

SEQUENCE LISTING

<110> 4-Antibody AG
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 Memorial Sloan-Kettering Cancer Center
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 Underwood, Dennis J
 Wilson, Nicholas S
 Zappasodi, Roberta
 Wolchok, Jedd David
 Merghoub, Taha
 Leger, Olivier
 Seibert, Volker
 van Dijk, Marc
 Schaer, David
 Ritter, Gerd
 Tsuji, Takemasa

<120> ANTI-GITR ANTIBODIES AND METHODS OF USE THEREOF

<130> 3617.009TW02/EKS/CLD

<140> To Be Assigned
 <141> Herewith

<150> 62/004,071
 <151> 2014-05-28

<150> 62/161,250
 <151> 2015-05-13

<160> 1118

<170> PatentIn version 3.5

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 <223> can be Aspartic Acid, Glutamic Acid, Glycine, or Alanine

<220>
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 <223> can be Alanine, Valine, Leucine, Isoleucine, Proline,

Phenylalanine, Methionine, or Tyrosine

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<222> (5)..(5)

<223> can be Tyrosine, Glycine, Asparagine, Glutamine, Serine,
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<400> 1

Xaa Tyr Xaa Met Xaa

1 5

<210> 2

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Phenylalanine, Methionine, or Threonine

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<223> can be Arginine, Lysine, Histidine, Glutamine, or Alanine

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<223> can be Threonine, Glycine, Asparagine, Glutamine, Serine,
Cysteine, Tryptophan, Tyrosine, Valine, Isoleucine or Proline

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<223> can be Tyrosine, Glycine, Asparagine, Glutamine, Serine,
Threonine, Cysteine, Tryptophan, Phenylalanine, Histidine or
Alanine

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<223> can be Aspartic Acid, Glutamic Acid, Glycine, or Alanine

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 Phenylalanine, Methionine, Threonine

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 <223> can be Threonine, Glycine, Asparagine, Glutamine, Serine,
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 Alanine

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 <223> can be Lysine, Arginine, Histidine, Glutamine, or Alanine

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Xaa	Ile	Xaa	Xaa	Xaa	Ser	Gly	Xaa	Xaa	Xaa	Tyr	Xaa	Gln	Lys	Phe	Xaa
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Xaa

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<220>
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<223> can be Alanine or Aspartic Acid

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<223> can be Tyrosine, Glycine, Asparagine, Glutamine, Serine,
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Valine

<400> 3

Ser Gly Thr Val Arg Gly Xaa Xaa Xaa
1 5

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Phenylalanine, Methionine, or Serine

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 <223> can be Threonine, Glycine, Asparagine, Glutamine, Serine,
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 <400> 4

Lys	Ser	Ser	Gln	Ser	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Lys	Xaa	Tyr	Leu
1				5					10					15	

Xaa

<210> 5
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 Alanine

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 <222> (7)..(7)
 <223> can be Serine, Glycine, Asparagine, Glutamine, Threonine,
 Cysteine, Tryptophan, Tyrosine or Alanine

<400> 5

Xaa Ala Ser Thr Arg Xaa Xaa
 1 5

<210> 6
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<220>
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 <223> can be Aspartic Acid, Glutamic Acid, or Tyrosine

<220>
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 <222> (5)..(5)
 <223> can be Serine, Glycine, Asparagine, Glutamine, Threonine,
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 Threonine, Cysteine, Tryptophan, Phenylalanine, Histidine,
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<400> 6

Gln Xaa Xaa Tyr Xaa Xaa Pro Tyr Thr
1 5

<210> 7
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<223> can be Aspartic Acid, Glutamic Acid, or Glycine

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<223> can be Alanine or Valine

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Xaa Tyr Xaa Met Xaa
1 5

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Xaa	Ile	Xaa	Thr	Xaa	Ser	Gly	Xaa	Xaa	Xaa	Tyr	Asn	Gln	Lys	Phe	Xaa
1				5				10						15	

Xaa

<210> 9
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Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr
1				5				

<210> 10
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<223> can be Threonine or Serine

<400> 10

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Xaa	Asn	Gln	Lys	Asn	Tyr	Leu
1				5					10					15	

Xaa

<210> 11
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<400> 11

Trp	Ala	Ser	Thr	Arg	Glu	Ser
1				5		

<210> 12
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<223> can be Tyrosine, Phenylalanine or Serine

<400> 12

Gln Asn Xaa Tyr Ser Xaa Pro Tyr Thr
1 5

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<400> 13

Asp Tyr Ala Met Tyr
1 5

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Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe Lys
1 5 10 15

Asp

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<400> 15

Ser Gly Thr Val Arg Gly Phe Ala Tyr
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<211> 17

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Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr

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<220>

<223> LCDR2

<400> 17

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 18

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Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
1 5

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<400> 19

Gly Tyr Ala Met Tyr
1 5

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<223> HCDR1 from GL variants

<400> 20

Gly Tyr Ala Met His
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<400> 21

Asp Tyr Ala Met Tyr
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<210> 22
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<400> 22

Glu Tyr Ala Met His
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<400> 23

Glu Tyr Ala Met Tyr
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<210> 24
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Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe Gln
1 5 10 15

Gly

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<400> 25

Val Ile Arg Thr Phe Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe Arg
1 5 10 15

Gly

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Val	Ile	Lys	Thr	Tyr	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

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Leu	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Glu

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<400> 28

Val	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Leu	Thr	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Asp

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Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe Gln
1 5 10 15

Gly

<210> 30
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<400> 30

Val Ile Arg Thr Tyr Ser Gly Asp Val Asp Tyr Asn Gln Lys Phe Arg
1 5 10 15

Gly

<210> 31
<211> 17
<212> PRT
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<400> 31

Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe Arg
1 5 10 15

Asp

<210> 32
<211> 17
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Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe Arg
1 5 10 15

Gly

<210> 33
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<400> 33

Val Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe Gln
1 5 10 15

Glu

<210> 34
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Ser Gly Thr Val Arg Gly Phe Ala Tyr
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Asp Tyr Val Met Tyr
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<210> 36
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His His His His His His
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Ala Gly Asp Tyr Ala Met Tyr Leu Ile Val Ile Arg Thr Tyr Ser Gly
1 5 10 15

Asp Val Thr Tyr Asn Gln Lys Phe Lys Asp Ala Lys
20 25

<210> 38
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<223> can be Gly or Ala

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<223> can be Tyr or His

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<223> can be Leu or Met

<220>

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<223> can be Ile or Met

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<223> can be Val or Leu

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<222> (12)..(12)

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<223> can be Asp, Glu or Gly

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<223> can be Ala or Val

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<223> can be Lys or Thr

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Xaa	Xaa	Xaa	Tyr	Xaa	Met	Xaa	Xaa	Xaa	Xaa	Ile	Xaa	Thr	Xaa	Ser	Gly
1				5					10					15	

Xaa	Xaa	Xaa	Tyr	Asn	Gln	Lys	Phe	Xaa	Xaa	Xaa	Xaa
			20					25			

<210> 39
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Ala Ala Gly Tyr Ala Met Tyr Met Ile Leu Ile Arg Thr Tyr Ser Gly
1 5 10 15

Gly Val Thr Tyr Asn Gln Lys Phe Gln Gly Val Thr
20 25

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<223> D05

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Ala Gly Gly Tyr Ala Met Tyr Met Ile Val Ile Arg Thr Phe Ser Gly
1 5 10 15

Asp Val Thr Tyr Asn Gln Lys Phe Arg Gly Val Thr
20 25

<210> 41

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> D07

<400> 41

Thr Gly Glu Tyr Ala Met Tyr Met Ile Leu Ile Arg Thr Phe Ser Gly
1 5 10 15

Glu Val Thr Tyr Asn Gln Lys Phe Lys Asp Val Thr
20 25

<210> 42

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> D08

<400> 42

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

Gly Val Thr Tyr Asn Gln Lys Phe Arg Gly Val Lys
20 25

<210> 43

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> D09

<400> 43

Ala Gly Gly Tyr Ala Met His Leu Met Leu Ile Arg Thr Tyr Ser Gly
1 5 10 15

Gly Val Ser Tyr Asn Gln Lys Phe Arg Glu Ala Thr
20 25

<210> 44

<211> 28

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<223> E01

<400> 44

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

Asp Leu Thr Tyr Asn Gln Lys Phe Gln Asp Val Thr
20 25

<210> 45

<211> 28

<212> PRT

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<223> F09

<400> 45

Ala	Ala	Glu	Tyr	Ala	Met	His	Leu	Met	Leu	Ile	Arg	Thr	Tyr	Ser	Gly
1				5					10					15	

Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln	Gly	Ala	Thr
			20					25			

<210> 46

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<223> F10

<400> 46

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

Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Gln	Gly	Val	Thr
			20					25			

<210> 47

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<223> G01

<400> 47

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

Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg	Gly	Val	Thr
			20					25			

<210> 48

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<223> G05

<400> 48

Ala Ala Glu Tyr Ala Met Tyr Leu Met Leu Ile Arg Thr Tyr Ser Gly
1 5 10 15

Gly Val Ser Tyr Asn Gln Lys Phe Arg Asp Val Lys
20 25

<210> 49

<211> 28

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<220>

<223> B07

<400> 49

Ala Ala Gly Tyr Ala Met Tyr Met Met Val Ile Arg Thr Phe Ser Gly
1 5 10 15

Gly Val Thr Tyr Asn Gln Lys Phe Arg Gly Ala Thr
20 25

<210> 50

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<223> C03

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

Gly Val Thr Tyr Asn Gln Lys Phe Lys Asp Ala Thr
20 25

<210> 51

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<223> F07

<400> 51

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

Glu	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Gln	Glu	Val	Ala
			20					25			

<210> 52

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<223> D11

<400> 52

Thr	Ala	Glu	Tyr	Ala	Met	Tyr	Met	Ile	Val	Ile	Arg	Thr	Phe	Ser	Gly
1				5					10					15	

Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Gln	Glu	Val	Lys
			20					25			

<210> 53

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<223> Variant F08

<400> 53

Ala	Ala	Glu	Tyr	Ala	Met	His	Leu	Met	Val	Ile	Arg	Thr	Tyr	Ser	Gly
1				5					10					15	

Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln	Glu	Val	Thr
			20					25			

<210> 54

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> hum231-32-15VK

<400> 54

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Gly	Asn	Gln	Lys	Asn	Tyr	Leu
1				5					10					15	

Thr	Trp	Gln	Gln	Leu	Trp	Ala	Ser	Thr	Arg	Glu	Ser	Ser	Gly	Leu	Gln
			20					25					30		

His	Gln	Asn	Asp	Tyr	Ser	Tyr	Pro	Tyr	Thr
		35					40		

<210> 55

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> Design of ML39

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<221> MISC_FEATURE

<222> (10)..(10)

<223> Gly or Ser

<220>

<221> MISC_FEATURE

<222> (17)..(17)

<223> Thr or Ser

<220>

<221> MISC_FEATURE

<222> (19)..(19)

<223> Gln or His

<220>

<221> MISC_FEATURE

<222> (21)..(21)

<223> Leu or Met

<220>

<221> MISC_FEATURE

<222> (29)..(29)

<223> Ser or Thr

<220>
<221> MISC_FEATURE
<222> (31)..(31)
<223> Leu or Val

<220>
<221> MISC_FEATURE
<222> (33)..(33)
<223> His or Tyr

<220>
<221> MISC_FEATURE
<222> (36)..(36)
<223> Asp or Glu

<220>
<221> MISC_FEATURE
<222> (39)..(39)
<223> Tyr, Phe or Ser

<400> 55

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Xaa	Asn	Gln	Lys	Asn	Tyr	Leu
1				5					10					15	

Xaa	Trp	Xaa	Gln	Xaa	Trp	Ala	Ser	Thr	Arg	Glu	Ser	Xaa	Gly	Xaa	Gln
			20					25					30		

Xaa	Gln	Asn	Xaa	Tyr	Ser	Xaa	Pro	Tyr	Thr
	35						40		

<210> 56
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> D03

<400> 56

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Gly	Asn	Gln	Lys	Asn	Tyr	Leu
1				5					10					15	

Ser	Trp	His	Gln	Leu	Trp	Ala	Ser	Thr	Arg	Glu	Ser	Ser	Gly	Val	Gln
			20					25					30		

His	Gln	Asn	Glu	Tyr	Ser	Tyr	Pro	Tyr	Thr
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

35

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<210> 57
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> D05

<400> 57

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
 1 5 10 15

Thr Trp His Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Val Gln
 20 25 30

Tyr Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
 35 40

<210> 58
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> D07

<400> 58

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
 1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Leu Gln
 20 25 30

His Gln Asn Glu Tyr Ser Tyr Pro Tyr Thr
 35 40

<210> 59
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>

<223> D08

<400> 59

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Ser Gly Leu Gln
20 25 30

Tyr Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
35 40

<210> 60

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> D09

<400> 60

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Val Gln
20 25 30

His Gln Asn Glu Tyr Ser Phe Pro Tyr Thr
35 40

<210> 61

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> E01

<400> 61

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15

Ser Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Ser Gly Leu Gln

20

25

30

Tyr Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
 35 40

<210> 62

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> F09

<400> 62

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
 1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Val Gln
 20 25 30

His Gln Asn Asp Tyr Ser Phe Pro Tyr Thr
 35 40

<210> 63

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> F10

<400> 63

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
 1 5 10 15

Ser Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Ser Gly Val Gln
 20 25 30

His Gln Asn Asp Tyr Ser Phe Pro Tyr Thr
 35 40

<210> 64

<211> 42

<212> PRT
<213> Artificial Sequence

<220>
<223> G05

<400> 64

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Ser Trp His Gln Leu Trp Ala Ser Thr Arg Glu Ser Ser Gly Val Gln
20 25 30

His Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
35 40

<210> 65
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> n/a

<400> 65

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Val Gln
20 25 30

His Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
35 40

<210> 66
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> G09

<400> 66

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu

1	5	10	15
Ser Trp His	Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Val Gln		
	20	25	30

His Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
35 40

<210> 67
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> C11

<400> 67

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Ser Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Ser Gly Leu Gln
20 25 30

His Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
35 40

<210> 68
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> F02

<400> 68

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Leu Gln
20 25 30

Tyr Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
35 40

<210> 69
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> F03

<400> 69

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr Trp Gln Gln Met Trp Ala Ser Thr Arg Glu Ser Ser Gly Leu Gln
20 25 30

Tyr Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
35 40

<210> 70
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> D07

<400> 70

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Thr Gly Leu Gln
20 25 30

Tyr Gln Asn Asp Tyr Ser Phe Pro Tyr Thr
35 40

<210> 71
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant F05

<400> 71

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr Trp Gln Gln Leu Trp Ala Ser Thr Arg Glu Ser Ser Gly Leu Gln
20 25 30

His Gln Asn Asp Tyr Ser Phe Pro Tyr Thr
35 40

<210> 72

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Epitope

<400> 72

Asp Tyr Pro Gly
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<210> 73

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<210> 74

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<210> 101
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR1 from GL variants

<400> 101

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Gly	Asn	Gln	Lys	Asn	Tyr	Leu
1				5					10					15	

Ser

<210> 102
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR1 from GL variants

<400> 102

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Gly	Asn	Gln	Lys	Asn	Tyr	Leu
1				5					10					15	

Thr

<210> 103
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR1 from GL variants

<400> 103

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Thr

<210> 104

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> LCDR1 from GL variants

<400> 104

Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser Asn Gln Lys Asn Tyr Leu
1 5 10 15

Ser

<210> 105

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> LCDR2 from GL variants

<400> 105

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 106

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> LCDR3 from GL variants

<400> 106

Gln Asn Glu Tyr Ser Tyr Pro Tyr Thr
1 5

<210> 107
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR3 from GL variants

<400> 107

Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr
1 5

<210> 108
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR3 from GL variants

<400> 108

Gln Asn Glu Tyr Ser Phe Pro Tyr Thr
1 5

<210> 109
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR3 from GL variants

<400> 109

Gln Asn Asp Tyr Ser Phe Pro Tyr Thr
1 5

<210> 110

<400> 110
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<210> 111

<400> 111
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<210> 112

<400> 112
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<210> 113

<400> 113
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<210> 114
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 114

Val Ile Arg Thr Phe Ser Gly Asp Leu Ser Tyr Asn Gln Lys Phe Arg
1 5 10 15

Gly

<210> 115
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 115

Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe Gln
1 5 10 15

Glu

<210> 116
<211> 5
<212> PRT
<213> Artificial Sequence

<220>

<223> HCDR1

<400> 116

Gly Tyr Val Met Tyr
1 5

<210> 117

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR1

<400> 117

Asp Tyr Ala Met His
1 5

<210> 118

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR1

<400> 118

Glu Tyr Val Met His
1 5

<210> 119

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR1

<400> 119

Gly Tyr Val Met His
1 5

<210> 120

<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 120

Ile	Ile	Lys	Thr	Tyr	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 121
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 121

