

SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.

<120> MICE THAT MAKE HEAVY CHAIN ANTIBODIES

<130> 0761A-WO

<140> To be assigned

<141> 2010-12-10

<150> 61/285,250

<151> 2009-12-10

<160> 64

<170> FastSEQ for Windows Version 4.0

<210> 1

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<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

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21

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<213> Artificial Sequence

<220>

<223> synthetic

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<213> Artificial Sequence

<220>

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<210> 4

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

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33

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tattgtacta atggtgtatg ctttgactac tggggccagg gaaccctggg caccgtctcc 420
tcaaagcttt ccaaaacaac acccccatca gtctatccac tggcccctgg gtgtggagat 480
acaactgggt cctccgtgac tctgggatgc ctggtcaagg gctacttccc tgagtcagtg 540
actgtgactt ggaactctgg atccctgtcc agcagtgtgc acaccttccc agctctcctg 600
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cagaccgtca cctgcagcgt tgctcaccca gccagcagca ccacgggtga caaaaaactt 720
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ccacaagtat acatcttgcc gccaccagca gagcagttgt ccaggaaaga tgtcagctctc 1200
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atatatagca agctcaatat gaaaacaagc aagtgggaga aaacagattc cttctcatgc 1380
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ggtaaatga
1449

<210> 6
<211> 482
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 6
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1 5 10 15
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20 25 30
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45
Thr Gly Tyr Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60
Glu Trp Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala
65 70 75 80
Gln Lys Phe Gln Gly Arg Val Thr Met Thr Gly Asp Thr Ser Ile Ser
85 90 95
Thr Ala Tyr Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val
100 105 110

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tgcaaggctt ctggatacac cttcaccggc tactatatgc actgggtttcg acaggccccct 180
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cagaagtttc agggcagggg caccatgacc ggggacacgt ccatcagcac agcctacatg 300
gagctgagca ggctgagatc tgacgacacg gccgtgtatt actgtgagag aggtctctta 360
tattgtacta atggtgtatg ctttgactac tggggccagg gaaccctggg caccgtctcc 420
tcaaagcttt ccaaaacaac acccccatca gtctatccac tggcccctgg gtgtggagat 480
acaactgggt cctccgtgac tctgggatgc ctggtcaagg gctacttccc tgagtcagtg 540
actgtgactt ggaactctgg atccctgtcc agcagtgtgc acaccttccc agctctctctg 600
cagtctggac tctacactat gagcagctca gtgactgtcc cctccagcac ttggccaagt 660
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tgtcacaaat gccagctcc taacctcgag ggtggaccat ccgtcttcat cttccctcca 840
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acttgctggg tcgtgggctt caaccctgga gacatcagtg tggagtggac cagcaatggg 1260
catacagagg agaactacaa ggacaccgca ccagtcctgg actctgacgg ttcttacttc 1320
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ggtaaatga 1449

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<210> 8

<211> 482

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 8

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          20          25          30
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
          35          40          45
Thr Gly Tyr Tyr Met His Trp Phe Arg Gln Ala Pro Gly Gln Glu Cys
          50          55          60
Glu Leu Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala
65          70          75          80
Gln Lys Phe Gln Gly Arg Val Thr Met Thr Gly Asp Thr Ser Ile Ser
          85          90          95
Thr Ala Tyr Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val
          100          105          110
Tyr Tyr Cys Ala Arg Gly Ser Leu Tyr Cys Thr Asn Gly Val Cys Phe
          115          120          125
Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Lys Leu Ser
          130          135          140
Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro Gly Cys Gly Asp
145          150          155          160
Thr Thr Gly Ser Ser Val Thr Leu Gly Cys Leu Val Lys Gly Tyr Phe
          165          170          175
Pro Glu Ser Val Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser Ser
          180          185          190
Val His Thr Phe Pro Ala Leu Leu Gln Ser Gly Leu Tyr Thr Met Ser
          195          200          205
Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser Gln Thr Val Thr
210          215          220

