

eolf-seql
SEQUENCE LISTING

<110> Tillotts Pharma AG

<120> Anti-TNF-alpha antibodies and functional fragments thereof

<130> PW000278TIL

<150> EP16160907.8

<151> 2016-03-17

<160> 62

<170> PatentIn version 3.5

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<222> (7)..(7)

<223> Xaa is Phe, Ser, Gly or Tyr

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<222> (8)..(8)

<223> Xaa is Ser, Asn, Thr or Arg

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<222> (9)..(9)

<223> Xaa is Gly, Tyr, Ala, Asn or Ser

<400> 1

Gln Ala Ser Gln Ser Ile Xaa Xaa Xaa Leu Ala

1 5 10

<210> 2

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 <223> Xaa is Gly, Arg or Gln

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 <222> (4)..(4)
 <223> Xaa is Lys or Thr

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 <222> (6)..(6)
 <223> Xaa is Ala or Glu

<400> 2

Xaa Ala Ser Xaa Leu Xaa Ser
 1 5

<210> 3
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 <223> Xaa is Ser or Thr

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 <223> Xaa is Ser or Ile

<220>
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 <222> (9)..(9)
 <223> Xaa is Ser, Thr or Asn

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 <222> (13)..(13)
 <223> Xaa is Ser or Phe

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<221> MISC_FEATURE

<222> (14)..(14)

<223> Xaa is Tyr, Phe, Leu or Val

<400> 3

Gln	Ser	Tyr	Tyr	Tyr	Xaa	Ser	Xaa	Xaa	Ser	Asp	Gly	Xaa	Xaa	Ala
1				5					10					15

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<222> (5)..(5)

<223> Xaa is Asn or Ser

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<222> (6)..(6)

<223> Xaa is Asn or Thr

<220>

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<222> (10)..(10)

<223> Xaa is Gly, Cys or Ser

<400> 4

Gly	Ile	Asp	Phe	Xaa	Xaa	Tyr	Gly	Ile	Xaa
1				5					10

<210> 5

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<222> (7)..(7)
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<222> (9)..(9)
<223> Xaa is Thr or Arg

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<222> (11)..(11)
<223> Xaa is Phe or Tyr

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<222> (13)..(13)
<223> Xaa is Asn or His

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<222> (15)..(15)
<223> Xaa is Val or Leu

<400> 5

Tyr	Ile	Tyr	Pro	Gly	Phe	Xaa	Ile	Xaa	Asn	Xaa	Ala	Xaa	Ser	Xaa	Lys
1				5					10					15	

Gly

<210> 6
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 <222> (7)..(7)
 <223> Xaa is Asp or Ser

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 <223> Xaa is Trp or Ser

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 <222> (9)..(9)
 <223> Xaa is Gly or Ala

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 <222> (11)..(11)
 <223> Xaa is Phe, Leu or Tyr

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 <222> (12)..(12)
 <223> Xaa is Asp or Asn

<400> 6

Asp Pro Xaa Tyr Xaa Xaa Xaa Xaa Xaa Tyr Xaa Xaa Leu
 1 5 10

<210> 7
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<220>
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<400> 7

Gln Ala Ser Gln Ser Ile Phe Ser Gly Leu Ala
 1 5 10

<210> 8
 <211> 7

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<212> PRT
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<400> 8

Gly Ala Ser Lys Leu Ala Ser
1 5

<210> 9
<211> 15
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<220>
<223> CDR

<400> 9

Gln Ser Tyr Tyr Tyr Ser Ser Ser Ser Ser Asp Gly Ser Tyr Ala
1 5 10 15

<210> 10
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<220>
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<400> 10

Gly Ile Asp Phe Asn Asn Tyr Gly Ile Gly
1 5 10

<210> 11
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<220>
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<400> 11

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

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Gly

<210> 12
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<220>
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<400> 12

Asp Pro Val Tyr Ala Thr Ser Ser Gly Tyr Phe Asp Leu
 1 5 10

<210> 13
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<220>
 <223> humanized VH domain of clone 16-22-H05-sc02 and clone
 16-22-H05-sc04

<400> 13

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

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

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

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

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

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

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85

90

95

Ala Arg Asp Pro Val Tyr Ala Thr Ser Ser Gly Tyr Phe Asp Leu Trp
100 105 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 14

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> humanized VL domain of clone 16-22-H05-sc02

<400> 14

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

Asp Arg Val Thr Ile Lys Cys Gln Ala Ser Gln Ser Ile Phe Ser Gly
20 25 30

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

Tyr Gly Ala Ser Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Ala Asp Phe Ala Thr Tyr Tyr Cys Gln Ser Tyr Tyr Tyr Ser Ser Ser
85 90 95