Leu	Ile	Gln	Thr	Tyr	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 122
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 122

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

Gly

<210> 123
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 123

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Gly

<210> 124
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 124

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Asp

<210> 125
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 125

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Glu

<210> 126
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 126

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 127
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 127

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 128
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 128

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Glu	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Asp

<210> 129
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 129

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Glu	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Asp

<210> 130
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 130

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Glu	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 131
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 131

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Leu	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Asp

<210> 132
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 132

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Leu	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Glu

<210> 133
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 133

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Leu	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5				10						15	

Asp

<210> 134
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 134

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Lys
1				5				10						15	

Glu

<210> 135
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 135

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Gly

<210> 136
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 136

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Asp

<210> 137
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 137

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Asp

<210> 138
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 138

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 139
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 139

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 140
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 140

Leu	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Glu

<210> 141
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 141

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

Glu

<210> 142
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 142

Leu	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 143
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 143

Leu	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1 5 10 15

Asp

<210> 144
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 144

Leu Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe Arg
1 5 10 15

Gly

<210> 145
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 145

Leu Ile Arg Thr Tyr Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe Gln
1 5 10 15

Asp

<210> 146
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 146

Leu Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe Arg
1 5 10 15

Asp

<210> 147
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 147

Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe Gln
1 5 10 15

Gly

<210> 148
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 148

Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe Arg
1 5 10 15

Gly

<210> 149
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 149

Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe Lys
1 5 10 15

Glu

<210> 150
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 150

Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe Arg
1 5 10 15

Glu

<210> 151
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 151

Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe Arg
1 5 10 15

Gly

<210> 152
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 152

Val	Ile	Lys	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Glu

<210> 153

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 153

Val	Ile	Lys	Thr	Tyr	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 154

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 154

Val	Ile	Lys	Thr	Tyr	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Asp

<210> 155

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 155

Val	Ile	Lys	Thr	Tyr	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Asp

<210> 156

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 156

Val	Ile	Gln	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Gly

<210> 157

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 157

Val	Ile	Gln	Thr	Phe	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 158

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 158

Val	Ile	Gln	Thr	Tyr	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 159

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 159

Val	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Leu	Ser	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Gly

<210> 160

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 160

Val	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Glu

<210> 161

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 161

Val	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Asp

<210> 162

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 162

Val	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Glu

<210> 163

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 163

Val	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5				10						15	

Gly

<210> 164

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 164

Val	Ile	Arg	Thr	Phe	Ser	Gly	Glu	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Gly

<210> 165

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 165

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Leu	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 166

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 166

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Glu

<210> 167

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 167

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5				10						15	

Gly

<210> 168

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 168

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Asp

<210> 169

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> HCDR2

<400> 169

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Glu

<210> 170

<211> 17

<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 170

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Gly

<210> 171
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 171

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5				10						15	

Asp

<210> 172
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 172

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5				10						15	

Gly

<210> 173

<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 173

Val	Ile	Arg	Thr	Phe	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Asp

<210> 174
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 174

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Leu	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 175
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 175

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Glu

<210> 176
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 176

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Asp

<210> 177
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 177

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 178
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 178

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Asp

<210> 179
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 179

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Glu

<210> 180
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 180

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Asp	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5					10					15	

Gly

<210> 181
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 181

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Glu	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Glu

<210> 182
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 182

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Leu	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Gly

<210> 183
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 183

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Glu	Val	Ser	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Gly

<210> 184
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 184

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Leu	Thr	Tyr	Asn	Gln	Lys	Phe	Arg
1				5				10						15	

Asp

<210> 185
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 185

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Asp

<210> 186
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 186

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Lys
1				5					10					15	

Gly

<210> 187
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 187

Val	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 188
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 188

Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe Arg
1 5 10 15

Asp

<210> 189
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR3

<400> 189

Ser Gly Thr Val Arg Gly Phe Ala Asp
1 5

<210> 190

<400> 190
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<210> 191
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR3

<400> 191

Gln Asn Asp His Ser Phe Pro Tyr Thr
1 5

<210> 192
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR3

<400> 192

Gln Asn Asp Tyr Ser Ser Pro Tyr Thr
1 5

<210> 193
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> LCDR3

<400> 193

Gln Asn Glu Tyr Ser Ser Pro Tyr Thr
1 5

<210> 194
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> HCDR2

<400> 194

Val Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe Arg
1 5 10 15

Asp

<210> 195

<400> 195
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<210> 196

<400> 196
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<210> 197

<400> 197
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<210> 198

<400> 198
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<210> 199

<400> 199
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<210> 200

<400> 200
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<210> 201

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse VH

<400> 201

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

Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Ala Met Tyr Trp Val Lys Gln Ser His Ala Lys Ser Leu Glu Trp Ile
35 40 45

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser Ile Ala Tyr
65 70 75 80

Met Glu Leu Ala Arg Leu Ser Ser Glu Asp Ser Ala Ile Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 202
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Mouse VL

<400> 202

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

Glu Lys Val Ile Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 203
 <211> 118
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Humanized VH consensus sequence

 <220>
 <221> MISC_FEATURE
 <222> (31)..(31)
 <223> can be Aspartic Acid, Glutamic Acid, or Glycine

 <220>
 <221> MISC_FEATURE
 <222> (33)..(33)
 <223> can be Alanine or Valine

 <220>
 <221> MISC_FEATURE
 <222> (35)..(35)
 <223> can be Tyrosine or Histidine

 <220>
 <221> MISC_FEATURE
 <222> (50)..(50)
 <223> can be Valine or Leucine

 <220>
 <221> MISC_FEATURE
 <222> (52)..(52)
 <223> can be Arginine, Lysine, or Glutamine

 <220>
 <221> MISC_FEATURE
 <222> (54)..(54)
 <223> can be Tyrosine or Phenylalanine

 <220>
 <221> misc_feature
 <222> (57)..(57)
 <223> can be Aspartic Acid, Glutamic Acid, or Glycine

 <220>
 <221> MISC_FEATURE
 <222> (58)..(58)
 <223> can be Valine or Leucine

 <220>

<221> MISC_FEATURE
 <222> (59)..(59)
 <223> can be Threonine or Serine

<220>
 <221> MISC_FEATURE
 <222> (65)..(65)
 <223> can be Lysine, Arginine or Glutamine

<220>
 <221> MISC_FEATURE
 <222> (66)..(66)
 <223> can be Aspartic Acid, Glutamic Acid, or Glycine

<400> 203

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Xaa Tyr
 20 25 30

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

Gly Xaa Ile Xaa Thr Xaa Ser Gly Xaa Xaa Xaa Tyr Asn Gln Lys Phe
 50 55 60

Xaa Xaa Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 204
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
<223> Humanized VK A1 consensus seq

<220>
<221> MISC_FEATURE
<222> (29)..(29)
<223> can be Leucine or Valine

<220>
<221> MISC_FEATURE
<222> (30)..(30)
<223> can be Leucine, Isoleucine, Serine or Alanine

<220>
<221> MISC_FEATURE
<222> (31)..(31)
<223> can be Asparagine, Glutamine, Serine or Alanine

<220>
<221> MISC_FEATURE
<222> (32)..(32)
<223> can be Serine, Threonine, or Alanine

<220>
<221> MISC_FEATURE
<222> (34)..(34)
<223> can be Asparagine or Glutamine

<220>
<221> MISC_FEATURE
<222> (37)..(37)
<223> can be Asparagine or Glutamine

<220>
<221> MISC_FEATURE
<222> (40)..(40)
<223> can be Threonine, Serine or Alanine

<220>
<221> MISC_FEATURE
<222> (56)..(56)
<223> can be Tryptophan, Tyrosine, Phenylalanine, Glycine or Alanine

<220>
<221> MISC_FEATURE
<222> (61)..(61)
<223> can be Glutamic Acid or Alanine

<220>
<221> MISC_FEATURE
<222> (62)..(62)
<223> can be Serine, Threonine, or Alanine

<220>
 <221> MISC_FEATURE
 <222> (96)..(96)
 <223> can be Asparagine or Glutamine

<220>
 <221> MISC_FEATURE
 <222> (99)..(99)
 <223> can be Serine, Threonine, or Alanine

<220>
 <221> MISC_FEATURE
 <222> (100)..(100)
 <223> can be Tyrosine, Phenylalanine, Leucine, or Alanine

<400> 204

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Pro	Thr	Leu	Ser	Leu	Ser	Pro	Gly
1				5					10					15	

Glu	Arg	Val	Thr	Leu	Ser	Cys	Lys	Ser	Ser	Gln	Ser	Xaa	Xaa	Xaa	Xaa
			20					25					30		

Gly	Xaa	Gln	Lys	Xaa	Tyr	Leu	Xaa	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln
		35					40					45			

Ala	Pro	Arg	Leu	Leu	Ile	Tyr	Xaa	Ala	Ser	Thr	Arg	Xaa	Xaa	Gly	Ile
	50					55					60				

Pro	Ala	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr
65					70					75				80	

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

Asp	Tyr	Xaa	Xaa	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile
		100						105					110		

Lys

<210> 205
 <211> 113
 <212> PRT

<213> Artificial Sequence

<220>

<223> Humanized VK A2 consensus seq

<220>

<221> MISC_FEATURE

<222> (33)..(33)

<223> can be Glycine or Serine

<220>

<221> MISC_FEATURE

<222> (40)..(40)

<223> can be Threonine or Serine

<220>

<221> MISC_FEATURE

<222> (97)..(97)

<223> can be Aspartic Acid or Glutamic Acid

<220>

<221> MISC_FEATURE

<222> (100)..(100)

<223> can be Tyrosine, Phenylalanine, or Serine

<400> 205

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Xaa Asn Gln Lys Asn Tyr Leu Xaa Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Xaa Tyr Ser Xaa Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile

100

105

110

Lys

<210> 206
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized Version VH

<400> 206

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
 50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 207
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Humanized Version VK A1

<400> 207

Asp Ile Val Met Thr Gln Ser Pro Pro Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Val Thr Leu Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Ala Pro Arg Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Ile
50 55 60

Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

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

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 208

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> Humanized Version VK A2

<400> 208

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

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

20

25

30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 209

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Humanized Version VH A

<400> 209

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gtgcagctgg tgcagtctgg cgccgaagtg aagaaaccag gcgccagcgt gaaggtgtcc 120

tgcaagggca gcggtctacac attcaccgac tacgccatgt actgggtgcg acaggctcct 180

ggacagggcc tggaatggat cggcgtgata agaacctaca gcggcgacgt gacctacaac 240

cagaagttca aggacagagc caccatgacc gtggacaaga gcatcagcac cgcctacatg 300

gaactgagca gactgagaag cgacgacacc gccgtgtact actgcgcaa gtctggcaca 360

gtgcggggct tcgcttactg gggccagggc acactcgtga ccgtgtcgag c 411

<210> 210

<211> 399

<212> DNA
<213> Artificial Sequence

<220>

<223> Humanized Version VK A1

<400> 210

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ctgagctgca agagcagcca gaggcctgctg aacagcggca accagaagaa ctacctgacc      180
tggtatcagc agaagcccgg ccaggccccc agactgctga tctactgggc cagcacaaga      240
gagagcggca tccccgccag attcagcggg tctggcagcg gcaccgactt caccctgacc      300
atctctagcc tgcagcccga ggacttcgcc gtgtaccact gccagaacga ctacagctac      360
ccctacacct tcggccaggg caccaagctg gaaatcaag      399
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<210> 211

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Humanized Version VK A2

<400> 211

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gacatcgtga tgaccagag ccctgacagc ctggccgtgt ctctgggcga gagagccacc      120
atcaactgca agagcagcca gaggcctgctg aacagcggca accagaagaa ctacctgacc      180
tggtatcagc agaagcccgg ccagccccc aagctgctga tctactgggc cagcaccaga      240
gaaagcggcg tgcccgacag attcagcggc agcggctctg gaaccgactt caccctgacc      300
atcagctccc tgcaggccga ggatgtggcc gtgtaccact gccagaacga ctacagctac      360
ccctacacct tcggccaggg caccaagctg gaaatcaag      399
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<210> 212

<400> 212

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<210> 213

<400> 213
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<210> 214

<400> 214
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<210> 215

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH regions from germlined variants

<400> 215

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 216

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH regions from germlined variants

<400> 216

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Leu Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 217

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 2

<400> 217

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 218
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 3

<400> 218

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 219
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 4

<400> 219

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

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

Gln Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 220
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 5

<400> 220

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 221
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH Antibody 6

<400> 221

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 222

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 7

<400> 222

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 223
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 8

<400> 223

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Lys Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr

65		70		75		80									
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85					90					95		
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Leu	Val	Thr	Val	Ser	Ser										
			115												
<210>	224														
<211>	118														
<212>	PRT														
<213>	Artificial Sequence														
<220>															
<223>	VH Antibody 9														
<400>	224														
Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ala
1			5					10					15		
Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	Thr	Gly	Tyr
			20					25					30		
Ala	Met	Tyr	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
		35					40					45			
Gly	Leu	Ile	Arg	Thr	Tyr	Ser	Gly	Glu	Val	Ser	Tyr	Asn	Gln	Lys	Phe
	50					55					60				
Arg	Gly	Arg	Ala	Thr	Met	Thr	Val	Asp	Lys	Ser	Ile	Ser	Thr	Ala	Tyr
65					70					75					80
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85					90					95		
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		

Leu Val Thr Val Ser Ser
115

<210> 225
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 10

<400> 225

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 226
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 11

<400> 226

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 227

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 12

<400> 227

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 228
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 13

<400> 228

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 229
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 14

<400> 229

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

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

Arg Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 230
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 15

<400> 230

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 231
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 16

<400> 231

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

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 232
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 17

<400> 232

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Gln Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 233
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 18

<400> 233

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

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

Gly Leu Ile Arg Thr Phe Ser Gly Glu Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 234
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH Antibody 19

<400> 234

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
 20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
 50 55 60

Gln Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 235
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 235

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Leu Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 236
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 20

<400> 236

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

<210> 237
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH Antibody 21

<400> 237

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr	20	25	30
---	----	----	----

Val Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Met Glu Trp Ile	35	40	45
---	----	----	----

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 238
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 22

<400> 238

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 239
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 23

<400> 239

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 240
<211> 118

<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 24

<400> 240

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

Ser Val Lys Ala Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 241
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 25

<400> 241

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 242
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 26

<400> 242

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 243
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 27

<400> 243

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr

100

105

110

Leu Val Thr Val Ser Ser
115

<210> 244
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 28

<400> 244

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 245
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH Antibody 29

<400> 245

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 246

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 30

<400> 246

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr

20

25

30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
 50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 247
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH Antibody 31

<400> 247

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
 20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Leu Thr Tyr Asn Gln Lys Phe
 50 55 60

Lys Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Ile
100 105 110

Pro Val Thr Val Ser Ser
115

<210> 248
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 32

<400> 248

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 249
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 33

<400> 249

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 250
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH Antibody 34

<400> 250

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 251

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 35

<400> 251

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 252
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 36

<400> 252

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 253
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 37

<400> 253

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Glu Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser

115

<210> 254
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 38

<400> 254

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Lys Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 255
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 39

<400> 255

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Ile Thr Val Ser Ser
115

<210> 256

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 40

<400> 256

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

Ala Met Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

35

40

45

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 257
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH

<400> 257

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
 20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
 50 55 60

Gln Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 258
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 41

<400> 258

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 259
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 42

<400> 259

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Asp Tyr
20 25 30

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

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

Gln Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 260
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 260

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 261
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 43

<400> 261

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 262
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 44

<400> 262

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

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

Gln Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 263
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 45

<400> 263

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Phe Val Thr Val Ser Ser
115

<210> 264

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

<220>
<223> VH Antibody 46

<400> 264

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Asp Leu Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 265
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 47

<400> 265

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Asp Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 266
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 266

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe

50

55

60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 267

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 48

<400> 267

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 268
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 49

<400> 268

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 269
<211> 118
<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 269

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 270

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 50

<400> 270

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Lys Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 271
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 51

<400> 271

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 272
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 52

<400> 272

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 273
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 53

<400> 273

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 274
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 274

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Glu Val Thr Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Val Thr Met Thr Val Asp Ala Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 275

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 275

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

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

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 276
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 54