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Cys Ser Val Ala His Pro Ala Ser Ser Thr Thr Val Asp Lys Lys Leu
 225 230 235 240
 Val Arg Ser Glu Pro Ser Gly Pro Ile Ser Thr Ile Asn Pro Cys Pro
 245 250 255
 Pro Cys Lys Glu Cys His Lys Cys Pro Ala Pro Asn Leu Glu Gly Gly
 260 265 270
 Pro Ser Val Phe Ile Phe Pro Pro Asn Ile Lys Asp Val Leu Met Ile
 275 280 285
 Ser Leu Thr Pro Lys Val Thr Cys Val Val Val Asp Val Ser Glu Asp
 290 295 300
 Asp Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His
 305 310 315 320
 Thr Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Ile Arg
 325 330 335
 Val Val Ser Thr Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys
 340 345 350
 Glu Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro Ser Pro Ile Glu
 355 360 365
 Arg Thr Ile Ser Lys Ile Lys Gly Leu Val Arg Ala Pro Gln Val Tyr
 370 375 380
 Ile Leu Pro Pro Pro Ala Glu Gln Leu Ser Arg Lys Asp Val Ser Leu
 385 390 395 400
 Thr Cys Leu Val Val Gly Phe Asn Pro Gly Asp Ile Ser Val Glu Trp
 405 410 415
 Thr Ser Asn Gly His Thr Glu Glu Asn Tyr Lys Asp Thr Ala Pro Val
 420 425 430
 Leu Asp Ser Asp Gly Ser Tyr Phe Ile Tyr Ser Lys Leu Asn Met Lys
 435 440 445
 Thr Ser Lys Trp Glu Lys Thr Asp Ser Phe Ser Cys Asn Val Arg His
 450 455 460
 Glu Gly Leu Lys Asn Tyr Tyr Leu Lys Lys Thr Ile Ser Arg Ser Pro
 465 470 475 480
 Gly Lys

<210> 9
 <211> 1149
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 9
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 tgcaaggctt ctggatacac cttcaccggc tactatatgc actgggtgcg acaggcccct 180
 ggacaagggc ttgagtggat gggatggatc aaccctaaca gtggtggcac aaactatgca 240
 cagaagtttc agggcagggt caccatgacc ggggacacgt ccatcagcac agcctacatg 300
 gagctgagca ggctgagatc tgacgacacg gccgtgtatt actgtgagag aggctcctta 360
 tattgtacta atggtgtatg ctttgactac tggggccagg gaaccctggt caccgtctcc 420
 tcatccggag agcccagcgg gcccatttca acaatcaacc cctgtcctcc atgcaaggag 480
 tgtcacaat gccagctcc taacctcgag ggtggaccat ccgtcttcat cttccctcca 540
 aatatcaagg atgtactcat gatctccctg acaccaagg tcacgtgtgt ggtggtggat 600
 gtgagcgagg atgacccaga cgtccagatc agctggtttg tgaacaacgt ggaagtacac 660
 acagctcaga cacaacccca tagagaggat tacaacagta ctatccgggt ggtcagcacc 720
 ctccccatcc agcaccagga ctggatgagt ggcaaggagt tcaaagtcaa ggtcaacaac 780
 aaagacctcc catcacccat cgagagaacc atctcaaaaa ttaaagggct agtcagagct 840
 ccacaagtat acatcttgcc gccaccagca gagcagttgt ccaggaaaga tgtcagtcctc 900
 acttgcttgg tctgtgggctt caaccctgga gacatcagtg tggagtggac cagcaatggg 960

catacagagg agaactacaa ggacaccgca ccagtcctgg actctgacgg ttcttacttc 1020
 atatatatagca agtcaatat gaaaacaagc aagtgggaga aaacagattc ctctcatgc 1080
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<210> 10

