taccatttca cgtgataatt cgaaaaacac cctgtatctg 300
caaatgaaca gcctgcgtgc ggaagatacg gccgtgtatt attgcgcgcg taatatgtat 360
cgttggcctt ttcattatct ttttgattat tggggccaag gcaccctggt gacgggttagc 420
tcagcctcca ccaagggtcc atcgggtctc cccctggcac cctcctccaa gagcacctct 480

```

gggggcacag cggccctggg ctgcctggtc aaggactact tccccgaacc ggtgacggtg      540
tcgtggaact caggcgccct gaccagcggc gtgcacacct tcccggtgtg cctacagtcc      600
tcaggactct actccctcag cagcgtggtg accgtgccct ccagcagctt gggcacccag      660
acctacatct gcaacgtgaa tcacaagccc agcaacacca aggtggacaa gagagttgag      720
cccaaattctt gtgacaaaac tcacacatgc ccaccgtgcc cagcacctga actcctgggg      780
ggaccgtcag tcttcctctt cccccaaaaa cccaaggaca ccctcatgat ctcccggacc      840
cctgaggtca catgctgggt ggtggacgtg agccacgaag accctgaggt caagttcaac      900
tggtacgtgg acggcgtgga ggtgcataat gccaaagaaa agccgcggga ggagcagtac      960
aacagcacgt accgggtggg cagcgtcctc accgtcctgc accaggactg gctgaatggc     1020
aaggagtaca agtgcaaggt ctccaacaaa gccctcccag ccccatcga gaaaaccatc     1080
tccaaagcca aagggcagcc ccgagaacca caggtgtaca ccctgcccc atcccgggag     1140
gagatgacca agaaccaggt cagcctgacc tgcctgggtca aaggcttcta tcccagcgac     1200
atcgccgtgg agtgggagag caatgggcag ccggagaaca actacaagac cagcctccc     1260
gtgctggact ccgacggctc cttcttctc tacagcaagc tcaccgtgga caagagcagg     1320
tggcagcagg gcaacgtgtt cagctgtagc gtgatgcacg aggccctgca caaccactac     1380
acccagaaga gcctgagcct gtgctaa                                           1407

```

```

<210> 5
<211> 231
<212> PRT
<213> Artificial Sequence

```

```

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

```

```

<400> 5
Met Ala Trp Ala Leu Leu Leu Thr Leu Leu Thr Gln Gly Thr Gly
1           5           10           15

```

```

Ser Trp Ala Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala
20           25           30

```

```

Pro Gly Gln Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Ile Gly Asn
35           40           45

```

```

Lys Tyr Val Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Val
50           55           60

```

```

Val Ile Tyr Gly Asp Asn Asn Arg Pro Ser Gly Ile Pro Glu Arg Phe
65           70           75           80

```

```

Ser Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr
85           90           95

```

```

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Tyr Asp Ser Ser

```

100 105 110
 Tyr Phe Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro
 115 120 125
 Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu
 130 135 140
 Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro
 145 150 155 160
 Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala
 165 170 175
 Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala
 180 185 190
 Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg
 195 200 205
 Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr
 210 215 220
 Val Ala Pro Thr Glu Cys Ser
 225 230