Ser Ser Asp Gly Ser Tyr Ala Phe Gly Gly Gly Thr Lys Leu Thr Val
100 105 110

Leu Gly

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<210> 15
 <211> 257
 <212> PRT
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<220>
 <223> humanized scFv of clone 16-22-H05-sc02

<400> 15

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

Gly Asp Arg Val Thr Ile Lys Cys Gln Ala Ser Gln Ser Ile Phe Ser
 20 25 30

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

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

Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Gly Leu Gln
 65 70 75 80

Pro Ala Asp Phe Ala Thr Tyr Tyr Cys Gln Ser Tyr Tyr Tyr Ser Ser
 85 90 95

Ser Ser Ser Asp Gly Ser Tyr Ala Phe Gly Gly Gly Thr Lys Leu Thr
 100 105 110

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

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

Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Lys Ala Ser
 145 150 155 160

Gly Ile Asp Phe Asn Asn Tyr Gly Ile Gly Trp Val Arg Gln Ala Pro

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165

170

175

Gly Lys Gly Leu Glu Trp Ile Thr Tyr Ile Tyr Pro Gly Phe Ala Ile
180 185 190

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

Asn Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu
210 215 220

Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asp Pro Val Tyr Ala Thr Ser
225 230 235 240

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

Ser

<210> 16
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<220>
<223> CDR

<400> 16

Gln Ala Ser Gln Ser Ile Ser Asn Tyr Leu Ala
1 5 10

<210> 17
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR

<400> 17

Gln Ala Ser Gln Ser Ile Ser Thr Ala Leu Ala

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10

1 5

<210> 18
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR

<400> 18

Gln Ala Ser Gln Ser Ile Gly Arg Asn Leu Ala
1 5 10

<210> 19
<211> 11
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<213> Artificial Sequence

<220>
<223> CDR

<400> 19

Gln Ala Ser Gln Ser Ile Ser Asn Ser Leu Ala
1 5 10

<210> 20
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
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<400> 20

Gln Ala Ser Gln Ser Ile Tyr Ser Gly Leu Ala
1 5 10

<210> 21
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<400> 21

Gln Ala Ser Gln Ser Ile Gly Ser Asn Leu Ala
1 5 10

<210> 22

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 22

Gln Ala Ser Gln Ser Ile Ser Ser Ser Leu Ala
1 5 10

<210> 23

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<212> PRT

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<223> CDR

<400> 23

Arg Ala Ser Thr Leu Ala Ser
1 5

<210> 24

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 24

Arg Ala Ser Thr Leu Glu Ser
1 5

<210> 25

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 25

Gln Ala Ser Lys Leu Ala Ser
1 5

<210> 26

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 26

Arg Ala Ser Lys Leu Ala Ser
1 5

<210> 27

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 27

Gln Ser Tyr Tyr Tyr Ser Ser Ser Ser Ser Asp Gly Phe Phe Ala
1 5 10 15

<210> 28

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 28

Gln Ser Tyr Tyr Tyr Ser Ser Ser Ser Ser Asp Gly Ser Phe Ala
1 5 10 15

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<210> 29
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CDR

<400> 29

Gln	Ser	Tyr	Tyr	Tyr	Ser	Ser	Ser	Asn	Ser	Asp	Gly	Ser	Leu	Ala
1				5					10					15

<210> 30
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<220>
 <223> CDR

<400> 30

Gln	Ser	Tyr	Tyr	Tyr	Ser	Ser	Ile	Ser	Ser	Asp	Gly	Ser	Tyr	Ala
1				5					10					15

<210> 31
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<220>
 <223> CDR

<400> 31

Gln	Ser	Tyr	Tyr	Tyr	Ser	Ser	Ser	Ser	Ser	Asp	Gly	Ser	Val	Ala
1				5					10					15

<210> 32
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<220>
 <223> CDR

<400> 32

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Gln	Ser	Tyr	Tyr	Tyr	Thr	Ser	Ser	Thr	Ser	Asp	Gly	Ser	Tyr	Ala
1				5					10					15

<210> 33
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 <212> PRT
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<220>
 <223> CDR

<400> 33

Gly	Ile	Asp	Phe	Ser	Asn	Tyr	Gly	Ile	Cys
1				5					10

<210> 34
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 <212> PRT
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<220>
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<400> 34