<211> 382

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 10

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			20					25					30		
Pro	Gly	Ala	Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe
			35				40					45			
Thr	Gly	Tyr	Tyr	Met	His	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu
			50			55					60				
Glu	Trp	Met	Gly	Trp	Ile	Asn	Pro	Asn	Ser	Gly	Gly	Thr	Asn	Tyr	Ala
65					70				75					80	
Gln	Lys	Phe	Gln	Gly	Arg	Val	Thr	Met	Thr	Gly	Asp	Thr	Ser	Ile	Ser
			85						90					95	
Thr	Ala	Tyr	Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val
			100					105						110	
Tyr	Tyr	Cys	Ala	Arg	Gly	Ser	Leu	Tyr	Cys	Thr	Asn	Gly	Val	Cys	Phe
			115				120					125			
Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ser	Gly	Glu
			130			135					140				
Pro	Ser	Gly	Pro	Ile	Ser	Thr	Ile	Asn	Pro	Cys	Pro	Pro	Cys	Lys	Glu
145					150				155					160	
Cys	His	Lys	Cys	Pro	Ala	Pro	Asn	Leu	Glu	Gly	Gly	Pro	Ser	Val	Phe
			165					170						175	
Ile	Phe	Pro	Pro	Asn	Ile	Lys	Asp	Val	Leu	Met	Ile	Ser	Leu	Thr	Pro
			180				185						190		
Lys	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	Glu	Asp	Asp	Pro	Asp	Val
			195				200					205			
Gln	Ile	Ser	Trp	Phe	Val	Asn	Asn	Val	Glu	Val	His	Thr	Ala	Gln	Thr
			210			215					220				
Gln	Thr	His	Arg	Glu	Asp	Tyr	Asn	Ser	Thr	Ile	Arg	Val	Val	Ser	Thr
225					230					235				240	
Leu	Pro	Ile	Gln	His	Gln	Asp	Trp	Met	Ser	Gly	Lys	Glu	Phe	Lys	Cys
			245					250						255	
Lys	Val	Asn	Asn	Lys	Asp	Leu	Pro	Ser	Pro	Ile	Glu	Arg	Thr	Ile	Ser
			260				265						270		
Lys	Ile	Lys	Gly	Leu	Val	Arg	Ala	Pro	Gln	Val	Tyr	Ile	Leu	Pro	Pro
			275				280					285			
Pro	Ala	Glu	Gln	Leu	Ser	Arg	Lys	Asp	Val	Ser	Leu	Thr	Cys	Leu	Val
			290			295					300				
Val	Gly	Phe	Asn	Pro	Gly	Asp	Ile	Ser	Val	Glu	Trp	Thr	Ser	Asn	Gly
305					310					315				320	
His	Thr	Glu	Glu	Asn	Tyr	Lys	Asp	Thr	Ala	Pro	Val	Leu	Asp	Ser	Asp
			325					330						335	
Gly	Ser	Tyr	Phe	Ile	Tyr	Ser	Lys	Leu	Asn	Met	Lys	Thr	Ser	Lys	Trp
			340				345					350			
Glu	Lys	Thr	Asp	Ser	Phe	Ser	Cys	Asn	Val	Arg	His	Glu	Gly	Leu	Lys
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Asn	Tyr	Tyr	Leu	Lys	Lys	Thr	Ile	Ser	Arg	Ser	Pro	Gly	Lys		

370

375

380

<210> 11
 <211> 1149
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 11
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 cagaagtttc agggcagggt caccatgacc ggggacacgt ccatcagcac agcctacatg 300
 gagctgagca ggctgagatc tgacgacacg gccgtgtatt actgtgagag aggctcctta 360
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 tcatccggag agcccagcgg gccattttca acaatcaacc cctgtcctcc atgcaaggag 480
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 aatatcaagg atgtactcat gatctccctg acaccaagg tcacgtgtgt ggtggtggat 600
 gtgagcgagg atgaccaga cgtccagatc agctggtttg tgaacaacgt ggaagtacac 660
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 ctccccatcc agcaccagga ctggatgagt ggcaaggagt tcaaagcaa ggtcaacaac 780
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 ggtaaatga 1149

<210> 12
 <211> 382
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 12
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 20 25 30
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Gly Tyr Tyr Met His Trp Phe Arg Gln Ala Pro Gly Gln Glu Cys
 50 55 60
 Glu Leu Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala
 65 70 75 80
 Gln Lys Phe Gln Gly Arg Val Thr Met Thr Gly Asp Thr Ser Ile Ser
 85 90 95
 Thr Ala Tyr Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ser Leu Tyr Cys Thr Asn Gly Val Cys Phe
 115 120 125
 Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ser Gly Glu
 130 135 140
 Pro Ser Gly Pro Ile Ser Thr Ile Asn Pro Cys Pro Pro Cys Lys Glu

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

<210> 13
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 13
 caacacaagt gcgatgcac

19

<210> 14
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 14
 gattagcctc catgcctact c

21

<210> 15
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 15
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<210> 16
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 16
 tctatgctat ctcagtgcta 20

<210> 17
 <211> 49
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 17
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<210> 18
 <211> 384
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 18
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 cctggacagg gcctggaatg gattggatat atttatattg gaaatgggta tactgagtac 180
 aatgagaagt tcaagggcaa ggccacactg acttcagaca catcctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcaatct atttccgtgc aagaggacgg 300
 gtcggcccggt actactttga ctactggggc caaggcacca ctctcacagt ctcctcagtc 360
 ccagaagtat catctgtctt catc 384

<210> 19
 <211> 128
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 19
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 Ser Val Lys Met Ser Cys Lys Thr Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30
 Gly Ile Asn Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Tyr Ile Tyr Ile Gly Asn Gly Tyr Thr Glu Tyr Asn Glu Lys Phe
 50 55 60
 Lys Gly Lys Ala Thr Leu Thr Ser Asp Thr Ser Ser Ser Thr Ala Tyr
 65 70 75 80

Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Ile	Tyr	Phe	Arg
				85					90					95	
Ala	Arg	Gly	Arg	Val	Gly	Pro	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly
			100					105					110		
Thr	Thr	Leu	Thr	Val	Ser	Ser	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile
		115					120					125			

