

24238WOPCTSEQ
SEQUENCE LISTING

<110> Merck, Sharp & Dohme Corp.

<120> PD1 and/or LAG3 Binders

<130> 24238

<150> 62/257,009

<151> 2015-11-18

<160> 138

<170> PatentIn version 3.5

<210> 1

<211> 119

<212> PRT

<213> Artificial Sequence

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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Gln Val Thr Val Ser Ser
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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
Page 1

24238WOPCTSEQ

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 <223> X is W or F

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Asp Lys His Gln Ser Ser Xaa Tyr Asp Tyr
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Gly Ser Ile Ala Ser Ile His Ala Met Gly
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 Page 3

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

24238WOPCTSEQ

Thr Leu Val Lys Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Gln Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

24238WOPCTSEQ

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Lys Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
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Thr Leu Val Thr Val Gln Ser
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 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
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Thr Leu Val Lys Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Gln Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Lys Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 Page 8

24238WOPCTSEQ

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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Gln Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
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24238WOPCTSEQ

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Lys Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

24238WOPCTSEQ

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Gln Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
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Thr Leu Val Thr Val Lys Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Gln Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly

Thr Leu Val Thr Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
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Thr Leu Val Thr Val Ser Ser
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
Page 13

24238WOPCTSEQ

35

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Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Thr Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Ala
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Lys Val Ser Ser Ala
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
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Thr Leu Val Gln Val Ser Ser Ala
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

24238WOPCTSEQ

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Lys Ser Ala
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20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Gln Ser Ala
115 120

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24238WOPCTSEQ

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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Lys Val Ser Ser Ala
115 120

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Gln Val Ser Ser Ala

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 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Lys Ser Ala
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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val

24238WOPCTSEQ

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Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Gln Ser Ala
 115 120

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 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Ala
 115 120

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20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Lys Val Ser Ser Ala
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

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Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
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Thr Leu Val Gln Val Ser Ser Ala
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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Ala Gly Gly
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Lys Ser Ala
115 120

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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

24238WOPCTSEQ

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Gln Ser Ala
115 120

<210> 39
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 39

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Ala
115 120

<210> 40

24238WOPCTSEQ

<211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized Lama

<400> 40

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Ala
 115 120

<210> 41
 <211> 34
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> HIS6-FLAG3 tag

<400> 41

His His His His His His Gly Ala Ala Asp Tyr Lys Asp His Asp Gly
 1 5 10 15

Asp Tyr Lys Asp His Asp Ile Asp Tyr Lys Asp Asp Asp Asp Lys Gly
 20 25 30

Ala Ala

<210> 42
 <211> 5
 <212> PRT
 <213> Lama sp.

<400> 42

Val Thr Val Lys Ser
1 5

<210> 43

<211> 5

<212> PRT

<213> Lama sp.

<400> 43

Val Thr Val Gln Ser
1 5

<210> 44

<211> 5

<212> PRT

<213> Lama sp.

<400> 44

Val Lys Val Ser Ser
1 5

<210> 45

<211> 5

<212> PRT

<213> Lama sp.

<400> 45

Val Gln Val Ser Ser
1 5

<210> 46

<211> 6

<212> PRT

<213> Lama sp.

<220>

<221> misc_feature

<222> (6)..(6)

<223> Xaa can be any naturally occurring amino acid

<400> 46

Val Thr Val Lys Ser Xaa
1 5

<210> 47

<211> 6

<212> PRT

<213> Lama sp.

<220>

<221> misc_feature

<222> (6)..(6)

<223> Xaa can be any naturally occurring amino acid

<400> 47

24238WOPCTSEQ

Val Thr Val Gln Ser Xaa
1 5

<210> 48
<211> 6
<212> PRT
<213> Lama sp.

<220>
<221> misc_feature
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<400> 48

Val Lys Val Ser Ser Xaa
1 5

<210> 49
<211> 6
<212> PRT
<213> Lama sp.

<220>
<221> misc_feature
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<400> 49

Val Gln Val Ser Ser Xaa
1 5

<210> 50
<211> 6
<212> PRT
<213> Lama sp.

<400> 50

Val Thr Val Lys Ser Ala
1 5

<210> 51
<211> 6
<212> PRT
<213> Lama sp.

<400> 51

Val Thr Val Gln Ser Ala
1 5

<210> 52
<211> 6
<212> PRT
<213> Lama sp.

<400> 52

24238WOPCTSEQ

Val Lys Val Ser Ser Ala
1 5

<210> 53
<211> 6
<212> PRT
<213> Lama sp.

<400> 53

Val Gln Val Ser Ser Ala
1 5

<210> 54
<211> 5
<212> PRT
<213> Lama sp.

<400> 54

Val Thr Val Ser Ser
1 5

<210> 55
<211> 6
<212> PRT
<213> Lama sp.

<220>
<221> misc_feature
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid
<400> 55

Val Thr Val Ser Ser Xaa
1 5

<210> 56
<211> 6
<212> PRT
<213> Lama sp.

<400> 56

Val Thr Val Ser Ser Ala
1 5

<210> 57
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 57

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

24238WOPCTSEQ

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 58
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> 35GS linker

<400> 58

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
20 25 30

Gly Gly Ser
35

<210> 59
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
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<220>
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<222> (11)..(11)
<223> X is L or V

<220>
<221> MISC_FEATURE
<222> (93)..(93)
<223> X is L or V

24238WOPCTSEQ

<400> 59

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Xaa Val Gln Pro Gly Asn
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Xaa Tyr Tyr Cys
85 90 95

Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu Val Thr
100 105 110

Val Ser Ser Ala
115

<210> 60
<211> 10
<212> PRT
<213> Lama sp.

<400> 60

Gly Phe Thr Phe Ser Ser Phe Gly Met Ser
1 5 10

<210> 61
<211> 17
<212> PRT
<213> Lama sp.

<400> 61

Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 62
<211> 6
<212> PRT
<213> Lama sp.

<400> 62

24238WOPCTSEQ

Gly Gly Ser Leu Ser Arg
1 5

<210> 63
<211> 128
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 63

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
20 25 30

Val Met Gly Trp Phe Arg Gln Ala Arg Gly Asn Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ala Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

<210> 64
<211> 128
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 64

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
20 25 30

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

24238WOPCTSEQ

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

<210> 65
<211> 10
<212> PRT
<213> Lama sp.

<400> 65

Gly Arg Thr Phe Ser Asp Tyr Val Met Gly
1 5 10

<210> 66
<211> 17
<212> PRT
<213> Lama sp.

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> X is A or S

<400> 66

Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Xaa Val Lys
1 5 10 15

Gly

<210> 67
<211> 19
<212> PRT
<213> Lama sp.

