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<110> Novartis Forschungsstiftung, Zweigniederlassung Friedrich
Miescher Institute for Biomedical Research
University Hospital Basel

<120> Antiviral Therapy

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<170> PatentIn version 3.3

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Arg Ser Ile Leu Ser Trp Glu Leu Lys Asn His Ser Ile Val Pro Thr
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His Tyr Thr Leu Leu Tyr Thr Ile Met Ser Lys Pro Glu Asp Leu Lys
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Val Val Lys Asn Cys Ala Asn Thr Thr Arg Ser Phe Cys Asp Leu Thr
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Asp Glu Trp Arg Ser Thr His Glu Ala Tyr Val Thr Val Leu Glu Gly
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Phe Ser Gly Asn Thr Thr Leu Phe Ser Cys Ser His Asn Phe Trp Leu
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Ala Ile Asp Met Ser Phe Glu Pro Pro Glu Phe Glu Ile Val Gly Phe
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Thr Asn His Ile Asn Val Met Val Lys Phe Pro Ser Ile Val Glu Glu
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Glu Leu Gln Phe Asp Leu Ser Leu Val Ile Glu Glu Gln Ser Glu Gly
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Ile Val Lys Lys His Lys Pro Glu Ile Lys Gly Asn Met Ser Gly Asn
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Phe Thr Tyr Ile Ile Asp Lys Leu Ile Pro Asn Thr Asn Tyr Cys Val
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Ser Val Tyr Leu Glu His Ser Asp Glu Gln Ala Val Ile Lys Ser Pro
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Leu Lys Cys Thr Leu Leu Pro Pro Gly Gln Glu Ser Glu Ser Ala Glu
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Ser Ala Lys Ile Gly Gly Ile Ile Thr Val Phe Leu Ile Ala Leu Val
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Leu Thr Ser Thr Ile Val Thr Leu Lys Trp Ile Gly Tyr Ile Cys Leu
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Arg Asn Ser Leu Pro Lys Val Leu Asn Phe His Asn Phe Leu Ala Trp
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His Tyr Thr Leu Leu Tyr Thr Ile Met Ser Lys Pro Glu Asp Leu Lys
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Val Val Lys Asn Cys Ala Asn Thr Thr Arg Ser Phe Cys Asp Leu Thr
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Asp Glu Trp Arg Ser Thr His Glu Ala Tyr Val Thr Val Leu Glu Gly
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Phe Ser Gly Asn Thr Thr Leu Phe Ser Cys Ser His Asn Phe Trp Leu
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Ala Ile Asp Met Ser Phe Glu Pro Pro Glu Phe Glu Ile Val Gly Phe
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Thr Asn His Ile Asn Val Met Val Lys Phe Pro Ser Ile Val Glu Glu
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tggggcccga ggctagcatc tctcgggagc cgcaaggcga gagctgcaa gtttaattag	300
acacttcaga attttgatca cctaagtgtg atttcagatg taaaagtcaa gagaagactc	360
taaaaatagc aaagatgctt ttgagccaga atgccttcat cttcagatca ctttaatttg	420
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atgaatcttg cactttcaag atatcattgc gaaatttccg gtccatctta tcatgggaat	540
taaaaaacca ctccattgta ccaactcact atacattgct gtatacaatc atgagtaaac	600
cagaagattt gaaggtgggt aagaactgtg caaataccac aagatcattt tgtgacctca	660
cagatgagtg gagaagcaca cacgaggcct atgtcaccgt cctagaagga ttcagcggga	720
acacaacgtt gttcagttgc tcacacaatt tctggctggc catagacatg tcttttgaac	780
caccagagtt tgagattggt ggttttacca accacattaa tgtgatgggtg aaatttccat	840