<210> 20
 <211> 381
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 20
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 catggacaga gccttgagtg gattggagat attaaticcta acaatgggtg ttctaactac 180
 aaccagaagt tcaagggcaa ggccacattg actgtagaca agtcctccag cacagcctac 240
 atggatctcc gcagcctgac atctgaagac tctgcagtct attactgtgc aaaactggga 300
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 gaagtatcat ctgtcttcat c 381

<210> 21
 <211> 127
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

Glu	Val	Gln	Leu	Gln	Gln	Ser	Gly	Arg	Glu	Leu	Val	Lys	Pro	Gly	Ala
1				5				10					15		
Ser	Val	Met	Ile	Ser	Cys	Thr	Ala	Ser	Gly	Tyr	Thr	Phe	Ile	Asp	Tyr
		20					25					30			
Phe	Ile	Asn	Trp	Met	Lys	Arg	Ser	His	Gly	Gln	Ser	Leu	Glu	Trp	Ile
	35				40					45					
Gly	Asp	Ile	Asn	Pro	Asn	Asn	Gly	Gly	Ser	Asn	Tyr	Asn	Gln	Lys	Phe
	50				55					60					
Lys	Gly	Lys	Ala	Thr	Leu	Thr	Val	Asp	Lys	Ser	Ser	Ser	Thr	Ala	Tyr
	65			70				75					80		
Met	Asp	Leu	Arg	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Val	Tyr	Tyr	Cys
			85					90					95		
Ala	Lys	Leu	Gly	Arg	Asp	Trp	Tyr	Phe	Asp	Val	Trp	Gly	Thr	Gly	Thr
		100					105					110			
Thr	Val	Thr	Val	Ser	Ser	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	
		115					120					125			

<210> 22
 <211> 375
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 22

cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggccttc agtgaagctg 60
tcttgcaagg cttctggcta caccttcacc agctactgga tgcagtgggt aaaacagagg 120
cctggacagg gccttgagtg gatcggagag attgatacctt ctgatagcta tactaactac 180
aatcaaaagt tcaagggcaa ggccacattg actgtagaca catcctccag cacagcctac 240
atgcagctca gcagcctgac acctgaggac tctgcggtct attactgtgc aagatgtagg 300
tactactttg actactgggg ccaaggcacc actctcacag tctcctcagt cccagaagta 360
tcattctgtct tcatac 375

<210> 23
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 23
Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Glu Ile Asp Pro Ser Asp Ser Tyr Thr Asn Tyr Asn Gln Lys Phe
50 55 60
Lys Gly Lys Ala Thr Leu Thr Val Asp Thr Ser Ser Ser Thr Ala Tyr
65 70 75 80
Met Gln Leu Ser Ser Leu Thr Pro Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Cys Arg Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu
100 105 110
Thr Val Ser Ser Val Pro Glu Val Ser Ser Val Phe Ile
115 120 125

<210> 24
<211> 393
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 24
gaggttcagt tgcagcagtc tggggcagag attgtgaagt caggggcctc agtcaagttg 60
tcttgcaagc cttctggctt caacatgaaa gactacttta tccactgggt gaagcagagg 120
actgaacagg gcctggagtg gattggaagg cttgatacctg aggatggtaa aactaaatat 180
gccccgaaat tccagggcaa ggccactata acagcagaca catcctccaa cacagcctac 240
ctgcacctca gcagcctgac atctgaggac actgccgtct attactgtgc tagaggggga 300
ctgggacgtg aggaatacta tgctgtggac tactgggggtc aaggaacctc agtcaccgtc 360
tcttcagttc cagaagtatc atctgtcttc atc 393

<210> 25
<211> 131
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 25

Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Ile Val Lys Ser Gly Ala
 1 5 10 15
 Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Met Lys Asp Tyr
 20 25 30
 Phe Ile His Trp Val Lys Gln Arg Thr Glu Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Arg Leu Asp Pro Glu Asp Gly Lys Thr Lys Tyr Ala Pro Lys Phe
 50 55 60
 Gln Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
 65 70 75 80
 Leu His Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Gly Gly Leu Gly Arg Glu Glu Tyr Tyr Ala Val Asp Tyr Trp
 100 105 110
 Gly Gln Gly Thr Ser Val Thr Val Ser Ser Val Pro Glu Val Ser Ser
 115 120 125
 Val Phe Ile
 130