<400> 67

Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp
1 5 10 15

Tyr Asp Tyr

<210> 68

24238WOPCTSEQ

<211> 34
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized Lama

<400> 68

Ala Ala Ala Asp Tyr Lys Asp His Asp Gly Asp Tyr Lys Asp His Asp
 1 5 10 15

Ile Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala Ala His His His His
 20 25 30

His His

<210> 69
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> HisX6 tag sequence

<400> 69

Ala Ala Ala His His His His His His
 1 5

<210> 70
 <211> 35
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 35GS linker

<400> 70

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 20 25 30

Gly Gly Ser
 35

<210> 71
 <211> 11
 <212> PRT
 <213> Rattus sp.

<400> 71

Lys Thr Ser Gln Asn Ile Phe Glu Asn Leu Ala
 1 5 10

24238WOPCTSEQ

<210> 72
 <211> 7
 <212> PRT
 <213> Rattus sp.

<400> 72

Asn Ala Ser Pro Leu Gln Ala
 1 5

<210> 73
 <211> 8
 <212> PRT
 <213> Rattus sp.

<400> 73

His Gln Tyr Tyr Ser Gly Tyr Thr
 1 5

<210> 74
 <211> 10
 <212> PRT
 <213> Rattus sp.

<400> 74

Gly Phe Thr Phe Ser Asp Tyr His Met Ala
 1 5 10

<210> 75
 <211> 17
 <212> PRT
 <213> Rattus sp.

<400> 75

Ser Ile Thr Leu Asp Ala Thr Tyr Thr Tyr Tyr Arg Asp Ser Val Arg
 1 5 10 15

Gly

<210> 76
 <211> 10
 <212> PRT
 <213> Rattus sp.

<400> 76

His Arg Gly Phe Ser Val Trp Leu Asp Tyr
 1 5 10

<210> 77
 <211> 10
 <212> PRT
 <213> Rattus sp.

<400> 77

Gly Tyr Ile Phe Thr Asp Tyr Ala Met His
 1 5 10

24238WOPCTSEQ

<210> 78
 <211> 16
 <212> PRT
 <213> Rattus sp.

<400> 78

Thr Phe Ile Pro Leu Leu Asp Thr Ser Asp Tyr Asn Gln Asn Phe Lys
 1 5 10 15

<210> 79
 <211> 11
 <212> PRT
 <213> Rattus sp.

<400> 79

Met Gly Val Thr His Ser Tyr Val Met Asp Ala
 1 5 10

<210> 80
 <211> 11
 <212> PRT
 <213> Rattus sp.

<400> 80

Arg Ala Ser Gln Pro Ile Ser Ile Ser Val His
 1 5 10

<210> 81
 <211> 7
 <212> PRT
 <213> Rattus sp.

<400> 81

Phe Ala Ser Gln Ser Ile Ser
 1 5

<210> 82
 <211> 9
 <212> PRT
 <213> Rattus sp.

<400> 82

Gln Gln Thr Phe Ser Leu Pro Tyr Thr
 1 5

<210> 83
 <211> 10
 <212> PRT
 <213> Mus sp.

<400> 83

Gly Phe Ile Ile Lys Ala Thr Tyr Met His
 1 5 10

24238WOPCTSEQ

<210> 84
 <211> 17
 <212> PRT
 <213> Mus sp.

<400> 84

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

Val

<210> 85
 <211> 7
 <212> PRT
 <213> Mus sp.

<400> 85

Tyr Ala Trp Tyr Phe Asp Val
 1 5

<210> 86
 <211> 11
 <212> PRT
 <213> Mus sp.

<400> 86

Arg Ala Ser Glu Asn Ile Tyr Ser Phe Leu Ala
 1 5 10

<210> 87
 <211> 7
 <212> PRT
 <213> Mus sp.

<400> 87

His Ala Lys Thr Leu Ala Glu
 1 5

<210> 88
 <211> 9
 <212> PRT
 <213> Mus sp.

<400> 88

Gln His Tyr Tyr Gly Ser Pro Leu Thr
 1 5

<210> 89
 <211> 447
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized mouse

<400> 89

24238WOPCTSEQ

Gln Val Gln Leu Val Gln Ser Gly Val 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 Asn Tyr
20 25 30

Tyr Met Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Gly Ile Asn Pro Ser Asn Gly Gly Thr Asn Phe Asn Glu Lys Phe
50 55 60

Lys Asn Arg Val Thr Leu Thr Thr Asp Ser Ser Thr Thr Thr Ala Tyr
65 70 75 80

Met Glu Leu Lys Ser Leu Gln Phe Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Arg Asp Tyr Arg Phe Asp Met Gly Phe Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
115 120 125

Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala
130 135 140

Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
145 150 155 160

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190

Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys
195 200 205

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro
210 215 220

Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
260 265 270

24238WOPCTSEQ

Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

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

Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440 445

<210> 90
<211> 218
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized mouse

<400> 90

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Lys Gly Val Ser Thr Ser
20 25 30

Gly Tyr Ser Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro
35 40 45

Arg Leu Leu Ile Tyr Leu Ala Ser Tyr Leu Glu Ser Gly Val Pro Ala
Page 36

24238WOPCTSEQ

50

55

60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Glu Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln His Ser Arg
85 90 95

Asp Leu Pro Leu Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg
100 105 110

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
115 120 125

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
130 135 140

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
145 150 155 160

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
165 170 175

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
180 185 190

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
195 200 205

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 91
<211> 440
<212> PRT
<213> Homo sapiens

<400> 91

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
1 5 10 15

Ser Leu Arg Leu Asp Cys Lys Ala Ser Gly Ile Thr Phe Ser Asn Ser
20 25 30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Val Ile Trp Tyr Asp Gly Ser Lys Arg Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
65 70 75 80

24238WOPCTSEQ

Leu Gln Met Asn Ser₈₅ Leu Arg Ala Glu Asp₉₀ Thr Ala Val Tyr Tyr₉₅ Cys
 Ala Thr Asn Asp₁₀₀ Asp Tyr Trp Gly Gln₁₀₅ Gly Thr Leu Val Thr₁₁₀ Val Ser
 Ser Ala Ser₁₁₅ Thr Lys Gly Pro Ser₁₂₀ Val Phe Pro Leu Ala₁₂₅ Pro Cys Ser
 Arg Ser₁₃₀ Thr Ser Glu Ser Thr₁₃₅ Ala Ala Leu Gly Cys₁₄₀ Leu Val Lys Asp
 Tyr₁₄₅ Phe Pro Glu Pro Val₁₅₀ Thr Val Ser Trp Asn₁₅₅ Ser Gly Ala Leu Thr₁₆₀
 Ser Gly Val His Thr₁₆₅ Phe Pro Ala Val Leu₁₇₀ Gln Ser Ser Gly Leu₁₇₅ Tyr
 Ser Leu Ser Ser₁₈₀ Val Val Thr Val Pro₁₈₅ Ser Ser Ser Leu Gly₁₉₀ Thr Lys
 Thr Tyr Thr₁₉₅ Cys Asn Val Asp His₂₀₀ Lys Pro Ser Asn Thr₂₀₅ Lys Val Asp
 Lys Arg Val Glu Ser Lys Tyr₂₁₅ Gly Pro Pro Cys Pro₂₂₀ Pro Cys Pro Ala
 Pro₂₂₅ Glu Phe Leu Gly Gly₂₃₀ Pro Ser Val Phe Leu₂₃₅ Phe Pro Pro Lys Pro₂₄₀
 Lys Asp Thr Leu Met₂₄₅ Ile Ser Arg Thr Pro₂₅₀ Glu Val Thr Cys Val₂₅₅ Val
 Val Asp Val Ser₂₆₀ Gln Glu Asp Pro Glu₂₆₅ Val Gln Phe Asn Trp₂₇₀ Tyr Val
 Asp Gly Val₂₇₅ Glu Val His Asn Ala₂₈₀ Lys Thr Lys Pro Arg₂₈₅ Glu Glu Gln
 Phe Asn₂₉₀ Ser Thr Tyr Arg Val₂₉₅ Val Ser Val Leu Thr₃₀₀ Val Leu His Gln
 Asp Trp Leu Asn Gly Lys₃₁₀ Glu Tyr Lys Cys Lys₃₁₅ Val Ser Asn Lys Gly₃₂₀
 Leu Pro Ser Ser Ile₃₂₅ Glu Lys Thr Ile Ser₃₃₀ Lys Ala Lys Gly Gln₃₃₅ Pro
 Arg Glu Pro Gln₃₄₀ Val Tyr Thr Leu Pro₃₄₅ Pro Ser Gln Glu Glu₃₅₀ Met Thr