<400> 276

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr

65		70		75		80									
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Leu	Val	Thr	Val	Ser	Ser										
			115												
<210>	277														
<211>	118														
<212>	PRT														
<213>	Artificial Sequence														
<220>															
<223>	VH Antibody 55														
<400>	277														
Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Thr	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	Asp	Tyr
			20					25					30		
Ala	Met	Tyr	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Ile
		35					40					45			
Gly	Leu	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Val	Thr	Tyr	Asn	Gln	Lys	Phe
	50					55					60				
Gln	Gly	Arg	Val	Thr	Met	Thr	Val	Asp	Thr	Ser	Ile	Ser	Thr	Ala	Tyr
65					70					75					80
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		

Leu Val Thr Val Ser Ser
115

<210> 278
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 278

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 279
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 279

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Lys Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 280

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 56

<400> 280

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 281
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 57

<400> 281

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

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

Lys Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 282
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 282

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 283
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 58

<400> 283

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 284
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 59

<400> 284

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 285
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 60

<400> 285

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Lys Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 286
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 286

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Pro Gly Arg Gly Ser Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 287
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH Antibody 61

<400> 287

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
 20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
 50 55 60

Gln Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 288
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 62

<400> 288

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 289
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 289

Gln Val Gln Leu Val Gln Ser Gly Thr Glu Val Lys Lys Pro Gly Ala

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

<210> 290
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH Antibody 63

<400> 290

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala	1	5	10	15
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Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr	20	25	30
---	----	----	----

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 291
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 64

<400> 291

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 292
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 292

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 293
<211> 118

<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 293

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 294
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 294

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Lys Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 295
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 295

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

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

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 296
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 66

<400> 296

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr

100

105

110

Leu Val Thr Val Ser Ser
115

<210> 297
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 67

<400> 297

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Gln Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 298
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH Antibody 68

<400> 298

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 299

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 69

<400> 299

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr

20

25

30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
 50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 300
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH

<400> 300

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
 20 25 30

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

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

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 301
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 70

<400> 301

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

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 302
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 302

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Gln Thr Tyr Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 303
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 303

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 304

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 71

<400> 304

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 305
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 72

<400> 305

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 306
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 73

<400> 306

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Ile Ile Lys Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser

115

<210> 307
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 307

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Asp Leu Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 308
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 74

<400> 308

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Lys Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 309

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 309

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Asp Tyr
20 25 30

Val Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Met Glu Trp Met

35

40

45

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
 50 55 60

Gln Gly Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 310
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH

<400> 310

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
 50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 311
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 311

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 312
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 312

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Gln Thr Tyr Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 313
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 75

<400> 313

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 314
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 76

<400> 314

Gln Val Gln Leu Val Gln Ser Gly Ala Gly Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

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

Arg Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 315
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 77

<400> 315

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Gln Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 316
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 78

<400> 316

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Lys Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Gly Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Arg Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 317

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

<220>

<223> VH

<400> 317

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 318
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 318

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 319
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 79

<400> 319

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe

50

55

60

Arg Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 320
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 80

<400> 320

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
20 25 30

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

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

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 321
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 321

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 322
<211> 118
<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 81

<400> 322

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 323

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 82

<400> 323

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 324
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 83

<400> 324

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 325
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 84

<400> 325

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

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

Arg Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 326
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 326

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

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

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 327
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH Antibody 85

<400> 327

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 328

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> Vh Antibody 86

<400> 328

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 329
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 329

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr

65		70		75		80									
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Leu	Val	Thr	Val	Ser	Ser										
			115												
<210>	330														
<211>	118														
<212>	PRT														
<213>	Artificial Sequence														
<220>															
<223>	VH														
<400>	330														
Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ala
1				5					10					15	
Ser	Val	Lys	Val	Ser	Cys	Lys	Gly	Ser	Gly	Tyr	Thr	Phe	Thr	Asp	Tyr
			20					25					30		
Ala	Met	Tyr	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
		35					40					45			
Gly	Val	Ile	Arg	Thr	Tyr	Ser	Gly	Gly	Leu	Ser	Tyr	Asn	Gln	Lys	Phe
	50					55					60				
Arg	Gly	Arg	Ala	Thr	Met	Thr	Val	Asp	Lys	Ser	Ile	Ser	Thr	Ala	Tyr
65					70					75					80
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	His	Trp	Gly	Gln	Gly	Thr
			100					105					110		

Leu Val Thr Val Ser Ser
115

<210> 331
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 331

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 332
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 332

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Phe Val Thr Val Ser Ser
115

<210> 333

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 87

<400> 333

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 334
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 334

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 335
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 335

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

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

Gln Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 336
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 88

<400> 336

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 337
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 337

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

Ser Val Glu Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 338
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 89

<400> 338

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

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 339
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 90

<400> 339

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Asp Leu Ser Tyr Asn Gln Lys Phe
50 55 60

Lys Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 340
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH Antibody 91

<400> 340

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
 20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
 50 55 60

Gln Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 341
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 341

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 342
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 92

<400> 342

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

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

<210> 343
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH Antibody 93

<400> 343

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Asp Tyr	20	25	30	
Ala Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Met Glu Trp Met	35	40	45	

Gly Val Ile Gln Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 344
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 344

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Asp Leu Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 345
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> pab1979, VH; pab1980, VH; pab1981, VH

<400> 345

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 346
<211> 118

<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 346

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Lys Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Val Thr Met Thr Val Asp Lys Asn Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 347

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 347

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 348
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 348

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Asp Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 349
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 349

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Leu Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr

100

105

110

Leu Val Thr Val Ser Ser
115

<210> 350
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 94

<400> 350

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Phe Val Thr Val Ser Ser
115

<210> 351
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 351

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 352

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 352

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr

20

25

30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
 50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 353

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 353

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30

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

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

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 354
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 95

<400> 354

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Phe Val Thr Val Ser Ser
115

<210> 355
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 96

<400> 355

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Leu Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 356
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH Antibody 97

<400> 356

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 357

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 357

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Leu Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 358
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 98

<400> 358

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 359
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 99

<400> 359

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Asp Leu Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser

115

<210> 360
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 100

<400> 360

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 361
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 361

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 362

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 101

<400> 362

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Ala Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

35

40

45

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
 50 55 60

Gln Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 363

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH Antibody 102

<400> 363

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

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

Gly Val Ile Arg Thr Tyr Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
 50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 364
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 103

<400> 364

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 365
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 104

<400> 365

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 366
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 105

<400> 366

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 367
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 106

<400> 367

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 368
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH Antibody 107

<400> 368

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 369
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 369

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Tyr Ser Gly Glu Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 370

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

<220>

<223> VH

<400> 370

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 371
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 371

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

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

Gly Leu Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 372
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 372

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Leu Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe

50

55

60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 373
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 373

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 374
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 374

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Asp Tyr
20 25 30

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

Gly Val Ile Lys Thr Phe Ser Gly Gly Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 375
<211> 118
<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 375

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Arg Glu Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 376

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 376

Gln Val Gln Leu Val Gln Ser Gly Thr 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 Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 377
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 377

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

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

Gln Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 378
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 378

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Lys Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala His Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 379
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 379

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

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

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 380
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> VH

<400> 380

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 381

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 381

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Gln Thr Phe Ser Gly Gly Leu Thr Tyr Asn Gln Lys Phe
50 55 60

Gln Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 382
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 382

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Lys Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr

65		70		75		80									
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Leu	Val	Thr	Val	Ser	Ser										
			115												
<210>	383														
<211>	118														
<212>	PRT														
<213>	Artificial Sequence														
<220>															
<223>	VH														
<400>	383														
Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Thr	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	Asp	Tyr
			20					25					30		
Ala	Met	Tyr	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
		35					40					45			
Gly	Leu	Ile	Arg	Thr	Phe	Ser	Gly	Asp	Val	Thr	Tyr	Asn	Gln	Lys	Phe
	50					55					60				
Arg	Gly	Arg	Val	Thr	Met	Thr	Val	Asp	Lys	Ser	Ile	Ser	Thr	Ala	Tyr
65					70					75					80
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		

Leu Val Thr Val Ser Ser
115

<210> 384
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 384

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

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

Arg Asp Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 385
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 385

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Phe Ser Gly Gly Val Ser Tyr Asn Gln Lys Phe
50 55 60

Arg Gly Arg Val Ile Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 386

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> VH

<400> 386

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Gln Glu Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 387
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 387

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Glu Val Ser Tyr Asn Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 388
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> VH

<400> 388

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Glu Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asn Val Ser Tyr Asn Gln Lys Phe
50 55 60

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

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 389
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VH

<400> 389

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Glu Tyr
 20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Ser Tyr Asn Gln Lys Phe
 50 55 60

Gln Asp Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Arg Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 390

<400> 390
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<210> 391

<400> 391
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<210> 392

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 <210> 399

 <400> 399
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 <210> 400
 <211> 113
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> VL Antibody 1

 <400> 400

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 401
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 2

<400> 401

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val

50

55

60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 402

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 3

<400> 402

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 403
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 4

<400> 403

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 404
<211> 112
<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 5

<400> 404

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

Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser Ser
20 25 30

Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln Pro
35 40 45

Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val Pro
50 55 60

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

Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn Glu
85 90 95

Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 405

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 6

<400> 405

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 406
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 7

<400> 406

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 407
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8

<400> 407

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 408
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 9

<400> 408

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 409
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 10

<400> 409

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 410
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 11

<400> 410

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 411
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 12

<400> 411

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn

85

90

95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 412

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL

<400> 412

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 413
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 13

<400> 413

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 414
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 14

<400> 414

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly

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

Lys

<210> 415
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 15

<400> 415

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 416
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 16

<400> 416

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 417
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL

<400> 417

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 418
<211> 113

<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 17

<400> 418

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 419
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 18

<400> 419

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 420
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 19

<400> 420

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 421
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 20

<400> 421

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Leu Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile

100

105

110

Lys

<210> 422
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL

<400> 422

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 423
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>

<223> VL Antibody 21

<400> 423

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 424

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 22

<400> 424

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

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

20

25

30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp His Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 425

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 23

<400> 425

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Ser Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 426
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 24

<400> 426

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 427
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 25

<400> 427

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 428
<211> 113
<212> PRT
<213> Artificial Sequence

<220>

<223> VL Antibody 26

<400> 428

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 429

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 27

<400> 429

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 430
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 28

<400> 430

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 431
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 29

<400> 431

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 432
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 30

<400> 432

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 433
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 31

<400> 433

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 434

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 32

<400> 434

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln

35

40

45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 435

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 33

<400> 435

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 436
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 34

<400> 436

Asp Ile Val Met Thr Gln Ser Thr Asp Ser Leu Ala Val Ser Leu Gly
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 437
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 35

<400> 437

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 438
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 36

<400> 438

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Glu Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 439
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 37

<400> 439

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 440
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 38

<400> 440

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 441
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 39

<400> 441

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 442

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

<220>
<223> VL Antibody 40

<400> 442

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 443
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 41

<400> 443

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 444
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 42

<400> 444

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val

50

55

60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 445

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 43

<400> 445

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 446
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 44

<400> 446

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 447
<211> 113
<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 45

<400> 447

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 448

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 46

<400> 448

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 449
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL

<400> 449

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 450
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 47

<400> 450

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 451
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 48

<400> 451

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 452
<211> 113
<212> PRT
<213> Artificial Sequence

<220>

<223> VL Antibody 49

<400> 452

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 453

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 453

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 454
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 50

<400> 454

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr

65		70		75		80									
Ile	Ser	Ser	Leu	Gln	Ala	Glu	Asp	Val	Ala	Val	Tyr	Tyr	Cys	Gln	Asn
			85						90					95	

Asp	Tyr	Ser	Tyr	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile
		100						105					110		

Lys

<210> 455
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 51

<400> 455

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

Glu	Arg	Ala	Thr	Ile	Asn	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser
			20					25					30		

Gly	Asn	Gln	Lys	Asn	Tyr	Leu	Thr	Trp	Tyr	His	Gln	Lys	Pro	Gly	Gln
		35					40					45			

Pro	Pro	Lys	Leu	Leu	Ile	Tyr	Trp	Ala	Ser	Thr	Arg	Glu	Ser	Gly	Val
	50					55					60				

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

Ile	Ser	Ser	Val	Gln	Ala	Glu	Asp	Val	Ala	Val	Tyr	His	Cys	Gln	Asn
			85						90					95	

Asp	Tyr	Ser	Ser	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile
		100						105					110		

Lys

<210> 456
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 52

<400> 456

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 457
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 53

<400> 457

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 458

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 54

<400> 458

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 459
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 55

<400> 459

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 460
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 56

<400> 460

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 461
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 57

<400> 461

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 462
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 58

<400> 462

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 463
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 59

<400> 463

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 464
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 60

<400> 464

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn

85

90

95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 465

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL

<400> 465

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 466
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL

<400> 466

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 467
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 61

<400> 467

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly

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

Lys

<210> 468
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 62

<400> 468

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 469
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 63

<400> 469

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 470
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 64

<400> 470

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 471
<211> 113

<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 65

<400> 471

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Pro Val Ser Leu Gly
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Phe Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 472
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 66

<400> 472

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 473
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 67

<400> 473

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 474
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 68

<400> 474

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile

100

105

110

Lys

<210> 475
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 69

<400> 475

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
 85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 476
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>

<223> VL Antibody 70

<400> 476

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 477

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 71

<400> 477

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

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

20

25

30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 478

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL

<400> 478

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Thr Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 479
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL

<400> 479

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 480
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL

<400> 480

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 481
<211> 113
<212> PRT
<213> Artificial Sequence

<220>

<223> VL Antibody 72

<400> 481

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 482

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 73

<400> 482

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 483
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 74

<400> 483

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 484
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 75

<400> 484

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 485
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 76

<400> 485

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 486
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 77

<400> 486

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 487

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL

<400> 487

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln

35

40

45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
 85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 488

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 78

<400> 488

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 489
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 79

<400> 489

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 490
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 80

<400> 490

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 491
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 81

<400> 491

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ser Val Ser Leu Gly
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 492

<400> 492
000

<210> 493

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 83

<400> 493

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
 85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 494
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 84

<400> 494

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr

65		70		75		80									
Ile	Ser	Ser	Leu	Gln	Ala	Glu	Asp	Val	Ala	Val	Tyr	His	Cys	Gln	Asn
			85						90					95	

Asp	Tyr	Ser	Phe	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile
			100					105					110		

Lys

<210> 495
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 85

<400> 495

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

Glu	Arg	Ala	Thr	Ile	Asn	Cys	Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser
			20					25					30		

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

Pro	Pro	Lys	Leu	Leu	Ile	Tyr	Trp	Ala	Ser	Thr	Arg	Glu	Ser	Gly	Val
	50					55					60				

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

Ile	Ser	Ser	Val	Gln	Ala	Glu	Asp	Val	Ala	Val	Tyr	Tyr	Cys	Gln	Asn
			85						90					95	

Asp	Tyr	Ser	Tyr	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile
			100					105					110		

Lys

<210> 496
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 86

<400> 496

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 497
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 87

<400> 497

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 498

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 88

<400> 498

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 499
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 89

<400> 499

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 500
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 90

<400> 500

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Ser Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 501
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 91

<400> 501

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 502
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 92

<400> 502

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr His Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 503
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 93

<400> 503

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 504
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 94

<400> 504

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn

85

90

95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 505

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 95

<400> 505

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 506
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 96

<400> 506

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 507
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 97

<400> 507

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly

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

Lys

<210> 508
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 98

<400> 508

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 509
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 99

<400> 509

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 510
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 100

<400> 510

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Met Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Ser Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 511
<211> 113

<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 101

<400> 511

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 512
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 102

<400> 512

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 513
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL Antibody 103

<400> 513

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Ser Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 514
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> VL

<400> 514

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Glu Tyr Ser Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile

100

105

110

Lys

<210> 515
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL Antibody 104

<400> 515

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Phe Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Glu Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 516
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>

<223> VL Antibody 105

<400> 516

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 517

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 106

<400> 517

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

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

20

25

30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Ser Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys

<210> 518

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> VL Antibody 107

<400> 518

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

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

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 519
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> pab1973, VL

<400> 519

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys

<210> 520

<400> 520
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<210> 521

<400> 521
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<210> 522

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 <210> 553
 <211> 448
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Full-length humanized heavy chain
 <220>
 <221> MISC_FEATURE
 <222> (215)..(215)
 <223> can be Lysine or Arginine
 <220>
 <221> MISC_FEATURE
 <222> (357)..(357)
 <223> can be Aspartic Acid or Glutamic Acid
 <220>
 <221> MISC_FEATURE
 <222> (359)..(359)
 <223> can be Leucine or Methionine
 <220>
 <221> MISC_FEATURE
 <222> (432)..(432)
 <223> can be Glycine or Alanine

<400> 553

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

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

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
130 135 140

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

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

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

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Xaa Val Glu Pro Lys Ser Cys Asp Lys Thr
210 215 220