<210> 26
 <211> 387
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 26
 gatgtacagc ttcaggagtc aggacctggc ctcgtgaaac cttctcagtc tctgtctctc 60
 acctgctctg tcaactggcta ctccatcacc agtgggttatt actggaactg gatccggcag 120
 tttccaggaa acaaaactgga atggatgggc tacataagct acgatggtag gaataactac 180
 aacccatctc tcaaaaatcg aatctccatc actcgtgaca catctaagaa ccagtttttc 240
 ctgaagttga attctgtgac tactgaggac acagccacat attactgtgc aatccatacg 300
 gtagtagggg actatgttat ggactactgg ggtcaaggaa cctcagtcac cgtctctca 360
 gtcccagaag tatcatctgt cttcatc 387

<210> 27
 <211> 129
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 27
 Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
 1 5 10 15
 Ser Leu Ser Leu Thr Cys Ser Val Thr Gly Tyr Ser Ile Thr Ser Gly
 20 25 30
 Tyr Tyr Trp Asn Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp
 35 40 45
 Met Gly Tyr Ile Ser Tyr Asp Gly Arg Asn Asn Tyr Asn Pro Ser Leu
 50 55 60
 Lys Asn Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe
 65 70 75 80
 Leu Lys Leu Asn Ser Val Thr Thr Glu Asp Thr Ala Thr Tyr Tyr Cys
 85 90 95
 Ala Ile His Thr Val Val Gly Asp Tyr Val Met Asp Tyr Trp Gly Gln
 100 105 110
 Gly Thr Ser Val Thr Val Ser Ser Val Pro Glu Val Ser Ser Val Phe

Ile 115 120 125

<210> 28
 <211> 378
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 28
 gaggttcagc tgcagcagtc tggggcagag cttgtgaggc caggggcctc agtcaagttg 60
 tcctgcacag cttctggctt caacattaaa gactactata tacactgggt gaagaagagg 120
 cctgaacagg gcctggagtg gattggaagg attgacctg aggatggtga tactgagtat 180
 gccccgaagt tccagggcaa ggccactatg actgcagaca catcctccaa cacagcctac 240
 cttcagctca gcagcctgac atctgaggac attgccgtct attactgtac tacatctagg 300
 cctttttatt ttgactactg gggccaaggc accactctca cagtctcctc agtcccagaa 360
 gtatcatctg tcttcatc 378

<210> 29
 <211> 126
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 29
 Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Arg Pro Gly Ala
 1 5 10 15
 Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
 20 25 30
 Tyr Ile His Trp Val Lys Lys Arg Pro Glu Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Arg Ile Asp Pro Glu Asp Gly Asp Thr Glu Tyr Ala Pro Lys Phe
 50 55 60
 Gln Gly Lys Ala Thr Met Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Ile Ala Val Tyr Tyr Cys
 85 90 95
 Thr Thr Ser Arg Pro Phe Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser Val Pro Glu Val Ser Ser Val Phe Ile
 115 120 125

<210> 30
 <211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 30
 gaggttcagc tgcagcagtc tgggacagaa cttgtgaagc caggggcctc agccaagttg 60
 tcctgcacag cttctggctt caacgttaaa gactacttta tgcactgggt gaagcagaag 120
 actgaacagg gcctggagtg gattggaagg attgttcctg aggatggtga aactaagtct 180

gccccgaaat tccaggacag gaccactata agaacagaca catcctccaa cacatctcac 240
 ctacaactca acagcctgac atctgaggac actgccgtct attactgtgc tagacctaac 300
 ccccttact gggccaagg gactctggtc actgtctctg tagtcccaga agtatcatct 360
 gtcttcac 369

<210> 31
 <211> 123
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 31
 Glu Val Gln Leu Gln Gln Ser Gly Thr Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Ala Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Val Lys Asp Tyr
 20 25 30
 Phe Met His Trp Val Lys Gln Lys Thr Glu Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Arg Ile Val Pro Glu Asp Gly Glu Thr Lys Ser Ala Pro Lys Phe
 50 55 60
 Gln Asp Arg Thr Thr Ile Arg Thr Asp Thr Ser Ser Asn Thr Ser His
 65 70 75 80
 Leu Gln Leu Asn Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Pro Asn Pro Pro Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
 100 105 110
 Ser Val Val Pro Glu Val Ser Ser Val Phe Ile
 115 120

<210> 32
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 32
 gaggtgaaac tgggtggaac tggaggaggc ttggttcagt ctgggcgttc tctgagactc 60
 tcctgtgcaa cttctgggtt caccttcagt gatttctaca tggagtgggt ccgccaaact 120
 ccagggaagg gactggagtg gattgctaca agtagaaaca aacttaatga ttatacacca 180
 gaattcagtg catctgtgaa gggtcgattc atcgctctca gagacacttc caaaaacatc 240
 ctctaccttc agatgaatgc cctgagacct gaggacactg ccatttatta ctgtgcaaga 300
 gcctgtagtg actacgaccg ttactatgct atggactatt ggggtcaagg aacctcagtc 360
 accgtctcct cagtcccaga agtatcatct gtcttcac 399