24238WOPCTSEQ

Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser
355 360 365

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
370 375 380

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

Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe
405 410 415

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
420 425 430

Ser Leu Ser Leu Ser Leu Gly Lys
435 440

<210> 92
<211> 214
<212> PRT
<213> Homo sapiens

<400> 92

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Ser Ser Asn Trp Pro Arg
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

24238WOPCTSEQ

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> 93
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> HisX6 tag

<400> 93

His His His His His His
1 5

<210> 94
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> HisX18 tag

<400> 94

His His His His His His His His His His His His His His His His
1 5 10 15

His His

<210> 95
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 95

Asp Tyr Lys Asp Asp Asp Lys
1 5

<210> 96

24238WOPCTSEQ

<211> 279
 <212> PRT
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<220>
 <223> humanized Lama

<400> 96

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
 20 25 30

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 130 135 140

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 145 150 155 160

Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
 165 170 175

Pro Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 180 185 190

Ser Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 195 200 205

Glu Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala
 210 215 220

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr
 225 230 235 240

24238WOPCTSEQ

Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu
245 250 255

Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr
260 265 270

Leu Val Thr Val Ser Ser Ala
275

<210> 97
<211> 442
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 97

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
20 25 30

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
130 135 140

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
145 150 155 160

Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
165 170 175

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe
Page 42

24238WOPCTSEQ
185

180

190

Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg
195 200 205

Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala
210 215 220

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
225 230 235 240

Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu
245 250 255

Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro
260 265 270

Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr
275 280 285

Val ser ser Gly Gly Gly Gly ser Gly Gly Gly Gly Ser Gly Gly Gly
290 295 300

Gly ser Gly Gly Gly Gly ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
305 310 315 320

Ser Gly Gly Gly Gly ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly
325 330 335

Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly
340 345 350

Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly
355 360 365

Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr
370 375 380

Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
385 390 395 400

Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp
405 410 415

Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser
420 425 430

Gln Gly Thr Leu Val Thr Val Ser Ser Ala
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24238WOPCTSEQ

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<400> 98

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

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

<220>
<223> humanized Lama

<400> 99

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30
Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45
Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
Page 44

65

70

75

80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser
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<210> 100
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Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 1 5 10 15

Gly Gly Gly Ser
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<210> 101
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 <212> PRT
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<400> 101

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly

24238WOPCTSEQ

100

105

110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
130 135 140

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
145 150 155 160

Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys
165 170 175

Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg
180 185 190

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser
195 200 205

Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
210 215 220

Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu
225 230 235 240

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu
245 250 255

Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
260 265 270

<210> 102
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

24238WOPCTSEQ

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

24238WOPCTSEQ

Phe Ser Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly
340 345 350

Leu Glu Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr
355 360 365

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys
370 375 380

Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala
385 390 395 400

Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly
405 410 415

Thr Leu Val Thr Val Ser Ser Ala
420

<210> 103
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 103

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 104

24238WOPCTSEQ

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<220>
<223> humanized Lama

<400> 104

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

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

<220>
<223> humanized Lama

<400> 105

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30
Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45
Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Pro Ser Lys Asn Thr Val Tyr
Page 49

24238WOPCTSEQ

65					70					75						80
Leu	Gln	Met	Asn	Ser 85	Leu	Arg	Pro	Glu	Asp 90	Thr	Ala	Leu	Tyr	Tyr 95	Cys	
Ala	Gly	Asp	Lys 100	His	Gln	Ser	Ser	Phe 105	Tyr	Asp	Tyr	Trp	Gly 110	Gln	Gly	
Thr	Leu	Val 115	Thr	Val	Ser	Ser										
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<223>	humanized Lama															
<400>	106															
Glu	Val	Gln	Leu	Val 5	Glu	Ser	Gly	Gly	Gly 10	Leu	Val	Gln	Pro	Gly 15	Gly	
Ser	Leu	Arg	Leu 20	Ser	Cys	Ala	Ala	Ser 25	Gly	Ser	Ile	Ala	Ser 30	Ile	His	
Ala	Met	Gly 35	Trp	Phe	Arg	Gln	Ala 40	Pro	Gly	Lys	Glu	Arg 45	Glu	Phe	Val	
Ala	Val 50	Ile	Thr	Trp	Ser	Gly 55	Gly	Ile	Thr	Tyr	Tyr 60	Ala	Asp	Ser	Val	
Lys 65	Gly	Arg	Phe	Thr	Ile 70	Ser	Arg	Asp	Asn	Ser 75	Lys	Asn	Thr	Val	Tyr 80	
Leu	Gln	Met	Asn	Ser 85	Leu	Arg	Pro	Glu	Asp 90	Thr	Ala	Ile	Tyr	Tyr 95	Cys	
Ala	Gly	Asp	Lys 100	His	Gln	Ser	Ser	Trp 105	Tyr	Asp	Tyr	Trp	Gly 110	Gln	Gly	
Thr	Leu	Val 115	Thr	Val	Ser	Ser	Gly 120	Gly	Gly	Gly	Ser	Gly 125	Gly	Gly	Gly	
Ser	Gly 130	Gly	Gly	Gly	Ser	Gly 135	Gly	Gly	Gly	Ser	Gly 140	Gly	Gly	Gly	Ser	
Gly 145	Gly	Gly	Gly	Ser	Gly 150	Gly	Gly	Gly	Ser	Glu 155	Val	Gln	Leu	Val	Glu 160	
Ser	Gly	Gly	Gly	Leu 165	Val	Gln	Pro	Gly	Gly 170	Ser	Leu	Arg	Leu	Ser 175	Cys	