<210> 6
 <211> 468
 <212> PRT
 <213> Artificial Sequence

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

<400> 6
 Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
 1 5 10 15

Val Leu Ser Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
 20 25 30

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 35 40 45

Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 50 55 60

Glu Trp Val Ser Asn Ile Tyr Ser Asp Gly Ser Asn Thr Phe Tyr Ala
 65 70 75 80

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
 85 90 95

Thr Leu Tyr Leu₁₀₀ Gln Met Asn Ser Leu₁₀₅ Arg Ala Glu Asp Thr₁₁₀ Ala Val
 Tyr Tyr Cys₁₁₅ Ala Arg Asn Met Tyr₁₂₀ Arg Trp Pro Phe His₁₂₅ Tyr Phe Phe
 Asp Tyr₁₃₀ Trp Gly Gln Gly Thr₁₃₅ Leu Val Thr Val Ser₁₄₀ Ser Ala Ser Thr
 Lys₁₄₅ Gly Pro Ser Val₁₅₀ Phe Pro Leu Ala Pro Ser₁₅₅ Ser Lys Ser Thr Ser₁₆₀
 Gly Gly Thr Ala Ala₁₆₅ Leu Gly Cys Leu Val₁₇₀ Lys Asp Tyr Phe Pro₁₇₅ Glu
 Pro Val Thr Val₁₈₀ Ser Trp Asn Ser Gly₁₈₅ Ala Leu Thr Ser Gly₁₉₀ Val His
 Thr Phe Pro₁₉₅ Ala Val Leu Gln Ser₂₀₀ Ser Gly Leu Tyr Ser₂₀₅ Leu Ser Ser
 Val Val₂₁₀ Thr Val Pro Ser Ser₂₁₅ Ser Leu Gly Thr Gln₂₂₀ Thr Tyr Ile Cys
 Asn Val₂₂₅ Asn His Lys Pro₂₃₀ Ser Asn Thr Lys Val₂₃₅ Asp Lys Arg Val Glu₂₄₀
 Pro Lys Ser Cys Asp₂₄₅ Lys Thr His Thr Cys₂₅₀ Pro Pro Cys Pro Ala₂₅₅ Pro
 Glu Leu Leu Gly₂₆₀ Gly Pro Ser Val Phe₂₆₅ Leu Phe Pro Pro Lys₂₇₀ Pro Lys
 Asp Thr Leu₂₇₅ Met Ile Ser Arg Thr₂₈₀ Pro Glu Val Thr Cys₂₈₅ Val Val Val
 Asp Val₂₉₀ Ser His Glu Asp Pro₂₉₅ Glu Val Lys Phe Asn₃₀₀ Trp Tyr Val Asp
 Gly Val₃₀₅ Glu Val His Asn₃₁₀ Ala Lys Thr Lys Pro₃₁₅ Arg Glu Glu Gln Tyr₃₂₀
 Asn Ser Thr Tyr Arg₃₂₅ Val Val Ser Val Leu₃₃₀ Thr Val Leu His Gln₃₃₅ Asp
 Trp Leu Asn Gly₃₄₀ Lys Glu Tyr Lys Cys₃₄₅ Lys Val Ser Asn Lys₃₅₀ Ala Leu
 Pro Ala Pro₃₅₅ Ile Glu Lys Thr Ile₃₆₀ Ser Lys Ala Lys Gly₃₆₅ Gln Pro Arg
 Glu Pro₃₇₀ Gln Val Tyr Thr Leu₃₇₅ Pro Pro Ser Arg Glu₃₈₀ Glu Met Thr Lys

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
385 390 395 400

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
405 410 415

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
420 425 430

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
435 440 445

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
450 455 460

Leu Ser Leu Cys
465

<210> 7
<211> 1650
<212> DNA
<213> Artificial Sequence

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

<400> 7
atgaaacacc tgtggttctt cctcctgctg gtggcagctc ccagatgggt cctgtcccag 60
gtgcaattgg tggaaagcgg cggcggcctg gtgcaaccgg gcggcagcct gcgtctgagc 120
tgcgcggcct ccgatttac cttttcttct tatggatgac attgggtgag ccaagcccct 180
gggaagggtc tcgagtgggt gagcaatatc tattctgatg gtagcaatac cttttatgag 240
gatagcgtga aaggccgttt taccatttca cgtgataatt cgaaaaacac cctgtatctg 300
caaatgaaca gcctgcgtgc ggaagatacg gccgtgtatt attgcgcgag taatatgtat 360
cgttggcctt ttcattatct ttttgattat tggggccaag gcaccctggg gacgggttagc 420
tcagcctcca ccaagggtcc atcgggtctc cccctggcac cctcctcaa gagcacctct 480
gggggcacag cggccctggg ctgcctgggc aaggactact tccccgaacc ggtgacgggtg 540
tcgtggaact caggcgcctt gaccagcggc gtgcacacct tcccggctgt cctacagtcc 600
tcaggactct actccctcag cagcgtgggt accgtgccct ccagcagctt gggcaccag 660
acctacatct gcaacgtgaa tcacaagccc agcaacacca aggtggacaa gagagttgag 720
cccaaattct gtgacaaaac tcacacatgc ccaccgtgcc cagcacctga actcctgggg 780
ggaccgtcag tcttctctt cccccaaaa cccaaggaca ccctcatgat ctcccgacc 840
cctgaggtca catgcgtggg ggtggacgtg agccacgaag accctgaggt caagttcaac 900
tggtacgtgg acggcgtgga ggtgcataat gccaaagaaa agccgcggga ggagcagtac 960
aacagcacgt accgggtggg cagcgtcctc accgtcctgc accaggactg gctgaatggc 1020