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ctattgttga ggaagaatta cagtttgatt tatctctcgt cattgaagaa cagtcagagg      900
gaattgttaa gaagcataaa cccgaaataa aaggaaacat gaggggaaat ttcacctata      960
tcattgacaa gttaattcca aacacgaact actgtgtatc tgtttattta gagcacagtg     1020
atgagcaagc agtaataaag tctcccttaa aatgcaccct ccttcacact ggccaggaat     1080
cagaatcagc agaatctgcc aaaataggag gaataattac tgtgtttttg atagcattgg     1140
tcttgacaag caccatagtg aactgaaat ggattgggta tatatgctta agaaatagcc     1200
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<210> 7
<211> 331
<212> PRT
<213> Homo sapiens

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<400> 7

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

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```

Leu Met Val Tyr Ile Ser Leu Val Phe Gly Ile Ser Tyr Asp Ser Pro
          20           25           30

```

```

Asp Tyr Thr Asp Glu Ser Cys Thr Phe Lys Ile Ser Leu Arg Asn Phe
          35           40           45

```

```

Arg Ser Ile Leu Ser Trp Glu Leu Lys Asn His Ser Ile Val Pro Thr
          50           55           60

```

```

His Tyr Thr Leu Leu Tyr Thr Ile Met Ser Lys Pro Glu Asp Leu Lys
65           70           75           80

```

```

Val Val Lys Asn Cys Ala Asn Thr Thr Arg Ser Phe Cys Asp Leu Thr
          85           90           95

```

```

Asp Glu Trp Arg Ser Thr His Glu Ala Tyr Val Thr Val Leu Glu Gly
          100          105          110

```

```

Phe Ser Gly Asn Thr Thr Leu Phe Ser Cys Ser His Asn Phe Trp Leu

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115		120		125
Ala Ile Asp Met Ser Phe Glu Pro Pro Glu Phe Glu Ile Val Gly Phe				
130		135		140
Thr Asn His Ile Asn Val Met Val Lys Phe Pro Ser Ile Val Glu Glu				
145		150		155
				160
Glu Leu Gln Phe Asp Leu Ser Leu Val Ile Glu Glu Gln Ser Glu Gly				
		165		170
				175
Ile Val Lys Lys His Lys Pro Glu Ile Lys Gly Asn Met Ser Gly Asn				
		180		185
				190
Phe Thr Tyr Ile Ile Asp Lys Leu Ile Pro Asn Thr Asn Tyr Cys Val				
		195		200
				205
Ser Val Tyr Leu Glu His Ser Asp Glu Gln Ala Val Ile Lys Ser Pro				
		210		215
				220
Leu Lys Cys Thr Leu Leu Pro Pro Gly Gln Glu Ser Glu Ser Ala Glu				
225		230		235
				240
Ser Ala Lys Ile Gly Gly Ile Ile Thr Val Phe Leu Ile Ala Leu Val				
		245		250
				255
Leu Thr Ser Thr Ile Val Thr Leu Lys Trp Ile Gly Tyr Ile Cys Leu				
		260		265
				270
Arg Asn Ser Leu Pro Lys Val Leu Arg Gln Gly Leu Ala Lys Gly Trp				
		275		280
				285
Asn Ala Val Ala Ile His Arg Cys Ser His Asn Ala Leu Gln Ser Glu				
		290		295
				300
Thr Pro Glu Leu Lys Gln Ser Ser Cys Leu Ser Phe Pro Ser Ser Trp				
305		310		315
				320
Asp Tyr Lys Arg Ala Ser Leu Cys Pro Ser Asp				
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<210> 8
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<212> DNA