<210> 33
 <211> 133
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 33
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ser Gly Arg
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe

	20		25		30
Tyr Met Glu Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile					
	35		40		45
Ala Thr Ser Arg Asn Lys Leu Asn Asp Tyr Thr Pro Glu Phe Ser Ala					
	50		55		60
Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Asn Ile					
65		70		75	80
Leu Tyr Leu Gln Met Asn Ala Leu Arg Pro Glu Asp Thr Ala Ile Tyr					
	85		90		95
Tyr Cys Ala Arg Ala Cys Ser Asp Tyr Asp Arg Tyr Tyr Ala Met Asp					
	100		105		110
Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser Val Pro Glu Val					
	115		120		125
Ser Ser Val Phe Ile					
	130				

<210> 34
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 34
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggccttc agtgaagctg 60
 tcttgcaagg cttctggcta caccctcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtgg tactaagtac 180
 aatgagaagc tcaagaacaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aagagaggag 300
 ataaattact acggtagtac ctacggtgct atggactact ggggtcaagg aacctcagtc 360
 accgtctcct cagtcccaga agtatcatct gtcttcac 399

<210> 35
 <211> 133
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala					
1		5		10	15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr					
	20		25		30
Trp Met His Trp Val Lys Gln Arg Pro Gly Arg Gly Leu Glu Trp Ile					
	35		40		45
Gly Arg Ile Asp Pro Asn Ser Gly Gly Thr Lys Tyr Asn Glu Lys Leu					
	50		55		60
Lys Asn Lys Ala Thr Leu Thr Val Asp Lys Pro Ser Ser Thr Ala Tyr					
65		70		75	80
Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys					
	85		90		95
Ala Arg Glu Glu Ile Asn Tyr Tyr Gly Ser Thr Tyr Gly Ala Met Asp					
	100		105		110
Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser Val Pro Glu Val					
	115		120		125
Ser Ser Val Phe Ile					
	130				

<210> 36
 <211> 375
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 36
 gaggtccagc tgcagcagtc tggacctgag ctggtgaagc ctgggggcttc agtgaagata 60
 tcctgcaagg cttctgggta ctcattcact ggctactaca tgaactgggt gaagcaaagt 120
 cctgaaaaga gccttgagtg gattggagag attaatccta gcactgggtg tactacctac 180
 aaccagaagt tcaaggccaa ggccacattg actgtagaca aatcctccag cacagcctac 240
 atgcagctca agagcctgac atctgaggac tctgcagtct attactgtgc aggtgggttac 300
 tggtaacttcg atgtctgggg cacagggacc acggtcaccg tctcctcagt cccagaagta 360
 tcactctgtct tcatac 375

<210> 37
 <211> 125
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 37
 Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr Gly Tyr
 20 25 30
 Tyr Met Asn Trp Val Lys Gln Ser Pro Glu Lys Ser Leu Glu Trp Ile
 35 40 45
 Gly Glu Ile Asn Pro Ser Thr Gly Gly Thr Thr Tyr Asn Gln Lys Phe
 50 55 60
 Lys Ala Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
 65 70 75 80
 Met Gln Leu Lys Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95
 Ala Gly Gly Tyr Trp Tyr Phe Asp Val Trp Gly Thr Gly Thr Thr Val
 100 105 110
 Thr Val Ser Ser Val Pro Glu Val Ser Ser Val Phe Ile
 115 120 125

<210> 38
 <211> 396
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 38
 gaggtgcagc tgggtggagtc tgggggagac ttagtggagc ctggagggtc cctgaaactc 60
 tcctgtgcag cctctggatt cactttcagt agctatggca tgtcttgggt tcgccagact 120
 ccagacaaga ggcctggagtg ggtcgcaacc attagtagtg gtggtagtta cacctactat 180
 ccagacagtg tgaaggggagc attcaccatc tccagagaca atgccaagaa caccctgtac 240
 ctgcaaata gaagctctgaa gtctgaggac acagccatgt attactgtgc aagacatgat 300
 tactacggta gtagctacgg gtggtacttc gatgtctggg gcacagggac cacggtcacc 360

gtctcctcag tcccagaagt atcatctgtc ttcac

396

<210> 39
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 39
Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Glu Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Gly Met Ser Trp Val Arg Gln Thr Pro Asp Lys Arg Leu Glu Trp Val
35 40 45
Ala Thr Ile Ser Ser Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
85 90 95
Ala Arg His Asp Tyr Tyr Gly Ser Ser Tyr Gly Trp Tyr Phe Asp Val
100 105 110
Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Val Pro Glu Val Ser
115 120 125
Ser Val Phe Ile
130

