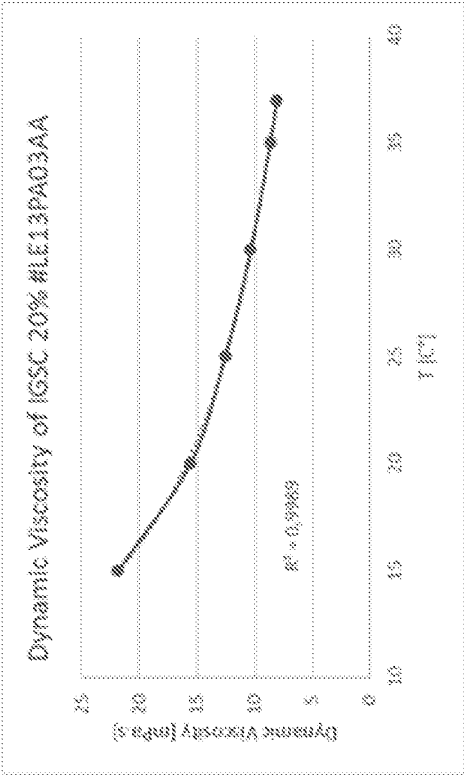




Temperature [°C]	Dynamic Viscosity [mPa.s]	Density [g/cm³]
15	21,89	1,0593
20	15,58	1,0589
25	12,59	1,0575
30	10,37	1,0558
35	8,661	1,0540
37	8,077	1,0532

FIGURE 1A

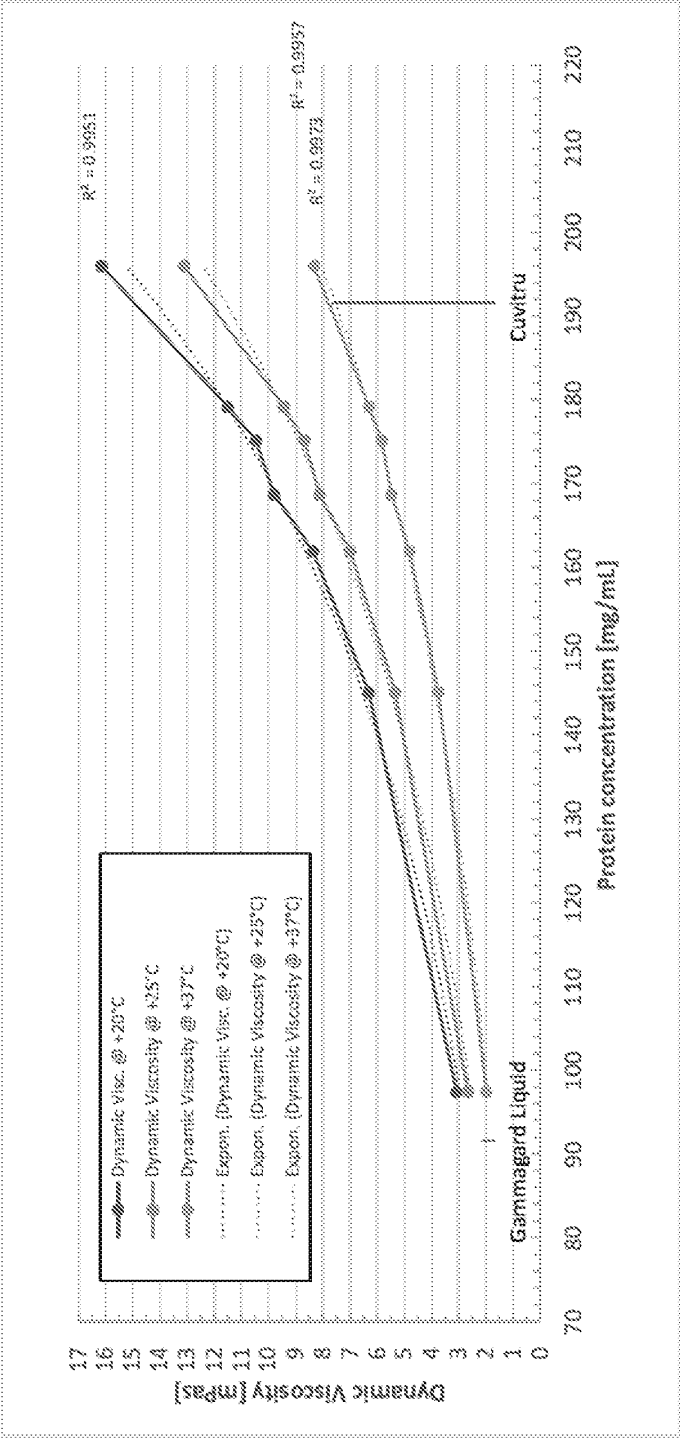


FIGURE 1B

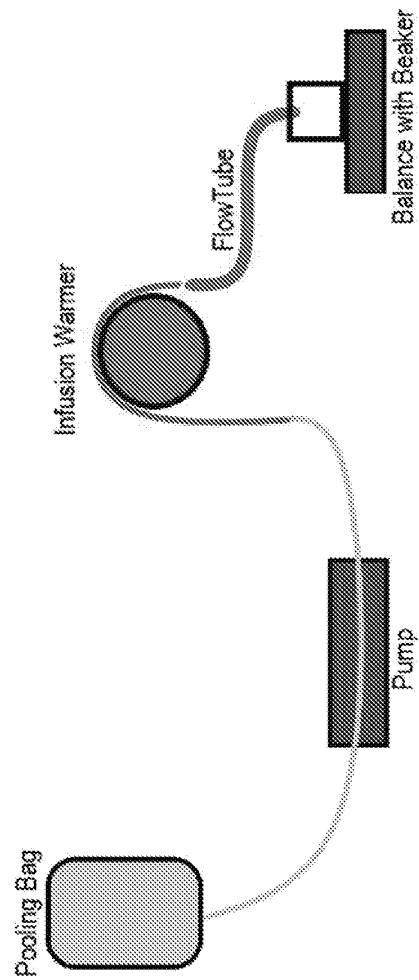


FIGURE 2

IG=immunoglobulin; rHuPH20=recombinant human hyaluronidase

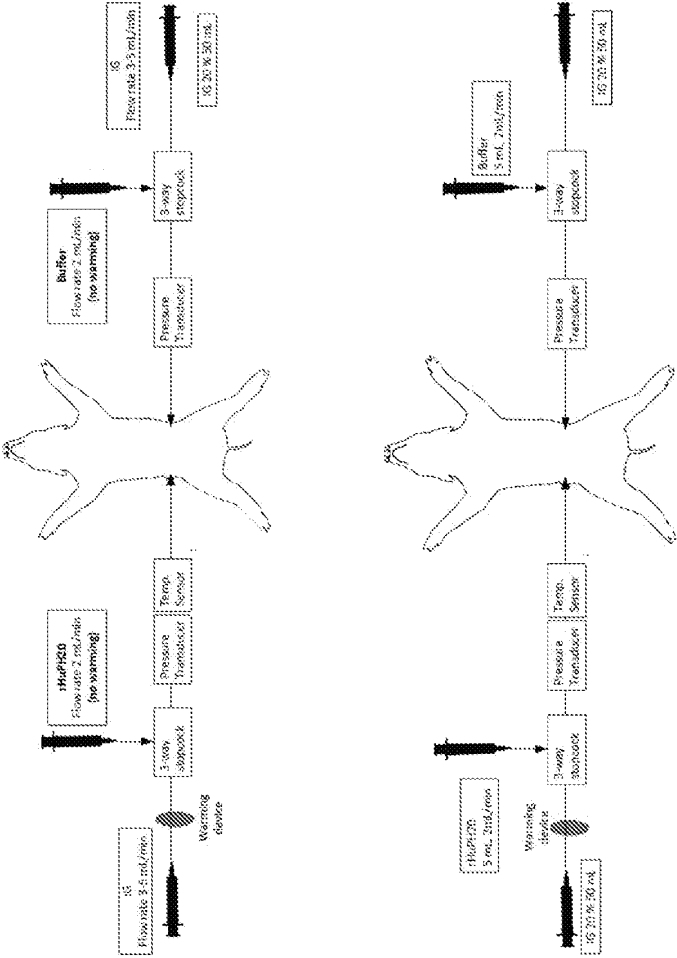


FIGURE 3

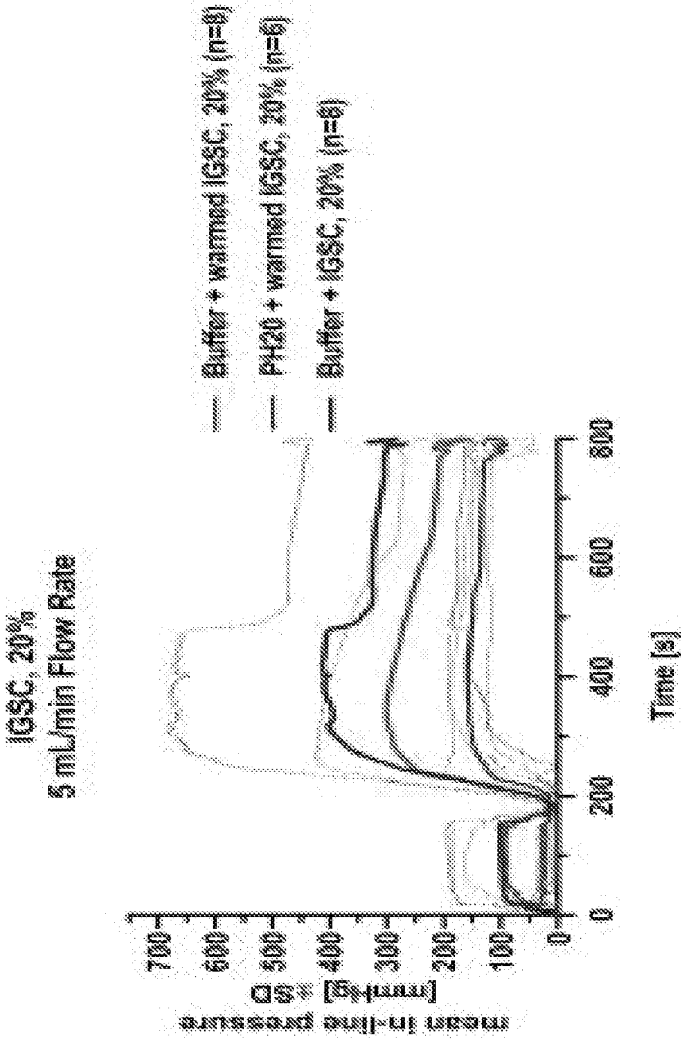


FIGURE 4

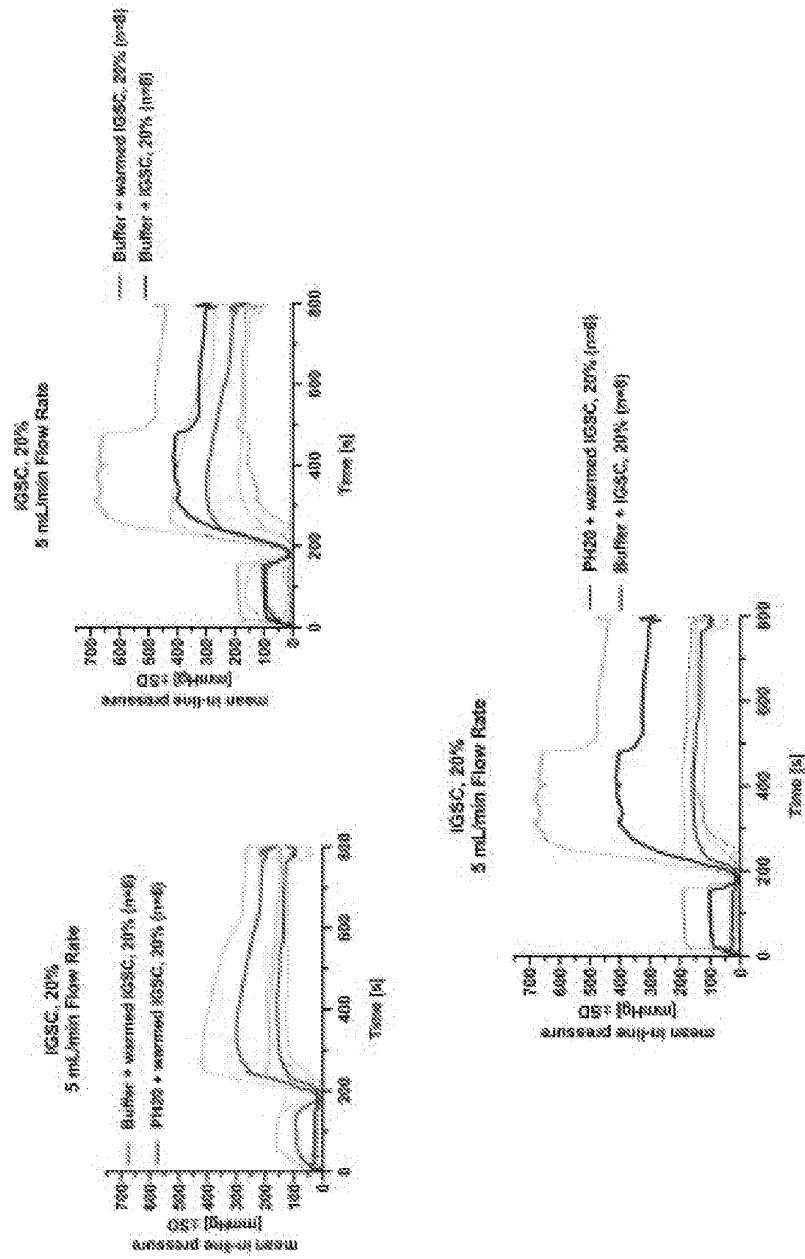


FIGURE 5

	Buffer + warned IGSC, 20% (n=8)	PH2O + warned IGSC, 20% (n=6)	Buffer + IGSC, 20% (n=8)
Number of values	8181		8538
Minimum	2.029		2.095
25% Percentile	93.87		112.9
Median	220.5		317.8
75% Percentile	273.4		373.8
Maximum	300.1		413.7
Range	298.1		411.6
Mean	201.5		270.6
Std. Deviation	85.71		124.6
Std. Error of Mean	0.9471		1.348
Coefficient of variation	42.53%		46.02%
Geometric mean	171.7		216.8
Geometric SD factor	1.965		2.348