<213> Homo sapiens

<400> 8

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ccgcggacca ccacccgggc gcacggggccg cttttgtccc ccgcccgcgcg cttctgtccg      180
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atcacttaat ttggttctca tgggtgtatat cagcctcgtg tttggtatct catatgattc      420
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atthttgtgac ctacacagatg agtggagaag cacacacgag gcctatgtca ccgtcctaga      660
aggattcagc gggaacacaa cgttggttcag ttgctcacac aatthttctggc tggccataga      720
catgtctthtt gaaccaccag agthttgagat tgttggtthtt accaaccaca ttaatgtgat      780
ggtgaaattht ccatctattg ttgaggaaga attacagtht gatttatctc tcgtcattga      840
agaacagtca gaggggaattg ttaagaagca taaacccgaa ataaaaggaa acatgagtgg      900
aaatthtcacc tatatcattg acaagthaat tccaaacacg aactactgtg tatctgttht      960
thtagagcac agtgatgagc aagcagtaat aaagthtccc thaaaatgca cctcctthcc     1020
acctggccag gaatcagaat cagcagaatc tgccaaaata ggaggaataa ttactgtgtht     1080
thtgatagca ttggtctthg caagcaccat agtgacactg aaatggattg gttatatatg     1140
cttaagaaat agctcccca aagthttgag gcaaggthct gctaagggtc ggaatgcagt     1200
ggctattcac aggtgcagtc ataatgcact acagthctgaa actcctgagc tcaaacagtc     1260
gtcctgccta agctthccca gtagctggga ttacaagcgt gcatccctgt gcccagtgaa     1320
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<210> 9

<211> 189

<212> PRT

<213> Homo sapiens

<400> 9

Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
35 40 45

His Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Glu Glu
50 55 60

Glu Phe Asp Gly His Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu
65 70 75 80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Glu Asp Ser
85 90 95

Ser Ala Ala Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu
100 105 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly
115 120 125

Val Glu Glu Thr Pro Leu Met Asn Glu Asp Ser Ile Leu Ala Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser
165 170 175

Phe Ser Thr Asn Leu Gln Lys Arg Leu Arg Arg Lys Asp
180 185

<210> 10

<211> 189

<212> PRT

<213> Homo sapiens

<400> 10

Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
35 40 45

His Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Glu Glu
50 55 60

Glu Phe Asp Gly His Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu
65 70 75 80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Glu Asp Ser
85 90 95

Ser Ala Ala Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu
100 105 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly
115 120 125

Val Glu Glu Thr Pro Leu Met Asn Glu Asp Ser Ile Leu Ala Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser
165 170 175

Phe Ser Thr Asn Leu Gln Lys Arg Leu Arg Arg Lys Asp
180 185

<210> 11
<211> 189
<212> PRT
<213> Homo sapiens

<400> 11

Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr

1	5	10	15
Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu	20	25	30
Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser	35	40	45
Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Leu Pro Gln Glu	50	55	60
Glu Phe Asp Gly Asn Gln Phe Gln Lys Thr Gln Ala Ile Ser Val Leu	65	70	75
His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Glu Asp Ser	85	90	95
Ser Ala Ala Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu	100	105	110
Tyr Gln Gln Leu Asn Asn Leu Glu Ala Cys Val Ile Gln Glu Val Gly	115	120	125
Met Glu Glu Thr Pro Leu Met Asn Glu Asp Ser Ile Leu Ala Val Arg	130	135	140
Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser	145	150	155
Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser	165	170	175
Phe Ser Thr Asn Leu Gln Lys Ile Leu Arg Arg Lys Asp	180	185	
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<213> Homo sapiens			
<400> 12			
Met Ala Arg Ser Phe Ser Leu Leu Met Val Val Leu Val Leu Ser Tyr	1	5	10
			15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Arg Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
35 40 45

Pro Phe Ser Cys Leu Lys Asp Arg His Glu Phe Arg Phe Pro Glu Glu
50 55 60

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

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Glu Asp Ser
85 90 95

Ser Ala Ala Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu
100 105 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly
115 120 125

Val Glu Glu Thr Pro Leu Met Asn Glu Asp Phe Ile Leu Ala Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Met Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
165 170 175