aaggagtaca agtgcaaggt ctccaacaaa gccctcccag ccccatcga gaaaaccatc 1080
tccaaagcca aagggcagcc ccgagaacca caggtgtaca ccctgcccc atcccgggag 1140
gagatgacca agaaccaggt cagcctgacc tgcctggta aaggcttcta tcccagcgac 1200
atcgccgtgg agtgggagag caatgggcag ccggagaaca actacaagac cagcctccc 1260
gtgctggact ccgacggctc cttcttcctc tacagcaagc tcaccgtgga caagagcagg 1320
tggcagcagg gcaacgtgtt cagctgtagc gtgatgcacg aggccctgca caaccactac 1380
accagaaga gcctgagcct gtccccggc aaggccgctg ccgagcagaa gctgattagc 1440
gaagaggacc tgaatggggc cgtggacgaa cagaaactga tctccgagga ggacctgaac 1500
gccgtgggcc aggacacca ggaagtgatc gtcgtcccc acagcctgcc cttcaagggtg 1560
gtggtgatca gcgccatcct ggccctggtg gtgctgacca tcatcagcct gatcatcctg 1620
attatgctgt ggcagaaaaa gccccgtga 1650

<210> 8
<211> 549
<212> PRT
<213> Artificial Sequence

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

<400> 8
Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
1 5 10 15

Val Leu Ser Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
20 25 30

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
35 40 45

Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
50 55 60

Glu Trp Val Ser Asn Ile Tyr Ser Asp Gly Ser Asn Thr Phe Tyr Ala
65 70 75 80

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
85 90 95

Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
100 105 110

Tyr Tyr Cys Ala Arg Asn Met Tyr Arg Trp Pro Phe His Tyr Phe Phe
115 120 125

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
 145 150 155 160
 Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
 165 170 175
 Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
 180 185 190
 Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
 195 200 205
 Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
 210 215 220
 Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu
 225 230 235 240
 Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 245 250 255
 Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 260 265 270
 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 275 280 285
 Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
 290 295 300
 Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
 305 310 315 320
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 325 330 335
 Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
 340 345 350
 Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 355 360 365
 Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
 370 375 380
 Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 385 390 395 400
 Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 405 410 415
 Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 Page 8

420

425

430

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
 435 440 445

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 450 455 460

Leu Ser Leu Ser Pro Gly Lys Ala Ala Ala Glu Gln Lys Leu Ile Ser
 465 470 475 480

Glu Glu Asp Leu Asn Gly Ala Val Asp Glu Gln Lys Leu Ile Ser Glu
 485 490 495

Glu Asp Leu Asn Ala Val Gly Gln Asp Thr Gln Glu Val Ile Val Val
 500 505 510

Pro His Ser Leu Pro Phe Lys Val Val Val Ile Ser Ala Ile Leu Ala
 515 520 525

Leu Val Val Leu Thr Ile Ile Ser Leu Ile Ile Leu Ile Met Leu Trp
 530 535 540

Gln Lys Lys Pro Arg
 545

<210> 9
 <211> 30
 <212> PRT
 <213> Artificial Sequence

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

<400> 9
 Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
 1 5 10 15

His Ser Asp Tyr Cys Asp Ile Glu Phe Ala Glu Thr Val Glu
 20 25 30

<210> 10
 <211> 78
 <212> PRT
 <213> Artificial Sequence

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

<400> 10
 Ala Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala
 1 5 10 15

Val Asp Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Ala Val Gly
 Page 9

20

25

30

Gln Asp Thr Gln Glu Val Ile Val Val Pro His Ser Leu Pro Phe Lys
 35 40 45

Val Val Val Ile Ser Ala Ile Leu Ala Leu Val Val Leu Thr Ile Ile
 50 55 60

Ser Leu Ile Ile Leu Ile Met Leu Trp Gln Lys Lys Pro Arg
 65 70 75

<210> 11
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 11
 Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 1 5 10 15