FIGURE 6

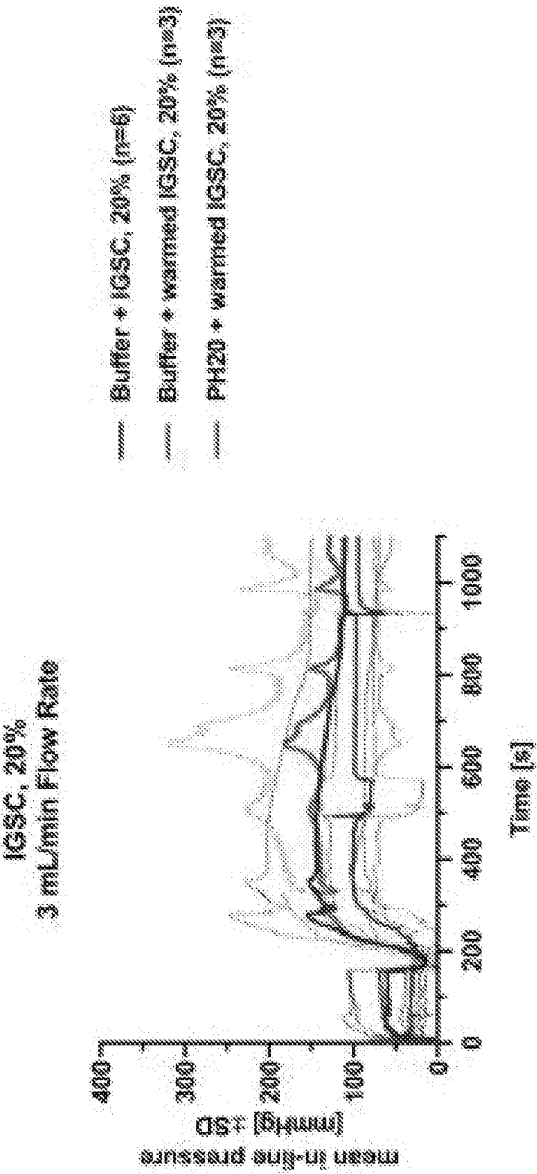


FIGURE 7

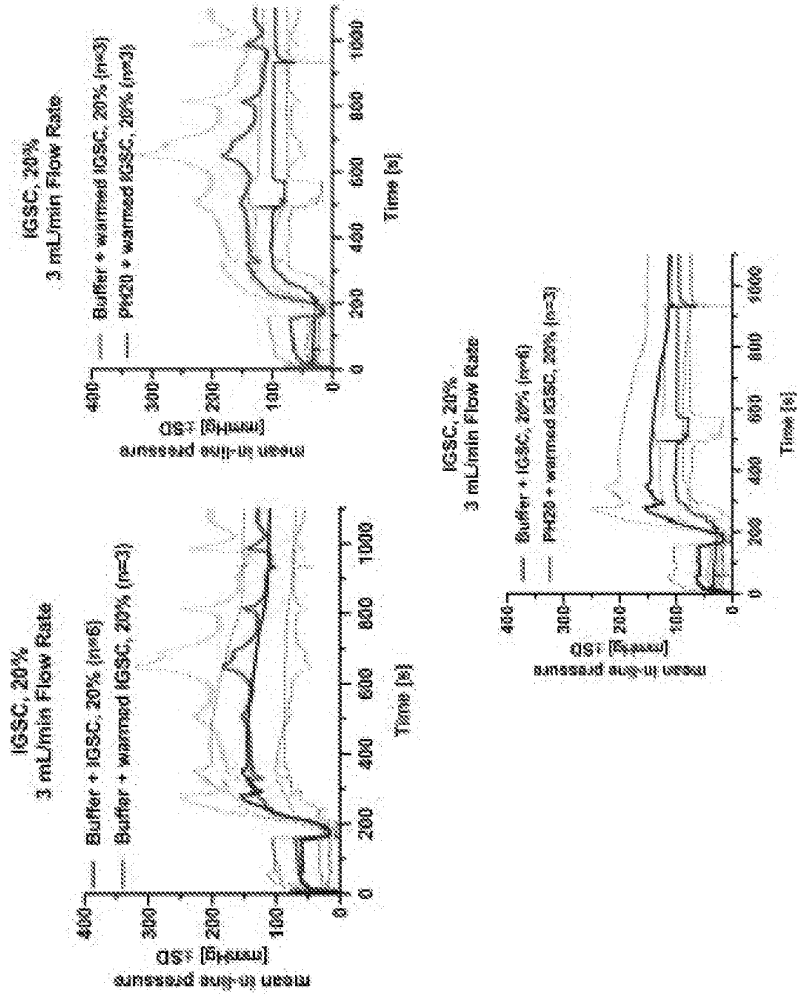


FIGURE 8

3 mL/min – Summary of data

	Buffer + IGSC, 20% (n=6)	PH2O + warmed IGSC, 20% (n=3)	Buffer + warmed IGSC, 20% (3)
Number of values	13140	13140	12040
Minimum	5.816	2.494	1.697
Maximum	156.0	123.0	227.9
Range	150.1	120.5	226.2
Mean	103.7	78.80	120.8
Std. Deviation	42.14	27.56	37.39
Std. Error of Mean	0.3676	0.2404	0.3408
Coefficient of variation	40.64%	35.07%	30.96%
Geometric mean	87.35	70.95	110.7
Geometric SD factor	2.054	1.694	1.689

FIGURE 9

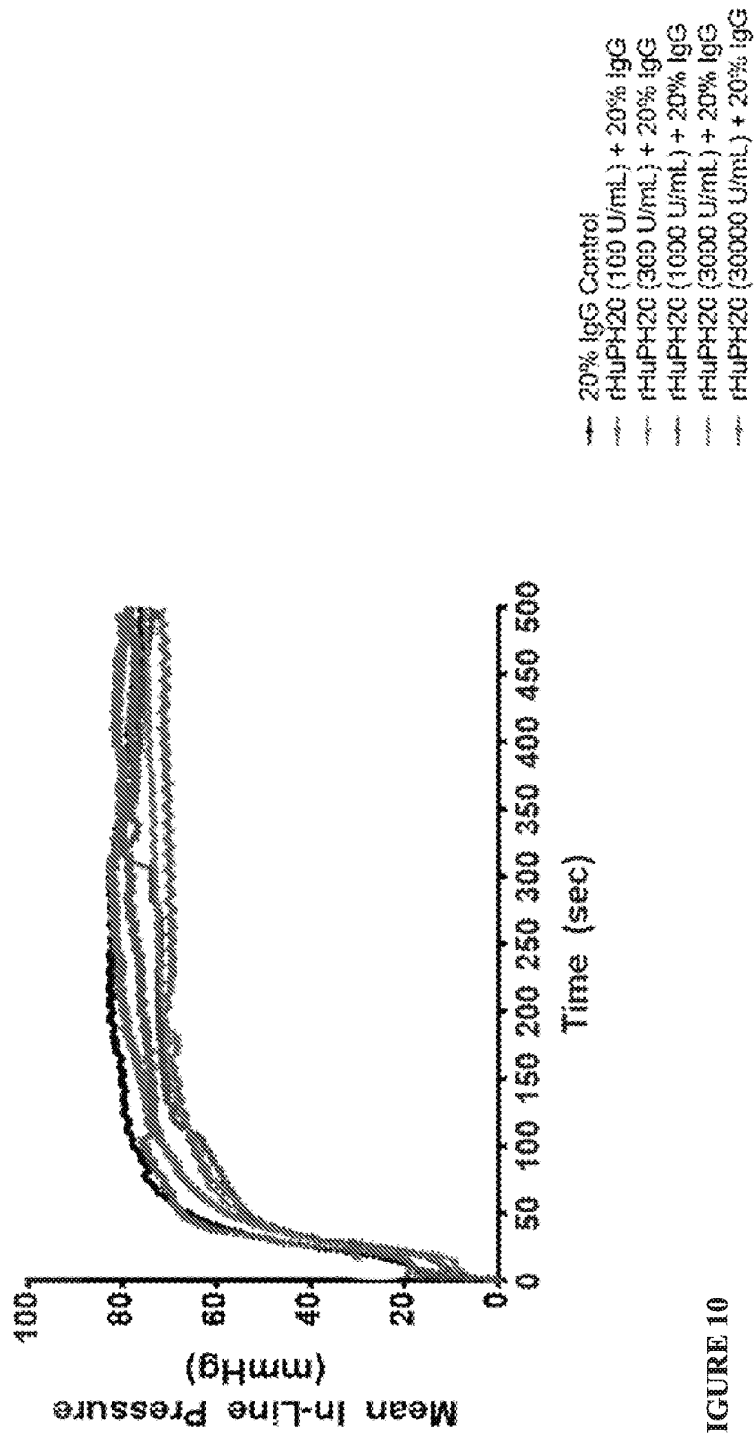


FIGURE 10

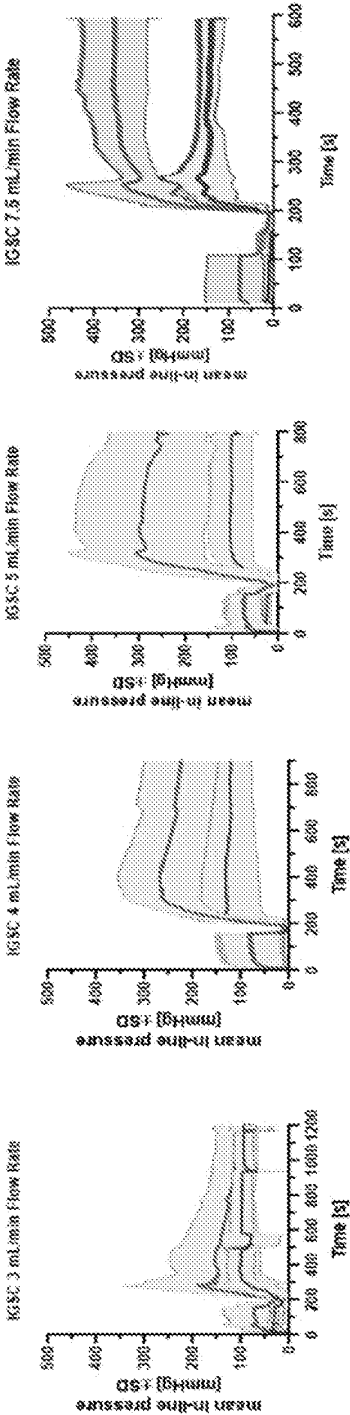
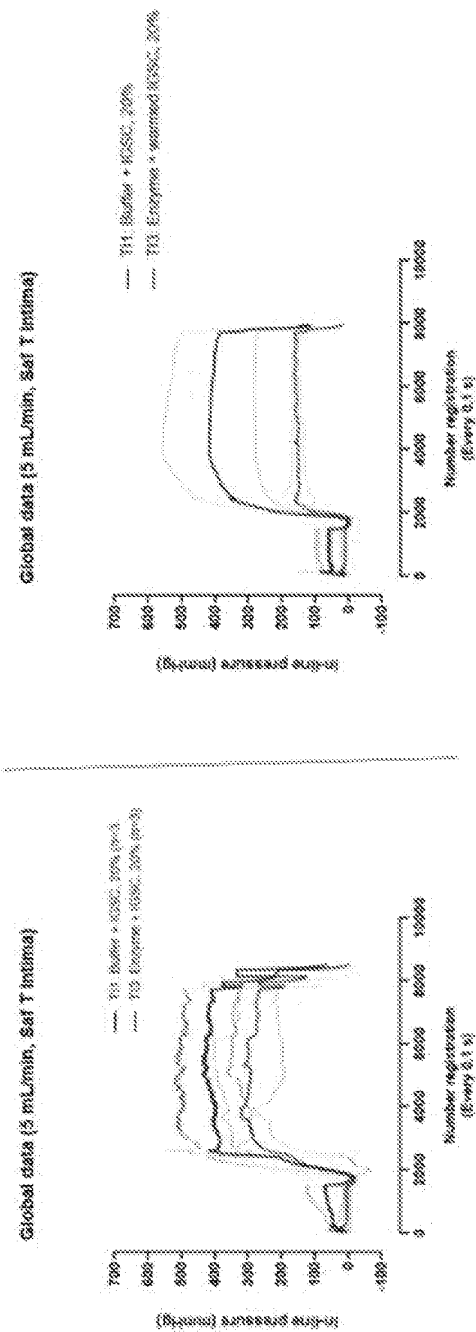


FIGURE 11



Consistent with previous results with the 19 G needle:

- Facilitation without warming showed only a marginal reduction in infusion pressure, consistent with previous data
- Facilitation and warming showed distinct reduction in infusion pressure

FIGURE 12

	$T_{1/2}$ (h)	T_{max} (h)	C_{max} (mg/ml)	C_{max_D} (μ g*mg/ml/mg)	AUC_{0-24} (h*mg/ml)	AUC_{0-24_D} (h* μ g*mg/ml/mg)	AUC_{0-24} (h*mg/ml)	AUC_{0-24_D} (h* μ g*mg/ml/mg)	V_z (ml/kg)
T11 f1G5C20% (n=3)	220.0	24	4.3 $\pm$ 0.91	0.011	892.2 $\pm$ 66.9	2.23	1016.2	2.54	124.9
T12 C14dH1u (n=3)	235.6	24	3.1 $\pm$ 0.5	0.008	905.3 $\pm$ 171.9	2.26	1056.5	2.64	128.7