Phe Ser Thr Asn Leu Lys Lys Gly Leu Arg Arg Lys Asp
180 185

<210> 13
<211> 189
<212> PRT
<213> Homo sapiens

<400> 13

Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu

	20		25		30										
Gly	Asn	Arg	Arg	Ala	Leu	Ile	Leu	Leu	Ala	Gln	Met	Gly	Arg	Ile	Ser
	35						40					45			
Pro	Phe	Ser	Cys	Leu	Lys	Asp	Arg	His	Asp	Phe	Gly	Phe	Pro	Gln	Glu
	50					55					60				
Glu	Phe	Asp	Gly	Asn	Gln	Phe	Gln	Lys	Ala	Gln	Ala	Ile	Ser	Val	Leu
65					70					75					80
His	Glu	Met	Ile	Gln	Gln	Thr	Phe	Asn	Leu	Phe	Ser	Thr	Lys	Asp	Ser
				85					90					95	
Ser	Ala	Thr	Trp	Glu	Gln	Ser	Leu	Leu	Glu	Lys	Phe	Ser	Thr	Glu	Leu
			100						105					110	
Asn	Gln	Gln	Leu	Asn	Asp	Leu	Glu	Ala	Cys	Val	Ile	Gln	Glu	Val	Gly
			115				120					125			
Val	Glu	Glu	Thr	Pro	Leu	Met	Asn	Val	Asp	Ser	Ile	Leu	Ala	Val	Lys
	130					135					140				
Lys	Tyr	Phe	Gln	Arg	Ile	Thr	Leu	Tyr	Leu	Thr	Glu	Lys	Lys	Tyr	Ser
145					150					155					160
Pro	Cys	Ala	Trp	Glu	Val	Val	Arg	Ala	Glu	Ile	Met	Arg	Ser	Phe	Ser
				165					170					175	
Leu	Ser	Lys	Ile	Phe	Gln	Glu	Arg	Leu	Arg	Arg	Lys	Glu			
			180					185							
<210>	14														
<211>	189														
<212>	PRT														
<213>	Homo sapiens														
<400>	14														
Met	Ala	Leu	Ser	Phe	Ser	Leu	Leu	Met	Ala	Val	Leu	Val	Leu	Ser	Tyr
1				5					10					15	
Lys	Ser	Ile	Cys	Ser	Leu	Gly	Cys	Asp	Leu	Pro	Gln	Thr	His	Ser	Leu
			20					25					30		

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
35 40 45

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

Val Phe Asp Gly Asn Gln Phe Gln Lys Ala Gln Ala Ile Ser Ala Phe
65 70 75 80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser
85 90 95

Ser Ala Ala Trp Asp Glu Thr Leu Leu Asp Lys Phe Tyr Ile Glu Leu
100 105 110

Phe Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Thr Gln Glu Val Gly
115 120 125

Val Glu Glu Ile Ala Leu Met Asn Glu Asp Ser Ile Leu Ala Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Met Gly Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
165 170 175

Phe Ser Thr Asn Leu Gln Lys Gly Leu Arg Arg Lys Asp
180 185

<210> 15
<211> 169
<212> PRT
<213> Homo sapiens

<400> 15

Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu Gly Asn Arg Arg
1 5 10 15

Ala Leu Ile Leu Leu Gly Gln Met Gly Arg Ile Ser Pro Phe Ser Cys
20 25 30

Leu Lys Asp Arg His Asp Phe Arg Ile Pro Gln Glu Glu Phe Asp Gly

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

<210> 16
 <211> 189
 <212> PRT
 <213> Homo sapiens

<400> 16

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

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

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser
85 90 95

Ser Ala Thr Trp Asp Glu Thr Leu Leu Asp Lys Phe Tyr Thr Glu Leu
100 105 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Met Met Gln Glu Val Gly
115 120 125

Val Glu Asp Thr Pro Leu Met Asn Val Asp Ser Ile Leu Thr Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
165 170 175

Leu Ser Ala Asn Leu Gln Glu Arg Leu Arg Arg Lys Glu
180 185

<210> 17
<211> 189
<212> PRT
<213> Homo sapiens

<400> 17

Met Ala Leu Pro Phe Ala Leu Leu Met Ala Leu Val Val Leu Ser Cys
1 5 10 15

Lys Ser Ser Cys Ser Leu Asp Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly His Arg Arg Thr Met Met Leu Leu Ala Gln Met Arg Arg Ile Ser
35 40 45