24238WOPCTSEQ

Ala Ala Ser Gly Ser Ile Ala Ser Ile His Ala Met Gly Trp Phe Arg
180 185 190

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Val Ile Thr Trp Ser
195 200 205

Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
210 215 220

Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu
225 230 235 240

Arg Pro Glu Asp Thr Ala Ile Tyr Tyr Cys Ala Gly Asp Lys His Gln
245 250 255

Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
260 265 270

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
275 280 285

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
290 295 300

Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val
305 310 315 320

Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr
325 330 335

Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Arg Gly Asn Glu
340 345 350

Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr
355 360 365

Ala Asp Ala Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys
370 375 380

Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala
385 390 395 400

Val Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala
405 410 415

Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val
420 425 430

Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
435 440 445

24238WOPCTSEQ

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
450 455 460

Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly
465 470 475 480

Gly Leu Val Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser
485 490 495

Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Arg
500 505 510

Gly Asn Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg
515 520 525

Thr His Tyr Ala Asp Ala Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
530 535 540

Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Lys Pro Glu
545 550 555 560

Asp Thr Ala Val Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser
565 570 575

Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly
580 585 590

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
595 600 605

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
610 615 620

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
625 630 635 640

Ser Gly Gly Gly Leu Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys
645 650 655

Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg
660 665 670

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser
675 680 685

Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
690 695 700

Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu
705 710 715 720

24238WOPCTSEQ

Arg Pro Glu Asp Thr Ala Val Tyr Tyr Cys Thr Ile Gly Gly Ser Leu
725 730 735

Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser
740 745

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<220>
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
130 135 140

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
145 150 155 160

Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
165 170 175

Ala Ala Ser Gly Ser Ile Ala Ser Ile His Ala Met Gly Trp Phe Arg
180 185 190

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Val Ile Thr Trp Ser
Page 53

24238WOPCTSEQ

195

200

205

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

465 470 475 480
 Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser
 485 490 495
 Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Pro
 500 505 510
 Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg
 515 520 525
 Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
 530 535 540
 Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu
 545 550 555 560
 Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser
 565 570 575
 Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly
 580 585 590
 Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 595 600 605
 Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 610 615 620
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
 625 630 635 640
 Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys
 645 650 655
 Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg
 660 665 670
 Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser
 675 680 685
 Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
 690 695 700
 Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu
 705 710 715 720
 Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu
 725 730 735
 Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala

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<400> 108

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val
130 135 140

Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
145 150 155 160

Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His Ala Met Gly Trp Phe
165 170 175

Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Val Ile Thr Trp
180 185 190

Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
195 200 205

Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser
210 215 220

24238WOPCTSEQ

Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Gly Asp Lys His
 225 230 235 240
 Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
 245 250 255
 Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 260 265 270
 Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly
 275 280 285
 Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly
 290 295 300
 Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Pro Gly
 305 310 315 320
 Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr
 325 330 335
 His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
 340 345 350
 Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp
 355 360 365
 Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu
 370 375 380
 Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr
 385 390 395 400
 Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 405 410 415
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
 420 425 430
 Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
 435 440 445
 Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg
 450 455 460
 Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser
 465 470 475 480
 Gly Gly Arg Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
 485 490 495

24238WOPCTSEQ

Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu
500 505 510

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp
515 520 525

Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp
530 535 540

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly
545 550 555 560

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val
565 570 575

Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu
580 585 590

Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met
595 600 605

Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser
610 615 620

Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly
625 630 635 640

Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln
645 650 655

Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile
660 665 670

Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser
675 680 685

Ser Ala
690

<210> 109
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<212> PRT
<213> Artificial Sequence

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<400> 109

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
Page 58

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
115 120 125

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
130 135 140

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
145 150 155 160

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
165 170 175

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
180 185 190

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
195 200 205

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
210 215 220

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
225 230 235 240

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
245 250 255

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
260 265 270

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
275 280 285

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val

24238WOPCTSEQ
300

290

295

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
305 310 315 320

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
325 330 335

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
340 345 350

Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala
355 360 365

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
370 375 380

Gly Gly Gly Gly Ser Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser
385 390 395 400

Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala
405 410 415

Ala Ser Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln
420 425 430

Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly
435 440 445

Gly Arg Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser
450 455 460

Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
465 470 475 480

Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp
485 490 495

Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly
500 505 510

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
515 520 525

Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro
530 535 540

Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser
545 550 555 560

Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu

24238WOPCTSEQ

565

570

575

Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp
580 585 590

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr
595 600 605

Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr
610 615 620

Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu
625 630 635 640

Val Thr Val Ser Ser Ala
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<210> 110
<211> 433
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<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 110

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
130 135 140

24238WOPCTSEQ

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

24238WOPCTSEQ

Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser
 420 425 430

Ala

<210> 111
 <211> 403
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized Lama

<400> 111

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 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val
 130 135 140

Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
 145 150 155 160

Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe
 165 170 175

Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu
 180 185 190

Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
 Page 63

24238WOPCTSEQ

195

200

205

Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser
210 215 220

Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu
225 230 235 240

Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr
245 250 255

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser
260 265 270

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu
275 280 285

Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser
290 295 300

Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly
305 310 315 320

Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser
325 330 335

Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys
340 345 350

Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu
355 360 365

Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr
370 375 380

Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val
385 390 395 400

Ser Ser Ala

<210> 112
<211> 381
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<213> Artificial sequence

<220>
<223> humanized Lama

<400> 112

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24238WOPCTSEQ

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
115 120 125

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
130 135 140

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
145 150 155 160

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
165 170 175

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
180 185 190

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
195 200 205

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
210 215 220

Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala
225 230 235 240

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
245 250 255

Gly Gly Gly Gly Ser Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser
260 265 270

Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys Ala
275 280 285

24238WOPCTSEQ

Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg Gln
 290 295 300

Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser Gly
 305 310 315 320

Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser
 325 330 335

Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
 340 345 350

Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser
 355 360 365

Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
 370 375 380

<210> 113
 <211> 750
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized Lama

<400> 113

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

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 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

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

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 Page 66

24238WOPCTSEQ
140

130

135

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
145 150 155 160

Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
165 170 175

Ala Ala Ser Gly Ser Ile Ala Ser Ile His Ala Met Gly Trp Phe Arg
180 185 190

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Val Ile Thr Val Ser
195 200 205

Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
210 215 220

Ser Arg Asp Pro Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu
225 230 235 240

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Gly Asp Lys His Gln
245 250 255

Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
260 265 270

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
275 280 285

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
290 295 300

Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val
305 310 315 320

Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr
325 330 335

Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu
340 345 350

Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr
355 360 365

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys
370 375 380

Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala
385 390 395 400

Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala

Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val
 420 425 430

Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 435 440 445

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
 450 455 460

Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly
 465 470 475 480

Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser
 485 490 495

Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Pro
 500 505 510

Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg
 515 520 525

Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
 530 535 540

Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu
 545 550 555 560

Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser
 565 570 575

Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly
 580 585 590

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 595 600 605

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 610 615 620

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
 625 630 635 640

Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys
 645 650 655

Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg
 660 665 670

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser

24238WOPCTSEQ

675

680

685

Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
 690 695 700

Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu
 705 710 715 720

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu
 725 730 735

Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
 740 745 750

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 <211> 646
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 114