FIGURE 13

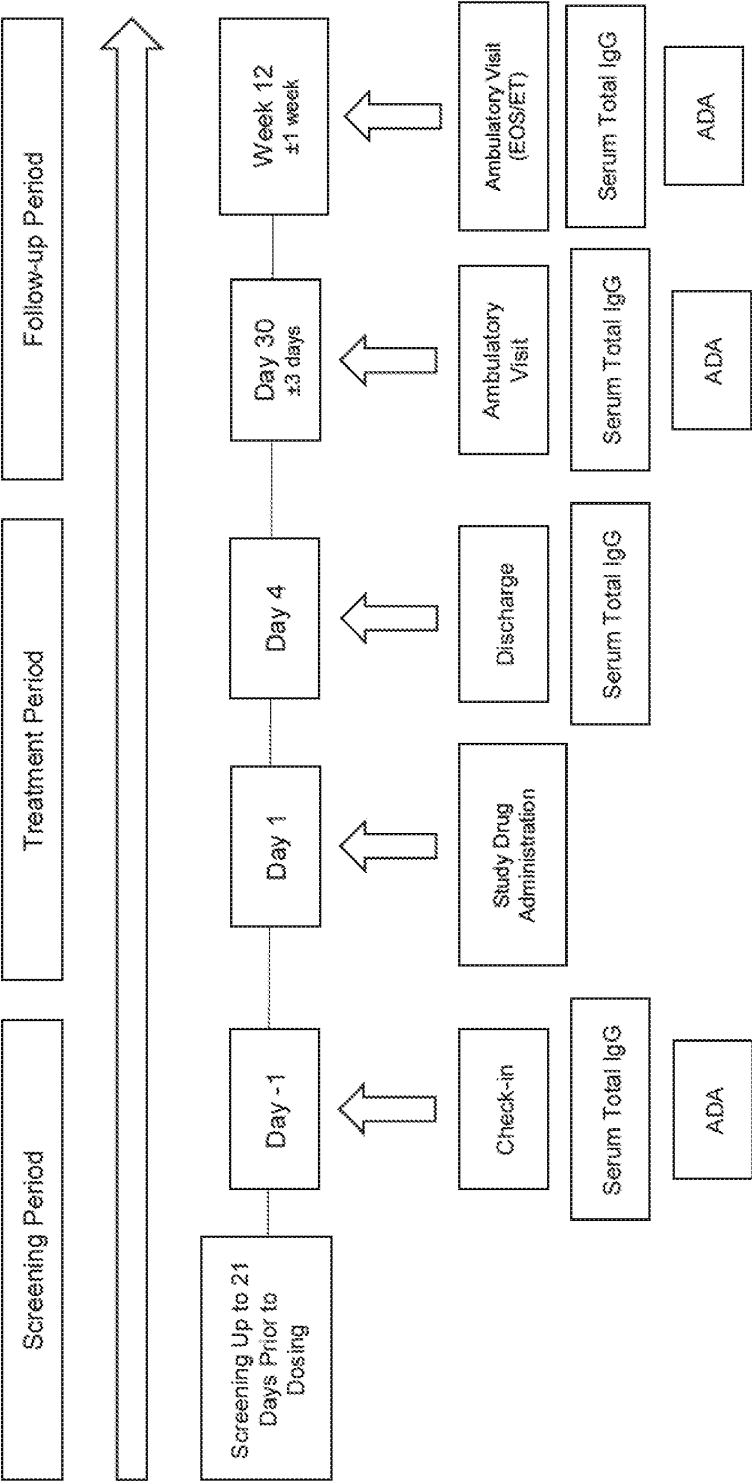


FIGURE 14

FIGURE 15A.1

SEQUENCES FOR THE SEQUENCE LISTING

Halozyme unmodified SEQUENCES of soluble PH20 hyaluronidase
3,32-66 and Full-length precursor PH20 SEQ ID NO:1, including
the signal sequence, residues 1-35

```

<210> 1
<211> 509
<212> PRT
<213> Homo Sapiens

<220>
<223> Precursor Full-length human PH20, signal sequence 1-35

<400> 1
Met Gly Val Leu Lys Phe Lys His Ile Phe Phe Arg Ser Phe Val Lys
 1          5          10          15
Ser Ser Gly Val Ser Gln Ile Val Phe Thr Phe Leu Leu Ile Pro Cys
          20          25          30
Cys Leu Thr Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro
          35          40          45
Phe Leu Trp Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe
 50          55          60
Asp Glu Pro Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg
 65          70          75          80
Ile Asn Ala Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu
          85          90          95
Gly Tyr Tyr Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly
          100          105          110
Gly Ile Pro Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys
          115          120          125
Lys Asp Ile Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val
          130          135          140
Ile Asp Trp Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro
          145          150          155          160
Lys Asp Val Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn
          165          170          175
Val Gln Leu Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe
          180          185          190
Glu Lys Ala Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys
          195          200          205
Leu Leu Arg Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys
          210          215          220
Tyr Asn His His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn
          225          230          235          240
Val Glu Ile Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser
          245          250          255
Thr Ala Leu Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val
          260          265          270
Ala Ala Thr Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val
          275          280          285
Ser Lys Ile Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr
          290          295          300
Arg Ile Val Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu
          305          310          315          320
Leu Val Tyr Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile
          325          330          335
Val Ile Trp Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu
          340          345          350

```

Leu	Leu	Asp	Asn	Tyr	Met	Glu	Thr	Ile	Leu	Asn	Pro	Tyr	Ile	Ile	Asn
		355					360					365			
Val	Thr	Leu	Ala	Ala	Lys	Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln
	370					375					380				
Gly	Val	Cys	Ile	Arg	Lys	Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu
385					390					395					400
Asn	Pro	Asp	Asn	Phe	Ala	Ile	Gln	Leu	Glu	Lys	Gly	Gly	Lys	Phe	Thr
				405					410					415	
Val	Arg	Gly	Lys	Pro	Thr	Leu	Glu	Asp	Leu	Glu	Gln	Phe	Ser	Glu	Lys
			420				425						430		
Phe	Tyr	Cys	Ser	Cys	Tyr	Ser	Thr	Leu	Ser	Cys	Lys	Glu	Lys	Ala	Asp
	435					440						445			
Val	Lys	Asp	Thr	Asp	Ala	Val	Asp	Val	Cys	Ile	Ala	Asp	Gly	Val	Cys
	450					455					460				
Ile	Asp	Ala	Phe	Leu	Lys	Pro	Pro	Met	Glu	Thr	Glu	Glu	Pro	Gln	Ile
465					470				475						480
Phe	Tyr	Asn	Ala	Ser	Pro	Ser	Thr	Leu	Ser	Ala	Thr	Met	Phe	Ile	Val
			485						490					495	
Ser	Ile	Leu	Phe	Leu	Ile	Ile	Ser	Ser	Val	Ala	Ser	Leu			
					500					505					

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<210> 3
<211> 447
<212> PRT
<213> Homo Sapiens
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<220>
<223> Mature PH20 36-482

<400>	3															
Leu	Asn	Phe	Arg	Ala	Pro	Pro	Val	Ile	Pro	Asn	Val	Pro	Phe	Leu	Trp	
1				5					10					15		
Ala	Trp	Asn	Ala	Pro	Ser	Glu	Phe	Cys	Leu	Gly	Lys	Phe	Asp	Glu	Pro	
			20					25					30			
Leu	Asp	Met	Ser	Leu	Phe	Ser	Phe	Ile	Gly	Ser	Pro	Arg	Ile	Asn	Ala	
		35					40					45				
Thr	Gly	Gln	Gly	Val	Thr	Ile	Phe	Tyr	Val	Asp	Arg	Leu	Gly	Tyr	Tyr	
	50					55					60					
Pro	Tyr	Ile	Asp	Ser	Ile	Thr	Gly	Val	Thr	Val	Asn	Gly	Gly	Ile	Pro	
65					70					75					80	
Gln	Lys	Ile	Ser	Leu	Gln	Asp	His	Leu	Asp	Lys	Ala	Lys	Lys	Asp	Ile	
				85					90					95		
Thr	Phe	Tyr	Met	Pro	Val	Asp	Asn	Leu	Gly	Met	Ala	Val	Ile	Asp	Trp	
			100					105					110			
Glu	Glu	Trp	Arg	Pro	Thr	Trp	Ala	Arg	Asn	Trp	Lys	Pro	Lys	Asp	Val	
		115					120					125				
Tyr	Lys	Asn	Arg	Ser	Ile	Glu	Leu	Val	Gln	Gln	Gln	Asn	Val	Gln	Leu	
		130				135					140					
Ser	Leu	Thr	Glu	Ala	Thr	Glu	Lys	Ala	Lys	Gln	Glu	Phe	Glu	Lys	Ala	
145					150					155					160	
Gly	Lys	Asp	Phe	Leu	Val	Glu	Thr	Ile	Lys	Leu	Gly	Lys	Leu	Leu	Arg	
				165					170					175		
Pro	Asn	His	Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His	
			180					185					190			
His	Tyr	Lys	Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile	
		195					200					205				
Lys	Arg	Asn	Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu	
	210					215						220				

FIGURE 15A.3

```

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

```

<210> 32

<211> 430

<212> PRT

<213> Homo sapiens

<220>

<223> Mature human PH20 36-465

<400> 32

```

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

```

FIGURE 15A.4

```

      180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
      195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
      210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
      225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
      305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
      385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile
      420      425      430

```

<210> 33

<211> 431

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-466

<400> 33

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
      20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
      35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
      50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
      65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
      85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
      100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
      115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
      130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala

```

FIGURE 15A.5

```

145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
          225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290          295          300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
          305          310          315          320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
          325          330          335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
          340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
          385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
          405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp
          420          425          430

```

<210> 34

<211> 432

<212> PRT

<213> Homo sapiens

<220>

<223> mature human PH20 36-467

<400> 34

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

```

FIGURE 15A.6

```

      115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
    130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145      150      155      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
    165      170      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
    180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
    195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
    210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
    245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
    260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
    275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
    290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
    325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
    340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
    355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
    370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
    405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
    420      425      430

```

<210> 35

<211> 433

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-468

<400> 35

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

```

FIGURE 15A.7

```

      85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
      100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
      115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
      130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145      150      155      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
      165      170      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
      180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
      195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
      210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420      425      430
Phe

```

<210> 36
 <211> 434
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature PH20 36-469

<400> 36
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala

[illegible]

23/145

FIGURE 15A.9

```

<400> 37
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145      150      155      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
165      170      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
420      425      430
Phe Leu Lys
435

```

<210> 38

<211> 436

FIGURE 15A.10

```

<212> PRT
<213> Homo Sapiens

<220>
<223> mature human PH20 36-471

<400> 38
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
          20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
          35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
          50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100          105          110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115          120          125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
          130          135          140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290          295          300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305          310          315          320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
          325          330          335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
          340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
          405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
          420          425          430

```

FIGURE 15A.11

Phe Leu Lys Pro
435

<210> 39

<211> 437

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-472

<400> 39

Leu	Asn	Phe	Arg	Ala	Pro	Pro	Val	Ile	Pro	Asn	Val	Pro	Phe	Leu	Trp
1				5					10					15	
Ala	Trp	Asn	Ala	Pro	Ser	Glu	Phe	Cys	Leu	Gly	Lys	Phe	Asp	Glu	Pro
			20					25					30		
Leu	Asp	Met	Ser	Leu	Phe	Ser	Phe	Ile	Gly	Ser	Pro	Arg	Ile	Asn	Ala
		35					40					45			
Thr	Gly	Gln	Gly	Val	Thr	Ile	Phe	Tyr	Val	Asp	Arg	Leu	Gly	Tyr	Tyr
	50					55					60				
Pro	Tyr	Ile	Asp	Ser	Ile	Thr	Gly	Val	Thr	Val	Asn	Gly	Gly	Ile	Pro
65					70					75				80	
Gln	Lys	Ile	Ser	Leu	Gln	Asp	His	Leu	Asp	Lys	Ala	Lys	Lys	Asp	Ile
				85					90					95	
Thr	Phe	Tyr	Met	Pro	Val	Asp	Asn	Leu	Gly	Met	Ala	Val	Ile	Asp	Trp
			100					105					110		
Glu	Glu	Trp	Arg	Pro	Thr	Trp	Ala	Arg	Asn	Trp	Lys	Pro	Lys	Asp	Val
		115					120					125			
Tyr	Lys	Asn	Arg	Ser	Ile	Glu	Leu	Val	Gln	Gln	Gln	Asn	Val	Gln	Leu
	130					135					140				
Ser	Leu	Thr	Glu	Ala	Thr	Glu	Lys	Ala	Lys	Gln	Glu	Phe	Glu	Lys	Ala
				150						155					160
Gly	Lys	Asp	Phe	Leu	Val	Glu	Thr	Ile	Lys	Leu	Gly	Lys	Leu	Leu	Arg
				165					170					175	
Pro	Asn	His	Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His
			180					185					190		
His	Tyr	Lys	Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile
		195					200					205			
Lys	Arg	Asn	Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu
	210					215					220				
Tyr	Pro	Ser	Ile	Tyr	Leu	Asn	Thr	Gln	Gln	Ser	Pro	Val	Ala	Ala	Thr
				230						235					240
Leu	Tyr	Val	Arg	Asn	Arg	Val	Arg	Glu	Ala	Ile	Arg	Val	Ser	Lys	Ile
				245					250					255	
Pro	Asp	Ala	Lys	Ser	Pro	Leu	Pro	Val	Phe	Ala	Tyr	Thr	Arg	Ile	Val
			260					265					270		
Phe	Thr	Asp	Gln	Val	Leu	Lys	Phe	Leu	Ser	Gln	Asp	Glu	Leu	Val	Tyr
		275					280					285			
Thr	Phe	Gly	Glu	Thr	Val	Ala	Leu	Gly	Ala	Ser	Gly	Ile	Val	Ile	Trp
	290					295					300				
Gly	Thr	Leu	Ser	Ile	Met	Arg	Ser	Met	Lys	Ser	Cys	Leu	Leu	Leu	Asp
	305				310					315				320	
Asn	Tyr	Met	Glu	Thr	Ile	Leu	Asn	Pro	Tyr	Ile	Ile	Asn	Val	Thr	Leu
				325						330				335	
Ala	Ala	Lys	Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln	Gly	Val	Cys
			340					345					350		
Ile	Arg	Lys	Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu	Asn	Pro	Asp
		355					360					365			
Asn	Phe	Ala	Ile	Gln	Leu	Glu	Lys	Gly	Gly	Lys	Phe	Thr	Val	Arg	Gly
	370					375					380				

FIGURE 15A.12

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe Leu Lys Pro Pro
 435

<210> 40
 <211> 438
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature human PH20 36-473

<400> 40
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100 105 110
 Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125
 Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175
 Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180 185 190
 His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195 200 205
 Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
 305 310 315 320
 Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335

FIGURE 15A.13

Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe Leu Lys Pro Pro Met
 435

<210> 41

<211> 439

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-474

<400> 41

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100 105 110
 Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125
 Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175
 Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180 185 190
 His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195 200 205
 Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285

FIGURE 15A.14

```

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
  290                295                300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
  305                310                315                320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
                325                330                335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
                340                345                350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
                355                360                365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
                370                375                380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
  385                390                395                400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
                405                410                415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
                420                425                430
Phe Leu Lys Pro Pro Met Glu
                435

```

<210> 42
 <211> 440
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature human PH20 36-475

```

<400> 42
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1                5                10                15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
                20                25                30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
                35                40                45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
                50                55                60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
                65                70                75                80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
                85                90                95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
                100                105                110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
                115                120                125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
                130                135                140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
                145                150                155                160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
                165                170                175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
                180                185                190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
                195                200                205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
                210                215                220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
                225                230                235                240

```

FIGURE 15A.15

```

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

```

<210> 43
 <211> 441
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature human PH20 36-476

```

<400> 43
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1                5                10                15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
                20                25                30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
                35                40                45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
                50                55                60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65                70                75                80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
                85                90                95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
                100               105               110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
                115               120               125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
                130               135               140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145                150                155                160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
                165                170                175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
                180                185                190

```

FIGURE 15A.16