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
225 230 235 240

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

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

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

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

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

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

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

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

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

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

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

Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Xaa
420 425 430

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

<210> 554
<211> 445
<212> PRT
<213> Artificial Sequence

<220>

<223> Full-length humanized heavy chain

<400> 554

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln

405

410

415

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

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

<210> 555
 <211> 220
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Full-length humanized light chain

<220>
 <221> MISC_FEATURE
 <222> (159)..(159)
 <223> can be Valine or Alanine

<220>
 <221> MISC_FEATURE
 <222> (197)..(197)
 <223> can be Leucine or Valine

<400> 555

Asp Ile Val Met Thr Gln Ser Pro Pro Thr Leu Ser Leu Ser Pro Gly
 1 5 10 15

Glu Arg Val Thr Leu Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Ala Pro Arg Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Ile
 50 55 60

Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
 65 70 75 80

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Val Tyr His Cys Gln Asn

85

90

95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
 115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
 130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Xaa Leu
 145 150 155 160

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

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

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

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215 220

<210> 556
 <211> 220
 <212> PRT
 <213> Homo sapiens

<220>
 <221> MISC_FEATURE
 <222> (1)..(220)
 <223> Full-length humanized light chain

<220>
 <221> MISC_FEATURE
 <222> (159)..(159)
 <223> can be Valine or Alanine

<220>
 <221> MISC_FEATURE

<222> (197)..(197)

<223> can be Leucine or Valine

<400> 556

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

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

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Xaa Leu
145 150 155 160

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

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

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

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215 220

<210> 557
 <211> 330
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Human IgG1 constant region consensus sequence

<220>
 <221> MISC_FEATURE
 <222> (97)..(97)
 <223> can be Lysine or Arginine

<220>
 <221> MISC_FEATURE
 <222> (239)..(239)
 <223> can be Aspartic Acid or Glutamic Acid

<220>
 <221> MISC_FEATURE
 <222> (241)..(241)
 <223> can be Leucine or Methionine

<220>
 <221> MISC_FEATURE
 <222> (314)..(314)
 <223> can be Glycine or Alanine

<400> 557

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
 1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Xaa Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

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

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Xaa Glu
225 230 235 240

Xaa Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
 275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
 290 295 300

Val Phe Ser Cys Ser Val Met His Glu Xaa Leu His Asn His Tyr Thr
 305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 325 330

<210> 558
 <211> 330
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Human IgG1 G1m3 allotype

<400> 558

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
 1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
 100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

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

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

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

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325 330

<210> 559
<211> 330
<212> PRT
<213> Artificial Sequence

<220>
<223> Human IgG1 G1m17,1 allotype

<400> 559

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

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

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
225 230 235 240

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325 330

<210> 560
<211> 330
<212> PRT
<213> Artificial Sequence

<220>
<223> Human IgG1, G1m17,1,2 allotype

<400> 560

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

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

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
225 230 235 240

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Gly Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325 330

<210> 561
<211> 327
<212> PRT
<213> Artificial Sequence

<220>
<223> Human IgG4 wt constant regions

<400> 561

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser

35

40

45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro
100 105 110

Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
115 120 125

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

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
145 150 155 160

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
165 170 175

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
180 185 190

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
195 200 205

Ser Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
210 215 220

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
225 230 235 240

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
245 250 255

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
260 265 270

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
275 280 285

Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
290 295 300

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
305 310 315 320

Leu Ser Leu Ser Leu Gly Lys
325

<210> 562
<211> 327
<212> PRT
<213> Artificial Sequence

<220>
<223> IgG4 constant regions S228P modification

<400> 562

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys

85

90

95

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro
 100 105 110

Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 115 120 125

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

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
 145 150 155 160

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
 165 170 175

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 180 185 190

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
 195 200 205

Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 210 215 220

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
 225 230 235 240

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 245 250 255

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 260 265 270

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 275 280 285

Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
 290 295 300

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 305 310 315 320

Leu Ser Leu Ser Leu Gly Lys
 325

<210> 563
 <211> 106
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Kappa light chain constant region Consensus sequence

<220>
 <221> MISC_FEATURE
 <222> (45)..(45)
 <223> can be V or A

<220>
 <221> MISC_FEATURE
 <222> (83)..(83)
 <223> can be L or V

<400> 563

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
 1 5 10 15

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
 20 25 30

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Xaa Leu Gln Ser
 35 40 45

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
 50 55 60

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
 65 70 75 80

His Lys Xaa Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
 85 90 95

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 564
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Kappa light chain constant region IGKC*06 Km1 allotype

<400> 564

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
1 5 10 15

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
20 25 30

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Val Leu Gln Ser
35 40 45

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
50 55 60

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
65 70 75 80

His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
85 90 95

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 565
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Kappa light chain constant region IGKC*04 Km1,2 allotype

<400> 565

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
1 5 10 15

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
20 25 30

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
35 40 45

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
50 55 60

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
65 70 75 80

His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
85 90 95

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 566
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Kappa light chain constant region IGKC*01 Km3 allotype

<400> 566

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
1 5 10 15

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
20 25 30

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
35 40 45

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
50 55 60

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
65 70 75 80

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
85 90 95

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 567
<211> 448
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized heavy chain

<400> 567

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro

115

120

125

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
 130 135 140

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

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

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

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
 195 200 205

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

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
 225 230 235 240

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

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

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

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

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

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

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

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

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

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

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

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

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

<210> 568
<211> 448
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized heavy chain

<400> 568

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

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

50

55

60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

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

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
130 135 140

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

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

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

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr
210 215 220

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
225 230 235 240

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

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

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

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

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

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

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

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

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

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

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

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

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

<210> 569
<211> 448
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized heavy chain

<400> 569

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

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

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
130 135 140

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

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

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

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr
 210 215 220

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
 225 230 235 240

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

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

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

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

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

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

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

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

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

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

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

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

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

<210> 570
<211> 445
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized heavy chain

<400> 570

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

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

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

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
115 120 125

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly
130 135 140

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
 145 150 155 160

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 180 185 190

Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
 195 200 205

Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys
 210 215 220

Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu
 225 230 235 240

Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu
 245 250 255

Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln
 260 265 270

Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys
 275 280 285

Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu
 290 295 300

Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
 305 310 315 320

Val Ser Asn Lys Gly Leu Ser Ser Ser Ile Glu Lys Thr Ile Ser Lys
 325 330 335

Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
 340 345 350

Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
355 360 365

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
370 375 380

Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly
385 390 395 400

Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln
405 410 415

Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
420 425 430

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440 445

<210> 571

<211> 220

<212> PRT

<213> Artificial Sequence

<220>

<223> Full-length humanized light chain

<400> 571

Asp Ile Val Met Thr Gln Ser Pro Pro Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Val Thr Leu Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Ala Pro Arg Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Ile
50 55 60

Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Val Leu
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
180 185 190

Glu Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215 220

<210> 572
<211> 220
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized light chain

<400> 572

Asp Ile Val Met Thr Gln Ser Pro Pro Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Val Thr Leu Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser

20

25

30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Ala Pro Arg Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Ile
 50 55 60

Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
 65 70 75 80

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
 115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
 130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
 145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
 165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
 180 185 190

Glu Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
 195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215 220

<210> 573

<211> 220

<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized light chain

<400> 573

Asp Ile Val Met Thr Gln Ser Pro Pro Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Val Thr Leu Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Ala Pro Arg Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Ile
50 55 60

Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr

180

185

190

Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
 195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215 220

<210> 574
 <211> 220
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Full-length humanized light chain

<400> 574

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly
 1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
 65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
 85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
 115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
 130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Val Leu
 145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
 165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
 180 185 190

Glu Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
 195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215 220

<210> 575
 <211> 220
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Full-length humanized light chain

<400> 575

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly
 1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
 20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
 65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
180 185 190

Glu Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215 220

<210> 576
<211> 220
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized light chain

<400> 576

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
180 185 190

Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215 220

<210> 577

<211> 463

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 577

Met Asn Phe Gly Leu Ser Leu Ile Phe Leu Val Leu Val Leu Lys Gly
1 5 10 15

Val Gln Cys Gln Val Gln Leu Leu Gln Ser Gly Thr Glu Leu Val Arg
20 25 30

Pro Gly Val Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe
35 40 45

Thr Asp Tyr Ala Met Tyr Trp Val Lys Gln Ser His Ala Lys Ser Leu
50 55 60

Glu Trp Ile Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn
65 70 75 80

Gln Lys Phe Lys Asp Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser
85 90 95

Ile Ala Tyr Met Glu Leu Ala Arg Leu Ser Ser Glu Asp Ser Ala Ile
100 105 110

Tyr Tyr Cys Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly
115 120 125

Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser
130 135 140

Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala
145 150 155 160

Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val
165 170 175

Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala
180 185 190

Val Leu Gln Ser Ser Gly Lys Leu Ser Ser Val Val Thr Val Pro Ser
195 200 205

Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
210 215 220

Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys
225 230 235 240

Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro
245 250 255

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
260 265 270

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
275 280 285

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
290 295 300

Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Tyr Val Val Ser
305 310 315 320

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
325 330 335

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
340 345 350

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
355 360 365

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
370 375 380

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
385 390 395 400

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
405 410 415

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
420 425 430

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
435 440 445

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
450 455 460

<210> 578
<211> 240
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 578

Met Glu Ser Gln Thr Gln Val Leu Met Ser Leu Leu Phe Trp Val Ser
1 5 10 15

Gly Thr Cys Gly Asp Ile Val Met Thr Gln Ser Pro Ser Ser Leu Thr
20 25 30

Val Thr Ala Gly Glu Lys Val Ile Met Ser Cys Lys Ser Ser Gln Ser
35 40 45

Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln
50 55 60

Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65 70 75 80

Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
85 90 95

Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr
100 105 110

His Cys Gln Asn Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gly Gly Thr
115 120 125

Lys Leu Glu Ile Lys Arg Ser Val Ala Ala Pro Ser Val Phe Ile Phe
130 135 140

Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys
145 150 155 160

Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val
165 170 175

Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln
180 185 190

Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser
195 200 205

Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His
210 215 220

Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230 235 240

<210> 579
<211> 448
<212> PRT
<213> Artificial Sequence

<220>
<223> Full length heavy chain

<400> 579

Gln Val Gln Leu Leu Gln Ser Gly Thr Glu Leu Val Arg Pro Gly Val
1 5 10 15

Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Ala Met Tyr Trp Val Lys Gln Ser His Ala Lys Ser Leu Glu Trp Ile

35

40

45

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
 50 55 60

Lys Asp Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser Ile Ala Tyr
 65 70 75 80

Met Glu Leu Ala Arg Leu Ser Ser Glu Asp Ser Ala Ile Tyr Tyr Cys
 85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
 115 120 125

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
 130 135 140

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
 145 150 155 160

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 180 185 190

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
 195 200 205

Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr
 210 215 220

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
 225 230 235 240

Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
 245 250 255

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
260 265 270

Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
275 280 285

Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val
290 295 300

Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
305 310 315 320

Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
325 330 335

Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
340 345 350

Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys
355 360 365

Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
370 375 380

Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
385 390 395 400

Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
405 410 415

Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
420 425 430

Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 580

<211> 220

<212> PRT

<213> Artificial Sequence

<220>

<223> Full length light chain

<400> 580

Asp Ile Val Met Thr Gln Ser Pro Ser Ser Leu Thr Val Thr Ala Gly
1 5 10 15

Glu Lys Val Ile Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
180 185 190

Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215 220

<210> 581
<211> 444
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized heavy chain

<400> 581

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Ala Met Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Ser Gly Thr Val Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
115 120 125

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly

130

135

140

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
 145 150 155 160

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 180 185 190

Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
 195 200 205

Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys
 210 215 220

Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe
 225 230 235 240

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 245 250 255

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe
 260 265 270

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 275 280 285

Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
 290 295 300

Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320

Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
 325 330 335

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 340 345 350

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440

<210> 582
<211> 444
<212> PRT
<213> Artificial Sequence

<220>
<223> Full-length humanized heavy chain

<400> 582

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Ala Met Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45

Gly Val Ile Arg Thr Tyr Ser Gly Asp Val Thr Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr

65					70					75				80	
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Ser	Gly	Thr	Val	Arg	Gly	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro
		115					120					125			
Leu	Ala	Pro	Ser	Ser	Arg	Ser	Thr	Ser	Glu	Ser	Thr	Ala	Ala	Leu	Gly
	130					135					140				
Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn
145					150					155					160
Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln
				165					170					175	
Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser
			180					185					190		
Asn	Phe	Gly	Thr	Gln	Thr	Tyr	Thr	Cys	Asn	Val	Asp	His	Lys	Pro	Ser
		195					200					205			
Asn	Thr	Lys	Val	Asp	Lys	Thr	Val	Glu	Arg	Lys	Cys	Cys	Val	Glu	Cys
	210					215					220				
Pro	Pro	Cys	Pro	Ala	Pro	Pro	Val	Ala	Gly	Pro	Ser	Val	Phe	Leu	Phe
225					230					235					240
Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val
				245					250					255	
Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Gln	Phe
			260					265					270		
Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro
		275					280					285			

Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
290 295 300

Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
305 310 315 320

Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
325 330 335

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
340 345 350

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440

<210> 583

<211> 326

<212> PRT

<213> Artificial Sequence

<220>

<223> Human IgG2 constant regions

<400> 583

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg

1	5				10				15						
Ser	Thr	Ser	Glu 20	Ser	Thr	Ala	Ala	Leu 25	Gly	Cys	Leu	Val	Lys 30	Asp	Tyr
Phe	Pro	Glu 35	Pro	Val	Thr	Val	Ser 40	Trp	Asn	Ser	Gly	Ala 45	Leu	Thr	Ser
Gly	Val 50	His	Thr	Phe	Pro	Ala 55	Val	Leu	Gln	Ser	Ser 60	Gly	Leu	Tyr	Ser
Leu 65	Ser	Ser	Val	Val	Thr 70	Val	Pro	Ser	Ser	Asn 75	Phe	Gly	Thr	Gln	Thr 80
Tyr	Thr	Cys	Asn	Val 85	Asp	His	Lys	Pro	Ser 90	Asn	Thr	Lys	Val	Asp 95	Lys
Thr	Val	Glu	Arg 100	Lys	Cys	Cys	Val	Glu 105	Cys	Pro	Pro	Cys	Pro 110	Ala	Pro
Pro	Val	Ala 115	Gly	Pro	Ser	Val	Phe 120	Leu	Phe	Pro	Pro	Lys 125	Pro	Lys	Asp
Thr 130	Leu	Met	Ile	Ser	Arg	Thr 135	Pro	Glu	Val	Thr	Cys 140	Val	Val	Val	Asp
Val 145	Ser	His	Glu	Asp	Pro 150	Glu	Val	Gln	Phe	Asn 155	Trp	Tyr	Val	Asp	Gly 160
Val	Glu	Val	His	Asn 165	Ala	Lys	Thr	Lys	Pro 170	Arg	Glu	Glu	Gln	Phe 175	Asn
Ser	Thr	Phe	Arg 180	Val	Val	Ser	Val	Leu 185	Thr	Val	Val	His	Gln 190	Asp	Trp
Leu	Asn	Gly 195	Lys	Glu	Tyr	Lys	Cys 200	Lys	Val	Ser	Asn	Lys 205	Gly	Leu	Pro
Ala	Pro 210	Ile	Glu	Lys	Thr	Ile 215	Ser	Lys	Thr	Lys	Gly 220	Gln	Pro	Arg	Glu

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
225 230 235 240

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
245 250 255

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
260 265 270

Thr Pro Pro Met Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
275 280 285

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
290 295 300

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
305 310 315 320

Ser Leu Ser Pro Gly Lys
325

<210> 584
<211> 326
<212> PRT
<213> Artificial Sequence

<220>
<223> IgG2 constant regions C127S modification

<400> 584

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Arg
1 5 10 15

Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser

50

55

60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Asn Phe Gly Thr Gln Thr
65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Thr Val Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro Ala Pro
100 105 110

Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
115 120 125

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
130 135 140

Val Ser His Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly
145 150 155 160

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn
165 170 175

Ser Thr Phe Arg Val Val Ser Val Leu Thr Val Val His Gln Asp Trp
180 185 190

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
195 200 205

Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Gln Pro Arg Glu
210 215 220

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
225 230 235 240

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
245 250 255

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
260 265 270

Thr Pro Pro Met Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
275 280 285

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
290 295 300

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
305 310 315 320

Ser Leu Ser Pro Gly Lys
325

<210> 585
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<223> m6C8 full-length heavy chain

<400> 585

Gln Val Thr Leu Lys Glu Ser Gly Pro Gly Ile Leu Lys Pro Ser Gln
1 5 10 15

Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly Phe Ser Leu Ser Thr Ser
20 25 30