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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

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

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
 115 120 125

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 130 135 140

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 145 150 155 160

24238WOPCTSEQ

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
165 170 175

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
180 185 190

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

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
210 215 220

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
225 230 235 240

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
245 250 255

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
260 265 270

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
275 280 285

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
290 295 300

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
305 310 315 320

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
325 330 335

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
340 345 350

Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala
355 360 365

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
370 375 380

Gly Gly Gly Gly Ser Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser
385 390 395 400

Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala
405 410 415

Ala Ser Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln
420 425 430

24238WOPCTSEQ

Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly
435 440 445

Gly Arg Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser
450 455 460

Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
465 470 475 480

Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp
485 490 495

Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly
500 505 510

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
515 520 525

Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro
530 535 540

Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser
545 550 555 560

Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu
565 570 575

Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp
580 585 590

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr
595 600 605

Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr
610 615 620

Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu
625 630 635 640

Val Thr Val Ser Ser Ala
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<210> 115
<211> 433
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 115

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
Page 71

24238WOPCTSEQ

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

275 280 24238WOPCTSEQ 285

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
290 295 300

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln
305 310 315 320

Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg
325 330 335

Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser
340 345 350

Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile
355 360 365

Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg
370 375 380

Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met
385 390 395 400

Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly
405 410 415

Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser
420 425 430

Ala

<210> 116
<211> 381
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 116

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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

24238WOPCTSEQ

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

24238WOPCTSEQ

Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
340 345 350

Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser
355 360 365

Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
370 375 380

<210> 117
<211> 750
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 117

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
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Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Gln Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
130 135 140

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
145 150 155 160

Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
165 170 175

Ala Ala Ser Gly Ser Ile Ala Ser Ile His Ala Met Gly Trp Phe Arg

24238WOPCTSEQ
185

180

190

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Val Ile Thr Val Ser
195 200 205

Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
210 215 220

Ser Arg Asp Gln Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu
225 230 235 240

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Gly Asp Lys His Gln
245 250 255

Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
260 265 270

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
275 280 285

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
290 295 300

Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val
305 310 315 320

Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr
325 330 335

Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu
340 345 350

Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr
355 360 365

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys
370 375 380

Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala
385 390 395 400

Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala
405 410 415

Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val
420 425 430

Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
435 440 445

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly

24238WOPCTSEQ
460

450

455

Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly
465 470 475 480

Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser
485 490 495

Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Pro
500 505 510

Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg
515 520 525

Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
530 535 540

Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu
545 550 555 560

Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser
565 570 575

Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly
580 585 590

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
595 600 605

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
610 615 620

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
625 630 635 640

Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys
645 650 655

Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg
660 665 670

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser
675 680 685

Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
690 695 700

Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu
705 710 715 720

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu

Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
 740 745 750

<210> 118
 <211> 646
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized Lama

<400> 118

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Gln Ser Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
 115 120 125

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 130 135 140

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 145 150 155 160

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 165 170 175

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 180 185 190

Lys Gly Arg Phe Thr Ile Ser Arg Asp Gln Ser Lys Asn Thr Val Tyr
 195 200 205

24238WOPCTSEQ

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 210 215 220
 Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 225 230 235 240
 Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
 245 250 255
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 260 265 270
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
 275 280 285
 Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 290 295 300
 Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
 305 310 315 320
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 325 330 335
 Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 340 345 350
 Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala
 355 360 365
 Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 370 375 380
 Gly Gly Gly Gly Ser Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser
 385 390 395 400
 Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala
 405 410 415
 Ala Ser Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln
 420 425 430
 Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly
 435 440 445
 Gly Arg Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser
 450 455 460
 Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
 465 470 475 480

24238WOPCTSEQ

Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp
485 490 495

Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly
500 505 510

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
515 520 525

Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro
530 535 540

Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser
545 550 555 560

Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu
565 570 575

Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp
580 585 590

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr
595 600 605

Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr
610 615 620

Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu
625 630 635 640

Val Thr Val Ser Ser Ala
645

<210> 119
<211> 433
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 119

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val

24238WOPCTSEQ

50

55

60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Gln Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
130 135 140

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
145 150 155 160

Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
165 170 175

Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg
180 185 190

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser
195 200 205

Gly Gly Arg Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
210 215 220

Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu
225 230 235 240

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp
245 250 255

Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp
260 265 270

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly
275 280 285

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
290 295 300

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln
305 310 315 320

Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg

24238WOPCTSEQ

325

330

335

Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser
 340 345 350

Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile
 355 360 365

Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg
 370 375 380

Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met
 385 390 395 400

Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly
 405 410 415

Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser
 420 425 430

Ala

<210> 120

<211> 381

<212> PRT

<213> Artificial Sequence

<220>

<223> humanized Lama

<400> 120

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Gln Ser Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

24238WOPCTSEQ

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
115 120 125

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
130 135 140

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
145 150 155 160

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
165 170 175

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
180 185 190

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
195 200 205

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
210 215 220

Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala
225 230 235 240

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
245 250 255

Gly Gly Gly Gly Ser Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser
260 265 270

Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys Ala
275 280 285

Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg Gln
290 295 300

Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser Gly
305 310 315 320

Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser
325 330 335

Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
340 345 350

Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser
355 360 365

Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
370 375 380

24238WOPCTSEQ

<210> 121
 <211> 750
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized Lama

<400> 121

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Ser Lys Asn Thr Val Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 130 135 140

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
 145 150 155 160

Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
 165 170 175

Ala Ala Ser Gly Ser Ile Ala Ser Ile His Ala Met Gly Trp Phe Arg
 180 185 190

Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Val Ile Thr Val Ser
 195 200 205

Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
 210 215 220

Ser Arg Asp Ser Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu
 Page 84

24238WOPCTSEQ															
225				230				235				240			
Arg	Pro	Glu	Asp	Thr 245	Ala	Leu	Tyr	Tyr	Cys 250	Ala	Gly	Asp	Lys	His 255	Gln
Ser	Ser	Phe	Tyr 260	Asp	Tyr	Trp	Gly	Gln 265	Gly	Thr	Leu	Val	Thr 270	Val	Ser
Ser	Gly	Gly 275	Gly	Gly	Ser	Gly	Gly 280	Gly	Gly	Ser	Gly	Gly 285	Gly	Gly	Ser
Gly	Gly 290	Gly	Gly	Ser	Gly	Gly 295	Gly	Gly	Ser	Gly	Gly 300	Gly	Gly	Ser	Gly
Gly 305	Gly	Gly	Ser	Glu	Val 310	Gln	Leu	Val	Glu	Ser 315	Gly	Gly	Gly	Val	Val 320
Gln	Pro	Gly	Gly	Ser 325	Leu	Arg	Leu	Ser	Cys 330	Ala	Ala	Ser	Gly	Arg 335	Thr
Phe	Ser	Asp	Tyr 340	Val	Met	Gly	Trp	Phe 345	Arg	Gln	Ala	Pro	Gly 350	Lys	Glu
Arg	Glu	Phe 355	Val	Ala	Ala	Ile	Ser 360	Glu	Ser	Gly	Gly	Arg 365	Thr	His	Tyr
Ala	Asp 370	Ser	Val	Lys	Gly	Arg 375	Phe	Thr	Ile	Ser	Arg 380	Asp	Asn	Ser	Lys
Asn 385	Thr	Leu	Tyr	Leu	Gln 390	Met	Asn	Ser	Leu	Arg 395	Pro	Glu	Asp	Thr	Ala 400
Leu	Tyr	Tyr	Cys	Ala 405	Thr	Thr	Leu	Leu	Trp 410	Trp	Thr	Ser	Glu	Tyr 415	Ala
Pro	Ile	Lys	Ala 420	Asn	Asp	Tyr	Asp	Tyr 425	Trp	Gly	Gln	Gly	Thr 430	Leu	Val
Thr	Val	Ser 435	Ser	Gly	Gly	Gly	Gly 440	Ser	Gly	Gly	Gly	Gly 445	Ser	Gly	Gly
Gly	Gly 450	Ser	Gly	Gly	Gly	Gly 455	Ser	Gly	Gly	Gly	Gly 460	Ser	Gly	Gly	Gly
Gly 465	Ser	Gly	Gly	Gly	Gly 470	Ser	Glu	Val	Gln	Leu 475	Val	Glu	Ser	Gly	Gly 480
Gly	Val	Val	Gln	Pro 485	Gly	Gly	Ser	Leu	Arg 490	Leu	Ser	Cys	Ala	Ala 495	Ser
Gly	Arg	Thr	Phe	Ser	Asp	Tyr	Val	Met	Gly	Trp	Phe	Arg	Gln	Ala	Pro

24238WOPCTSEQ

500

505

510

Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg
515 520 525

Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
530 535 540

Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu
545 550 555 560

Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser
565 570 575

Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly
580 585 590

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
595 600 605

ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
610 615 620

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
625 630 635 640

Ser Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys
645 650 655

Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg
660 665 670

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser
675 680 685

Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
690 695 700

Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu
705 710 715 720

Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu
725 730 735

Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
740 745 750

<210> 122
<211> 646
<212> PRT
<213> Artificial Sequence

24238WOPCTSEQ

<220>

<223> humanized Lama

<400> 122

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
115 120 125

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
130 135 140

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
145 150 155 160

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
165 170 175

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
180 185 190

Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Ser Lys Asn Thr Val Tyr
195 200 205

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
210 215 220

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
225 230 235 240

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
245 250 255

24238WOPCTSEQ

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 260 265 270
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
 275 280 285
 Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 290 295 300
 Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
 305 310 315 320
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 325 330 335
 Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 340 345 350
 Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala
 355 360 365
 Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 370 375 380
 Gly Gly Gly Gly Ser Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser
 385 390 395 400
 Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala
 405 410 415
 Ala Ser Gly Arg Thr Phe Ser Asp Tyr Val Met Gly Trp Phe Arg Gln
 420 425 430
 Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala Ile Ser Glu Ser Gly
 435 440 445
 Gly Arg Thr His Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser
 450 455 460
 Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
 465 470 475 480
 Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp
 485 490 495
 Thr Ser Glu Tyr Ala Pro Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly
 500 505 510
 Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 515 520 525

24238WOPCTSEQ

Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro
530 535 540

Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser
545 550 555 560

Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu
565 570 575

Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp
580 585 590

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr
595 600 605

Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr
610 615 620

Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu
625 630 635 640

Val Thr Val Ser Ser Ala
645

<210> 123
<211> 433
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 123

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly

24238WOPCTSEQ

100

105

110

Thr Leu Val₁₁₅ Thr Val Ser Ser Gly₁₂₀ Gly Gly Gly Ser Gly₁₂₅ Gly Gly Gly
 Ser Gly₁₃₀ Gly Gly Gly Ser Gly₁₃₅ Gly Gly Gly Ser Gly₁₄₀ Gly Gly Gly Ser
 Gly₁₄₅ Gly Gly Gly Ser Gly₁₅₀ Gly Gly Gly Ser Glu₁₅₅ Val Gln Leu Val Glu₁₆₀
 Ser Gly Gly Gly Val₁₆₅ Val Gln Pro Gly Gly₁₇₀ Ser Leu Arg Leu Ser₁₇₅ Cys
 Ala Ala Ser Gly₁₈₀ Arg Thr Phe Ser Asp₁₈₅ Tyr Val Met Gly Trp₁₉₀ Phe Arg
 Gln Ala Pro₁₉₅ Gly Lys Glu Arg Glu₂₀₀ Phe Val Ala Ala Ile₂₀₅ Ser Glu Ser
 Gly Gly₂₁₀ Arg Thr His Tyr Ala₂₁₅ Asp Ser Val Lys Gly₂₂₀ Arg Phe Thr Ile
 Ser₂₂₅ Arg Asp Asn Ser Lys₂₃₀ Asn Thr Leu Tyr Leu₂₃₅ Gln Met Asn Ser Leu₂₄₀
 Arg Pro Glu Asp Thr₂₄₅ Ala Leu Tyr Tyr Cys₂₅₀ Ala Thr Thr Leu Leu₂₅₅ Trp
 Trp Thr Ser Glu₂₆₀ Tyr Ala Pro Ile Lys₂₆₅ Ala Asn Asp Tyr Asp₂₇₀ Tyr Trp
 Gly Gln Gly₂₇₅ Thr Leu Val Thr Val₂₈₀ Ser Ser Gly Gly Gly₂₈₅ Gly Ser Gly
 Gly Gly₂₉₀ Gly Ser Gly Gly Gly₂₉₅ Gly Ser Gly Gly Gly₃₀₀ Gly Ser Gly Gly
 Gly₃₀₅ Gly Ser Gly Gly Gly₃₁₀ Gly Ser Gly Gly Gly₃₁₅ Gly Ser Glu Val Gln₃₂₀
 Leu Val Glu Ser Gly₃₂₅ Gly Gly Val Val Gln₃₃₀ Pro Gly Asn Ser Leu₃₃₅ Arg
 Leu Ser Cys Ala₃₄₀ Ala Ser Gly Phe Thr₃₄₅ Phe Ser Ser Phe Gly₃₅₀ Met Ser
 Trp Val Arg₃₅₅ Gln Ala Pro Gly Lys₃₆₀ Gly Leu Glu Trp Val₃₆₅ Ser Ser Ile
 Ser Gly Ser Gly Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg

24238WOPCTSEQ
380

370

375

Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met
385 390 395 400

Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly
405 410 415

Gly Ser Leu Ser Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser
420 425 430

Ala

<210> 124
<211> 381
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized Lama

<400> 124

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser
115 120 125

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
130 135 140

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
145 150 155 160

24238WOPCTSEQ

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
165 170 175

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
180 185 190

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
195 200 205

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
210 215 220

Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro Ile Lys Ala
225 230 235 240