<210> 12
 <211> 35
 <212> PRT
 <213> Artificial Sequence

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

<400> 12
 Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 1 5 10 15

Ala Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala
 20 25 30

Val Asp Glu
 35

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

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

<400> 13
 Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Cys
 1 5 10

<210> 14
 <211> 470
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source

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

<400> 14

Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
1 5 10 15

Val Leu Ser Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
20 25 30

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
35 40 45

Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
50 55 60

Glu Trp Val Ser Asn Ile Tyr Ser Asp Gly Ser Asn Thr Phe Tyr Ala
65 70 75 80

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
85 90 95

Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
100 105 110

Tyr Tyr Cys Ala Arg Asn Met Tyr Arg Trp Pro Phe His Tyr Phe Phe
115 120 125

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
145 150 155 160

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
165 170 175

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
180 185 190

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
195 200 205

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
210 215 220

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu
225 230 235 240

Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
245 250 255

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
260 265 270

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
275 280 285

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
290 295 300

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
305 310 315 320

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
325 330 335

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
340 345 350

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
355 360 365

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
370 375 380

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
385 390 395 400

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
405 410 415

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
420 425 430

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
435 440 445

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
450 455 460

Leu Ser Leu Ser Pro Cys
465 470

<210> 15
<211> 472
<212> PRT
<213> Artificial Sequence

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

<400> 15
Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
1 5 10 15

Val Leu Ser Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
Page 12

20					25					30					
Pro	Gly	Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe
		35					40					45			
Ser	Ser	Tyr	Gly	Met	His	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu
	50					55					60				
Glu	Trp	Val	Ser	Asn	Ile	Tyr	Ser	Asp	Gly	Ser	Asn	Thr	Phe	Tyr	Ala
65					70					75					80
Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn
				85					90					95	
Thr	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val
			100					105					110		
Tyr	Tyr	Cys	Ala	Arg	Asn	Met	Tyr	Arg	Trp	Pro	Phe	His	Tyr	Phe	Phe
		115					120					125			
Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr
	130					135					140				
Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser
145					150					155					160
Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu
				165					170					175	
Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His
			180					185					190		
Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser
		195					200					205			
Val	Val	Thr	Val	Pro	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	
	210					215				220					
Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val	Glu
225					230					235					240
Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro
				245					250					255	
Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys
			260					265					270		
Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val
		275					280					285			
Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp
	290					295					300				

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
 305 310 315 320
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 325 330 335
 Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
 340 345 350
 Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 355 360 365
 Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
 370 375 380
 Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 385 390 395 400
 Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 405 410 415
 Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 420 425 430
 Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
 435 440 445
 Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 450 455 460
 Leu Ser Leu Ser Pro Gly Lys Cys
 465 470

<210> 16
 <211> 478
 <212> PRT
 <213> Artificial Sequence

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

<400> 16
 Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
 1 5 10 15

Val Leu Ser Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
 20 25 30

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 35 40 45

Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 50 55 60

Glu Trp Val Ser Asn Ile Tyr Ser Asp Gly Ser Asn Thr Phe Tyr Ala
 65 70 75 80
 Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
 85 90 95
 Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Asn Met Tyr Arg Trp Pro Phe His Tyr Phe Phe
 115 120 125
 Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr
 130 135 140
 Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
 145 150 155 160
 Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
 165 170 175
 Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
 180 185 190
 Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
 195 200 205
 Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
 210 215 220
 Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu
 225 230 235 240
 Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 245 250 255
 Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 260 265 270
 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 275 280 285
 Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
 290 295 300
 Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
 305 310 315 320
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 325 330 335

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
340 345 350

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
355 360 365

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
370 375 380

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
385 390 395 400

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
405 410 415

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
420 425 430

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
435 440 445

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
450 455 460

Leu Ser Leu Ser Pro Gly Lys His Lys His Lys His Lys Cys
465 470 475

<210> 17
<211> 110
<212> PRT
<213> Artificial Sequence

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

<400> 17
Met Val Leu Gln Thr Gln Val Phe Ile Ser Leu Leu Leu Trp Ile Ser
1 5 10 15

Gly Ala Tyr Gly Asp Tyr Cys Asp Ile Glu Phe Ala Glu Thr Val Glu
20 25 30

Ala Ser Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala
35 40 45

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

Gln Asp Thr Gln Glu Val Ile Val Val Pro His Ser Leu Pro Phe Lys
65 70 75 80

Val Val Val Ile Ser Ala Ile Leu Ala Leu Val Val Leu Thr Ile Ile
85 90 95

Ser Leu Ile Ile Leu Ile Met Leu Trp Gln Lys Lys Pro Arg
100 105 110

<210> 18

<211> 101

<212> PRT

<213> Artificial Sequence

<220>

<221> source

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

<400> 18

Met Val Leu Gln Thr Gln Val Phe Ile Ser Leu Leu Leu Trp Ile Ser
1 5 10 15

Gly Ala Tyr Gly Asp Ile Cys Ala Ser Ala Glu Gln Lys Leu Ile Ser
20 25 30

Glu Glu Asp Leu Asn Gly Ala Val Asp Glu Gln Lys Leu Ile Ser Glu
35 40 45

Glu Asp Leu Asn Ala Val Gly Gln Asp Thr Gln Glu Val Ile Val Val
50 55 60

Pro His Ser Leu Pro Phe Lys Val Val Val Ile Ser Ala Ile Leu Ala
65 70 75 80

Leu Val Val Leu Thr Ile Ile Ser Leu Ile Ile Leu Ile Met Leu Trp
85 90 95

Gln Lys Lys Pro Arg
100