

SEQUENCE LISTING

<110> ZymoGenetics, Inc.
BONDENSGAARD, KENT
BECKMANN, ROLAND

<120> HUMANIZED ANTIBODY MOLECULES SPECIFIC
FOR IL-31

<130> 07-13PC

<150> 61/012,362

<151> 2007-12-07

<160> 51

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 5

<212> PRT

<213> Mus musculus

<400> 1

Arg	Tyr	Trp	Met	Gln
1				5

<210> 2

<211> 17

<212> PRT

<213> Mus musculus

<400> 2

Ala	Ile	Tyr	Pro	Gly	Asp	Gly	Asp	Thr	Arg	Tyr	Ser	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 3

<211> 13

<212> PRT

<213> Mus musculus

<400> 3

Pro	Asp	Gly	Tyr	Tyr	Ala	Ala	Pro	Tyr	Gly	Met	Asp	Tyr
1				5					10			

<210> 4

<211> 17

<212> PRT

<213> Mus musculus

<400> 4

Ala	Ile	Tyr	Pro	Gly	Asp	Gly	Asp	Thr	Arg	Tyr	Ser	Pro	Ser	Phe	Gln
1				5					10					15	

Gly

<210> 5
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 5
 Arg Ala Ser Gly Asn Ile His Asn Tyr Leu Ala
 1 5 10

<210> 6
 <211> 7
 <212> PRT
 <213> Mus musculus

<400> 6
 Asn Ala Lys Thr Leu Ala Asp
 1 5

<210> 7
 <211> 9
 <212> PRT
 <213> Mus musculus

<400> 7
 Gln His Phe Trp Ser Thr Pro Trp Thr
 1 5

<210> 8
 <211> 30
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (29)...(29)
 <223> Xaa is Leu or Phe

<400> 8
 Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu
 1 5 10 15
 Ser Leu Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Xaa Thr
 20 25 30

<210> 9
 <211> 14
 <212> PRT
 <213> Mus musculus

<400> 9
 Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met Gly
 1 5 10

<210> 10
 <211> 32

<212> PRT
 <213> Mus musculus

<400> 10
 Gln Val Thr Leu Thr Ala Asp Lys Ser Ile Ser Thr Ala Tyr Leu Gln
 1 5 10 15
 Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys Ala Phe
 20 25 30

<210> 11
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 11
 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 1 5 10

<210> 12
 <211> 30
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (29)...(29)
 <223> Xaa is Leu or Phe

<400> 12
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Xaa Thr
 20 25 30

<210> 13
 <211> 14
 <212> PRT
 <213> Mus musculus

<400> 13
 Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly
 1 5 10

<210> 14
 <211> 32
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa is Lys or Thr

<220>
 <221> VARIANT
 <222> (32)...(32)
 <223> Xaa is Phe or Arg

<400> 14

Arg	Val	Thr	Leu	Thr	Ala	Asp	Xaa	Ser	Thr	Ser	Thr	Ala	Tyr	Met	Glu
1				5				10					15		
Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Xaa
			20					25					30		

<210> 15

<211> 11

<212> PRT

<213> Mus musculus

<400> 15

Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser
1				5				10		

<210> 16

<211> 32

<212> PRT

<213> Mus musculus

<220>

<221> VARIANT

<222> (8)...(8)

<223> Xaa is Lys or Thr

<220>

<221> VARIANT

<222> (32)...(32)

<223> Xaa is Phe or Arg

<400> 16

Arg	Val	Thr	Met	Thr	Arg	Asp	Xaa	Ser	Thr	Ser	Thr	Val	Tyr	Met	Glu
1				5				10					15		
Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Xaa
			20					25					30		

<210> 17

<211> 23

<212> PRT

<213> Mus musculus

<400> 17

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
1				5				10					15		
Asp	Arg	Val	Thr	Ile	Thr	Cys									
			20												

<210> 18

<211> 15

<212> PRT

<213> Mus musculus

<400> 18

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Val	Pro	Lys	Leu	Leu	Ile	Tyr
1				5				10					15	

<210> 19
 <211> 32
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (15)...(15)
 <223> Xaa is Phe or Tyr

<400> 19
 Gly Val Pro Ser Arg Phe Ser Gly Ser Arg Ser Glu Thr Gln Xaa Ser
 1 5 10 15
 Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Val Ala Thr Tyr Tyr Cys
 20 25 30

<210> 20
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 20
 Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 1 5 10