<210> 40
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 40
cgatgggggc agggaaagct gcac

24

<210> 41
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 41
gtaaaacgac ggccag

16

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

<220>
<223> synthetic

<400> 42	
caggaaacag ctatgac	17
<210> 43	
<211> 21	
<212> DNA	
<213> Artificial Sequence	
<220>	
<221> variation	
<222> (14)...(14)	
<223> s = c or g	
<220>	
<223> synthetic	
<400> 43	
tcaccatgga ctgsacctgg a	21
<210> 44	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<221> variation	
<222> (17)...(17)	
<223> y = c or t	
<220>	
<223> synthetic	
<400> 44	
ccatggacac actttgytcc ac	22
<210> 45	
<211> 23	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> synthetic	
<400> 45	
tcaccatgga gtttgggctg agc	23
<210> 46	
<211> 25	
<212> DNA	
<213> Artificial Sequence	
<220>	
<221> variation	
<222> (14)...(14)	
<223> y = c or t	
<220>	
<223> synthetic	

<400> 46
 agaacatgaa acayctgtgg ttctt 25

 <210> 47
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 47
 atgggggtcaa cgcctatcct 20

 <210> 48
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 48
 acaatgtctg tctccttcct cat 23

 <210> 49
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 49
 gcaaggctta caaccacaat c 21

 <210> 50
 <211> 381
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 50
 cagggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtc 60
 tcttgcaagg cttctggata caccttcacc agttatgata tcaactgggt gcgacaggcc 120
 actggacaag ggcttgagtg gatgggatgg atgaacccta atagtggtaa gacaggctat 180
 gcacagaagt tccagggcag agtcgccatg accaggaaaa cctccataag cacagcctac 240
 atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagaggac 300
 tacagtaact acggggactt tgactactgg ggccaggga cctgggtcac cgtctcctca 360
 gtgcccaggg attgtggttg t 381

 <210> 51
 <211> 127
 <212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 51

Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ala
1				5					10					15	
Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	Thr	Ser	Tyr
			20					25						30	
Asp	Ile	Asn	Trp	Val	Arg	Gln	Ala	Thr	Gly	Gln	Gly	Leu	Glu	Trp	Met
		35					40					45			
Gly	Trp	Met	Asn	Pro	Asn	Ser	Gly	Lys	Thr	Gly	Tyr	Ala	Gln	Lys	Phe
	50					55					60				
Gln	Gly	Arg	Val	Ala	Met	Thr	Arg	Lys	Thr	Ser	Ile	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	Glu	Asp	Tyr	Ser	Asn	Tyr	Gly	Asp	Phe	Asp	Tyr	Trp	Gly	Gln
			100					105					110		
Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Val	Pro	Arg	Asp	Cys	Gly	Cys	
		115					120					125			

<210> 52

<211> 378

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 52

caggttcagc	tgggtgcagtc	tggagctgag	atgaagaagc	ctggggcctc	agtgaaggtc	60
tcttgcaagg	cttctgggta	cacctttacc	agctatggta	tcagctgggt	gcgacaggcc	120
cctggacaag	ggcttgagtg	gatgggatgg	atcagcgctt	acaatggtaa	cacatactat	180
gcacagaacc	tccagggcag	agtcaccatg	accacagaca	catccacgag	cgcagccttc	240
atggacctga	ggagcctgag	atctgacgac	acggccgtgt	attactgtgc	gagagatggg	300
tatagtacct	cgtccttaga	ctactggggc	caggggaacc	tggtcacccg	ctcctcagtg	360
cccagggatt	gtggttgt					378

<210> 53

<211> 126

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 53

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

Gln	Gly	Arg	Val	Thr	Met	Thr	Thr	Asp	Thr	Ser	Thr	Ser	Ala	Ala	Phe
65					70					75					80
Met	Asp	Leu	Arg	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85				90						95	
Ala	Arg	Asp	Gly	Tyr	Ser	Thr	Ser	Ser	Leu	Asp	Tyr	Trp	Gly	Gln	Gly
			100					105					110		
Thr	Leu	Val	Thr	Val	Ser	Ser	Val	Pro	Arg	Asp	Cys	Gly	Cys		
		115					120					125			