Gly	Ile	Asp	Phe	Ser	Asn	Tyr	Gly	Ile	Ser
1				5					10

<210> 35
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<220>
 <223> CDR

<400> 35

Gly	Ile	Asp	Phe	Ser	Thr	Tyr	Gly	Ile	Ser
1				5					10

<210> 36
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<220>

<223> CDR

<400> 36

Gly	Ile	Asp	Phe	Ser	Asn	Tyr	Gly	Ile	Gly
1				5					10

<210> 37

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 37

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

Gly

<210> 38

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 38

Tyr	Ile	Tyr	Pro	Gly	Phe	Gly	Ile	Arg	Asn	Tyr	Ala	His	Ser	Val	Lys
1				5					10					15	

Gly

<210> 39

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

eolf-seql

<400> 39

Tyr Ile Tyr Pro Gly Phe Gly Ile Arg Asn Tyr Ala Asn Ser Leu Lys
1 5 10 15

Gly

<210> 40

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 40

Tyr Ile Tyr Pro Gly Phe Ala Ile Arg Asn Tyr Ala Asn Ser Val Lys
1 5 10 15

Gly

<210> 41

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 41

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

Gly

<210> 42

<211> 13

<212> PRT

<213> Artificial Sequence

eolf-seql

<220>

<223> CDR

<400> 42

Asp	Pro	Ile	Tyr	Ala	Ser	Ser	Ser	Gly	Tyr	Leu	Asp	Leu
1				5					10			

<210> 43

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<220>

<223> CDR

<400> 43

Asp	Pro	Val	Tyr	Ser	Ser	Asp	Trp	Gly	Tyr	Phe	Asn	Leu
1				5					10			

<210> 44

<211> 13

<212> PRT

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<220>

<223> CDR

<400> 44

Asp	Pro	Val	Tyr	Ala	Ser	Ser	Ser	Gly	Tyr	Leu	Asp	Leu
1				5					10			

<210> 45

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR

<400> 45

Asp	Pro	Leu	Tyr	Ala	Thr	Ser	Ser	Gly	Tyr	Phe	Asp	Leu
1				5					10			

<210> 46

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<212> PRT
<213> Artificial Sequence

<220>
<223> CDR

<400> 46

Asp	Pro	Val	Tyr	Ala	Ser	Ser	Ser	Gly	Tyr	Phe	Asp	Leu
1				5					10			

<210> 47
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR

<400> 47

Asp	Pro	Val	Tyr	Ala	Ser	Ser	Ser	Ala	Tyr	Tyr	Asn	Leu
1				5					10			

<210> 48
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR

<400> 48

Asp	Pro	Leu	Tyr	Ser	Thr	Ser	Ser	Gly	Tyr	Phe	Asn	Leu
1				5					10			

<210> 49
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<220>
<223> linker sequence in scFv

<400> 49

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

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1 5 10 15

Gly Gly Gly Ser
20

<210> 50

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> linker sequence in diabody

<400> 50

Gly Gly Gly Gly Ser
1 5

<210> 51

<211> 503

<212> PRT

<213> Artificial Sequence

<220>

<223> Humanized diabody of clone 16-22-H05

<400> 51

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

Gly Asp Arg Val Thr Ile Lys Cys Gln Ala Ser Gln Ser Ile Phe Ser
20 25 30

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

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

Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Gly Leu Gln
65 70 75 80

Pro Ala Asp Phe Ala Thr Tyr Tyr Cys Gln Ser Tyr Tyr Tyr Ser Ser

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85

90

95

Ser Ser Ser Asp Gly Ser Tyr Ala Phe Gly Gly Gly Thr Lys Leu Thr
 100 105 110

Val Leu Gly Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly
 115 120 125

Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Lys Ala
 130 135 140

Ser Gly Ile Asp Phe Asn Asn Tyr Gly Ile Gly Trp Val Arg Gln Ala
 145 150 155 160

Pro Gly Lys Gly Leu Glu Trp Ile Thr Tyr Ile Tyr Pro Gly Phe Ala
 165 170 175

Ile Thr Asn Phe Ala Asn Ser Val Lys Gly Arg Phe Thr Ile Ser Ser
 180 185 190

Asp Asn Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu Arg Ala
 195 200 205

Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asp Pro Val Tyr Ala Thr
 210 215 220

Ser Ser Gly Tyr Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val
 225 230 235 240

Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 245 250 255

Ser Gly Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
 260 265 270

Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Lys Cys Gln Ala Ser
 275 280 285

Gln Ser Ile Phe Ser Gly Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys

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290

295

300

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

Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr
 325 330 335

Ile Ser Gly Leu Gln Pro Ala Asp Phe Ala Thr Tyr Tyr Cys Gln Ser
 340 345 350

Tyr Tyr Tyr Ser Ser Ser Ser Ser Asp Gly Ser Tyr Ala Phe Gly Gly
 355 360 365

Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Gly Ser Glu Val Gln
 370 375 380