<210> 21
 <211> 32
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (15)...(15)
 <223> Xaa is Tyr or Phe

<400> 21
 Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Xaa Thr
 1 5 10 15
 Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Val Ala Thr Tyr Tyr Cys
 20 25 30

<210> 22
 <211> 17
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> (13)...(13)
 <223> Xaa is Gln or Pro

<220>
 <221> VARIANT
 <222> (14)...(14)
 <223> Xaa is Ser or Lys

<220>

<221> VARIANT
 <222> (16)...(16)
 <223> Xaa is Gln or Lys

<400> 22
 Ala Ile Tyr Pro Gly Asp Gly Asp Thr Arg Tyr Ser Xaa Xaa Phe Xaa
 1 5 10 15
 Gly

<210> 23
 <211> 17
 <212> PRT
 <213> Mus musculus

<400> 23
 Ala Ile Tyr Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
 1 5 10 15
 Gly

<210> 24
 <211> 164
 <212> PRT
 <213> Homo sapiens

<400> 24
 Met Ala Ser His Ser Gly Pro Ser Thr Ser Val Leu Phe Leu Phe Cys
 1 5 10 15
 Cys Leu Gly Gly Trp Leu Ala Ser His Thr Leu Pro Val Arg Leu Leu
 20 25 30
 Arg Pro Ser Asp Asp Val Gln Lys Ile Val Glu Glu Leu Gln Ser Leu
 35 40 45
 Ser Lys Met Leu Leu Lys Asp Val Glu Glu Glu Lys Gly Val Leu Val
 50 55 60
 Ser Gln Asn Tyr Thr Leu Pro Cys Leu Ser Pro Asp Ala Gln Pro Pro
 65 70 75 80
 Asn Asn Ile His Ser Pro Ala Ile Arg Ala Tyr Leu Lys Thr Ile Arg
 85 90 95
 Gln Leu Asp Asn Lys Ser Val Ile Asp Glu Ile Ile Glu His Leu Asp
 100 105 110
 Lys Leu Ile Phe Gln Asp Ala Pro Glu Thr Asn Ile Ser Val Pro Thr
 115 120 125
 Asp Thr His Glu Cys Lys Arg Phe Ile Leu Thr Ile Ser Gln Gln Phe
 130 135 140
 Ser Glu Cys Met Asp Leu Ala Leu Lys Ser Leu Thr Ser Gly Ala Gln
 145 150 155 160
 Gln Ala Thr Thr

<210> 25
 <211> 122
 <212> PRT
 <213> Mus musculus

<400> 25
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

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

<210> 26
 <211> 108
 <212> PRT
 <213> Mus musculus

<400> 26
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gly Asn Ile His Asn Tyr
 20 25 30
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile
 35 40 45
 Tyr Asn Ala Lys Thr Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Arg Ser Glu Thr Gln Tyr Ser Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Val Ala Thr Tyr Tyr Cys Gln His Phe Trp Ser Thr Pro Trp
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 27
 <211> 122
 <212> PRT
 <213> Mus musculus

<400> 27
 Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu
 1 5 10 15
 Ser Leu Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Leu Thr Arg Tyr
 20 25 30
 Trp Met Gln Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met
 35 40 45
 Gly Ala Ile Tyr Pro Gly Asp Gly Asp Thr Arg Tyr Ser Pro Ser Phe
 50 55 60
 Gln Gly Gln Val Thr Leu Thr Ala Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80
 Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys
 85 90 95
 Ala Phe Pro Asp Gly Tyr Tyr Ala Ala Pro Tyr Gly Met Asp Tyr Trp
 100 105 110
 Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120

<210> 28
 <211> 108
 <212> PRT
 <213> Mus musculus

<400> 28
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gly Asn Ile His Asn Tyr
 20 25 30
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile
 35 40 45
 Tyr Asn Ala Lys Thr Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Val Ala Thr Tyr Tyr Cys Gln His Phe Trp Ser Thr Pro Trp
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 29
 <211> 122
 <212> PRT
 <213> Mus musculus

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

<210> 30
 <211> 122
 <212> PRT
 <213> Mus musculus

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

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

<210> 31
 <211> 122
 <212> PRT
 <213> Mus musculus

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

<210> 32
 <211> 108
 <212> PRT
 <213> Mus musculus

<400> 32
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gly Asn Ile His Asn Tyr
 20 25 30
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile
 35 40 45
 Tyr Asn Ala Lys Thr Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Arg Ser Glu Thr Gln Phe Ser Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Val Ala Thr Tyr Tyr Cys Gln His Phe Trp Ser Thr Pro Trp
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 33
 <211> 108
 <212> PRT
 <213> Mus musculus