<210> 54
 <211> 378
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 54
 caggttcagc tgggtgcagtc tggagctgag atgaagaagc ctgggggcctc agtgaaggctc 60
 tcctgcaagg cttctggtta cacctttacc agctatggta tcagctgggt gcgacaggcc 120
 cctggacaag ggcttgagtg gatgggatgg atcagcgctt acaatggtaa cacatactat 180
 gcacagaacc tccagggcag agtcaccatg accacagaca catccacgag cgcagccttc 240
 atggacctga ggagcctgag atctgacgac acggccgtgt attactgtgc gagagatggg 300
 tatagtacct cgtccttaga ctactggggc caggggaaccc tggtcaccgt ctcctcagtg 360
 cccagggatt gtggttgt 378

<210> 55
 <211> 126
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Met	Lys	Lys	Pro	Gly	Ala
1				5				10					15		
Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	Thr	Ser	Tyr
		20					25					30			
Gly	Ile	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
	35					40						45			
Gly	Trp	Ile	Ser	Ala	Tyr	Asn	Gly	Asn	Thr	Tyr	Tyr	Ala	Gln	Asn	Leu
	50				55					60					
Gln	Gly	Arg	Val	Thr	Met	Thr	Thr	Asp	Thr	Ser	Thr	Ser	Ala	Ala	Phe
65					70					75					80
Met	Asp	Leu	Arg	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85				90						95	
Ala	Arg	Asp	Gly	Tyr	Ser	Thr	Ser	Ser	Leu	Asp	Tyr	Trp	Gly	Gln	Gly
			100					105					110		
Thr	Leu	Val	Thr	Val	Ser	Ser	Val	Pro	Arg	Asp	Cys	Gly	Cys		
		115					120					125			

<210> 56
 <211> 408
 <212> DNA
 <213> Artificial Sequence

<220>
<223> synthetic

<400> 56
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cctggacaag ggcttgagtg gatgggatgg atcagcgctt acaatggtaa cacaaactat 180
gcacagaagc tccagggcag agtcacccatg accacagaca catccacgag cacagcctac 240
atggagctga ggagcctgag atctgacgac acggccgtgt attactgtgc gagagatgat 300
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caagggacca cggtcaccgt cacctcagtg cccagggatt gtggttgt 408

<210> 57
<211> 136
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 57
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Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30
Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Trp Ile Ser Ala Tyr Asn Gly Asn Thr Asn Tyr Ala Gln Lys Leu
50 55 60
Gln Gly Arg Val Thr Met Thr Thr Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Asp Asp Met Ile Thr Phe Gly Gly Val Ile Ala Asn Tyr Tyr
100 105 110
Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Thr
115 120 125
Ser Val Pro Arg Asp Cys Gly Cys
130 135

<210> 58
<211> 372
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 58
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tcctacaagg cttctgatta cacctttacc agctatggta tcagctgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggatgg atcagcgctt acaatggtaa cacaaactat 180
gcacagaacc tccagggcag agtcacccatg accacagaca catccacgag cacagcctac 240
atggaactga ggagcctgag atctgacgac tcggccgtgt attactgtgc gagagaggag 300
ctggaacttt ttgactactg gggccaggga accctggtca ccgtctcctc agtgcccagg 360
gattgtggtt gt 372

<210> 59
 <211> 124
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 59
 Gln Val Gln Leu Leu Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Tyr Lys Ala Ser Asp Tyr Thr Phe Thr Ser Tyr
 20 25 30
 Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Trp Ile Ser Ala Tyr Asn Gly Asn Thr Asn Tyr Ala Gln Asn Leu
 50 55 60
 Gln Gly Arg Val Thr Met Thr Thr Asp Thr Ser Thr Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Ser Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Glu Glu Leu Glu Leu Phe Asp Tyr Trp Gly Gln Gly Thr Leu
 100 105 110
 Val Thr Val Ser Ser Val Pro Arg Asp Cys Gly Cys
 115 120

<210> 60
 <211> 378
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 60
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 tcttgcaagg cttctggagg cacccttcagc agctatgcta tcagctgggt gcgacaggcc 120
 cctggacaag ggcttgagtg gatgggaggg atcatcccta tctttggtac agcaaactac 180
 gcacagaagt tccagggcag agtcacgatt accacggacg aatccacgag cacagcctac 240
 atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagatggg 300
 tatagtacct cgtccttaga ctactggggc caggggaacc tggtcaccgt ctctctcagt 360
 cccagggatt gtggttgt 378

<210> 61
 <211> 126
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 61
 Gln 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 Ser Ser Tyr
 20 25 30
 Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

<210> 64
<211> 101
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 64
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gcatatgtac aggtaagtca gtaggccttt caccctgacc c 101