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

Leu Ser Cys Lys Ala Ser Gly Ile Asp Phe Asn Asn Tyr Gly Ile Gly
 405 410 415

Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile Thr Tyr Ile
 420 425 430

Tyr Pro Gly Phe Ala Ile Thr Asn Phe Ala Asn Ser Val Lys Gly Arg
 435 440 445

Phe Thr Ile Ser Ser Asp Asn Ser Lys Asn Thr Val Tyr Leu Gln Met
 450 455 460

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asp
 465 470 475 480

Pro Val Tyr Ala Thr Ser Ser Gly Tyr Phe Asp Leu Trp Gly Gln Gly
 485 490 495

Thr Leu Val Thr Val Ser Ser

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500

<210> 52
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<220>
 <223> light chain of humanized IgG of clone 16-22-H05

<400> 52

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

Asp Arg Val Thr Ile Lys Cys Gln Ala Ser Gln Ser Ile Phe Ser Gly
 20 25 30

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

Tyr Gly Ala Ser Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

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

Ala Asp Phe Ala Thr Tyr Tyr Cys Gln Ser Tyr Tyr Tyr Ser Ser Ser
 85 90 95

Ser Ser Asp Gly Ser Tyr Ala Phe Gly Gly Gly Thr Lys Leu Thr Val
 100 105 110

Leu Gly Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser
 115 120 125

Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn
 130 135 140

Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala
 145 150 155 160

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

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

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

Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215 220

<210> 53
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain of humanized IgG of clone 16-22-H05

<400> 53

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

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

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

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

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

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

Ala Arg Asp Pro Val Tyr Ala Thr Ser Ser Gly Tyr Phe Asp Leu Trp

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100

105

110

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

Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr
 130 135 140

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

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

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

Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn
 195 200 205

His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser
 210 215 220

Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
 225 230 235 240

Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Gln Leu
 245 250 255

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
 260 265 270

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

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

Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn

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Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Ser Ile Phe Ser Gly
20 25 30

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

Tyr Gly Ala Ser Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Ala Asp Phe Ala Thr Tyr Tyr Cys Gln Ser Tyr Tyr Tyr Ser Ser Ser
85 90 95

Ser Ser Asp Gly Ser Tyr Ala Phe Gly Gly Gly Thr Lys Leu Thr Val
100 105 110

Leu Gly

<210> 55

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> humanized scFv of clone 16-22-H05-sc04

<400> 55

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

Gly Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Ser Ile Phe Ser
20 25 30

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

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

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50

55

60

Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Gly Leu Gln
 65 70 75 80

Pro Ala Asp Phe Ala Thr Tyr Tyr Cys Gln Ser Tyr Tyr Tyr Ser Ser
 85 90 95

Ser Ser Ser Asp Gly Ser Tyr Ala Phe Gly Gly Gly Thr Lys Leu Thr
 100 105 110

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

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

Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Lys Ala Ser
 145 150 155 160

Gly Ile Asp Phe Asn Asn Tyr Gly Ile Gly Trp Val Arg Gln Ala Pro
 165 170 175

Gly Lys Gly Leu Glu Trp Ile Thr Tyr Ile Tyr Pro Gly Phe Ala Ile
 180 185 190

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

Asn Ser Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu
 210 215 220

Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asp Pro Val Tyr Ala Thr Ser
 225 230 235 240

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

Ser

eolf-seql

<210> 56
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Vk1 consensus sequence of framework I (Kabat positions 1-23)

<400> 56

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

Asp Arg Val Thr Ile Thr Cys
 20

<210> 57
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Vk1 consensus sequence of framework II (Kabat positions 35-49)

<400> 57

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

<210> 58
 <211> 32
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Vk1 consensus sequence of framework III (Kabat positions 57-88)

<400> 58

Gly Val Pro Ser 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 Thr Tyr Tyr Cys
 20 25 30

eolf-seql

<210> 59
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> V lamda germline-based sequence of framework IV

<400> 59

Phe Gly Thr Gly Thr Lys Val Thr Val Leu
1 5 10

<210> 60
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> V lamda germline-based sequence of framework IV

<400> 60

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
1 5 10

<210> 61
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> V lamda germline-based sequence of framework IV

<400> 61

Phe Gly Gly Gly Thr Gln Leu Ile Ile Leu
1 5 10

<210> 62
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> V lamda germline-based sequence of framework IV

<400> 62

eolf-seql

Phe	Gly	Ser	Gly	Thr	Lys	Val	Thr	Val	Leu
1				5					10