Gly Met Gly Val Gly Trp Ile Arg Gln Pro Ser Gly Lys Gly Leu Glu
35 40 45

Trp Leu Ala His Ile Trp Trp Asp Asp Asp Lys Tyr Tyr Asn Pro Ser
50 55 60

Leu Lys Ser Gln Leu Thr Ile Ser Lys Asp Thr Ser Arg Asn Gln Val
65 70 75 80

Phe Leu Lys Ile Thr Ser Val Asp Thr Ala Asp Ala Ala Thr Tyr Tyr
85 90 95

Cys Ala Arg Thr Arg Arg Tyr Phe Pro Phe Ala Tyr Trp Gly Gln Gly

100	105	110																	
Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe				
	115						120					125							
Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu				
	130					135					140								
Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp				
145					150					155					160				
Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu				
				165					170					175					
Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser				
			180					185						190					
Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro				
		195					200					205							
Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys				
	210					215					220								
Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro				
225					230					235					240				
Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser				
				245					250					255					
Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp				
			260					265					270						
Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn				
	275						280					285							
Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val				
	290					295				300									
Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu				
305					310				315						320				

Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys
325 330 335

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
340 345 350

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
355 360 365

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
370 375 380

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
385 390 395 400

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
405 410 415

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
420 425 430

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
435 440 445

Lys

<210> 586

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> m6C8 full-length light chain

<400> 586

Asp Ile Val Met Thr Gln Ser Gln Lys Phe Met Ser Thr Ser Val Gly
1 5 10 15

Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val Gly Thr Asn

20

25

30

Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Ala Leu Ile
 35 40 45

Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg Phe Thr Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Asn Val His Ser
 65 70 75 80

Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr Asn Thr Asp Pro Leu
 85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ser Val Ala Ala
 100 105 110

Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
 115 120 125

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
 130 135 140

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
 145 150 155 160

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
 165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
 180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
 195 200 205

Phe Asn Arg Gly Glu Cys
 210

<210> 587

<211> 220

<212> PRT

<213> Artificial Sequence

<220>

<223> Full-length humanized light chain containing T to S mutation

<400> 587

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys Gln Asn
85 90 95

Asp Tyr Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
100 105 110

Lys Arg Ser Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
165 170 175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr

180

185

190

Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
 195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215 220

<210> 588
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Kappa light chain constant region

<220>
 <221> MISC_FEATURE
 <222> (1)..(107)
 <223> Consensus sequence

<220>
 <221> MISC_FEATURE
 <222> (46)..(46)
 <223> can be valine or alanine

<220>
 <221> MISC_FEATURE
 <222> (84)..(84)
 <223> can be valine or leucine

<400> 588

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
 20 25 30

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Xaa Leu Gln
 35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
65 70 75 80

Lys His Lys Xaa Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 589
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Kappa light chain constant region IGKC*06 Km1 allotype

<400> 589

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
20 25 30

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Val Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
65 70 75 80

Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 590
<211> 107
<212> PRT

<213> Artificial Sequence

<220>

<223> Kappa light chain constant region IGKC*04 Km1,2 allotype

<400> 590

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
20 25 30

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
65 70 75 80

Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 591

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Kappa light chain constant region IGKC*01 Km3 allotype

<400> 591

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
20 25 30

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
65 70 75 80

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 592

<400> 592
000

<210> 593

<400> 593
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<210> 594

<400> 594
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<210> 595

<400> 595
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<210> 596

<400> 596
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<210> 597

<400> 597
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<210> 598

<400> 598

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<210> 599

<400> 599
000

<210> 600

<400> 600
000

<210> 601
<211> 98
<212> PRT
<213> Artificial Sequence

<220>
<223> Germline sequence: IGHV1-2*02 (DP75)

<400> 601

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg

<210> 602
<211> 98
<212> PRT

<213> Artificial Sequence

<220>

<223> Germline sequence: IGHGV1-3*01

<400> 602

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Ala Met His Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Met
35 40 45

Gly Trp Ile Asn Ala Gly Asn Gly Asn Thr Lys Tyr Ser Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Arg Asp Thr Ser Ala Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg

<210> 603

<211> 98

<212> PRT

<213> Artificial Sequence

<220>

<223> Germline sequence: IGHV1-46*01

<400> 603

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg

<210> 604
<211> 98
<212> PRT
<213> Artificial Sequence

<220>
<223> Germline sequence: IGHV1-18*01

<400> 604

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Trp Ile Ser Ala Tyr Asn Gly Asn Thr Asn Tyr Ala Gln Lys Leu
50 55 60

Gln Gly Arg Val Thr Met Thr Thr Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg

<210> 605
<211> 98
<212> PRT
<213> Artificial Sequence

<220>
<223> Germline sequence: IGHV1-69*01

<400> 605

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg

<210> 606
<211> 98
<212> PRT
<213> Artificial Sequence

<220>
<223> Germline sequence: IGHV7-4-1*02

<400> 606

Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Trp Ile Asn Thr Asn Thr Gly Asn Pro Thr Tyr Ala Gln Gly Phe
50 55 60

Thr Gly Arg Phe Val Phe Ser Leu Asp Thr Ser Val Ser Thr Ala Tyr
65 70 75 80

Leu Gln Ile Ser Ser Leu Lys Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg

<210> 607
<211> 100
<212> PRT
<213> Artificial Sequence

<220>
<223> Germline sequence: IGKV4-1*01

<400> 607

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
85 90 95

Tyr Tyr Ser Thr
100

<210> 608
<211> 95
<212> PRT
<213> Artificial Sequence

<220>
<223> Germline sequence: IGKV3-7*02

<400> 608

Glu Ile Val Met Thr Gln Ser Pro Pro Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Val Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

Tyr Leu Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45

Ile Tyr Gly Ala Ser Thr Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln
65 70 75 80

Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Asp Tyr Asn Leu
85 90 95

<210> 609

<400> 609
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<210> 610

<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR1

<400> 610

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Asp	Ser	Leu	Ala	Ala	Pro	Gly	Glu
1				5				10						15	

Arg	Ala	Thr	Ile	Asn	Cys
			20		

<210> 611
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR1

<400> 611

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Asp	Ser	Leu	Ala	Val	Ser	Leu	Gly
1				5				10						15	

Glu	Arg	Ala	Thr	Ile	Asn	Cys
			20			

<210> 612
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR1

<400> 612

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Asp	Ser	Leu	Pro	Val	Ser	Leu	Gly
1				5				10						15	

Glu	Arg	Ala	Thr	Ile	Asn	Cys
			20			

<210> 613
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR1

<400> 613

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Asp	Ser	Leu	Ser	Val	Ser	Leu	Gly
1				5				10						15	

Glu	Arg	Ala	Thr	Ile	Asn	Cys
				20		

<210> 614

<400> 614
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<210> 615
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR1

<400> 615

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Pro	Thr	Leu	Ser	Leu	Ser	Pro	Gly
1				5				10						15	

Glu	Arg	Val	Thr	Leu	Ser	Cys
				20		

<210> 616
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR1

<400> 616

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Thr	Val	Thr	Ala	Gly
1				5				10						15	

Glu Lys Val Ile Met Ser Cys
20

<210> 617
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR2

<400> 617

Asp Ile Val Met Thr Gln Ser Thr Asp Ser Leu Ala Val Ser Leu Gly
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys
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<210> 618
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR2

<400> 618

Trp Tyr His Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr
1 5 10 15

<210> 619
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR3

<400> 619

Val Leu Phe Arg
1

<210> 620

<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR1

<400> 620

Gly	Val	Pro	Asp	Arg	Phe	Thr	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr
1				5				10					15		

Leu	Thr	Ile	Ser	Ser	Val	Gln	Ala	Glu	Asp	Val	Ala	Val	Tyr	His	Cys
			20					25					30		

<210> 621

<400> 621
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<210> 622
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR2

<400> 622

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro	Arg	Leu	Leu	Ile	Tyr
1				5				10					15	

<210> 623
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR2

<400> 623

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Pro	Pro	Lys	Leu	Leu	Ile	Tyr
1				5				10					15	

<210> 624
<211> 15
<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR2

<400> 624

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Pro	Pro	Lys	Met	Leu	Ile	Tyr
1				5					10					15

<210> 625

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR2

<400> 625

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Pro	Pro	Lys	Ser	Leu	Ile	Tyr
1				5					10					15

<210> 626

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 626

Gly	Ile	Pro	Ala	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr
1				5					10					15	

Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro	Glu	Asp	Phe	Ala	Val	Tyr	His	Cys
			20					25					30		

<210> 627

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 627

Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Asp Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 628
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR3

<400> 628

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Phe Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys
20 25 30

<210> 629
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR3

<400> 629

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Phe Gln Ala Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 630
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR3

<400> 630

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 631
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR3

<400> 631

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys
20 25 30

<210> 632
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR3

<400> 632

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 633
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VL FR3

<400> 633

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys
20 25 30

<210> 634

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 634

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Glu Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 635

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 635

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asn Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 636

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 636

Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 637

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 637

Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr His Cys
20 25 30

<210> 638

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 638

Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr His Cys
20 25 30

<210> 639

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 639

Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys
20 25 30

<210> 640

<400> 640
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<210> 641

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR4

<400> 641

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
1 5 10

<210> 642

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR3

<400> 642

Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys
20 25 30

<210> 643

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> VL FR4

<400> 643

Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
1 5 10

<210> 644

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 644

Gln Val Gln Leu Val Gln Ser Gly Ala Gly Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr
20 25 30

<210> 645

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 645

Gln Val Gln Leu Leu Gln Ser Gly Thr Glu Leu Val Arg Pro Gly Val
1 5 10 15

Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr
20 25 30

<210> 646

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 646

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Ala Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr
20 25 30

<210> 647

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 647

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Ala Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr
20 25 30

<210> 648

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 648

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr
20 25 30

<210> 649

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 649

Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ala
1				5					10					15	

Ser	Val	Lys	Val	Ser	Cys	Lys	Gly	Ser	Gly	Tyr	Thr	Phe	Thr
			20					25					30

<210> 650

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 650

Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Thr	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
			20					25					30

<210> 651

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR1

<400> 651

Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Thr	Glu	Val	Lys	Lys	Pro	Gly	Ala
1				5					10					15	

Ser	Val	Lys	Val	Ser	Cys	Lys	Gly	Ser	Gly	Tyr	Thr	Phe	Thr
			20					25					30

<210> 652

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR2

<400> 652

Trp	Val	Lys	Gln	Ser	His	Ala	Lys	Ser	Leu	Glu	Trp	Ile	Gly
1				5					10				

<210> 653

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR2

<400> 653

Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Ile	Gly
1				5					10				

<210> 654

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR2

<400> 654

Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met	Gly
1				5					10				

<210> 655

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR2

<400> 655

Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Met	Glu	Trp	Ile	Gly
1				5					10				

<210> 656

<211> 14

<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR2

<400> 656

Trp Val Arg Gln Ala Pro Gly Gln Gly Met Glu Trp Met Gly
1 5 10

<210> 657
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR2

<400> 657

Trp Val Arg Gln Ala Pro Gly Gln Ser Leu Glu Trp Met Gly
1 5 10

<210> 658
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR3

<400> 658

Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser Ile Ala Tyr Met Glu
1 5 10 15

Leu Ala Arg Leu Ser Ser Glu Asp Ser Ala Ile Tyr Tyr Cys Ala Lys
20 25 30

<210> 659
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR3

<400> 659

Arg Ala Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr Met Glu
1 5 10 15

Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Lys
20 25 30

<210> 660
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR3

<400> 660

Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu
1 5 10 15

Leu Ser Arg Leu Gln Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Lys
20 25 30

<210> 661
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR3

<400> 661

Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu
1 5 10 15

Leu Ser Arg Leu Arg Gly Asp Asp Thr Ala Val Tyr Tyr Cys Ala Lys
20 25 30

<210> 662
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR3

<400> 662

Arg Val Thr Met Thr Val Asp Lys Ser Ile Ser Thr Ala Tyr Met Glu
1 5 10 15

Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Lys
20 25 30

<210> 663

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR3

<400> 663

Arg Val Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu
1 5 10 15

Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Lys
20 25 30

<210> 664

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR4

<400> 664

Trp Gly Gln Gly Ile Pro Val Thr Val Ser Ser
1 5 10

<210> 665

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR4

<400> 665

Trp Gly Gln Gly Thr Phe Val Thr Val Ser Ser

1 5 10

<210> 666
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR4

<400> 666

Trp Gly Gln Gly Thr Phe Val Thr Val Ser Ser
1 5 10

<210> 667
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR4

<400> 667

Trp Gly Gln Gly Thr Leu Ile Thr Val Ser Ser
1 5 10

<210> 668
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR4

<400> 668

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
1 5 10

<210> 669
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> VH FR4

<400> 669

Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser
1 5 10

<210> 670

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> VH FR3

<400> 670

Arg Ala Thr Met Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu
1 5 10 15

Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Lys
20 25 30

<210> 671

<400> 671

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<210> 672

<400> 672

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<210> 673

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<210> 697

<400> 697
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<210> 698
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> V1M cynomolgus G1TR immature protein

<400> 698

Met Ala Arg His Gly Ala Met Cys Ala Cys Gly Thr Leu Cys Cys Leu
1 5 10 15

Ala Leu Leu Cys Ala Ala Ser Leu Gly Gln Arg Pro Thr Gly Gly Pro
20 25 30

Gly Cys Gly Pro Gly Arg Leu Leu Leu Gly Thr Gly Lys Asp Ala Arg
35 40 45

Cys Cys Arg Val His Pro Thr Arg Cys Cys Arg Asp Tyr Gln Ser Glu
50 55 60

Glu Cys Cys Ser Glu Trp Asp Cys Val Cys Val Gln Pro Glu Phe His
65 70 75 80

Cys Gly Asn Pro Cys Cys Thr Thr Cys Gln His His Pro Cys Pro Ser
85 90 95

Gly Gln Gly Val Gln Pro Gln Gly Lys Phe Ser Phe Gly Phe Arg Cys
100 105 110

Val Asp Cys Ala Leu Gly Thr Phe Ser Arg Gly His Asp Gly His Cys
115 120 125

Lys Pro Trp Thr Asp Cys Thr Gln Phe Gly Phe Leu Thr Val Phe Pro
130 135 140

Gly Asn Lys Thr His Asn Ala Val Cys Val Pro Gly Ser Pro Pro Ala
145 150 155 160

Glu Pro Pro Gly Trp Leu Thr Ile Val Leu Leu Ala Val Ala Ala Cys
165 170 175

Val Leu Leu Leu Thr Ser Ala Gln Leu Gly Leu His Ile Trp Gln Leu
180 185 190

Gly Lys Thr Gln Leu Leu Leu Glu Val Pro Pro Ser Thr Glu Asp Ala
195 200 205

Ser Ser Cys Gln Phe Pro Glu Glu Glu Arg Gly Glu Arg Leu Ala Glu
210 215 220

Glu Lys Gly Arg Leu Gly Asp Leu Trp Val
225 230

<210> 699
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> V1M/Q62P/S63G cynomolgus GITR immature protein

<400> 699

Met Ala Arg His Gly Ala Met Cys Ala Cys Gly Thr Leu Cys Cys Leu
1 5 10 15

Ala Leu Leu Cys Ala Ala Ser Leu Gly Gln Arg Pro Thr Gly Gly Pro
20 25 30

Gly Cys Gly Pro Gly Arg Leu Leu Leu Gly Thr Gly Lys Asp Ala Arg
35 40 45

Cys Cys Arg Val His Pro Thr Arg Cys Cys Arg Asp Tyr Pro Gly Glu
50 55 60

Glu Cys Cys Ser Glu Trp Asp Cys Val Cys Val Gln Pro Glu Phe His
65 70 75 80

Cys Gly Asn Pro Cys Cys Thr Thr Cys Gln His His Pro Cys Pro Ser
85 90 95

Gly Gln Gly Val Gln Pro Gln Gly Lys Phe Ser Phe Gly Phe Arg Cys
100 105 110

Val Asp Cys Ala Leu Gly Thr Phe Ser Arg Gly His Asp Gly His Cys
 115 120 125

Lys Pro Trp Thr Asp Cys Thr Gln Phe Gly Phe Leu Thr Val Phe Pro
 130 135 140

Gly Asn Lys Thr His Asn Ala Val Cys Val Pro Gly Ser Pro Pro Ala
 145 150 155 160

Glu Pro Pro Gly Trp Leu Thr Ile Val Leu Leu Ala Val Ala Ala Cys
 165 170 175

Val Leu Leu Leu Thr Ser Ala Gln Leu Gly Leu His Ile Trp Gln Leu
 180 185 190

Gly Lys Thr Gln Leu Leu Leu Glu Val Pro Pro Ser Thr Glu Asp Ala
 195 200 205

Ser Ser Cys Gln Phe Pro Glu Glu Glu Arg Gly Glu Arg Leu Ala Glu
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Glu Lys Gly Arg Leu Gly Asp Leu Trp Val
 225 230