<400> 33

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

<210> 34

<211> 108

<212> PRT

<213> Mus musculus

<400> 34

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

<210> 35

<211> 122

<212> PRT

<213> Mus musculus

<400> 35

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

<210> 36
 <211> 122
 <212> PRT
 <213> Mus musculus

<400> 36
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Leu Thr Arg Tyr
 20 25 30
 Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Ala Ile Tyr Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile Ser Thr Val Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Phe Pro Asp Gly Tyr Tyr Ala Ala Pro Tyr Gly Met Asp Tyr Trp
 100 105 110
 Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 37
 <211> 108
 <212> PRT
 <213> Mus musculus

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

<210> 38
 <211> 122
 <212> PRT
 <213> Mus musculus

<400> 38
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Leu Thr Arg Tyr
 20 25 30
 Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Ala Ile Tyr Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe

50		55		60
Gln Gly Arg Val Thr	Leu Thr Arg Asp Thr	Ser Ile Ser Thr Val Tyr		
65	70	75	80	
Met Glu Leu Ser Ser	Leu Arg Ser Glu Asp Thr	Ala Val Tyr Tyr Cys		
	85	90	95	
Ala Phe Pro Asp Gly Tyr Tyr	Ala Ala Pro Tyr Gly Met	Asp Tyr Trp		
	100	105	110	
Gly Gln Gly Thr Leu Val Thr	Val Ser Ser			
	115	120		

<210> 39
 <211> 122
 <212> PRT
 <213> Mus musculus

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

<210> 40
 <211> 122
 <212> PRT
 <213> Mus musculus

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

<210> 41
 <211> 122

<212> PRT

<213> Mus musculus

<400> 41

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

<210> 42

<211> 122

<212> PRT

<213> Mus musculus

<400> 42

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

<210> 43

<211> 122

<212> PRT

<213> Mus musculus

<400> 43

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

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

<210> 44
 <211> 122
 <212> PRT
 <213> Mus musculus

<400> 44															
Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ala
1				5					10					15	
Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Leu	Thr	Arg	Tyr
			20					25					30		
Trp	Met	Gln	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
		35					40					45			
Gly	Ala	Ile	Tyr	Pro	Gly	Asp	Gly	Asp	Thr	Arg	Tyr	Ser	Gln	Lys	Phe
	50					55					60				
Gln	Gly	Arg	Val	Thr	Leu	Thr	Ala	Asp	Lys	Ser	Thr	Ser	Thr	Ala	Tyr
65					70					75					80
Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Phe	Pro	Asp	Gly	Tyr	Tyr	Ala	Ala	Pro	Tyr	Gly	Met	Asp	Tyr	Trp
			100					105					110		
Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser						
		115					120								

<210> 45
 <211> 122
 <212> PRT
 <213> Mus musculus

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

<210> 46
 <211> 214
 <212> PRT
 <213> Mus musculus

<400> 46

```

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

```

<210> 47

<211> 449

<212> PRT

<213> Mus musculus

<400> 47

```

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

```

[illegible]

```
<210> 48
<211> 214
<212> PRT
<213> Mus musculus
```

<400> 48

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

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
 145 150 155 160
 Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
 165 170 175
 Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
 180 185 190
 Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
 195 200 205
 Phe Asn Arg Gly Glu Cys
 210

<210> 49
 <211> 449
 <212> PRT
 <213> Mus musculus

<400> 49
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Leu Thr Arg Tyr
 20 25 30
 Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Ala Ile Tyr Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Met Thr Arg Asp Lys Ser Thr Ser Thr Val Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Phe Pro Asp Gly Tyr Tyr Ala Ala Pro Tyr Gly Met Asp Tyr Trp
 100 105 110
 Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
 115 120 125
 Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr
 130 135 140
 Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
 145 150 155 160
 Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
 165 170 175
 Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
 180 185 190
 Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp
 195 200 205
 His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr
 210 215 220
 Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro
 225 230 235 240
 Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 245 250 255
 Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp
 260 265 270
 Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 275 280 285
 Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val
 290 295 300
 Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 305 310 315 320
 Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
 325 330 335
 Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr

[illegible]

```
<210> 50
<211> 214
<212> PRT
<213> Mus musculus
```

[illegible]

```
<210> 51
<211> 449
<212> PRT
<213> Mus musculus
```

<400> 51
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu
1 5 10 15

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

Lys