Leu Phe Ser Cys Leu Lys Asp Arg His Asp Phe Arg Phe Pro Gln Glu
50 55 60

Glu Phe Asp Gly Asn Gln Phe Gln Lys Ala Glu Ala Ile Ser Val Leu

65	70										75					80				
His	Glu	Val	Ile	Gln	Gln	Thr	Phe	Asn	Leu	Phe	Ser	Thr	Lys	Asp	Ser					
				85					90					95						
Ser	Val	Ala	Trp	Asp	Glu	Arg	Leu	Leu	Asp	Lys	Leu	Tyr	Thr	Glu	Leu					
			100					105					110							
Tyr	Gln	Gln	Leu	Asn	Asp	Leu	Glu	Ala	Cys	Val	Met	Gln	Glu	Val	Trp					
		115					120					125								
Val	Gly	Gly	Thr	Pro	Leu	Met	Asn	Glu	Asp	Ser	Ile	Leu	Ala	Val	Arg					
	130					135					140									
Lys	Tyr	Phe	Gln	Arg	Ile	Thr	Leu	Tyr	Leu	Thr	Glu	Lys	Lys	Tyr	Ser					
145					150					155					160					
Pro	Cys	Ala	Trp	Glu	Val	Val	Arg	Ala	Glu	Ile	Met	Arg	Ser	Phe	Ser					
				165					170					175						
Ser	Ser	Arg	Asn	Leu	Gln	Glu	Arg	Leu	Arg	Arg	Lys	Glu								
			180					185												
<210>	18																			
<211>	189																			
<212>	PRT																			
<213>	Homo sapiens																			
<400>	18																			
Met	Ala	Ser	Pro	Phe	Ala	Leu	Leu	Met	Val	Leu	Val	Val	Leu	Ser	Cys					
1				5					10					15						
Lys	Ser	Ser	Cys	Ser	Leu	Gly	Cys	Asp	Leu	Pro	Glu	Thr	His	Ser	Leu					
			20					25					30							
Asp	Asn	Arg	Arg	Thr	Leu	Met	Leu	Leu	Ala	Gln	Met	Ser	Arg	Ile	Ser					
		35					40					45								
Pro	Ser	Ser	Cys	Leu	Met	Asp	Arg	His	Asp	Phe	Gly	Phe	Pro	Gln	Glu					
	50					55					60									
Glu	Phe	Asp	Gly	Asn	Gln	Phe	Gln	Lys	Ala	Pro	Ala	Ile	Ser	Val	Leu					
65					70					75					80					

His Glu Leu Ile Gln Gln Ile Phe Asn Leu Phe Thr Thr Lys Asp Ser
85 90 95

Ser Ala Ala Trp Asp Glu Asp Leu Leu Asp Lys Phe Cys Thr Glu Leu
100 105 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Met Gln Glu Glu Arg
115 120 125

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

Lys Tyr Phe Arg Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser
165 170 175

Leu Ser Thr Asn Leu Gln Glu Arg Leu Arg Arg Lys Glu
180 185

<210> 19
<211> 188
<212> PRT
<213> Homo sapiens

<400> 19

Met Ala Leu Thr Phe Ala Leu Leu Val Ala Leu Leu Val Leu Ser Cys
1 5 10 15

Lys Ser Ser Cys Ser Val Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Ser Arg Arg Thr Leu Met Leu Leu Ala Gln Met Arg Arg Ile Ser
35 40 45