```

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
      195                200                205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
      210                215                220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225                230                235                240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245                250                255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260                265                270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275                280                285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290                295                300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305                310                315                320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325                330                335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340                345                350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355                360                365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370                375                380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385                390                395                400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405                410                415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420                425                430
Phe Leu Lys Pro Pro Met Glu Thr Glu
      435                440

```

<210> 44

<211> 442

<212> PRT

<213> Homo sapiens

<220>

<223> mature human PH20 36-477

<400> 44

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1                5                10                15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
      20                25                30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
      35                40                45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
      50                55                60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
      65                70                75                80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
      85                90                95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
      100                105                110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
      115                120                125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
      130                135                140

```

FIGURE 15A.17

```

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290          295          300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305          310          315          320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
          325          330          335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
          340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
          405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
          420          425          430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu
          435          440

```

<210> 45

<211> 443

<212> PRT

<213> Homo sapiens

<220>

<223> mature human PH20 36-478

<400> 45

```

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

```

FIGURE 15A.18

```

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
      100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
      115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
      130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
      145      150      155      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
      165      170      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
      180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
      195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
      210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
      225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
      305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
      385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420      425      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro
      435      440

```

<210> 46

<211> 444

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-479

<400> 46

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
  20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
  35      40      45

```

FIGURE 15A.19

```

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
  50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
  65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100          105          110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115          120          125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
          130          135          140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
          145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
          225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290          295          300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
          305          310          315          320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
          325          330          335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
          340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
          385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
          405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
          420          425          430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln
          435          440

```

<210> 47

<211> 445

<212> PRT

<213> Homo sapiens

<220>

<223> mature human PH20 36-480

<400> 47

FIGURE 15A.20

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
100     105     110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
115     120     125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130     135     140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145     150     155     160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
165     170     175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180     185     190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195     200     205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210     215     220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225     230     235     240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
245     250     255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260     265     270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275     280     285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290     295     300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305     310     315     320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
325     330     335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
340     345     350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
355     360     365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
370     375     380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385     390     395     400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
405     410     415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
420     425     430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile
435     440     445

```

<210> 48

<211> 446

<212> PRT

FIGURE 15A.21

<213> Homo Sapiens

<220>

<223> mature human PH20 36-481

<400> 48

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
100          105          110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
115          120          125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130          135          140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290          295          300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305          310          315          320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
325          330          335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
420          425          430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe

```

FIGURE 15A.22

435 440 445

<210> 49
 <211> 448
 <212> PRT
 <213> Homo sapiens

<220>
 <223> mature human PH20 36-483

<400> 49

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
          20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
          35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
          50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100         105         110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115         120         125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130         135         140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145         150         155         160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165         170         175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180         185         190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195         200         205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210         215         220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225         230         235         240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245         250         255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260         265         270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275         280         285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290         295         300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305         310         315         320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
          325         330         335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
          340         345         350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355         360         365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370         375         380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys

```

FIGURE 15A.23

```

385              390              395              400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
              405              410              415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
              420              425              430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
              435              440              445

```

```

<210> 50
<211> 449
<212> PRT
<213> Homo sapiens

```

```

<220>
<223> mature human PH20 36-484

```

```

<400> 50
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1              5              10              15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20              25              30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35              40              45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50              55              60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65              70              75              80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85              90              95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100             105             110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115             120             125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130             135             140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145             150             155             160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165             170             175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180             185             190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195             200             205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210             215             220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225             230             235             240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245             250             255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260             265             270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275             280             285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290             295             300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
 305             310             315             320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325             330             335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys

```

FIGURE 15A.24

```

          340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
          385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
          405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
          420          425          430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
          435          440          445
Ala

```

<210> 51
 <211> 450
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature human PH20 36-485

```

<400> 51
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
          20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
          35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
          50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
          65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100          105          110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115          120          125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
          130          135          140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
          145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
          225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr

```

FIGURE 15A.25

```

      275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420      425      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435      440      445
Ala Ser
      450

```

<210> 52

<211> 451

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-486

<400> 52

```

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

```

FIGURE 15A.26

```

      210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420      425      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435      440      445
Ala Ser Pro
450

```

<210> 53

<211> 452

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-487

<400> 53

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
      20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
      35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
      85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
      100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
      115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala

```

FIGURE 15A.27

```

145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
          225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290          295          300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
          305          310          315          320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
          325          330          335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
          340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
          385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
          405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
          420          425          430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
          435          440          445
Ala Ser Pro Ser
          450

```

<210> 54

<211> 453

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-488

<400> 54

```

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

```

					85					90					95	
Thr	Phe	Tyr	Met	Pro	Val	Asp	Asn	Leu	Gly	Met	Ala	Val	Ile	Asp	Trp	
			100					105					110			
Glu	Glu	Trp	Arg	Pro	Thr	Trp	Ala	Arg	Asn	Trp	Lys	Pro	Lys	Asp	Val	
			115				120					125				
Tyr	Lys	Asn	Arg	Ser	Ile	Glu	Leu	Val	Gln	Gln	Gln	Asn	Val	Gln	Leu	
			130			135					140					
Ser	Leu	Thr	Glu	Ala	Thr	Glu	Lys	Ala	Lys	Gln	Glu	Phe	Glu	Lys	Ala	
					150					155					160	
Gly	Lys	Asp	Phe	Leu	Val	Glu	Thr	Ile	Lys	Leu	Gly	Lys	Leu	Leu	Arg	
				165				170						175		
Pro	Asn	His	Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His	
			180					185					190			
His	Tyr	Lys	Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile	
			195				200					205				
Lys	Arg	Asn	Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu	
						215					220					
Tyr	Pro	Ser	Ile	Tyr	Leu	Asn	Thr	Gln	Gln	Ser	Pro	Val	Ala	Ala	Thr	
					230					235					240	
Leu	Tyr	Val	Arg	Asn	Arg	Val	Arg	Glu	Ala	Ile	Arg	Val	Ser	Lys	Ile	
				245					250					255		
Pro	Asp	Ala	Lys	Ser	Pro	Leu	Pro	Val	Phe	Ala	Tyr	Thr	Arg	Ile	Val	
			260					265					270			
Phe	Thr	Asp	Gln	Val	Leu	Lys	Phe	Leu	Ser	Gln	Asp	Glu	Leu	Val	Tyr	
			275				280					285				
Thr	Phe	Gly	Glu	Thr	Val	Ala	Leu	Gly	Ala	Ser	Gly	Ile	Val	Ile	Trp	
			290			295					300					
Gly	Thr	Leu	Ser	Ile	Met	Arg	Ser	Met	Lys	Ser	Cys	Leu	Leu	Leu	Asp	
				310					315						320	
Asn	Tyr	Met	Glu	Thr	Ile	Leu	Asn	Pro	Tyr	Ile	Ile	Asn	Val	Thr	Leu	
				325					330					335		
Ala	Ala	Lys	Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln	Gly	Val	Cys	
			340					345					350			
Ile	Arg	Lys	Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu	Asn	Pro	Asp	
			355				360					365				
Asn	Phe	Ala	Ile	Gln	Leu	Glu	Lys	Gly	Gly	Lys	Phe	Thr	Val	Arg	Gly	
			370			375					380					
Lys	Pro	Thr	Leu	Glu	Asp	Leu	Glu	Gln	Phe	Ser	Glu	Lys	Phe	Tyr	Cys	
				390					395						400	
Ser	Cys	Tyr	Ser	Thr	Leu	Ser	Cys	Lys	Glu	Lys	Ala	Asp	Val	Lys	Asp	
				405					410					415		

<220>
<223> mature human PH20 36-489

43/145

FIGURE 15A.29

```

      20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
      35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
      50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
      85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
      100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
      115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
      130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145      150      155      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
      165      170      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
      180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
      195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
      210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420      425      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435      440      445
Ala Ser Pro Ser Thr Leu
      450

```

<210> 56
 <211> 455
 <212> PRT
 <213> Homo Sapiens

FIGURE 15A.30

<220>

<223> mature human PH20 36-490

<400> 56

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
          20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
          35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
          50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100          105          110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115          120          125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
          130          135          140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290          295          300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305          310          315          320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
          325          330          335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
          340          345          350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
          370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
          405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
          420          425          430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
          435          440          445

```

FIGURE 15A.31

Ala Ser Pro Ser Thr Leu Ser
450 455

<210> 57
<211> 456
<212> PRT
<213> Homo Sapiens

<220>
<223> mature human PH20 36-491

<400> 57
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1 5 10 15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20 25 30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35 40 45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50 55 60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65 70 75 80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
85 90 95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
100 105 110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
115 120 125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130 135 140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145 150 155 160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
165 170 175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180 185 190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195 200 205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210 215 220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225 230 235 240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
245 250 255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260 265 270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275 280 285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290 295 300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305 310 315 320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
325 330 335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
340 345 350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
355 360 365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
370 375 380

FIGURE 15A.32

```

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385                      390                      395                      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
                      405                      410                      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
                      420                      425                      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
                      435                      440                      445
Ala Ser Pro Ser Thr Leu Ser Ala
                      450                      455

```

```

<210> 58
<211> 457
<212> PRT
<213> Homo Sapiens

```

```

<220>
<223> mature human PH20 36-492

```

```

<400> 58
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1                      5                      10                      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
                      20                      25                      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
                      35                      40                      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50                      55                      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65                      70                      75                      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
                      85                      90                      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
                      100                      105                      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
                      115                      120                      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130                      135                      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145                      150                      155                      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
                      165                      170                      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180                      185                      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195                      200                      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210                      215                      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225                      230                      235                      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
                      245                      250                      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260                      265                      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275                      280                      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290                      295                      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305                      310                      315                      320

```

FIGURE 15A.33

```

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

```

<210> 59
 <211> 458
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature human PH20 36-493

```

<400> 59
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100     105     110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115     120     125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130     135     140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145     150     155     160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165     170     175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180     185     190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195     200     205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210     215     220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225     230     235     240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245     250     255

```

FIGURE 15A.34

```

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

```

<210> 60
 <211> 459
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature human PH20 36-494

```

<400> 60
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
  20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
  35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
  50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
  65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
  85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
  100     105     110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
  115     120     125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
  130     135     140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
  145     150     155     160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
  165     170     175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
  180     185     190

```

FIGURE 15A.35

```

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
    195                200                205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
    210                215                220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
    225                230                235                240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
    245                250                255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
    260                265                270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
    275                280                285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
    290                295                300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
    305                310                315                320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
    325                330                335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
    340                345                350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
    355                360                365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
    370                375                380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
    385                390                395                400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
    405                410                415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
    420                425                430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
    435                440                445
Ala Ser Pro Ser Thr Leu Ser Ala Thr Met Phe
    450                455

```

<210> 61
 <211> 460
 <212> PRT
 <213> Homo Sapiens

<220>
 <223> mature human PH20 36-495

```

<400> 61
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
  20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
  35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
  50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
  65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
  85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
  100         105         110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
  115         120         125

```

FIGURE 15A.36

```

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130 135 140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145 150 155 160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
165 170 175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180 185 190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195 200 205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210 215 220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225 230 235 240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
245 250 255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260 265 270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275 280 285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290 295 300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305 310 315 320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
325 330 335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
340 345 350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
355 360 365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
370 375 380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385 390 395 400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
405 410 415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
420 425 430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
435 440 445
Ala Ser Pro Ser Thr Leu Ser Ala Thr Met Phe Ile
450 455 460

```

<210> 62

<211> 461

<212> PRT

<213> Homo sapiens

<220>

<223> mature human PH20 36-496

<400> 62

```

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

```

FIGURE 15A.37

```

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65      70      75
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
      85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
      100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
      115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
      130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145      150      155      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
      165      170      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
      180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
      195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
      210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420      425      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435      440      445
Ala Ser Pro Ser Thr Leu Ser Ala Thr Met Phe Ile Val
      450      455      460

```

<210> 63

<211> 462

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH30 36-497

<400> 63

FIGURE 15A.38

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1      5      10      15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20      25      30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35      40      45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50      55      60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65      70      75      80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85      90      95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
100      105      110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
115      120      125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130      135      140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145      150      155      160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
165      170      175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180      185      190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195      200      205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210      215      220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225      230      235      240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
245      250      255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260      265      270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275      280      285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
420      425      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
435      440      445
Ala Ser Pro Ser Thr Leu Ser Ala Thr Met Phe Ile Val Ser
450      455      460

```

<210> 64

FIGURE 15A.39

```

<211> 463
<212> PRT
<213> Homo sapiens

<220>
<223> mature human PH20 36-498

<400> 64
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
100         105         110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
115         120         125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130         135         140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145         150         155         160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
165         170         175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
180         185         190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
195         200         205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210         215         220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225         230         235         240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
245         250         255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260         265         270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275         280         285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
290         295         300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305         310         315         320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
325         330         335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
340         345         350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
355         360         365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
370         375         380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385         390         395         400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
405         410         415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala

```

FIGURE 15A.40

420 425 430
 Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
 435 440 445
 Ala Ser Pro Ser Thr Leu Ser Ala Thr Met Phe Ile Val Ser Ile
 450 455 460

<210> 65

<211> 464

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-499

<400> 65

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100 105 110
 Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125
 Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175
 Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180 185 190
 His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195 200 205
 Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
 305 310 315 320
 Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335
 Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp

FIGURE 15A.41

```

          355          360          365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
   370          375          380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385          390          395          400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
   405          410          415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
   420          425          430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
   435          440          445
Ala Ser Pro Ser Thr Leu Ser Ala Thr Met Phe Ile Val Ser Ile Leu
   450          455          460

```

<210> 66

<211> 465

<212> PRT

<213> Homo Sapiens

<220>

<223> mature human PH20 36-500

<400> 66

```

Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1          5          10          15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
   20          25          30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
   35          40          45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
   50          55          60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65          70          75          80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
   85          90          95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
   100          105          110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
   115          120          125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
130          135          140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
145          150          155          160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Arg
   165          170          175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
   180          185          190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
   195          200          205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
210          215          220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
225          230          235          240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
   245          250          255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
260          265          270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
275          280          285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp

```

FIGURE 15A.42

```

      290      295      300
Gly Thr Leu Ser Ile Met Arg Ser Met Lys Ser Cys Leu Leu Leu Asp
305      310      315      320
Asn Tyr Met Glu Thr Ile Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325      330      335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340      345      350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355      360      365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370      375      380
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385      390      395      400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405      410      415
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420      425      430
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435      440      445
Ala Ser Pro Ser Thr Leu Ser Ala Thr Met Phe Ile Val Ser Ile Leu
450      455      460
Phe
465

```

Variants from Alteogen (SEQ ID NOs. 60-115)