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
245 250 255

Gly Gly Gly Gly Ser Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser
260 265 270

Gly Gly Gly Val Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys Ala
275 280 285

Ala Ser Gly Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg Gln
290 295 300

Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser Gly
305 310 315 320

Ser Asp Thr Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser
325 330 335

Arg Asp Asn Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg
340 345 350

Pro Glu Asp Thr Ala Leu Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser
355 360 365

Arg Ser Ser Gln Gly Thr Leu Val Thr Val Ser Ser Ala
370 375 380

<210> 125
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> 9GS linker

<400> 125

Gly Gly Gly Gly Ser Gly Gly Gly Ser

1

5

<210> 126
 <211> 423
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized lama

<400> 126

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

24238WOPCTSEQ

Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu
225 230 235 240

Arg Pro Glu Asp Thr Ala Ile Tyr Tyr Cys Ala Gly Asp Lys His Gln
245 250 255

Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
260 265 270

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
275 280 285

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
290 295 300

Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val
305 310 315 320

Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr
325 330 335

Phe Ser Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly
340 345 350

Leu Glu Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr Leu Tyr
355 360 365

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys
370 375 380

Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala
385 390 395 400

Val Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser Gln Gly
405 410 415

Thr Leu Val Thr Val Ser Ser
420

<210> 127
<211> 441
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized lama

<400> 127

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
Page 94

Val Met Gly Trp Phe Arg Gln Ala Arg Gly Asn Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ala Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
130 135 140

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly
145 150 155 160

Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
165 170 175

Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe
180 185 190

Ser Asp Tyr Val Met Gly Trp Phe Arg Gln Ala Arg Gly Asn Glu Arg
195 200 205

Glu Phe Val Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala
210 215 220

Asp Ala Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn
225 230 235 240

Thr Leu Tyr Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val
245 250 255

Tyr Tyr Cys Ala Thr Thr Leu Leu Trp Trp Thr Ser Glu Tyr Ala Pro
260 265 270

Ile Lys Ala Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr
275 280 285

Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly

24238WOPCTSEQ
300

290

295

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
305 310 315 320

Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly
325 330 335

Leu Val Gln Pro Gly Asn Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly
340 345 350

Phe Thr Phe Ser Ser Phe Gly Met Ser Trp Val Arg Gln Ala Pro Gly
355 360 365

Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Gly Ser Gly Ser Asp Thr
370 375 380

Leu Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
385 390 395 400

Ala Lys Thr Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Pro Glu Asp
405 410 415

Thr Ala Val Tyr Tyr Cys Thr Ile Gly Gly Ser Leu Ser Arg Ser Ser
420 425 430

Gln Gly Thr Leu Val Thr Val Ser Ser
435 440

<210> 128
<211> 162
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized lama

<400> 128

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
20 25 30

Val Met Gly Trp Phe Arg Gln Ala Arg Gly Asn Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ala Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80

24238WOPCTSEQ

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

Ala Ala Ala Asp Tyr Lys Asp His Asp Gly Asp Tyr Lys Asp His Asp
130 135 140

Ile Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala Ala His His His His
145 150 155 160

His His

<210> 129
<211> 137
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized lama

<400> 129

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
20 25 30

Val Met Gly Trp Phe Arg Gln Ala Arg Gly Asn Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ala Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

Ala Ala Ala His His His His His His

24238WOPCTSEQ

130

135

<210> 130
 <211> 162
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized lama

<400> 130

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Phe Ser Asp Tyr
 20 25 30

Val Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Ala Ile Ser Glu Ser Gly Gly Arg Thr His Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

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

Asn Asp Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120 125

Ala Ala Ala Asp Tyr Lys Asp His Asp Gly Asp Tyr Lys Asp His Asp
 130 135 140

Ile Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala Ala His His His His
 145 150 155 160

His His

<210> 131
 <211> 153
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized lama

<400> 131

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

24238WOPCTSEQ															
1	5				10				15						
Ser	Leu	Arg	Leu ₂₀	Ser	Cys	Ala	Ala	Ser ₂₅	Gly	Ser	Ile	Ala	Ser ₃₀	Ile	His
Ala	Met	Gly ₃₅	Trp	Phe	Arg	Gln	Ala ₄₀	Pro	Gly	Lys	Glu	Arg ₄₅	Glu	Phe	Val
Ala	Val ₅₀	Ile	Thr	Trp	Ser	Gly ₅₅	Gly	Ile	Thr	Tyr	Tyr ₆₀	Ala	Asp	Ser	Val
Lys ₆₅	Gly	Arg	Phe	Thr	Ile ₇₀	Ser	Arg	Asp	Asn	Ser ₇₅	Lys	Asn	Thr	Val	Tyr ₈₀
Leu	Gln	Met	Asn	Ser ₈₅	Leu	Arg	Pro	Glu	Asp ₉₀	Thr	Ala	Ile	Tyr	Tyr ₉₅	Cys
Ala	Gly	Asp	Lys ₁₀₀	His	Gln	Ser	Ser	Trp ₁₀₅	Tyr	Asp	Tyr	Trp	Gly ₁₁₀	Gln	Gly
Thr	Leu	Val ₁₁₅	Thr	Val	Ser	Ser	Ala ₁₂₀	Ala	Ala	Asp	Tyr	Lys ₁₂₅	Asp	His	Asp
Gly	Asp ₁₃₀	Tyr	Lys	Asp	His	Asp ₁₃₅	Ile	Asp	Tyr	Lys	Asp ₁₄₀	Asp	Asp	Asp	Lys
Gly ₁₄₅	Ala	Ala	His	His	His ₁₅₀	His	His	His	His						

24238WOPCTSEQ

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Ala Ala Ala Asp Tyr Lys Asp His Asp
115 120 125

Gly Asp Tyr Lys Asp His Asp Ile Asp Tyr Lys Asp Asp Asp Asp Lys
130 135 140

Gly Ala Ala His His His His His His
145 150

<210> 133
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized Lama

<400> 133

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Trp Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Trp Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser His His His His His His
115 120 125

<210> 134
<211> 128
<212> PRT
<213> Artificial Sequence

24238WOPCTSEQ

<220>

<223> Humanized Lama

<400> 134

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Ala Ala Ala His His His His His His
115 120 125

<210> 135

<211> 128

<212> PRT

<213> Artificial Sequence

<220>

<223> Humanized Lama

<400> 135

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Gln Ser Lys Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
Page 101

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Ala Ala Ala His His His His His His
 115 120 125

<210> 136
 <211> 128
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized Lama

<400> 136

Asp Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Ala Ser Ile His
 20 25 30

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
 35 40 45

Ala Val Ile Thr Val Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

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

Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Ala Gly Asp Lys His Gln Ser Ser Phe Tyr Asp Tyr Trp Gly Gln Gly
 100 105 110