Leu Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu
50 55 60

Glu Phe Gly Asn Gln Phe Gln Lys Ala Glu Thr Ile Pro Val Leu His
65 70 75 80

Glu Met Ile Gln Gln Ile Phe Asn Leu Phe Ser Thr Lys Asp Ser Ser

				85					90					95			
Ala	Ala	Trp	Asp	Glu	Thr	Leu	Leu	Asp	Lys	Phe	Tyr	Thr	Glu	Leu	Tyr		
			100					105					110				
Gln	Gln	Leu	Asn	Asp	Leu	Glu	Ala	Cys	Val	Ile	Gln	Gly	Val	Gly	Val		
		115					120					125					
Thr	Glu	Thr	Pro	Leu	Met	Lys	Glu	Asp	Ser	Ile	Leu	Ala	Val	Arg	Lys		
	130					135					140						
Tyr	Phe	Gln	Arg	Ile	Thr	Leu	Tyr	Leu	Lys	Glu	Lys	Lys	Tyr	Ser	Pro		
145					150					155					160		
Cys	Ala	Trp	Glu	Val	Val	Arg	Ala	Glu	Ile	Met	Arg	Ser	Phe	Ser	Leu		
				165					170					175			
Ser	Thr	Asn	Leu	Gln	Glu	Ser	Leu	Arg	Ser	Lys	Glu						
			180					185									
<210>	20																
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<400>	20																
Leu	Leu	Val	Ala	Leu	Leu	Val	Leu	Ser	Cys	Lys	Ser	Ser	Cys	Ser	Val		
1				5					10					15			
Gly	Cys	Asp	Leu	Pro	Gln	Thr	His	Ser	Leu	Gly	Ser	Arg	Arg	Thr	Leu		
			20					25					30				
Met	Leu	Leu	Ala	Gln	Met	Arg	Arg	Ile	Ser	Leu	Phe	Ser	Cys	Leu	Lys		
		35					40					45					
Asp	Arg	His	Asp	Phe	Gly	Phe	Pro	Gln	Glu	Glu	Phe	Gly	Asn	Gln	Phe		
	50					55					60						
Gln	Lys	Ala	Glu	Thr	Ile	Pro	Val	Leu	His	Glu	Met	Ile	Gln	Gln	Ile		
65					70					75					80		
Phe	Asn	Leu	Phe	Ser	Thr	Lys	Asp	Ser	Ser	Ala	Ala	Trp	Asp	Glu	Thr		
				85					90					95			

Leu Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu
100 105 110

Glu Ala Cys Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met
115 120 125

Lys Glu Asp Ser Ile Leu Ala Val Arg Lys Tyr Phe Gln Arg Ile Thr
130 135 140

Leu Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val
145 150 155 160

Arg Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Thr Asn Leu Gln Glu
165 170 175

Ser Leu Arg Ser Lys Glu
180

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Met Ala Leu Pro Phe Ala Leu Met Met Ala Leu Val Val Leu Ser Cys
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Lys Ser Ser Cys Ser Leu Gly Cys Asn Leu Ser Gln Thr His Ser Leu
20 25 30

Asn Asn Arg Arg Thr Leu Met Leu Met Ala Gln Met Arg Arg Ile Ser
35 40 45

Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Glu Phe Pro Gln Glu
50 55 60

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

His Glu Met Met Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asn Ser
85 90 95

Ser Ala Ala Trp Asp Glu Thr Leu Leu Glu Lys Phe Tyr Ile Glu Leu

100	105	110
Phe Gln Gln Met Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly		
115	120	125
Val Glu Glu Thr Pro Leu Met Asn Glu Asp Ser Ile Leu Ala Val Lys		
130	135	140
Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Met Glu Lys Lys Tyr Ser		
145	150	155
Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser		
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Phe Ser Thr Asn Leu Gln Lys Arg Leu Arg Arg Lys Asp		
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Lys Ser Phe Ser Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu		
	20	25
Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Arg Arg Ile Ser		
	35	40
Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Glu Phe Pro Gln Glu		
	50	55
Glu Phe Asp Asp Lys Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu		
65	70	75
His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser		
	85	90
Ser Ala Ala Leu Asp Glu Thr Leu Leu Asp Glu Phe Tyr Ile Glu Leu		
	100	105
		110

Asp Gln Gln Leu Asn Asp Leu Glu Ser Cys Val Met Gln Glu Val Gly
115 120 125

Val Ile Glu Ser Pro Leu Met Tyr Glu Asp Ser Ile Leu Ala Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Ser Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
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Leu Ser Ile Asn Leu Gln Lys Arg Leu Lys Ser Lys Glu
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Met Ala Leu Ser Phe Ser Leu Leu Met Ala Leu Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
35 40 45

Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu

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