```

<210>      60
<211>      455
<212>      PRT
<213>      Artificial Sequence
<220>
<223>      Synthetic Sequence

```

```

<400>      60
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1      5      10      15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20      25      30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35      40      45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50      55      60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
65      70      75      80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
85      90      95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
100      105      110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
115      120      125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu

```

FIGURE 15A.43

130	135	140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala		
145	150	155
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg		
	165	170
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His		
	180	185
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile		
	195	200
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu		
	210	215
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr		
	225	230
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile		
	245	250
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val		
	260	265
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr		
	275	280
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp		
	290	295
Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys		
	305	310
Glu Tyr Met Asp Thr Thr Leu Gly Pro Tyr Ile Ile Asn Val Thr Leu		
	325	330
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys		
	340	345
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp		
	355	360
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly		
	370	375
Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys		
	385	390
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp		
	405	410
Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala		
	420	425
Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn		
	435	440
Ala Ser Pro Ser Thr Leu Ser		
	450	455

FIGURE 15A.44

```

<210>      61
<211>      455
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      61
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1              5              10              15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
          20              25              30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
          35              40              45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
          50              55              60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
          65              70              75              80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85              90              95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100             105             110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115             120             125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
          130             135             140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
          145             150             155             160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165             170             175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180             185             190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195             200             205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210             215             220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
          225             230             235             240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245             250             255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val

```

FIGURE 15A.45

```

                260                265                270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275                280                285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290                295                300

Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
305                310                315

Glu Tyr Met Asp Thr Thr Leu Asn Pro Phe Ile Leu Asn Val Thr Ser
      325                330                335

Gly Ala Leu Leu Cys Ser Gln Ala Leu Cys Gln Glu Gln Gly Val Cys
      340                345                350

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355                360                365

Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370                375                380

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
385                390                395                400

Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405                410                415

Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420                425                430

Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435                440                445

Ala Ser Pro Ser Thr Leu Ser
      450                455

<210>      62
<211>      455
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      62
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1                5                10                15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
      20                25                30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
      35                40                45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
      50                55                60

```

FIGURE 15A.46

```

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65                               70                               75                               80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
                               85                               90                               95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100                               105                               110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115                               120                               125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130                               135                               140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145                               150                               155                               160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
                               165                               170                               175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
                               180                               185                               190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195                               200                               205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210                               215                               220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225                               230                               235                               240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
                               245                               250                               255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
                               260                               265                               270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275                               280                               285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290                               295                               300

Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305                               310                               315                               320

Glu Tyr Met Asp Thr Thr Leu Gly Pro Phe Ile Leu Asn Val Thr Ser
 325                               330                               335

Gly Ala Leu Leu Cys Ser Gln Ala Leu Cys Gln Glu Gln Gly Val Cys
 340                               345                               350

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355                               360                               365

Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370                               375                               380

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys

```

FIGURE 15A.47

```

385              390              395              400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
              405              410              415

Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
              420              425              430

Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
              435              440              445

Ala Ser Pro Ser Thr Leu Ser
              450              455

<210>      63
<211>      455
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      63
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1              5              10              15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
              20              25              30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
              35              40              45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
              50              55              60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
              65              70              75              80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
              85              90              95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
              100              105              110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
              115              120              125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
              130              135              140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
              145              150              155              160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
              165              170              175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
              180              185              190

```

FIGURE 15A.48

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195 200 205
 Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Val Ser Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305 310 315 320
 Glu Tyr Met Asp Thr Thr Leu Gly Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335
 Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
 435 440 445
 Ala Ser Pro Ser Thr Leu Ser
 450 455

<210> 64
 <211> 455
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

FIGURE 15A.49

```

<400>      64
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1              5              10              15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
              20              25              30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35              40              45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50              55              60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65              70              75              80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
              85              90              95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
              100              105              110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115              120              125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130              135              140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145              150              155              160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
              165              170              175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
              180              185              190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195              200              205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210              215              220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225              230              235              240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
              245              250              255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260              265              270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275              280              285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290              295              300

Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305              310              315              320

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

<210>	65
<211>	455
<212>	PRT
<213>	Artificial Sequence
<220>	
<223>	Synthetic Sequence

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

FIGURE 15A.51

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175
 Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180 185 190
 His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195 200 205
 Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Val Ser Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305 310 315 320
 Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335
 Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
 435 440 445

FIGURE 15A.52

```

Ala Ser Pro Ser Thr Leu Ser
  450                      455

<210>      66
<211>      455
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      66
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1                      5                      10                      15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
                20                      25                      30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
  35                      40                      45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
  50                      55                      60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
  65                      70                      75                      80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
                85                      90                      95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
  100                      105                      110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
  115                      120                      125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
  130                      135                      140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
  145                      150                      155                      160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
                165                      170                      175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
  180                      185                      190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
  195                      200                      205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
  210                      215                      220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
  225                      230                      235                      240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
                245                      250                      255

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FIGURE 15A.53

```

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260                      265                      270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275                      280                      285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290                      295                      300

Gly Thr Leu Ser Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
      305                      310                      315                      320

Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325                      330                      335

Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340                      345                      350

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355                      360                      365

Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370                      375                      380

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
      385                      390                      395                      400

Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405                      410                      415

Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420                      425                      430

Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435                      440                      445

Ala Ser Pro Ser Thr Leu Ser
      450                      455

<210>      67
<211>      455
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      67
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1                      5                      10                      15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
      20                      25                      30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
      35                      40                      45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr

```

FIGURE 15A.54

50		55		60	
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro					
65		70		75	80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile					
		85		90	95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp					
		100		105	110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val					
		115		120	125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu					
		130		135	140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala					
		145		150	155
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg					
		165		170	175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His					
		180		185	190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile					
		195		200	205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu					
		210		215	220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr					
		225		230	235
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile					
		245		250	255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val					
		260		265	270
Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr					
		275		280	285
Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp					
		290		295	300
Gly Thr Leu Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys					
		305		310	315
Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu					
		325		330	335
Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys					
		340		345	350
Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp					
		355		360	365
Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly					
		370		375	380

FIGURE 15A.55

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
 435 440 445
 Ala Ser Pro Ser Thr Leu Ser
 450 455
 <210> 68
 <211> 455
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Synthetic Sequence
 <400> 68
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100 105 110
 Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125
 Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175
 Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His

FIGURE 15A.56

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FIGURE 15A.57

```

<400>      69
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1          5          10          15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
          20          25          30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
          35          40          45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
  50          55          60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
  65          70          75          80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85          90          95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100          105          110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115          120          125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
          130          135          140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
          145          150          155          160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
          225          230          235          240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275          280          285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290          295          300

Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys

```

FIGURE 15A.58

```

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

<210>      70
<211>      455
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

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

```

FIGURE 15A.59

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125
 Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175
 Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180 185 190
 His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195 200 205
 Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305 310 315 320
 Glu Tyr Met Asp Thr Thr Leu Asn Pro Phe Ile Leu Asn Val Thr Ser
 325 330 335
 Gly Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn

FIGURE 15A.60

435 440 445
 Ala Ser Pro Ser Thr Leu Ser
 450 455

 <210> 71
 <211> 453
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic Sequence

 <400> 71
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15
 Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30
 Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45
 Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240

FIGURE 15A.61

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
245 250 255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
260 265 270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
275 280 285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
290 295 300

Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
305 310 315 320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
325 330 335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
340 345 350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
355 360 365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
370 375 380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385 390 395 400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
405 410 415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
420 425 430

Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala Ser
435 440 445

Pro Ser Thr Leu Ser
450

<210> 72
<211> 430
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 72
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1 5 10 15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20 25 30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35 40 45

FIGURE 15A.62

```

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
   50                               55                               60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
   65                               70                               75                               80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
   85                               90                               95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
  100                               105                               110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
  115                               120                               125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
  130                               135                               140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
  145                               150                               155                               160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
  165                               170                               175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
  180                               185                               190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
  195                               200                               205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
  210                               215                               220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
  225                               230                               235                               240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
  245                               250                               255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
  260                               265                               270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
  275                               280                               285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
  290                               295                               300

Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
  305                               310                               315                               320

Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
  325                               330                               335

Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
  340                               345                               350

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
  355                               360                               365

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FIGURE 15A.63

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Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
  370                      375                      380

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
  385                      390                      395                      400

Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
                      405                      410                      415

Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile
                      420                      425                      430

<210>      73
<211>      433
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      73
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1                      5                      10                      15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
                      20                      25                      30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
  35                      40                      45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
  50                      55                      60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
  65                      70                      75                      80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
                      85                      90                      95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
  100                      105                      110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
  115                      120                      125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
  130                      135                      140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
  145                      150                      155                      160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
                      165                      170                      175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
                      180                      185                      190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
  195                      200                      205

```

FIGURE 15A.64

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Gly Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305 310 315 320
 Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335
 Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe

<210> 74
 <211> 436
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 74
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro

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

FIGURE 15A.66

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365

Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400

Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415

Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430

Phe Leu Lys Pro
 435

<210> 75
 <211> 452
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 75
 Phe Arg Gly Pro Leu Leu Pro Asn Arg Pro Phe Leu Trp Ala Trp Asn
 1 5 10 15

Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp Met
 20 25 30

Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly Gln
 35 40 45

Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr Ile
 50 55 60

Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys Ile
 65 70 75 80

Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe Tyr
 85 90 95

Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu Trp
 100 105 110

Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys Asn
 115 120 125

Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu Thr
 130 135 140

Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys Asp
 145 150 155 160

Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn His

FIGURE 15A.67

					165						170						175
Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His	His	Tyr	Lys		
			180					185					190				
Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile	Lys	Arg	Asn		
		195					200					205					
Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu	Tyr	Pro	Ser		
	210					215					220						
Ile	Tyr	Leu	Asn	Thr	Gln	Gln	Ser	Pro	Val	Ala	Ala	Thr	Leu	Tyr	Val		
225					230					235					240		
Arg	Asn	Arg	Val	Arg	Glu	Ala	Ile	Arg	Val	Ser	Lys	Ile	Pro	Asp	Ala		
				245					250					255			
Lys	Ser	Pro	Leu	Pro	Val	Phe	Ala	Tyr	Thr	Arg	Ile	Val	Phe	Thr	Asp		
			260					265					270				
Gln	Val	Leu	Lys	Phe	Leu	Ser	Gln	Asp	Glu	Leu	Val	Tyr	Thr	Phe	Gly		
		275				280						285					
Glu	Thr	Val	Ala	Leu	Gly	Ala	Ser	Gly	Ile	Val	Ile	Trp	Gly	Thr	Leu		
	290				295						300						
Ser	Ile	Thr	Arg	Thr	Lys	Glu	Ser	Cys	Gln	Ala	Ile	Lys	Glu	Tyr	Met		
305					310				315						320		
Asp	Thr	Thr	Leu	Asn	Pro	Tyr	Ile	Ile	Asn	Val	Thr	Leu	Ala	Ala	Lys		
				325					330					335			
Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln	Gly	Val	Cys	Ile	Arg	Lys		
			340				345						350				
Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu	Asn	Pro	Asp	Asn	Phe	Ala		
		355					360					365					
Ile	Gln	Leu	Glu	Lys	Gly	Gly	Lys	Phe	Thr	Val	Arg	Gly	Lys	Pro	Thr		
	370					375					380						
Leu	Glu	Asp	Leu	Glu	Gln	Phe	Ser	Glu	Lys	Phe	Tyr	Cys	Ser	Cys	Tyr		
385					390					395					400		
Ser	Thr	Leu	Ser	Cys	Lys	Glu	Lys	Ala	Asp	Val	Lys	Asp	Thr	Asp	Ala		
			405					410						415			
Val	Asp	Val	Cys	Ile	Ala	Asp	Gly	Val	Cys	Ile	Asp	Ala	Phe	Leu	Lys		
		420					425						430				
Pro	Pro	Met	Glu	Thr	Glu	Glu	Pro	Gln	Ile	Phe	Tyr	Asn	Ala	Ser	Pro		
		435				440						445					
Ser	Thr	Leu	Ser														
		450															

<210> 76
 <211> 452
 <212> PRT
 <213> Artificial Sequence

FIGURE 15A.68

<220>
 <223> Synthetic Sequence

<400> 76
 Phe Arg Gly Pro Leu Leu Pro Asn Arg Pro Phe Thr Thr Val Trp Asn
 1 5 10 15
 Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp Met
 20 25 30
 Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly Gln
 35 40 45
 Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr Ile
 50 55 60
 Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys Ile
 65 70 75 80
 Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe Tyr
 85 90 95
 Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu Trp
 100 105 110
 Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys Asn
 115 120 125
 Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu Thr
 130 135 140
 Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys Asp
 145 150 155 160
 Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn His
 165 170 175
 Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr Lys
 180 185 190
 Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg Asn
 195 200 205
 Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro Ser
 210 215 220
 Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr Val
 225 230 235 240
 Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp Ala
 245 250 255
 Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr Asp
 260 265 270
 Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe Gly
 275 280 285
 Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr Leu

FIGURE 15A.69

```

      290              295              300
Ser  Ile  Thr  Arg  Thr  Lys  Glu  Ser  Cys  Gln  Ala  Ile  Lys  Glu  Tyr  Met
305              310              315              320

Asp  Thr  Thr  Leu  Asn  Pro  Tyr  Ile  Ile  Asn  Val  Thr  Leu  Ala  Ala  Lys
              325              330              335

Met  Cys  Ser  Gln  Val  Leu  Cys  Gln  Glu  Gln  Gly  Val  Cys  Ile  Arg  Lys
              340              345              350

Asn  Trp  Asn  Ser  Ser  Asp  Tyr  Leu  His  Leu  Asn  Pro  Asp  Asn  Phe  Ala
              355              360              365

Ile  Gln  Leu  Glu  Lys  Gly  Gly  Lys  Phe  Thr  Val  Arg  Gly  Lys  Pro  Thr
              370              375              380

Leu  Glu  Asp  Leu  Glu  Gln  Phe  Ser  Glu  Lys  Phe  Tyr  Cys  Ser  Cys  Tyr
385              390              395              400

Ser  Thr  Leu  Ser  Cys  Lys  Glu  Lys  Ala  Asp  Val  Lys  Asp  Thr  Asp  Ala
              405              410              415

Val  Asp  Val  Cys  Ile  Ala  Asp  Gly  Val  Cys  Ile  Asp  Ala  Phe  Leu  Lys
              420              425              430

Pro  Pro  Met  Glu  Thr  Glu  Glu  Pro  Gln  Ile  Phe  Tyr  Asn  Ala  Ser  Pro
              435              440              445

Ser  Thr  Leu  Ser
450

<210>      77
<211>      433
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      77
Phe  Arg  Ala  Pro  Pro  Val  Ile  Pro  Asn  Val  Pro  Phe  Leu  Trp  Ala  Trp
 1              5              10              15