Thr Leu Val Thr Val Ser Ser Ala Ala Ala His His His His His His
 115 120 125

<210> 137
 <211> 288
 <212> PRT
 <213> Homo sapiens

<400> 137

Met Gln Ile Pro Gln Ala Pro Trp Pro Val Val Trp Ala Val Leu Gln
 1 5 10 15

Leu Gly Trp Arg Pro Gly Trp Phe Leu Asp Ser Pro Asp Arg Pro Trp
 20 25 30

24238WOPCTSEQ

Asn Pro Pro Thr Phe Ser Pro Ala Leu Leu Val Val Thr Glu Gly Asp
35 40 45

Asn Ala Thr Phe Thr Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val
50 55 60

Leu Asn Trp Tyr Arg Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala
65 70 75 80

Ala Phe Pro Glu Asp Arg Ser Gln Pro Gly Gln Asp Cys Arg Phe Arg
85 90 95

Val Thr Gln Leu Pro Asn Gly Arg Asp Phe His Met Ser Val Val Arg
100 105 110

Ala Arg Arg Asn Asp Ser Gly Thr Tyr Leu Cys Gly Ala Ile Ser Leu
115 120 125

Ala Pro Lys Ala Gln Ile Lys Glu Ser Leu Arg Ala Glu Leu Arg Val
130 135 140

Thr Glu Arg Arg Ala Glu Val Pro Thr Ala His Pro Ser Pro Ser Pro
145 150 155 160

Arg Pro Ala Gly Gln Phe Gln Thr Leu Val Val Gly Val Val Gly Gly
165 170 175

Leu Leu Gly Ser Leu Val Leu Leu Val Trp Val Leu Ala Val Ile Cys
180 185 190

Ser Arg Ala Ala Arg Gly Thr Ile Gly Ala Arg Arg Thr Gly Gln Pro
195 200 205

Leu Lys Glu Asp Pro Ser Ala Val Pro Val Phe Ser Val Asp Tyr Gly
210 215 220

Glu Leu Asp Phe Gln Trp Arg Glu Lys Thr Pro Glu Pro Pro Val Pro
225 230 235 240

Cys Val Pro Glu Gln Thr Glu Tyr Ala Thr Ile Val Phe Pro Ser Gly
245 250 255

Met Gly Thr Ser Ser Pro Ala Arg Arg Gly Ser Ala Asp Gly Pro Arg
260 265 270

Ser Ala Gln Pro Leu Arg Pro Glu Asp Gly His Cys Ser Trp Pro Leu
275 280 285

<210> 138
<211> 525
<212> PRT
<213> Homo sapiens

24238WOPCTSEQ

<400> 138

Met Trp Glu Ala Gln Phe Leu Gly Leu Leu Phe Leu Gln Pro Leu Trp
 1 5 10 15

Val Ala Pro Val Lys Pro Leu Gln Pro Gly Ala Glu Val Pro Val Val
 20 25 30

Trp Ala Gln Glu Gly Ala Pro Ala Gln Leu Pro Cys Ser Pro Thr Ile
 35 40 45

Pro Leu Gln Asp Leu Ser Leu Leu Arg Arg Ala Gly Val Thr Trp Gln
 50 55 60

His Gln Pro Asp Ser Gly Pro Pro Ala Ala Ala Pro Gly His Pro Leu
 65 70 75 80

Ala Pro Gly Pro His Pro Ala Ala Pro Ser Ser Trp Gly Pro Arg Pro
 85 90 95

Arg Arg Tyr Thr Val Leu Ser Val Gly Pro Gly Gly Leu Arg Ser Gly
 100 105 110

Arg Leu Pro Leu Gln Pro Arg Val Gln Leu Asp Glu Arg Gly Arg Gln
 115 120 125

Arg Gly Asp Phe Ser Leu Trp Leu Arg Pro Ala Arg Arg Ala Asp Ala
 130 135 140

Gly Glu Tyr Arg Ala Ala Val His Leu Arg Asp Arg Ala Leu Ser Cys
 145 150 155 160

Arg Leu Arg Leu Arg Leu Gly Gln Ala Ser Met Thr Ala Ser Pro Pro
 165 170 175

Gly Ser Leu Arg Ala Ser Asp Trp Val Ile Leu Asn Cys Ser Phe Ser
 180 185 190

Arg Pro Asp Arg Pro Ala Ser Val His Trp Phe Arg Asn Arg Gly Gln
 195 200 205

Gly Arg Val Pro Val Arg Glu Ser Pro His His His Leu Ala Glu Ser
 210 215 220

Phe Leu Phe Leu Pro Gln Val Ser Pro Met Asp Ser Gly Pro Trp Gly
 225 230 235 240

Cys Ile Leu Thr Tyr Arg Asp Gly Phe Asn Val Ser Ile Met Tyr Asn
 245 250 255

Leu Thr Val Leu Gly Leu Glu Pro Pro Thr Pro Leu Thr Val Tyr Ala
 Page 104

24238WOPCTSEQ

260	265	270
Gly Ala Gly Ser Arg Val Gly Leu Pro Cys Arg Leu Pro Ala Gly Val		
	280	285
Gly Thr Arg Ser Phe Leu Thr Ala Lys Trp Thr Pro Pro Gly Gly Gly		
	295	300
Pro Asp Leu Leu Val Thr Gly Asp Asn Gly Asp Phe Thr Leu Arg Leu		
	310	315
Glu Asp Val Ser Gln Ala Gln Ala Gly Thr Tyr Thr Cys His Ile His		
	325	330
Leu Gln Glu Gln Gln Leu Asn Ala Thr Val Thr Leu Ala Ile Ile Thr		
	340	345
Val Thr Pro Lys Ser Phe Gly Ser Pro Gly Ser Leu Gly Lys Leu Leu		
	355	360
Cys Glu Val Thr Pro Val Ser Gly Gln Glu Arg Phe Val Trp Ser Ser		
	370	375
Leu Asp Thr Pro Ser Gln Arg Ser Phe Ser Gly Pro Trp Leu Glu Ala		
	385	390
Gln Glu Ala Gln Leu Leu Ser Gln Pro Trp Gln Cys Gln Leu Tyr Gln		
	405	410
Gly Glu Arg Leu Leu Gly Ala Ala Val Tyr Phe Thr Glu Leu Ser Ser		
	420	425
Pro Gly Ala Gln Arg Ser Gly Arg Ala Pro Gly Ala Leu Pro Ala Gly		
	435	440
His Leu Leu Leu Phe Leu Ile Leu Gly Val Leu Ser Leu Leu Leu Leu		
	450	455
Val Thr Gly Ala Phe Gly Phe His Leu Trp Arg Arg Gln Trp Arg Pro		
	465	470
Arg Arg Phe Ser Ala Leu Glu Gln Gly Ile His Pro Pro Gln Ala Gln		
	485	490
Ser Lys Ile Glu Glu Leu Glu Gln Glu Pro Glu Pro Glu Pro Glu Pro		
	500	505
Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu Gln Leu		
	515	520
		525