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 <213> Homo sapiens

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 <222> (1)..(216)
 <223> human GITR mature protein

<400> 700

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Cys Arg Asp Tyr Pro Gly Glu Glu Cys Cys Ser Glu Trp Asp Cys Met
35 40 45

Cys Val Gln Pro Glu Phe His Cys Gly Asp Pro Cys Cys Thr Thr Cys
50 55 60

Arg His His Pro Cys Pro Pro Gly Gln Gly Val Gln Ser Gln Gly Lys
65 70 75 80

Phe Ser Phe Gly Phe Gln Cys Ile Asp Cys Ala Ser Gly Thr Phe Ser
85 90 95

Gly Gly His Glu Gly His Cys Lys Pro Trp Thr Asp Cys Thr Gln Phe
100 105 110

Gly Phe Leu Thr Val Phe Pro Gly Asn Lys Thr His Asn Ala Val Cys
115 120 125

Val Pro Gly Ser Pro Pro Ala Glu Pro Leu Gly Trp Leu Thr Val Val
130 135 140

Leu Leu Ala Val Ala Ala Cys Val Leu Leu Leu Thr Ser Ala Gln Leu
145 150 155 160

Gly Leu His Ile Trp Gln Leu Arg Ser Gln Cys Met Trp Pro Arg Glu
165 170 175

Thr Gln Leu Leu Leu Glu Val Pro Pro Ser Thr Glu Asp Ala Arg Ser
180 185 190

Cys Gln Phe Pro Glu Glu Glu Arg Gly Glu Arg Ser Ala Glu Glu Lys
195 200 205

Gly Arg Leu Gly Asp Leu Trp Val
210 215

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<211> 241

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<213> Homo sapiens

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<222> (1)..(241)

<223> Human GITR (Isoform 1)

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20 25 30

Gly Cys Gly Pro Gly Arg Leu Leu Leu Gly Thr Gly Thr Asp Ala Arg
35 40 45

Cys Cys Arg Val His Thr Thr Arg Cys Cys Arg Asp Tyr Pro Gly Glu
50 55 60

Glu Cys Cys Ser Glu Trp Asp Cys Met Cys Val Gln Pro Glu Phe His
65 70 75 80

Cys Gly Asp Pro Cys Cys Thr Thr Cys Arg His His Pro Cys Pro Pro
85 90 95

Gly Gln Gly Val Gln Ser Gln Gly Lys Phe Ser Phe Gly Phe Gln Cys
100 105 110

Ile Asp Cys Ala Ser Gly Thr Phe Ser Gly Gly His Glu Gly His Cys
115 120 125

Lys Pro Trp Thr Asp Cys Thr Gln Phe Gly Phe Leu Thr Val Phe Pro
130 135 140

Gly Asn Lys Thr His Asn Ala Val Cys Val Pro Gly Ser Pro Pro Ala
145 150 155 160

Glu Pro Leu Gly Trp Leu Thr Val Val Leu Leu Ala Val Ala Ala Cys
165 170 175

Val Leu Leu Leu Thr Ser Ala Gln Leu Gly Leu His Ile Trp Gln Leu
180 185 190

Arg Ser Gln Cys Met Trp Pro Arg Glu Thr Gln Leu Leu Leu Glu Val
195 200 205

Pro Pro Ser Thr Glu Asp Ala Arg Ser Cys Gln Phe Pro Glu Glu Glu
210 215 220

Arg Gly Glu Arg Ser Ala Glu Glu Lys Gly Arg Leu Gly Asp Leu Trp
225 230 235 240

Val

<210> 702
<211> 255
<212> PRT
<213> Homo sapiens

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<222> (1)..(255)
<223> Human GITR (Isoform 2)

<400> 702

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Ala Leu Leu Cys Ala Leu Ser Leu Gly Gln Arg Pro Thr Gly Gly Pro
20 25 30

Gly Cys Gly Pro Gly Arg Leu Leu Leu Gly Thr Gly Thr Asp Ala Arg
35 40 45

Cys Cys Arg Val His Thr Thr Arg Cys Cys Arg Asp Tyr Pro Gly Glu
50 55 60

Glu Cys Cys Ser Glu Trp Asp Cys Met Cys Val Gln Pro Glu Phe His
65 70 75 80

Cys Gly Asp Pro Cys Cys Thr Thr Cys Arg His His Pro Cys Pro Pro
85 90 95

Gly Gln Gly Val Gln Ser Gln Gly Lys Phe Ser Phe Gly Phe Gln Cys
100 105 110

Ile Asp Cys Ala Ser Gly Thr Phe Ser Gly Gly His Glu Gly His Cys
115 120 125

Lys Pro Trp Thr Asp Cys Cys Trp Arg Cys Arg Arg Arg Pro Lys Thr
130 135 140

Pro Glu Ala Ala Ser Ser Pro Arg Lys Ser Gly Ala Ser Asp Arg Gln
145 150 155 160

Arg Arg Arg Gly Gly Trp Glu Thr Cys Gly Cys Glu Pro Gly Arg Pro
165 170 175

Pro Gly Pro Pro Thr Ala Ala Ser Pro Ser Pro Gly Ala Pro Gln Ala
180 185 190

Ala Gly Ala Leu Arg Ser Ala Leu Gly Arg Ala Leu Leu Pro Trp Gln
195 200 205

Gln Lys Trp Val Gln Glu Gly Gly Ser Asp Gln Arg Pro Gly Pro Cys
210 215 220

Ser Ser Ala Ala Ala Ala Gly Pro Cys Arg Arg Glu Arg Glu Thr Gln
225 230 235 240

Ser Trp Pro Pro Ser Ser Leu Ala Gly Pro Asp Gly Val Gly Ser
245 250 255

<210> 703
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<212> PRT
<213> Homo sapiens

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<222> (1)..(234)

<223> Human GITR (Isoform 3)

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Met Ala Gln His Gly Ala Met Gly Ala Phe Arg Ala Leu Cys Gly Leu
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Ala Leu Leu Cys Ala Leu Ser Leu Gly Gln Arg Pro Thr Gly Gly Pro
20 25 30

Gly Cys Gly Pro Gly Arg Leu Leu Leu Gly Thr Gly Thr Asp Ala Arg
35 40 45

Cys Cys Arg Val His Thr Thr Arg Cys Cys Arg Asp Tyr Pro Gly Glu
50 55 60

Glu Cys Cys Ser Glu Trp Asp Cys Met Cys Val Gln Pro Glu Phe His
65 70 75 80

Cys Gly Asp Pro Cys Cys Thr Thr Cys Arg His His Pro Cys Pro Pro
85 90 95

Gly Gln Gly Val Gln Ser Gln Gly Lys Phe Ser Phe Gly Phe Gln Cys
100 105 110

Ile Asp Cys Ala Ser Gly Thr Phe Ser Gly Gly His Glu Gly His Cys
115 120 125

Lys Pro Trp Thr Asp Cys Thr Gln Phe Gly Phe Leu Thr Val Phe Pro
130 135 140

Gly Asn Lys Thr His Asn Ala Val Cys Val Pro Gly Ser Pro Pro Ala
145 150 155 160

Glu Pro Leu Gly Trp Leu Thr Val Val Leu Leu Ala Val Ala Ala Cys
165 170 175

Val Leu Leu Leu Thr Ser Ala Gln Leu Gly Leu His Ile Trp Gln Leu
180 185 190

Arg Lys Thr Gln Leu Leu Leu Glu Val Pro Pro Ser Thr Glu Asp Ala
 195 200 205

Arg Ser Cys Gln Phe Pro Glu Glu Glu Arg Gly Glu Arg Ser Ala Glu
 210 215 220

Glu Lys Gly Arg Leu Gly Asp Leu Trp Val
 225 230

<210> 704
 <211> 234
 <212> PRT
 <213> Artificial Sequence

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 <223> cynomolgus GITR immature protein

<400> 704

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 20 25 30

Gly Cys Gly Pro Gly Arg Leu Leu Leu Gly Thr Gly Lys Asp Ala Arg
 35 40 45

Cys Cys Arg Val His Pro Thr Arg Cys Cys Arg Asp Tyr Gln Ser Glu
 50 55 60

Glu Cys Cys Ser Glu Trp Asp Cys Val Cys Val Gln Pro Glu Phe His
 65 70 75 80

Cys Gly Asn Pro Cys Cys Thr Thr Cys Gln His His Pro Cys Pro Ser
 85 90 95

Gly Gln Gly Val Gln Pro Gln Gly Lys Phe Ser Phe Gly Phe Arg Cys
 100 105 110

Val Asp Cys Ala Leu Gly Thr Phe Ser Arg Gly His Asp Gly His Cys
 115 120 125

Lys Pro Trp Thr Asp Cys Thr Gln Phe Gly Phe Leu Thr Val Phe Pro
 130 135 140

Gly Asn Lys Thr His Asn Ala Val Cys Val Pro Gly Ser Pro Pro Ala
 145 150 155 160

Glu Pro Pro Gly Trp Leu Thr Ile Val Leu Leu Ala Val Ala Ala Cys
 165 170 175

Val Leu Leu Leu Thr Ser Ala Gln Leu Gly Leu His Ile Trp Gln Leu
 180 185 190

Gly Lys Thr Gln Leu Leu Leu Glu Val Pro Pro Ser Thr Glu Asp Ala
 195 200 205

Ser Ser Cys Gln Phe Pro Glu Glu Glu Arg Gly Glu Arg Leu Ala Glu
 210 215 220

Glu Lys Gly Arg Leu Gly Asp Leu Trp Val
 225 230

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<210> 706
 <211> 21
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 <223> Primer 327-Je

<400> 706
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<210> 707
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 <223> Primer 89-AL

 <400> 707
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 <210> 708
 <211> 41
 <212> DNA
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 <220>
 <223> Primer 1192-Je

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 <210> 709
 <211> 35
 <212> DNA
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 <400> 710
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 <210> 711
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 <223> Primer 1152-Je

 <400> 712
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 <210> 713
 <211> 18
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 <223> Primer 1204-Je

 <400> 713
 cgcggccgcg aattctta 18

 <210> 714
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 <223> Primer 1155-Je

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 <210> 715
 <211> 198
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 <400> 715

Met Thr Leu His Pro Ser Pro Ile Thr Cys Glu Phe Leu Phe Ser Thr
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Ala Leu Ile Ser Pro Lys Met Cys Leu Ser His Leu Glu Asn Met Pro
20 25 30

Leu Ser His Ser Arg Thr Gln Gly Ala Gln Arg Ser Ser Trp Lys Leu
35 40 45

Trp Leu Phe Cys Ser Ile Val Met Leu Leu Phe Leu Cys Ser Phe Ser
50 55 60

Trp Leu Ile Phe Ile Leu Gln Leu Glu Thr Ala Lys Glu Pro Cys Met
65 70 75 80

Ala Lys Phe Gly Pro Leu Pro Ser Lys Trp Gln Met Ala Ser Ser Glu
85 90 95

Pro Pro Cys Val Asn Lys Val Ser Asp Trp Lys Leu Glu Ile Leu Gln
100 105 110

Asn Gly Leu Tyr Leu Ile Tyr Gly Gln Val Ala Pro Asn Ala Asn Tyr
115 120 125

Asn Asp Val Ala Pro Phe Glu Val Arg Leu Tyr Lys Asn Lys Asp Met
130 135 140

Ile Gln Thr Leu Thr Asn Lys Ser Lys Ile Gln Asn Val Gly Gly Thr
145 150 155 160

Tyr Glu Leu His Val Gly Asp Thr Ile Asp Leu Ile Phe Asn Ser Glu
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His Gln Val Leu Lys Asn Asn Thr Tyr Trp Gly Ile Ile Leu Leu Ala
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Asn Pro Gln Phe Ile Ser
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<223> human GITRL protein sequence

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Leu Ser His Ser Arg Thr Gln Gly Ala Gln Arg Ser Ser Trp Lys Leu
35 40 45

Trp Leu Phe Cys Ser Ile Val Met Leu Leu Phe Leu Cys Ser Phe Ser
50 55 60

Trp Leu Ile Phe Ile Phe Leu Gln Leu Glu Thr Ala Lys Glu Pro Cys
65 70 75 80

Met Ala Lys Phe Gly Pro Leu Pro Ser Lys Trp Gln Met Ala Ser Ser
85 90 95

Glu Pro Pro Cys Val Asn Lys Val Ser Asp Trp Lys Leu Glu Ile Leu
100 105 110

Gln Asn Gly Leu Tyr Leu Ile Tyr Gly Gln Val Ala Pro Asn Ala Asn
115 120 125

Tyr Asn Asp Val Ala Pro Phe Glu Val Arg Leu Tyr Lys Asn Lys Asp
130 135 140

Met Ile Gln Thr Leu Thr Asn Lys Ser Lys Ile Gln Asn Val Gly Gly
145 150 155 160

Thr Tyr Glu Leu His Val Gly Asp Thr Ile Asp Leu Ile Phe Asn Ser

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Ala Asn Pro Gln Phe Ile Ser
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<213> Artificial Sequence

<220>
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tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggagtattc cgaacctata gtgggggtgt tacttacaac 240
cagaagttcc aggggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 801
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 801
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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggacttatt cgaaccttta gtggggaagt ttcttacaac 240
cagaagttcc aggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggcc ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 802
<211> 411
<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 802

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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggacttatac agaacctata gtgggggtgt ttcttacaac      240
cagaagttcc ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
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<210> 803

<211> 412

<212> DNA

<213> Artificial Sequence

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<223> Additional VH regions from germlined variants

<400> 803

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ctgcaaaggt tcagggtaca ctttaccgg atatgttatg cattgggtga gacaagcacc      180
tggacaaggc atggagtgga tgggagttat ccgaacctat agtggggaag tttcttacia      240
ccagaagttc caggaaaggg ttaccatgac ggtggacaag agcatctcca ctgcctacat      300
ggaactgagt cggctacgaa gcgacgatac agcgggtatac tactgtgcca aaagcggcac      360
tgtacgtggc tttgcctatt ggggtcaggg aacactcgtc acagtttcga gc              412
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<210> 804

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 804
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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct 180
ggacaaagct tggagtggat gggacttata cgaaccttta gtggggatgt ttcttacaac 240
cagaagttcc aggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcagga acactcgtca cagtttcgag c 411

<210> 805
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 805
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tgcaaagggt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttata agaacctata gtgggggagt tacttacaac 240
cagaagttcc ggggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcagga acactcgtca cagtttcgag c 411

<210> 806
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggtt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatc cgaaccttta gtgggggtgt ttcttacaac	240
cagaagttca aggggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
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 <211> 411
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 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

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tgcaaagctt cagggtacac ctttaccggt tatgccatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc cgaaccttta gtgggggact ttcttacaac	240
cagaagttcc gggaaagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 808
 <211> 411
 <212> DNA
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<220>
 <223> Additional VH regions from germlined variants

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tgcaaagggt cagggtacac ctttaccgga tatgtcatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc aaaaccttta gtgggggtgt ttcttacaac	240
cagaagttcc aggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcatattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 809
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

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atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttatc agaacctata gtggggaagt ttcttacaac 240
cagaagttca ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 810
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 810
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttatc cgaacctata gtgggggagt ttcttacaac 240
cagaagttcc ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 811
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 811
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccgat tatgctatgc attgggtgag acaagcacct 180
 ggacaaggct tggagtggat gggacttatc cgaacctata gtgggggtgt ttcttacaac 240
 cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 812
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 812
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccgga tatgcatgt attgggtgag acaagcacct 180
 ggacaaggct tggagtggat cggagttatc cgaaccttta gtggggaagt ttcttacaac 240
 cagaagttca agggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 813
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 813

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atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat gggacttatc agaaccttta gtggggatgt tacttacaac      240
cagaagttcc ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 814

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 814

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atggattgga cttggcgcac tttgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgga tatgtcatgc attgggtgag acaagcacct      180
ggacaaggct tggagtggat gggacttatc agaacctata gtggggatgt ttcttacaac      240
cagaagttcc gggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 815