Asn  Ala  Pro  Ser  Glu  Phe  Cys  Leu  Gly  Lys  Phe  Asp  Glu  Pro  Leu  Asp
              20              25              30

Met  Ser  Leu  Phe  Ser  Phe  Ile  Gly  Ser  Pro  Arg  Ile  Asn  Ala  Thr  Gly
              35              40              45

Gln  Gly  Val  Thr  Ile  Phe  Tyr  Val  Asp  Arg  Leu  Gly  Tyr  Tyr  Pro  Tyr
              50              55              60

Ile  Asp  Ser  Ile  Thr  Gly  Val  Thr  Val  Asn  Gly  Gly  Ile  Pro  Gln  Lys
65              70              75              80

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

```

FIGURE 15A.70

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240
 Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
 245 250 255
 Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
 260 265 270
 Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
 275 280 285
 Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
 290 295 300
 Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
 305 310 315 320
 Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
 325 330 335
 Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365
 Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380
 Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400
 Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415
 Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu

FIGURE 15A.71

420 425 430

Lys

<210> 78
 <211> 431
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 78
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15
 Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30
 Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45
 Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240

FIGURE 15A.72

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
245 250 255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
260 265 270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
275 280 285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
290 295 300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
305 310 315 320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
325 330 335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
340 345 350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
355 360 365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
370 375 380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385 390 395 400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
405 410 415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe
420 425 430

<210> 79
<211> 455
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 79
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1 5 10 15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20 25 30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35 40 45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
50 55 60

FIGURE 15A.73

```

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65                               70                               75                               80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
                               85                               90                               95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100                               105                               110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115                               120                               125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130                               135                               140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145                               150                               155                               160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
                               165                               170                               175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
                               180                               185                               190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195                               200                               205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210                               215                               220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225                               230                               235                               240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
                               245                               250                               255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
                               260                               265                               270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275                               280                               285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290                               295                               300

Gly Ser Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305                               310                               315                               320

Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325                               330                               335

Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340                               345                               350

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355                               360                               365

Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370                               375                               380

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys

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FIGURE 15A.74

```

385              390              395              400
Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
              405              410              415

Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
              420              425              430

Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
              435              440              445

Ala Ser Pro Ser Thr Leu Ser
              450              455

<210>      80
<211>      451
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      80
Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp Asn Ala
  1              5              10              15

Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp Met Ser
              20              25              30

Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly Gln Gly
  35              40              45

Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr Ile Asp
  50              55              60

Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys Ile Ser
  65              70              75              80

Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe Tyr Met
              85              90              95

Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu Trp Arg
              100              105              110

Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys Asn Arg
              115              120              125

Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu Thr Glu
              130              135              140

Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys Asp Phe
  145              150              155              160

Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn His Leu
              165              170              175

Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr Lys Lys
              180              185              190

```

FIGURE 15A.75

```

Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg Asn Asp
    195                200                205

Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro Ser Ile
    210                215                220

Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr Val Arg
    225                230                235                240

Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp Ala Lys
    245                250                255

Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr Asp Gln
    260                265                270

Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe Gly Glu
    275                280                285

Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr Leu Ser
    290                295                300

Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr Met Asp
    305                310                315                320

Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala Lys Met
    325                330                335

Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg Lys Asn
    340                345                350

Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe Ala Ile
    355                360                365

Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro Thr Leu
    370                375                380

Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys Tyr Ser
    385                390                395                400

Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp Ala Val
    405                410                415

Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu Lys Pro
    420                425                430

Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala Ser Pro Ser
    435                440                445

Thr Leu Ser
    450

```

```

<210>      81
<211>      449
<212>      PRT
<213>      Artificial Sequence

```

```

<220>
<223>      Synthetic Sequence

```

FIGURE 15A.76

```

<400>      81
Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp Asn Ala Pro Ser
  1              5              10              15

Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp Met Ser Leu Phe
      20              25              30

Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly Gln Gly Val Thr
      35              40              45

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

Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys Ile Ser Leu Gln
      65              70              75              80

Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe Tyr Met Pro Val
      85              90              95

Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu Trp Arg Pro Thr
      100              105              110

Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys Asn Arg Ser Ile
      115              120              125

Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu Thr Glu Ala Thr
      130              135              140

Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys Asp Phe Leu Val
      145              150              155              160

Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn His Leu Trp Gly
      165              170              175

Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr Lys Lys Pro Gly
      180              185              190

Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg Asn Asp Asp Leu
      195              200              205

Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro Ser Ile Tyr Leu
      210              215              220

Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr Val Arg Asn Arg
      225              230              235              240

Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp Ala Lys Ser Pro
      245              250              255

Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr Asp Gln Val Leu
      260              265              270

Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe Gly Glu Thr Val
      275              280              285

Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr Leu Ser Ile Thr
      290              295              300

Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr Met Asp Thr Thr
      305              310              315              320

```

FIGURE 15A.77

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

<210> 82
 <211> 432
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 82
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100 105 110
 Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125

FIGURE 15A.78

Tyr	Lys	Asn	Arg	Ser	Ile	Glu	Leu	Val	Gln	Gln	Gln	Asn	Val	Gln	Leu	130	135	140
Ser	Leu	Thr	Glu	Ala	Thr	Glu	Lys	Ala	Lys	Gln	Glu	Phe	Glu	Lys	Ala	145	150	155
Gly	Lys	Asp	Phe	Leu	Val	Glu	Thr	Ile	Lys	Leu	Gly	Lys	Leu	Leu	Arg	165	170	175
Pro	Asn	His	Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His	180	185	190
His	Tyr	Lys	Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile	195	200	205
Lys	Arg	Asn	Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu	210	215	220
Tyr	Pro	Ser	Ile	Tyr	Leu	Asn	Thr	Gln	Gln	Ser	Pro	Val	Ala	Ala	Thr	225	230	235
Leu	Tyr	Val	Arg	Asn	Arg	Val	Arg	Glu	Ala	Ile	Arg	Val	Ser	Lys	Ile	245	250	255
Pro	Asp	Ala	Lys	Ser	Pro	Leu	Pro	Val	Phe	Ala	Tyr	Thr	Arg	Ile	Val	260	265	270
Phe	Thr	Asp	Gln	Val	Leu	Lys	Phe	Leu	Ser	Gln	Asp	Glu	Leu	Val	Tyr	275	280	285
Thr	Phe	Gly	Glu	Thr	Val	Ala	Leu	Gly	Ala	Ser	Gly	Ile	Val	Ile	Trp	290	295	300
Gly	Thr	Trp	Glu	Asn	Thr	Arg	Thr	Lys	Glu	Ser	Cys	Gln	Ala	Ile	Lys	305	310	315
Glu	Tyr	Met	Asp	Thr	Thr	Leu	Asn	Pro	Tyr	Ile	Ile	Asn	Val	Thr	Leu	325	330	335
Ala	Ala	Lys	Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln	Gly	Val	Cys	340	345	350
Ile	Arg	Lys	Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu	Asn	Pro	Asp	355	360	365
Asn	Phe	Ala	Ile	Gln	Leu	Glu	Lys	Gly	Gly	Lys	Phe	Thr	Val	Arg	Gly	370	375	380
Lys	Pro	Thr	Leu	Glu	Asp	Leu	Glu	Gln	Phe	Ser	Glu	Lys	Phe	Tyr	Cys	385	390	395
Ser	Cys	Tyr	Ser	Thr	Leu	Ser	Cys	Lys	Glu	Lys	Ala	Asp	Val	Lys	Asp	405	410	415
Thr	Asp	Ala	Val	Asp	Val	Cys	Ile	Ala	Asp	Gly	Val	Cys	Ile	Asp	Ala	420	425	430

FIGURE 15A.79

```

<210>      83
<211>      429
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      83
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1              5              10              15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
              20              25              30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
              35              40              45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50              55              60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65              70              75              80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
              85              90              95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
              100              105              110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
              115              120              125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
              130              135              140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
              145              150              155              160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
              165              170              175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
              180              185              190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
              195              200              205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
              210              215              220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
              225              230              235              240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
              245              250              255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
              260              265              270

```

FIGURE 15A.80

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Gly Thr Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305 310 315 320
 Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335
 Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys
 420 425

<210> 84
 <211> 426
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 84
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100 105 110

FIGURE 15A.81

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125
 Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175
 Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
 180 185 190
 His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
 195 200 205
 Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
 210 215 220
 Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
 225 230 235 240
 Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
 245 250 255
 Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
 260 265 270
 Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Gly Thr Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305 310 315 320
 Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335
 Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp
 420 425

FIGURE 15A.82

```

<210>      85
<211>      423
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      85
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
  1              5              10              15
Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
              20              25              30
Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
              35              40              45
Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
  50              55              60
Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
  65              70              75              80
Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
              85              90              95
Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
              100              105              110
Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
              115              120              125
Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
              130              135              140
Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
              145              150              155              160
Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
              165              170              175
Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
              180              185              190
His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
              195              200              205
Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
              210              215              220
Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
              225              230              235              240
Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
              245              250              255
Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
              260              265              270

```

FIGURE 15A.83

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
 275 280 285
 Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
 290 295 300
 Gly Thr Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
 305 310 315 320
 Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
 325 330 335
 Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
 340 345 350
 Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
 355 360 365
 Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys
 420

<210> 86
 <211> 420
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 86
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp

[illegible]

FIGURE 15A.85

```

<210>      87
<211>      433
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      87
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1              5              10              15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
          20              25              30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
          35              40              45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
          50              55              60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
          65              70              75              80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
          100              105              110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
          115              120              125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
          130              135              140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
          145              150              155              160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
          165              170              175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
          180              185              190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
          195              200              205

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
          210              215              220

Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
          225              230              235              240

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
          245              250              255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr

```

FIGURE 15A.86

```

                260                265                270
Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
    275                280                285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Ser
    290                295                300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
    305                310                315

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
    325                330                335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
    340                345                350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
    355                360                365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
    370                375                380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
    385                390                395                400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
    405                410                415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
    420                425                430

```

Lys

```

<210>      88
<211>      435
<212>      PRT
<213>      Artificial Sequence

```

```

<220>
<223>      Synthetic Sequence

```

```

<400>      88
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
  1                5                10                15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
    20                25                30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
    35                40                45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
    50                55                60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
    65                70                75                80

```

FIGURE 15A.87

```

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
      100                    105                    110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
      115                    120                    125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
      130                    135                    140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
145      150                    155                    160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
      165                    170                    175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
      180                    185                    190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
      195                    200                    205

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
210      215                    220

Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
225      230                    235                    240

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
      245                    250                    255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
      260                    265                    270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
      275                    280                    285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
290      295                    300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
305      310                    315                    320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
      325                    330                    335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
      340                    345                    350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
      355                    360                    365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
      370                    375                    380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385      390                    395                    400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp

```

FIGURE 15A.88

```

                                405                                410                                415
Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
                                420                                425                                430

Lys Pro Pro
                                435

<210>      89
<211>      436
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      89
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
  1              5              10              15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
              20              25              30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
              35              40              45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
  50              55              60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
  65              70              75              80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
              100              105              110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
              115              120              125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
              130              135              140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
              145              150              155              160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
              165              170              175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
              180              185              190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
              195              200              205

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
              210              215              220

```

FIGURE 15A.89

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

<210> 90
 <211> 437
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 90
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15
 Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30
 Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45

FIGURE 15A.90

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240
 Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
 245 250 255
 Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
 260 265 270
 Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
 275 280 285
 Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
 290 295 300
 Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
 305 310 315 320
 Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
 325 330 335
 Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365

FIGURE 15A.91

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380
 Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400
 Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415
 Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
 420 425 430
 Lys Pro Pro Met Glu
 435
 <210> 91
 <211> 438
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Synthetic Sequence
 <400> 91
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15
 Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30
 Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45
 Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190

FIGURE 15A.92

```

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
    195                200                205

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
    210                215                220

Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
    225                230                235                240

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
    245                250                255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
    260                265                270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
    275                280                285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
    290                295                300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
    305                310                315                320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
    325                330                335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
    340                345                350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
    355                360                365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
    370                375                380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
    385                390                395                400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
    405                410                415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
    420                425                430

Lys Pro Pro Met Glu Thr
    435

<210>      92
<211>      439
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      92
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp

```

FIGURE 15A.93

1	5	10	15
Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp	20	25	30
Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly	35	40	45
Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr	50	55	60
Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys	65	70	75
Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe	85	90	95
Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu	100	105	110
Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys	115	120	125
Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu	130	135	140
Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys	145	150	155
Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn	165	170	175
His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr	180	185	190
Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg	195	200	205
Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro	210	215	220
Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr	225	230	235
Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp	245	250	255
Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr	260	265	270
Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe	275	280	285
Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr	290	295	300
Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr	305	310	315
Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala	325	330	335

FIGURE 15A.94

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365
 Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380
 Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400
 Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415
 Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
 420 425 430
 Lys Pro Pro Met Glu Thr Glu
 435

<210> 93
 <211> 454
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 93
 Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala
 1 5 10 15
 Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu
 20 25 30
 Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr
 35 40 45
 Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro
 50 55 60
 Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln
 65 70 75 80
 Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr
 85 90 95
 Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu
 100 105 110
 Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr
 115 120 125
 Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser
 130 135 140
 Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly

FIGURE 15A.95

145		150		155		160
Lys Asp Phe Leu Val	Glu Thr Ile Lys	Leu Gly Lys Leu Leu Arg Pro				
	165	170			175	
Asn His Leu Trp Gly Tyr Tyr Leu Phe	Pro Asp Cys Tyr Asn His His					
	180	185			190	
Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys						
	195	200			205	
Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr						
	210	215			220	
Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu						
	225	230			235	240
Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro						
	245	250			255	
Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe						
	260	265			270	
Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr						
	275	280			285	
Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly						
	290	295			300	
Thr Leu Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu						
	305	310			315	320
Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala						
	325	330			335	
Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile						
	340	345			350	
Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn						
	355	360			365	
Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys						
	370	375			380	
Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser						
	385	390			395	400
Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr						
	405	410			415	
Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe						
	420	425			430	
Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala						
	435	440			445	
Ser Pro Ser Thr Leu Ser						
	450					

<210> 94

FIGURE 15A.96

```

<211>      452
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      94
Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp Asn
 1              5              10              15

Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp Met
      20              25              30

Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly Gln
      35              40              45

Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr Ile
      50              55              60

Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys Ile
      65              70              75              80

Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe Tyr
      85              90              95

Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu Trp
      100             105             110

Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys Asn
      115             120             125

Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu Thr
      130             135             140

Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys Asp
      145             150             155             160

Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn His
      165             170             175

Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr Lys
      180             185             190

Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg Asn
      195             200             205

Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro Ser
      210             215             220

Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr Val
      225             230             235             240

Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp Ala
      245             250             255

Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr Asp
      260             265             270

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

```

FIGURE 15A.97

```

                275                280                285
Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr Leu
 290                295                300

Ser Ile Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr Met
 305                310                315                320

Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala Lys
                325                330                335

Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg Lys
                340                345                350

Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe Ala
                355                360                365

Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro Thr
                370                375                380

Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys Tyr
 385                390                395                400

Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp Ala
                405                410                415

Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu Lys
                420                425                430

Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala Ser Pro
                435                440                445

Ser Thr Leu Ser
 450

```

```

<210>      95
<211>      450
<212>      PRT
<213>      Artificial Sequence

```

```

<220>
<223>      Synthetic Sequence

```

```

<400>      95
Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp Asn Ala Pro
  1                5                10                15

Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp Met Ser Leu
                20                25                30

Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly Gln Gly Val
                35                40                45

Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr Ile Asp Ser
                50                55                60

Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys Ile Ser Leu
 65                70                75                80

```

FIGURE 15A.98

Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe Tyr Met Pro
 85 90 95
 Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu Trp Arg Pro
 100 105 110
 Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys Asn Arg Ser
 115 120 125
 Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu Thr Glu Ala
 130 135 140
 Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys Asp Phe Leu
 145 150 155 160
 Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn His Leu Trp
 165 170 175
 Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr Lys Lys Pro
 180 185 190
 Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg Asn Asp Asp
 195 200 205
 Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro Ser Ile Tyr
 210 215 220
 Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr Val Arg Asn
 225 230 235 240
 Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp Ala Lys Ser
 245 250 255
 Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr Asp Gln Val
 260 265 270
 Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe Gly Glu Thr
 275 280 285
 Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr Leu Ser Ile
 290 295 300
 Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr Met Asp Thr
 305 310 315 320
 Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala Lys Met Cys
 325 330 335
 Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg Lys Asn Trp
 340 345 350
 Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe Ala Ile Gln
 355 360 365
 Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro Thr Leu Glu
 370 375 380
 Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys Tyr Ser Thr
 385 390 395 400
 Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp Ala Val Asp

FIGURE 15A.99

```

                                405                                410                                415
Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu Lys Pro Pro
                                420                                425                                430

Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala Ser Pro Ser Thr
                                435                                440                                445

Leu Ser
                                450

<210>      96
<211>      428
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      96
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
  1                                5                                10                                15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
                                20                                25                                30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
  35                                40                                45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
  50                                55                                60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
  65                                70                                75                                80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
  100                                105                                110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
  115                                120                                125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
  130                                135                                140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
  145                                150                                155                                160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
  165                                170                                175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
  180                                185                                190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
  195                                200                                205

```

FIGURE 15A.100

```

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210                215                220

Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225                230                235                240

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
                245                250                255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
                260                265                270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
 275                280                285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Ser
 290                295                300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
 305                310                315                320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
                325                330                335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
                340                345                350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
                355                360                365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
                370                375                380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385                390                395                400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
                405                410                415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile
                420                425

```

```

<210>      97
<211>      429
<212>      PRT
<213>      Artificial Sequence

```

```

<220>
<223>      Synthetic Sequence

```

```

<400>      97
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1                5                10                15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
                20                25                30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35                40                45

```

FIGURE 15A.101

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240
 Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
 245 250 255
 Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
 260 265 270
 Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
 275 280 285
 Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Ser
 290 295 300
 Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
 305 310 315 320
 Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
 325 330 335
 Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365

FIGURE 15A.102

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp
 420 425

<210> 98
 <211> 430
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 98
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205

FIGURE 15A.103

```

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210                215                220

Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
225                230                235                240

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
      245                250                255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
      260                265                270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
      275                280                285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Ser
290                295                300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
305                310                315                320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
      325                330                335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
      340                345                350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
      355                360                365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
370                375                380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385                390                395                400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
      405                410                415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420                425                430

<210>      99
<211>      431
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      99
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1                5                10                15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
      20                25                30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly

```

FIGURE 15A.104

35					40					45					
Gln	Gly	Val	Thr	Ile	Phe	Tyr	Val	Asp	Arg	Leu	Gly	Tyr	Tyr	Pro	Tyr
	50					55					60				
Ile	Asp	Ser	Ile	Thr	Gly	Val	Thr	Val	Asn	Gly	Gly	Ile	Pro	Gln	Lys
	65					70					75				80
Ile	Ser	Leu	Gln	Asp	His	Leu	Asp	Lys	Ala	Lys	Lys	Asp	Ile	Thr	Phe
				85					90					95	
Tyr	Met	Pro	Val	Asp	Asn	Leu	Gly	Met	Ala	Val	Ile	Asp	Trp	Glu	Glu
			100					105					110		
Trp	Arg	Pro	Thr	Trp	Ala	Arg	Asn	Trp	Lys	Pro	Lys	Asp	Val	Tyr	Lys
			115				120					125			
Asn	Arg	Ser	Ile	Glu	Leu	Val	Gln	Gln	Gln	Asn	Val	Gln	Leu	Ser	Leu
	130						135					140			
Thr	Glu	Ala	Thr	Glu	Lys	Ala	Lys	Gln	Glu	Phe	Glu	Lys	Ala	Gly	Lys
	145						150				155				160
Asp	Phe	Leu	Val	Glu	Thr	Ile	Lys	Leu	Gly	Lys	Leu	Leu	Arg	Pro	Asn
				165					170					175	
His	Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His	His	Tyr
			180					185					190		
Lys	Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile	Lys	Arg
		195					200					205			
Asn	Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu	Tyr	Pro
	210					215					220				
Ser	Ile	Tyr	Leu	Asn	Thr	Gln	Gln	Ser	Pro	Val	Ala	Ala	Thr	Leu	Tyr
	225					230					235				240
Val	Arg	Asn	Arg	Val	Arg	Glu	Ala	Ile	Arg	Val	Ser	Lys	Ile	Pro	Asp
				245					250					255	
Ala	Lys	Ser	Pro	Leu	Pro	Val	Phe	Ala	Tyr	Thr	Arg	Ile	Val	Phe	Thr
			260					265					270		
Asp	Gln	Val	Leu	Lys	Phe	Leu	Ser	Gln	Asp	Glu	Leu	Val	Tyr	Thr	Phe
		275					280					285			
Gly	Glu	Thr	Val	Ala	Leu	Gly	Ala	Ser	Gly	Ile	Val	Ile	Trp	Gly	Ser
	290					295					300				
Trp	Glu	Asn	Thr	Arg	Thr	Lys	Glu	Ser	Cys	Gln	Ala	Ile	Lys	Glu	Tyr
	305					310					315				320
Met	Asp	Thr	Thr	Leu	Asn	Pro	Tyr	Ile	Ile	Asn	Val	Thr	Leu	Ala	Ala
				325					330					335	
Lys	Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln	Gly	Val	Cys	Ile	Arg
			340					345				350			
Lys	Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu	Asn	Pro	Asp	Asn	Phe
		355					360					365			

FIGURE 15A.105

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe
 420 425 430

<210> 100
 <211> 441
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 100
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190

FIGURE 15A.106

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240
 Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
 245 250 255
 Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
 260 265 270
 Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
 275 280 285
 Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
 290 295 300
 Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
 305 310 315 320
 Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
 325 330 335
 Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365
 Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380
 Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400
 Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415
 Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
 420 425 430
 Lys Pro Pro Met Glu Thr Glu Glu Pro
 435 440

<210> 101
 <211> 443
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 101
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp

FIGURE 15A.107

1	5	10	15
Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp	20	25	30
Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly	35	40	45
Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr	50	55	60
Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys	65	70	75
Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe	85	90	95
Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu	100	105	110
Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys	115	120	125
Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu	130	135	140
Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys	145	150	155
Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn	165	170	175
His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr	180	185	190
Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg	195	200	205
Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro	210	215	220
Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr	225	230	235
Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp	245	250	255
Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr	260	265	270
Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe	275	280	285
Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr	290	295	300
Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr	305	310	315
Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala	325	330	335

FIGURE 15A.108

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365
 Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380
 Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400
 Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415
 Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
 420 425 430
 Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile
 435 440

 <210> 102
 <211> 445
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic Sequence

 <400> 102
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15
 Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30
 Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45
 Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys

FIGURE 15A.109

145		150		155		160									
Asp	Phe	Leu	Val	Glu	Thr	Ile	Lys	Leu	Gly	Lys	Leu	Leu	Arg	Pro	Asn
				165					170					175	
His	Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His	His	Tyr
			180					185					190		
Lys	Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile	Lys	Arg
		195					200					205			
Asn	Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu	Tyr	Pro
	210					215					220				
Ser	Ile	Tyr	Leu	Asn	Thr	Gln	Gln	Ser	Pro	Val	Ala	Ala	Thr	Leu	Tyr
225					230					235					240
Val	Arg	Asn	Arg	Val	Arg	Glu	Ala	Ile	Arg	Val	Ser	Lys	Ile	Pro	Asp
				245					250					255	
Ala	Lys	Ser	Pro	Leu	Pro	Val	Phe	Ala	Tyr	Thr	Arg	Ile	Val	Phe	Thr
			260					265					270		
Asp	Gln	Val	Leu	Lys	Phe	Leu	Ser	Gln	Asp	Glu	Leu	Val	Tyr	Thr	Phe
		275					280					285			
Gly	Glu	Thr	Val	Ala	Leu	Gly	Ala	Ser	Gly	Ile	Val	Ile	Trp	Gly	Thr
	290					295					300				
Trp	Glu	Asn	Thr	Arg	Thr	Lys	Glu	Ser	Cys	Gln	Ala	Ile	Lys	Glu	Tyr
305					310					315					320
Met	Asp	Thr	Thr	Leu	Asn	Pro	Tyr	Ile	Ile	Asn	Val	Thr	Leu	Ala	Ala
				325					330					335	
Lys	Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln	Gly	Val	Cys	Ile	Arg
			340					345					350		
Lys	Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu	Asn	Pro	Asp	Asn	Phe
		355					360					365			
Ala	Ile	Gln	Leu	Glu	Lys	Gly	Gly	Lys	Phe	Thr	Val	Arg	Gly	Lys	Pro
	370					375					380				
Thr	Leu	Glu	Asp	Leu	Glu	Gln	Phe	Ser	Glu	Lys	Phe	Tyr	Cys	Ser	Cys
385					390					395					400
Tyr	Ser	Thr	Leu	Ser	Cys	Lys	Glu	Lys	Ala	Asp	Val	Lys	Asp	Thr	Asp
			405						410					415	
Ala	Val	Asp	Val	Cys	Ile	Ala	Asp	Gly	Val	Cys	Ile	Asp	Ala	Phe	Leu
			420					425					430		
Lys	Pro	Pro	Met	Glu	Thr	Glu	Glu	Pro	Gln	Ile	Phe	Tyr			
		435					440					445			

<210> 103
 <211> 447
 <212> PRT
 <213> Artificial Sequence

FIGURE 15A.110

<220>

<223> Synthetic Sequence

<400> 103

```

Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1           5           10           15
Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
          20           25           30
Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
          35           40           45
Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
          50           55           60
Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
          65           70           75           80
Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
          85           90           95
Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
          100          105          110
Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
          115          120          125
Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
          130          135          140
Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
          145          150          155          160
Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
          165          170          175
His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
          180          185          190
Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
          195          200          205
Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
          210          215          220
Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
          225          230          235          240
Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
          245          250          255
Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
          260          265          270
Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
          275          280          285
Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr

```

FIGURE 15A.111

```

      290              295              300
Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
305              310              315              320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
              325              330              335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
              340              345              350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
              355              360              365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
              370              375              380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385              390              395              400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
              405              410              415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
              420              425              430

Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala
              435              440              445

<210>      104
<211>      449
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      104
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1              5              10              15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
              20              25              30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
              35              40              45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
              50              55              60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
              65              70              75              80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
              100              105              110

```

FIGURE 15A.112

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240
 Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
 245 250 255
 Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
 260 265 270
 Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
 275 280 285
 Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
 290 295 300
 Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
 305 310 315 320
 Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
 325 330 335
 Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365
 Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
 370 375 380
 Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
 385 390 395 400
 Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
 405 410 415
 Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
 420 425 430
 Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala Ser

FIGURE 15A.113

435 440 445

Pro

<210> 105
 <211> 451
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 105
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15
 Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30
 Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45
 Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240

FIGURE 15A.114

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
245 250 255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
260 265 270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
275 280 285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr
290 295 300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
305 310 315 320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
325 330 335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
340 345 350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
355 360 365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
370 375 380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385 390 395 400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
405 410 415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe Leu
420 425 430

Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn Ala Ser
435 440 445

Pro Ser Thr
450

<210> 106
<211> 455
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<400> 106
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
1 5 10 15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
20 25 30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
35 40 45

FIGURE 15A.115

```

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
   50                               55                               60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
   65                               70                               75                               80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
   85                               90                               95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
  100                               105                               110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
  115                               120                               125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
  130                               135                               140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
  145                               150                               155                               160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
  165                               170                               175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
  180                               185                               190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
  195                               200                               205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
  210                               215                               220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
  225                               230                               235                               240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
  245                               250                               255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
  260                               265                               270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
  275                               280                               285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
  290                               295                               300

Gly Gly Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
  305                               310                               315                               320

Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
  325                               330                               335

Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
  340                               345                               350

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
  355                               360                               365

```

FIGURE 15A.116

Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
 370 375 380
 Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
 385 390 395 400
 Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
 405 410 415
 Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
 420 425 430
 Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
 435 440 445
 Ala Ser Pro Ser Thr Leu Ser
 450 455

<210> 107
 <211> 455
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Synthetic Sequence

<400> 107
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
 100 105 110
 Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
 115 120 125
 Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
 130 135 140
 Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
 145 150 155 160
 Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
 165 170 175

FIGURE 15A.117

```

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
      180                      185                      190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
      195                      200                      205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
      210                      215                      220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
      225                      230                      235                      240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
      245                      250                      255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
      260                      265                      270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
      275                      280                      285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
      290                      295                      300

Gly Ala Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys
      305                      310                      315                      320

Glu Tyr Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu
      325                      330                      335

Ala Ala Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys
      340                      345                      350

Ile Arg Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp
      355                      360                      365

Asn Phe Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly
      370                      375                      380

Lys Pro Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys
      385                      390                      395                      400

Ser Cys Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp
      405                      410                      415

Thr Asp Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala
      420                      425                      430

Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
      435                      440                      445

Ala Ser Pro Ser Thr Leu Ser
      450                      455

<210>      108
<211>      455
<212>      PRT
<213>      Artificial Sequence

```

FIGURE 15A.118

```

<220>
<223>    Synthetic Sequence

<400>    108
Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1          5          10          15

Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
          20          25          30

Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35          40          45

Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50          55          60

Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65          70          75          80

Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
          85          90          95

Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp
          100          105          110

Glu Glu Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val
          115          120          125

Tyr Lys Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu
          130          135          140

Ser Leu Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala
          145          150          155          160

Gly Lys Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg
          165          170          175

Pro Asn His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His
          180          185          190

His Tyr Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile
          195          200          205

Lys Arg Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu
          210          215          220

Tyr Pro Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr
          225          230          235          240

Leu Tyr Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile
          245          250          255

Pro Asp Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val
          260          265          270

Phe Thr Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr
          275          280          285

Thr Phe Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp
          290          295          300