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 815

atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaaggct cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc agaaccttta gtggggatgt ttcttacaac	240
cagaagttcc gggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 816
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 816	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggacttatc agaaccttta gtgggggtgt tacttacaac	240
cagaagttcc gggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 817
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 817	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180

ggacaaggct tggagtggat gggagttatc caaaccttta gtgggggtgt tacttacaac	240
cagaagttcc ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 818
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 818	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccggt tatgctatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggacttatc cgaaccttta gtggggaagt tacttacaac	240
cagaagttca ggggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 819
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 819	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatc cgaacctata gtgggggact ttcttacaac	240
cagaagttcc aggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300

gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 820
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 820
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggagttatc agaaccttta gtgggggtct tacttacaac 240
cagaagttca agggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 821
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 821
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggagttatc cgaaccttta gtggggatct ttcttacaac 240
cagaagttca ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 822
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 822
 atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccggt tatgttatgc attgggtgag acaagcacct 180
 ggacaaggca tggagtggat cggagttatc agaaccttta gtggggatgt ttcttacaac 240
 cagaagttca gggaaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 823
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 823
 atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagctt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct 180
 ggacaaggca tggagtggat cggagttatc cgaaccttta gtggggatgt tacttacaac 240
 cagaagttcc ggggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 824
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 824

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggacttata agaaccttta gtggggatgt tacttacaac      240
cagaagttcc ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 825

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 825

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagcgtcc      120
tgcaaagggt cagggtacac ctttaccgat tatgctatgc attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggacttata cgaacctata gtgggggagt tacttacaac      240
cagaagttcc ggggtagggg taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 826

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 826

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
```

gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttata cgaaccttta gtgggggagt ttcttacaac	240
cagaagttcc ggggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 827
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 827	
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttata agaaccttta gtggggatgt ttcttacaac	240
cagaagttca aggggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 828
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 828	
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgcatgt attgggtgag acaagcacct	180

ggacaaggca tggagtggat gggacttatc agaacctata gtgggggtgt ttcttacaac	240
cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 829
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 829	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc agaaccttta gtgggggagt tacttacaac	240
cagaagttcc ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 830
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 830	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt taaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc cgaaccttta gtgggggtgt tacttacaac	240
cagaagttca aggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 831

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 831

atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60

gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggt cagggtacac ctttaccgat tatgttatgt attgggtgag acaagcacct 180

ggacaaggct tggagtggat gggagtattc agaaccttta gtgggggtct ttcttacaac 240

cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 832

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 832

atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60

gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct 180

ggacaaggct tggagtggat gggacttattc cgaaccttta gtgggggtct tacttacaac 240

cagaagttca aggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga ataccgtca cagtttcgag c 411

<210> 833

<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 833
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat gggagtattc cgaaccttta gtgggggtgt tacttacaac 240
cagaagttca aggatagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 834
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 834
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggacttattc agaacctata gtggggggagt tacttacaac 240
cagaagttcc agggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 835
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 835

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgagggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggagttatc agaaccttta gtgggggagt tacttacaac      240
cagaagttcc ggggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 836

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 836

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggcg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggagttatc cgaaccttta gtggggatgt tacttacaac      240
cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 837

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 837

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
```

gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggagttatc cgaaccttta gtgggggtgt ttcttacaac	240
cagaagttcc gggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 838
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 838	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggacttatc agaaccttta gtggggaagt tacttacaac	240
cagaagttca aggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 839
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 839	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc aaaacctata gtgggggagt tacttacaac	240

cagaagttcc ggggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 840
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 840	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaaggct cagggtacac ctttaccgga tatgccatgc attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatac agaacctata gtgggggagt ttcttacaac	240
cagaagttcc gggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcatca cagtttcgag c	411

<210> 841
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 841	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc agaacctata gtggggatct ttcttacaac	240
cagaagttca ggggtaggggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 842
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 842
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggagttatc agaaccttta gtgggggtgt tacttacaac 240
cagaagttcc aggaaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 843
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 843
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgat tatgttatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggagttatc cgaaccttta gtgggggtgt ttcttacaac 240
cagaagttca ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 844
<211> 411

<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 844

```
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat cggagtattc agaaccttta gtggggatct tacttacaac      240
cagaagttcc aggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 845

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 845

```
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggacttattc cgaacctata gtggggaagt ttcttacaac      240
cagaagttcc gggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 846

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 846
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggacttata agaaccttta gtggggatgt ttcttacaac 240
cagaagttca agggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 847
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 847
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttata agaacctata gtggggatgt ttcttacaac 240
cagaagttcc aggggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 848
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 848
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggtt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggacttatac agaacctata gtgggggtgt ttcttacaac	240
cagaagttcc agggtaggggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acattcgtca cagtttcgag c	411

<210> 849
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 849	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatac agaaccttta gtggggatct ttcttacaac	240
cagaagttcc ggggtaggggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 850
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 850	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccactctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggagttatac agaacctata gtgggggagt tacttacaac	240

cagaagttcc gggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgccgattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 851
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 851	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggacttata cgaacctata gtgggggagt tacttacaac	240
cagaagttca ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 852
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 852	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttata cgaacctata gtgggggtgt tacttacaac	240
cagaagttca aggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 853
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 853
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct 180
 ggacaaggct tggagtggat gggagttatc cgaacctata gtggggatgt tacttacaac 240
 cagaagttca gggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 854
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 854
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct 180
 ggacaaggca tggagtggat gggacttata cgaacctata gtggggaagt ttcttacaac 240
 cagaagttcc aggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 855
 <211> 411
 <212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 855

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat cggacttatc cgaaccttta gtgggggagt ttcttacaac      240
cagaagttca aggaaaggtg taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 856

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 856

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgaa tatgcatgtg attgggtgag acaagcacct      180
ggacaaggct tggagtggat gggagttatc cgaaccttta gtgggggagt tacttacaac      240
cagaagttca agggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 857

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 857
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaaggct cagggtacac ctttaccgat tatgcaatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttata cgaacctata gtgggggtgt ttcttacaac 240
cagaagttca gggaaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 858
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 858
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct 180
ggacaaggca tggagtggat gggagttata agaacctata gtgggggtct ttcttacaac 240
cagaagttca ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 859
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 859
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggtt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc agaaccttta gtggggaagt tacttacaac	240
cagaagttcc aggaaagggt taccatgacg gtggacgcga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 860
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 860	
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggtt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc cgaaccttta gtggggatgt ttcttacaac	240
cagaagttcc ggggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 861
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 861	
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatc cgaacctata gtgggggtgt ttcttacaac	240
cagaagttcc agggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300

gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgctaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 862
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 862
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggacttatc cgaacctata gtgggggtgt tacttacaac 240
cagaagttcc agggaaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 863
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 863
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggagttatc cgaacctata gtggggatgt tacttacaac 240
cagaagttcc gggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgcaa aagcggcact 360
gtacgaggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 864
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 864
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
 ggacaaggca tggagtggat gggagttatc aaaacctata gtgggggtgt tacttacaac 240
 cagaagttca aggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 865
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 865
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
 ggacaaggca tggagtggat gggagttatc agaacctata gtggggatgt ttcttacaac 240
 cagaagttca ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 866
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 866

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atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggacttata agaacctata gtggggatgt tacttacaac      240
cagaagttca aggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c              411
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<210> 867

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 867

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atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgat tatgctatgc attgggtgag acaagcacct      180
ggacaaggct tggagtggat cggacttata agaacctata gtgggggagt ttcttacaac      240
cagaagttcc gggaaagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c              411
```

<210> 868

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 868

atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc cgaacctata gtgggggtgt tacttacaac	240
cagaagttca agggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 869
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 869	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatc agaacctata gtgggggagt ttcttacaac	240
cagaagttcc gggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 870
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 870	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180

ggacaaggct tggagtggat gggagttatc aaaacctata gtgggggtgt ttcttacaac	240
cagaagttcc ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 871
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 871	
atggattgga cttggcgcac ttgttcctt gttgctgccg ctactggcgc ccattttcag	60
gtgcagttgg tccagtctgg gggtaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaaggct cagggtacac ctttaccgga tatgcatgc attgggtgag acaagcccct	180
ggacaaggcc tggagtggat tggagttatc cgaaccttta gtgggggtgt tacttacaac	240
cagaagttcc cgggaagggg ttccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 872
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 872	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccatttctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatc agaacctata gtgggggtgt ttcttacaac	240
cagaagttcc aggaagggg taccatgacg gtggacaaga gcatttccac tgcctacatg	300

gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 873
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 873	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccggt tatgttatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggagttatc cgaaccttta gtgggggtgt ttcttacaac	240
cagaagttcc aggggaaggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 874
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 874	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc agaaccttta gtgggggtgt tacttacaac	240
cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 875
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 875
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggagttatc agaaccttta gtggggatgt tacttacaac 240
cagaagttca agggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 876
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 876
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggagttatc agaacctata gtggggatgt tacttacaac 240
cagaagttcc ggggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 877
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 877

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccggt tatgctatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggagttatc agaacctata gtgggggtgt tacttacaac      240
cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c              411
```

<210> 878

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 878

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat cggagttatc cgaaccttta gtgggggtct ttcttacaac      240
cagaagttca gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c              411
```

<210> 879

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 879

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc aaaacctata gtgggggagt tacttacaac	240
cagaagttcc ggggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 880
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 880	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgtaaagggt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc agaaccttta gtggggatgt ttcttacaac	240
cagaagttca gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgacaca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 881
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 881	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgttatgt attgggtgag acaagcacct	180

ggacaaggct tggagtggat gggagttatc agaacctata gtggggaagt ttcttacaac	240
cagaagttcc ggggtaggggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 882
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 882	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc caaaccttta gtggggatgt ttcttacaac	240
cagaagttca agggtaggggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 883
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 883	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggacttatc cgaacctata gtgggggagt tacttacaac	240
cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 884
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 884
atggattgga cttggcgcac tctgttcctt gctgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgtcatgc attgggtgag acaagcacct 180
ggacaaggca tggagtggat gggagtattc cgaaccttta gtgggggtgt ttcttacaac 240
cagaagttca gggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 885
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 885
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgga tatgtctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttattc agaacctata gtggggatgt tacttacaac 240
cagaagttca ggggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 886

<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 886
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggagttatc cgaacctata gtggggatgt tacttacaac 240
cagaagttca aggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 887
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 887
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggacttatc caaacctata gtgggggtct ttcttacaac 240
cagaagttcc gggaaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 888
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 888

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgaa tatgttatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggagttatc agaaccttta gtggggatgt ttcttacaac      240
cagaagttcc gggatagggc taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 889

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 889

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggagttatc agaaccttta gtgggggtgt tacttacaac      240
cagaagttcc ggggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 890

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 890

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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc agaacctata gtggggatgt ttcttacaac	240
cagaagttcc aggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctgcgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggccaggga acactcgtca cagtttcgag c	411

<210> 891
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 891	
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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgga tatgtcatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggaattatc aaaacctata gtgggggagt ttcttacaac	240
cagaagttcc agggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 892
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 892	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggacttatc cgaaccttta gtggggatct ttcttacaac	240

cagaagttcc ggggaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcagggga acactcgtca cagtttcgag c	411

<210> 893
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 893	
atggattgga cttggcgcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggagttatc aaaacctata gtgggggagt tacttacaac	240
cagaagttca aggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gagctgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcagggga acactcgtca cagtttcgag c	411

<210> 894
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 894	
atggattgga cttggcgcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgat tatgttatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc agaacctata gtgggggagt tacttacaac	240
cagaagttcc agggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 895

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 895

atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60

gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180

ggacaaggca tggagtggat cggagttatc cgaaccttta gtgggggagt tacttacaac 240

cagaagttca agggtagggg taccatgacg gtggacacga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 896

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 896

atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60

gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagctt cagggtacac ctttaccggt tatgctatgt attgggtgag acaagcacct 180

ggacaaggca tggagtggat cggagttatc cgaaccttta gtgggggatgt ttcttacaac 240

cagaagttcc gggaaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 897

<211> 411

<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 897

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atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgaa tatgttatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggagttatc caaacctata gtgggggact ttcttacaac      240
cagaagttca ggggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 898

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 898

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atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat cggagttatc agaacctata gtgggggtgt tacttacaac      240
cagaagttcc agggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 899

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 899
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgggggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgat tatgccatgc attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttata cgaaccttta gtggggatgt ttcttacaac 240
cagaagttcc gggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 900
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 900
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggacttata caaacctata gtggggatgt ttcttacaac 240
cagaagttca ggggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 901
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 901
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggtt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc aaaacctata gtgggggtgt tacttacaac	240
cagaagttcc gggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgagg cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcgggga acactcgtca cagtttcgag c	411

<210> 902
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 902	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggtt cagggtacac ctttaccggt tatgccatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc cgaacctata gtgggggtgt ttcttacaac	240
cagaagttcc gggatagggc taccatgacg gtggacaaga gtatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 903
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 903	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggtt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggacttatc agaacctata gtgggggtgt ttcttacaac	240

cagaagttca aggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 904
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 904	
atggattgga cttggcgcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatac agaacctata gtgggggagt tacttacaac	240
cagaagttcc gggaaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 905
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 905	
atggattgga cttggcgcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatac agaaccttta gtggggatgt ttcttacaac	240
cagaagttcc ggggtagggt taccatgacg gtggacacga gtatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgatgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 906
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 906
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
 ggacaaggca tggagtggat gggagttatc cgaaccttta gtgggggtgt ttcttacaac 240
 cagaagttcc gggatagggg taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 907
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 907
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
 ggacaaggct tggagtggat gggacttatc cgaaccttta gtggggaagt ttcttacaac 240
 cagaagttcc aggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 908
 <211> 411
 <212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 908

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgga tatgtcatgc attgggtgag gcaagcacct      180
ggacaaggca tggagtggat gggagttatc cgaaccttta gtgggggtgt ttcttacaac      240
cagaagttcc ggggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 909

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 909

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggagttatc cgaaccttta gtggggatgt ttcttacaac      240
cagaagttcc gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggttacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 910

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 910
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccggt tatgctatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat gggacttata agaaccttta gtggggatgt tacttacaac 240
cagaagttcc ggggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 911
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 911
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gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggacttata cgaacctata gtggggatgt ttcttacaac 240
cagaagttca ggggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 912
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 912
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactgggtgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc agaacctata gtgggggtgt tacttacaac	240
cagaagttca aggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 913
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 913	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggagttatc agaacctata gtgggggagt tacttacaac	240
cagaagttcc gggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 914
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 914	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgttatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc cgaacctata gtgggggagt ttcttacaac	240
cagaagttca gggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 915
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 915
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggagttatc agaacctata gtgggggtct ttcttacaac 240
cagaagttca ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcccattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 916
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 916
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggagttatc cgaacctata gtgggggagt tacttacaac 240
cagaagttcc aggggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 917
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 917
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgat tatgccatgc attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggacttatc agaacctata gtgggggagt tacttacaac 240
cagaagttcc gggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acattcgtca cagtttcgag c 411

<210> 918
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 918
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccggt tatgctatgt attgggtgag acaagcacct 180
ggacaaggca tggagtggat cggagttatc cgaaccttta gtggggatct ttcttacaac 240
cagaagttca agggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 919
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 919

```
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggagtattc agaacctata gtggggaagt ttcttacaac      240
cagaagttcc gggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 920

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 920

```
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggacttatt cgaaccttta gtggggatgt tacttacaac      240
cagaagttcc aggatagggc taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 921

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 921

atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc cgaacctata gtggggatgt ttcttacaac	240
cagaagttca ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 922
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 922	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ctattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt ggaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgccatgc attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggacttatc agaaccttta gtggggatgt ttcttacaac	240
cagaagttca ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 923
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 923	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct	180

ggacaaggca tggagtggat gggagttatc cgaaccttta gtggggatgt tacttacaac	240
cagaagttca ggggtagggg taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 924
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 924	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggacttatc cgaacctata gtggggatct ttcttacaac	240
cagaagttca aggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 925
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 925	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc agaacctata gtgggggagt ttcttacaac	240
cagaagttcc aggaaagggc taccatgacg gtggacacga gcatttccac tgcctacatg	300

gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcttattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 926
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 926
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccggt tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggacttatc agaacctata gtggggaagt ttcttacaac 240
cagaagttcc agggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 927
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 927
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttatc cgaaccttta gtgggggtgt tacttacaac 240
cagaagttcc agggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacaaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 928
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 928
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgccatgc attgggtgag acaagcacct 180
ggacaaggca tggagtggat gggagttatc caaacctata gtggggatgt ttcttacaac 240
cagaagttcc aggggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 929
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 929
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaaggtt cagggtacac ctttaccgat tatgctatgc attgggtgag acaagcacct 180
ggacaaggca tggagtggat gggacttatc cgaacctata gtggggatct ttcttacaac 240
cagaagttca ggggtaggggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 930
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 930

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct      180
ggacaaggct tggagtggat gggagtattc cgaacctata gtgggggtgt ttcttacaac      240
cagaagttcc aggaaagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c              411
```