```

FIGURE 15A.119

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

<210> 109
 <211> 455
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 109
 Leu Asn Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp
 1 5 10 15
 Ala Trp Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro
 20 25 30
 Leu Asp Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala
 35 40 45
 Thr Gly Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr
 50 55 60
 Pro Tyr Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro
 65 70 75 80
 Gln Lys Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile
 85 90 95
 Thr Phe Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp

100							105							110						
Glu 115	Glu	Trp	Arg	Pro	Thr	Trp	Ala 120	Arg	Asn	Trp	Lys	Pro 125	Lys	Asp	Val					
Tyr 130	Lys	Asn	Arg	Ser	Ile	Glu 135	Leu	Val	Gln	Gln	Gln 140	Asn	Val	Gln	Leu					
Ser 145	Leu	Thr	Glu	Ala	Thr 150	Glu	Lys	Ala	Lys	Gln 155	Glu	Phe	Glu	Lys	Ala 160					
Gly	Lys	Asp	Phe 165	Leu	Val	Glu	Thr	Ile 170	Lys	Leu	Gly	Lys	Leu	Leu 175	Arg					
Pro	Asn	His 180	Leu	Trp	Gly	Tyr	Tyr	Leu 185	Phe	Pro	Asp	Cys	Tyr 190	Asn	His					
His	Tyr 195	Lys	Lys	Pro	Gly	Tyr	Asn 200	Gly	Ser	Cys	Phe	Asn 205	Val	Glu	Ile					
Lys 210	Arg	Asn	Asp	Asp	Leu	Ser 215	Trp	Leu	Trp	Asn	Glu 220	Ser	Thr	Ala	Leu					
Tyr 225	Pro	Ser	Ile	Tyr	Leu 230	Asn	Thr	Gln	Gln	Ser 235	Pro	Val	Ala	Ala	Thr 240					
Leu	Tyr	Val	Arg	Asn 245	Arg	Val	Arg	Glu	Ala 250	Ile	Arg	Val	Ser	Lys 255	Ile					
Pro	Asp	Ala 260	Lys	Ser	Pro	Leu	Pro	Val 265	Phe	Ala	Tyr	Thr	Arg 270	Ile	Val					
Phe	Thr 275	Asp	Gln	Val	Leu	Lys	Phe 280	Leu	Ser	Gln	Asp	Glu 285	Leu	Val	Tyr					
Thr 290	Phe	Gly	Glu	Thr	Val	Ala 295	Leu	Gly	Ala	Ser	Gly 300	Ile	Val	Ile	Trp					
Gly 305	Asp	Trp	Glu	Asn	Thr 310	Arg	Thr	Lys	Glu	Ser 315	Cys	Gln	Ala	Ile	Lys 320					
Glu	Tyr	Met	Asp	Thr 325	Thr	Leu	Asn	Pro	Tyr 330	Ile	Ile	Asn	Val	Thr 335	Leu					
Ala	Ala	Lys	Met 340	Cys	Ser	Gln	Val	Leu 345	Cys	Gln	Glu	Gln	Gly 350	Val	Cys					
Ile	Arg 355	Lys	Asn	Trp	Asn	Ser	Ser 360	Asp	Tyr	Leu	His	Leu 365	Asn	Pro	Asp					
Asn 370	Phe	Ala	Ile	Gln	Leu	Glu 375	Lys	Gly	Gly	Lys	Phe 380	Thr	Val	Arg	Gly					
Lys 385	Pro	Thr	Leu	Glu	Asp 390	Leu	Glu	Gln	Phe	Ser 395	Glu	Lys	Phe	Tyr	Cys 400					
Ser	Cys	Tyr	Ser	Thr 405	Leu	Ser	Cys	Lys	Glu 410	Lys	Ala	Asp	Val	Lys 415	Asp					
Thr	Asp	Ala 420	Val	Asp	Val	Cys	Ile	Ala 425	Asp	Gly	Val	Cys	Ile	Asp	Ala					

FIGURE 15A.121

Phe Leu Lys Pro Pro Met Glu Thr Glu Glu Pro Gln Ile Phe Tyr Asn
 435 440 445

Ala Ser Pro Ser Thr Leu Ser
 450 455

<210> 110
 <211> 431
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 110
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220

Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr

FIGURE 15A.122

```

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

```

```

<210>    111
<211>    431
<212>    PRT
<213>    Artificial Sequence

```

```

<220>
<223>    Synthetic Sequence

```

```

<400>    111
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1                5                10                15
Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
                20                25                30
Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35                40                45
Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr

```

FIGURE 15A.123

50	55	60
Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys 65 70 75 80		
Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe 85 90 95		
Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu 100 105 110		
Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys 115 120 125		
Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu 130 135 140		
Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys 145 150 155 160		
Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn 165 170 175		
His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr 180 185 190		
Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg 195 200 205		
Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro 210 215 220		
Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr 225 230 235 240		
Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp 245 250 255		
Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr 260 265 270		
Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe 275 280 285		
Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Thr 290 295 300		
Leu Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr 305 310 315 320		
Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala 325 330 335		
Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg 340 345 350		
Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe 355 360 365		
Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro 370 375 380		

FIGURE 15A.124

```

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385                               390                               395                               400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
                               405                               410                               415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe
                               420                               425                               430

<210>      112
<211>      431
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence
<400>      112
Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1              5              10              15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
              20              25              30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
      35              40              45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50              55              60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65              70              75              80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
      100              105              110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
      115              120              125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
      130              135              140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
      145              150              155              160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
      165              170              175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
      180              185              190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
      195              200              205

Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
      210              215              220

```

FIGURE 15A.125

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

<210> 113
 <211> 431
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic Sequence

<400> 113
 Phe Arg Ala Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1 5 10 15
 Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
 20 25 30
 Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
 35 40 45

FIGURE 15A.126

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50 55 60
 Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65 70 75 80
 Ile Ser Leu Gln Asp His Leu Asp Lys Ala Lys Lys Asp Ile Thr Phe
 85 90 95
 Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
 100 105 110
 Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
 115 120 125
 Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
 130 135 140
 Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
 145 150 155 160
 Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
 165 170 175
 His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
 180 185 190
 Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg
 195 200 205
 Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210 215 220
 Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
 225 230 235 240
 Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
 245 250 255
 Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
 260 265 270
 Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
 275 280 285
 Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Gly
 290 295 300
 Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
 305 310 315 320
 Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
 325 330 335
 Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
 340 345 350
 Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
 355 360 365
 Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro

FIGURE 15A.127

```

          370              375              380
Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385              390              395              400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
              405              410              415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe
              420              425              430

<210>      114
<211>      431
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      114
Phe Arg Gly Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1              5              10              15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
              20              25              30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly
              35              40              45

Gln Gly Val Thr Ile Phe Tyr Val Asp Arg Leu Gly Tyr Tyr Pro Tyr
 50              55              60

Ile Asp Ser Ile Thr Gly Val Thr Val Asn Gly Gly Ile Pro Gln Lys
 65              70              75              80

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

Tyr Met Pro Val Asp Asn Leu Gly Met Ala Val Ile Asp Trp Glu Glu
              100              105              110

Trp Arg Pro Thr Trp Ala Arg Asn Trp Lys Pro Lys Asp Val Tyr Lys
              115              120              125

Asn Arg Ser Ile Glu Leu Val Gln Gln Gln Asn Val Gln Leu Ser Leu
              130              135              140

Thr Glu Ala Thr Glu Lys Ala Lys Gln Glu Phe Glu Lys Ala Gly Lys
145              150              155              160

Asp Phe Leu Val Glu Thr Ile Lys Leu Gly Lys Leu Leu Arg Pro Asn
              165              170              175

His Leu Trp Gly Tyr Tyr Leu Phe Pro Asp Cys Tyr Asn His His Tyr
              180              185              190

Lys Lys Pro Gly Tyr Asn Gly Ser Cys Phe Asn Val Glu Ile Lys Arg

```

FIGURE 15A.128

```

                195                200                205
Asn Asp Asp Leu Ser Trp Leu Trp Asn Glu Ser Thr Ala Leu Tyr Pro
 210                215                220

Ser Ile Tyr Leu Asn Thr Gln Gln Ser Pro Val Ala Ala Thr Leu Tyr
225                230                235                240

Val Arg Asn Arg Val Arg Glu Ala Ile Arg Val Ser Lys Ile Pro Asp
                245                250                255

Ala Lys Ser Pro Leu Pro Val Phe Ala Tyr Thr Arg Ile Val Phe Thr
                260                265                270

Asp Gln Val Leu Lys Phe Leu Ser Gln Asp Glu Leu Val Tyr Thr Phe
                275                280                285

Gly Glu Thr Val Ala Leu Gly Ala Ser Gly Ile Val Ile Trp Gly Ser
 290                295                300

Trp Glu Asn Thr Arg Thr Lys Glu Ser Cys Gln Ala Ile Lys Glu Tyr
305                310                315                320

Met Asp Thr Thr Leu Asn Pro Tyr Ile Ile Asn Val Thr Leu Ala Ala
                325                330                335

Lys Met Cys Ser Gln Val Leu Cys Gln Glu Gln Gly Val Cys Ile Arg
                340                345                350

Lys Asn Trp Asn Ser Ser Asp Tyr Leu His Leu Asn Pro Asp Asn Phe
                355                360                365

Ala Ile Gln Leu Glu Lys Gly Gly Lys Phe Thr Val Arg Gly Lys Pro
                370                375                380

Thr Leu Glu Asp Leu Glu Gln Phe Ser Glu Lys Phe Tyr Cys Ser Cys
385                390                395                400

Tyr Ser Thr Leu Ser Cys Lys Glu Lys Ala Asp Val Lys Asp Thr Asp
                405                410                415

Ala Val Asp Val Cys Ile Ala Asp Gly Val Cys Ile Asp Ala Phe
                420                425                430

<210>      115
<211>      431
<212>      PRT
<213>      Artificial Sequence

<220>
<223>      Synthetic Sequence

<400>      115
Phe Arg Gly Pro Pro Val Ile Pro Asn Val Pro Phe Leu Trp Ala Trp
 1                5                10                15

Asn Ala Pro Ser Glu Phe Cys Leu Gly Lys Phe Asp Glu Pro Leu Asp
                20                25                30

Met Ser Leu Phe Ser Phe Ile Gly Ser Pro Arg Ile Asn Ala Thr Gly

```

FIGURE 15A.129

35					40					45					
Gln	Gly	Val	Thr	Ile	Phe	Tyr	Val	Asp	Arg	Leu	Gly	Tyr	Tyr	Pro	Tyr
	50					55					60				
Ile	Asp	Ser	Ile	Thr	Gly	Val	Thr	Val	Asn	Gly	Gly	Ile	Pro	Gln	Lys
	65					70					75				80
Ile	Ser	Leu	Gln	Asp	His	Leu	Asp	Lys	Ala	Lys	Lys	Asp	Ile	Thr	Phe
				85					90					95	
Tyr	Met	Pro	Val	Asp	Asn	Leu	Gly	Met	Ala	Val	Ile	Asp	Trp	Glu	Glu
			100					105					110		
Trp	Arg	Pro	Thr	Trp	Ala	Arg	Asn	Trp	Lys	Pro	Lys	Asp	Val	Tyr	Lys
			115				120					125			
Asn	Arg	Ser	Ile	Glu	Leu	Val	Gln	Gln	Gln	Asn	Val	Gln	Leu	Ser	Leu
	130						135					140			
Thr	Glu	Ala	Thr	Glu	Lys	Ala	Lys	Gln	Glu	Phe	Glu	Lys	Ala	Gly	Lys
	145						150				155				160
Asp	Phe	Leu	Val	Glu	Thr	Ile	Lys	Leu	Gly	Lys	Leu	Leu	Arg	Pro	Asn
				165					170					175	
His	Leu	Trp	Gly	Tyr	Tyr	Leu	Phe	Pro	Asp	Cys	Tyr	Asn	His	His	Tyr
			180					185					190		
Lys	Lys	Pro	Gly	Tyr	Asn	Gly	Ser	Cys	Phe	Asn	Val	Glu	Ile	Lys	Arg
		195					200					205			
Asn	Asp	Asp	Leu	Ser	Trp	Leu	Trp	Asn	Glu	Ser	Thr	Ala	Leu	Tyr	Pro
	210					215					220				
Ser	Ile	Tyr	Leu	Asn	Thr	Gln	Gln	Ser	Pro	Val	Ala	Ala	Thr	Leu	Tyr
	225					230					235				240
Val	Arg	Asn	Arg	Val	Arg	Glu	Ala	Ile	Arg	Val	Ser	Lys	Ile	Pro	Asp
				245					250					255	
Ala	Lys	Ser	Pro	Leu	Pro	Val	Phe	Ala	Tyr	Thr	Arg	Ile	Val	Phe	Thr
			260					265					270		
Asp	Gln	Val	Leu	Lys	Phe	Leu	Ser	Gln	Asp	Glu	Leu	Val	Tyr	Thr	Phe
		275					280					285			
Gly	Glu	Thr	Val	Ala	Leu	Gly	Ala	Ser	Gly	Ile	Val	Ile	Trp	Gly	Ser
	290					295					300				
Trp	Glu	Asn	Thr	Arg	Thr	Lys	Glu	Ser	Cys	Gln	Ala	Ile	Lys	Glu	Tyr
	305					310					315				320
Met	Asp	Thr	Thr	Leu	Asn	Pro	Tyr	Ile	Ile	Asn	Val	Thr	Leu	Ala	Ala
				325					330					335	
Lys	Met	Cys	Ser	Gln	Val	Leu	Cys	Gln	Glu	Gln	Gly	Val	Cys	Ile	Arg
			340					345				350			
Lys	Asn	Trp	Asn	Ser	Ser	Asp	Tyr	Leu	His	Leu	Asn	Pro	Asp	Asn	Phe
		355					360					365			

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Ala	Ile	Gln	Leu	Glu	Lys	Gly	Gly	Lys	Phe	Thr	Val	Arg	Gly	Lys	Pro	
	370					375					380					
Thr	Leu	Glu	Asp	Leu	Glu	Gln	Phe	Ser	Glu	Lys	Phe	Tyr	Cys	Ser	Cys	
385					390					395					400	
Tyr	Ser	Thr	Leu	Ser	Cys	Lys	Glu	Lys	Ala	Asp	Val	Lys	Asp	Thr	Asp	
				405					410					415		
Ala	Val	Asp	Val	Cys	Ile	Ala	Asp	Gly	Val	Cys	Ile	Asp	Ala	Phe		
		420						425					430			