<210> 931

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 931

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat gggacttattc aaacacctata gtggggatgt ttcttacaac      240
cagaagttca gggaaagggt taccatgacg gtggacaaga acatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c              411
```

<210> 932

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 932

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatac agaacctata gtgggggtgt ttcttacaac	240
cagaagttca aggggaaggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 933
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 933	
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaaggct cagggtacac ctttaccggt tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat tggagttatc agaacctata gtggggatgt ttcttacaac	240
cagaagttcc aggatagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 934
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 934	
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaaggct cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180

ggacaaggct tggagtggat gggagttatc cgaaccttta gtgggggact tacttacaac	240
cagaagttcc ggggtaggggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 935
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 935	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc cgaaccttta gtgggggtgt tacttacaac	240
cagaagttcc gggataggggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acattcgtca cagtttcgag c	411

<210> 936
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 936	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcggttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggagttatc agaaccttta gtggggatgt tacttacaac	240
cagaagttca aggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 937

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 937

atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60

gtgcagttgg tccagtctgg ggctgaggtg aagaaacctg gtgcttcggt gaaagtgtcc 120

tgcaaagggt cagggtacac ctttaccggt tatgccatgc attgggtgag acaagcacct 180

ggacaaggct tggagtggat gggacttata cgaacctata gtgggggagt ttcttacaac 240

cagaagttca gggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 938

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 938

atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60

gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180

ggacaaggca tggagtggat cggacttata agaacctttg gtggggatgt tacttacaac 240

cagaagttca ggggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 939

<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 939

```
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat gggacttatc agaacctata gtgggggtgt ttcttacaac      240
cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acattcgtca cagtttcgag c                411
```

<210> 940
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 940

```
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggagttatc cgaacctata gtgggggtct tacttacaac      240
cagaagttcc gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 941
<211> 411
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 941

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgc attgggtgag acaagcacct      180
ggacaaggca tggagtggat cggacttatc agaaccttta gtgggggtct ttcttacaac      240
cagaagttcc gggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggcgaagga acactcgtca cagtttcgag c              411
```

<210> 942

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 942

```
atggattgga cttggcgcat tctgttcctt gttgctgccg ctaccggcgc ccattctcag      60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccggt tatgctatgc attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggacttatc cgaaccttta gtgggggtct ttcttacaac      240
cagaagttcc gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggcgaagga acactcgtca cagtttcgag c              411
```

<210> 943

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 943

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgga tatgctatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggagttatc agaaccttta gtgggggagt ttcttacaac	240
cagaagttcc aggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 944
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 944	
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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgat tatgccatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc cgaaccttta gtggggatct ttcttacaac	240
cagaagttca ggggtagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 945
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 945	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgc attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggagttatc cgaaccttta gtgggggagt ttcttacaac	240

cagaagttcc agggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 946
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 946	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaaggct cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat cggacttata cgaacctata gtgggggagt ttcttacaac	240
cagaagttcc ggggtagggc taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 947
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 947	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgat tatgctatgc attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttata agaaccttta gtgggggagt ttcttacaac	240
cagaagttcc aggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 948

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 948

atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60

gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagctt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct 180

ggacaaggct tggagtggat cggagtattc agaacctata gtgggggagt ttcttacaac 240

cagaagttca gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 949

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 949

atggattgga cttggcgcat tctgttcctt gttgctgccg ttactggcgc ccattctcag 60

gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagctt cagggtacac ctttaccgga tatgctatgt attgggtgag acaagcacct 180

ggacaaggca tggagtggat gggagtattc cgaacctata gtgggggatgt ttcttacaac 240

cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300

gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360

gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 950

<211> 411

<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 950

atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatc agaaccttta gtgggggagt ttcttacaac	240
cagaagttcc gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 951

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 951

atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatc cgaaccttta gtgggggagt ttcttacaac	240
cagaagttca agggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 952

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 952
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgat tatgccatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggagttatc agaaccttta gtggggatgt ttcttacaac 240
cagaagttcc aggaagggtc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 953
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 953
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcac ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccggt tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggagttatc agaacctata gtggggatgt ttcttacaac 240
cagaagttcc gggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgctaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 954
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 954
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggca tggagtggat gggacttatac agaacctata gtggggaagt tacttacaac	240
cagaagttca gggaaagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 955
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 955	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc agaaccttta gtgggggagt tacttacaac	240
cagaagttcc ggggtagggc taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 956
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 956	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatac agaacctata gtggggaagt ttcttacaac	240

cagaagttcc aggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 957
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 957	
atggattgga cttggcgcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggacttatc agaaccttta gtgggggtgt ttcttacaac	240
cagaagttcc ggggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 958
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 958	
atggattgga cttggcgcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaaggtt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc cgaaccttta gtgggggtgt ttcttacaac	240
cagaagttcc ggggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 959
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 959
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactgggtgc ccattctcag 60
 gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
 ggacaaggca tggagtggat gggagttatc aaaaccttta gtgggggtgt tacttacaac 240
 cagaagttcc gggggagggt taccatgaca gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 960
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 960
 atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagctt cagggtacac ctttaccgga tatgccatgt attgggtgag acaagcacct 180
 ggacaaggca tggagtggat gggagttatc agaaccttta gtggggatgt tacttacaac 240
 cagaagttcc gggaaagggc taccatgacg gtggacaaga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 961
 <211> 411
 <212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 961

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat cggagtattc cgaaccttta gtggggatgt ttcttacaac      240
cagaagttca aggaagggc taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcatattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 962

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 962

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atggattgga cttggcgcat tctgttcctt gttgctgccg ctactggcgc ccattctcag      60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat gggacttattc agaacctata gtggggatgt ttcttacaac      240
cagaagttcc aggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
```

<210> 963

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 963
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggagtattc aaaaccttta gtgggggagt ttcttacaac 240
cagaagttcc ggggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcccattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 964
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 964
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttattc agaacctata gtggggatgt ttcttacaac 240
cagaagttcc ggggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcca aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 965
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 965
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120

tgcaaagggtt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc cgaacctata gtggggaagt ttcttacaac	240
cagaagttcc ggggtaggggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 966
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 966	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagggtt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc caaaccttta gtgggggtct tacttacaac	240
cagaagttcc aggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg	300
gaactaagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c	411

<210> 967
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 967	
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag	60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc	120
tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat cggagttatc aaaaccttta gtgggggtgt ttcttacaac	240
cagaagttcc agggtaggggt taccatgacg gtggacacga gcatctccac tgcctacatg	300

gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 968
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 968
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg gactgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat gggacttatc cgaaccttta gtggggatgt tacttacaac 240
cagaagttcc ggggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 969
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VH regions from germlined variants

<400> 969
atggattgga cttggcgcac tctgttcctt gttgctgccg ctactggcgc ccattctcag 60
gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
tgcaaaggtt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
ggacaaggct tggagtggat cggacttatc cgaacctata gtggggatgt ttcttacaac 240
cagaagttca gggatagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
gaactgagtc ggctacgaag cgacgataca gcggtataact actgtgccaa aagcggcact 360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 970
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 970
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 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagctt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct 180
 ggacaaggct tggagtggat gggagttatc agaaccttta gtgggggtgt ttcttacaac 240
 cagaagttcc ggggtagggg tatcatgacg gtggacacga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 971
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VH regions from germlined variants

<400> 971
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 gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc 120
 tgcaaagctt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct 180
 ggacaaggct tggagtggat cggagttatc cgaacctata gtggggatgt tacttacaac 240
 cagaagttcc aggaagggt taccatgacg gtggacaaga gcatctccac tgcctacatg 300
 gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact 360
 gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c 411

<210> 972
 <211> 411
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 972

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gtgcagttgg tccagtctgg ggctgaggtg aagaaacccg gtgcttcggt gaaagtgtcc      120
tgcaaagggt cagggtacac ctttaccgat tatgctatgt attgggtgag acaagcacct      180
ggacaaggct tggagtggat cggagttatc agaacctata gtggggaagt ttcttacaac      240
cagaagttcc agggtagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 973

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 973

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tgcaaagctt cagggtacac ctttaccgaa tatgccatgt attgggtgag acaagcacct      180
ggacaaggca tggagtggat gggagttatc cgaacctata gtgggaatgt ttcttacaac      240
cagaagttca agggaagggt taccatgacg gtggacacga gcatctccac tgcctacatg      300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgcaa aagcggcact      360
gtacgtggct ttgcctattg gggtcaggga acactcgtca cagtttcgag c                411
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<210> 974

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VH regions from germlined variants

<400> 974

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tgcaaagggt cagggtacac ctttaccgaa tatgctatgt attgggtgag acaagcacct	180
ggacaaggct tggagtggat gggagttatc agaacctata gtggggatgt ttcttacaac	240
cagaagttcc aggatagggt taccatgacg gtggacacga gcatctccac tgcctacatg	300
gaactgagtc ggctacgaag cgacgataca gcggtatact actgtgccaa aagcggcact	360
gtacgtggct ttgcctattg gggtcgggga acactcgtca cagtttcgag c	411

<210> 975

<400> 975
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<210> 976

<400> 976
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<210> 977

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<210> 978

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<210> 998

<400> 998
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<210> 999

<400> 999
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<210> 1000

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1000

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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180

tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1001
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1001	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga atactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1002
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1002	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1003
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1003

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagtgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1004
 <211> 396
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1004

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctggcgaaag agcgaccatc	120
aactgcaagt cctctcaaag cctgctgaat agtagtaatc agaagaacta cctcacttgg	180
tatcatcaga aaccaggaca acctccaaa ttgctcatct actgggcttc tacacgggaa	240
tcagggtgtac cggatagggt cactggaagt ggatctggca cagactttac gctgacaatc	300
agttccgttc aggagagga tgttgccgtc tactattgtc agaacgaata ctattttccc	360
tatacctttg ggcaaggac caagttggag attaag	396

<210> 1005
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1005

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct      180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca      300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
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<210> 1006

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1006

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct      180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca      300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcattt      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
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<210> 1007

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1007

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ctctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1008
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1008	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1009
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1009	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1010
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1010	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgacg	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1011
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1011	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1012

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1012

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180

tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1013

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1013

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact 180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300

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ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1014

<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1014

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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct      180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca      300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
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<210> 1015
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1015

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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct      180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca      300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
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<210> 1016
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1016

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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1017

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1017

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgtcgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1018

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1018

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1019
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1019	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1020
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1020	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240

gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1021
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1021	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaaatgctcc tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1022
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1022	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1023

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1023

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180

tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1024

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1024

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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct 180

tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga tcactcattt 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1025

<211> 399

<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1025

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatct	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1026

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1026

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1027

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1027
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1028
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1028
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga atactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1029
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1029
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1030
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1030	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggtg atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1031
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1031	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240

gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1032
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1032	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1033
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1033	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1034
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1034
 atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
 gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
 atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
 tggatatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
 gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
 atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360
 ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1035
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1035
 atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
 gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
 atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct 180
 tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
 gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
 atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatat 360
 ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1036
 <211> 399
 <212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1036

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag cactgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1037

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1037

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1038

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1038
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact 180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgtgaca 300
atcagttccg ttcaggaaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1039
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1039
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgtgaca 300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatat 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1040
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1040
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1041
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1041	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagtgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1042
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1042	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgtctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300

atcagttctg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1043
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1043	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1044
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1044	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1045
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1045
 atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
 gatatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
 atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
 tggatatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
 gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
 atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360
 ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1046
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1046
 atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
 gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
 atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
 tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
 gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
 atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga atactcattt 360
 ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1047
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1047

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1048

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1048

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1049

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1049

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1050

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1050

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1051

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1051

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1052
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1052	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1053
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1053	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300

atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1054
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1054	
atggtgttac agactcaggt gttcatctcc cttctgtctt ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1055
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1055	
atggtgttac agactcaggt gttcatctcc cttctgtctt ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatct	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1056
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1056
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1057
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1057
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1058
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1058

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact      180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca      300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
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<210> 1059

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1059

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct      180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca      300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
```

<210> 1060

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1060

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1061
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1061	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1062
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1062	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180

tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgacg	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1063
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1063	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagtgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1064
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1064	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga atactcatat	360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1065

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1065

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct 180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1066

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1066

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct 180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1067

<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1067

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct      180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca      300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
```

<210> 1068
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1068

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact      180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca      300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcattt      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
```

<210> 1069
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1069

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct      180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca      300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
```

<210> 1070

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1070

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc      120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct      180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg      240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca      300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatat      360
ccctatacct ttgggcaagg gaccaagttg gagattaag                               399
```

<210> 1071

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1071

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atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc      60
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gacatagtga tgactcagag ccctgattcg ttgcctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagtttcg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga atactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1072

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1072

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1073

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1073

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240

gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1074
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1074	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1075
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1075	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt	360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1076

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1076

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct 180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggacag gttctctgga agtggatctg gcacagactt tacgctgaca 300

atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1077

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1077

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact 180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1078

<211> 399

<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1078

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc acattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1079

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1079

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga atactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1080

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1080
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtcc ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatat 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1081
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1081
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1082
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1082
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1083
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1083	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1084
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1084	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240

gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1085
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1085	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1086
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1086	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1087
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1087
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
atcagttctg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1088
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1088
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcacc 180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ctctacacgg 240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1089
<211> 399
<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1089

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1090

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1090

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1091

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1091
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttgtctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1092
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1092
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct 180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1093
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1093
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggtga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1094
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1094	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1095
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1095	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300

atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1096
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1096	
atggtgttac agactcaggt gttcatctcc cttctgtctt ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acagcctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1097
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1097	
atggtgttac agactcaggt gttcatctcc cttctgtctt ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcaac agaagccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctccgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1098
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1098
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1099
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<223> Additional VK regions from germlined variants

<400> 1099
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1100
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1100

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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatct	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1101

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1101

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatct	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1102

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1102

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacaaactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1103

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1103

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1104

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1104

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180

tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1105
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1105	
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1106
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1106	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300

atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1107
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1107	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1108
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1108	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1109
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1109
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgactcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctcact 180
tggtatcaac agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatct 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1110
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1110
atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct 180
tggtatcatc agaaaccagg acaacctccc aaaatgctca tctactgggc ttctacacgg 240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca 300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatct 360
ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1111
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1111

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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcattt	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1112

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1112

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1113

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1113

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc	60
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatct	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1114
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1114	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca	300
atcagttccc ttcaggcaga ggatgttgcc gtctactatt gtcagaacga atactcatct	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1115
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1115	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180

tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttcct ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga atactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1116
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1116	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct	180
tggtatcaac agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat	360
ccctatacct ttgggcaagg gaccaagttg gagattaag	399

<210> 1117
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Additional VK regions from germlined variants

<400> 1117	
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gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc	120
atcaactgca agtcctctca aagcctgctg aatagtagta atcagaagaa ctacctcact	180
tggtatcaac agaaaccagg acaacctccc aaatcgctca tctactgggc ttctacacgg	240
gaatcaggtg taccggatag gttctctgga agtggatctg gcacagactt tacgctgaca	300
atcagttccg ttcaggcaga ggatgttgcc gtctaccatt gtcagaacga ttactcatat	360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399

<210> 1118

<211> 399

<212> DNA

<213> Artificial Sequence

<220>

<223> Additional VK regions from germlined variants

<400> 1118

atggtgttac agactcaggt gttcatctcc cttctgctct ggattagcgg tgcctatggc 60

gacatagtga tgactcagag ccctgattcg ttggctgtct ctcttggcga aagagcgacc 120

atcaactgca agtcctctca aagcctgctg aatagtggta atcagaagaa ctacctctct 180

tggtatcatc agaaaccagg acaacctccc aaattgctca tctactgggc ttctacacgg 240

gaatcaggtg taccggatag gttcactgga agtggatctg gcacagactt tacgctgaca 300

atcagttccg ttcaggcaga ggatgttgcc gtctactatt gtcagaacga ttactcatat 360

ccctatacct ttgggcaagg gaccaagttg gagattaag 399