SEQUENCE LISTING

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<120> Anti SIRPalpha antibodies with a LALA mutation

<130> P1703PC00/PB-078

<140> PCT/EP2018/062473
<141> 2018-05-15

<160> 40

<170> BiSSAP 1.3.6

<210> 1
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:1 (HC VR 1)

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

<210> 2
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:2 (LC VR 1)

<400> 2
Ala Ile Lys Met Thr Gln Thr Pro Ala Ser Val Ser Ala Ala Val Gly
1 5 10 15
Gly Thr Val Ser Ile Asn Cys Gln Ala Ser Glu Asp Ile Glu Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile
35 40 45
Tyr Arg Ala Ser Thr Leu Ala Ser Gly Val Ser Ser Arg Phe Lys Gly
50 55 60
Ser Gly Ser Gly Thr Gln Phe Thr Leu Thr Ile Ser Asp Leu Glu Ser
65 70 75 80

Ala Asp Ala Ala Thr Tyr Tyr Cys Leu Gly Asp Tyr Tyr Ser Ser Ser
85 90 95
Gly Asp Thr Gly Ala Phe Gly Gly Gly Thr Glu Val Val Val Lys
100 105 110

<210> 3
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:3 (HC VR 2)

<400> 3
Gln Ser Val Glu Glu Ser Gly Gly Arg Leu Val Thr Pro Gly Thr Pro
1 5 10 15
Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Asn Tyr Ala
20 25 30
Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile Gly
35 40 45
Ile Ile Tyr Thr Gly Gly Ala Thr Ser Tyr Ala Thr Trp Ala Lys Gly
50 55 60
Gln Phe Thr Ile Ser Lys Thr Ser Thr Thr Val Asp Leu Lys Ile Thr
65 70 75 80
Ser Pro Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys Ala Arg Gly Asp
85 90 95
Arg Asp Gly Tyr Ala Tyr Phe Asn Ile Trp Gly Pro Gly Thr Leu Val
100 105 110
Thr Val Ser Leu
115

<210> 4
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:4 (LC VR 2)

<400> 4
Gln Ile Val Met Thr Gln Thr Pro Phe Ser Val Ser Ala Val Val Gly
1 5 10 15
Gly Thr Val Thr Ile Lys Cys Gln Ala Ser His Asn Ile Gly Ser Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Arg Pro Lys Leu Leu Ile
35 40 45
Tyr Asp Ala Ser Thr Leu Ala Ser Gly Val Ser Ser Arg Phe Lys Gly
50 55 60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Gly Val Glu Ser
65 70 75 80
Ala Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Gly Tyr Gly Ile Ser Tyr
85 90 95
Val His Asn Val Phe Gly Gly Gly Thr Glu Val Val Val Lys
100 105 110

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

<220>
<223> SEQ ID NO:5 (HC VR 3)

<400> 5
Gln Ser Val Glu Glu Ser Gly Gly Arg Leu Val Thr Pro Gly Thr Pro

```
1               5                   10                  15
Leu Thr Leu Ala Cys Thr Val Ser Gly Phe Ser Leu Ile Ser Tyr Tyr
            20                  25                  30
Ile Ser Trp Val Arg Gln Ala Pro Glu Lys Gly Leu Glu Tyr Ile Gly
        35                  40                  45
Ile Ile Asn Ile Gly Gly Gly Ala Ser Tyr Ala Ser Trp Ala Lys Gly
    50                  55                  60
Arg Phe Thr Ile Ser Lys Thr Ser Thr Thr Val Asp Leu Lys Ile Thr
65                  70                  75                  80
Ser Pro Thr Pro Glu Asp Thr Ala Thr Tyr Phe Cys Ala Met Ser Tyr
                85                  90                  95
Gly Met Asp Thr Gly Ala Phe Asn Ile Trp Gly Pro Gly Thr Leu Val
            100                 105                 110
Thr Val Ser Leu
        115
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<210> 6
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:6 (LC VR 3)

<400> 6

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

<210> 7
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:7 (HC VR 4)

<400> 7

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Gln Ser Val Glu Glu Ser Gly Gly Arg Leu Gly Thr Pro Gly Thr Pro
1               5                   10                  15
Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Ser Tyr Val
            20                  25                  30
Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Ile Gly
        35                  40                  45
Ile Ile Ser Ser Ser Gly Ser Pro Tyr Tyr Ala Ser Trp Val Asn Gly
    50                  55                  60
Arg Phe Thr Ile Ser Lys Thr Ser Thr Thr Met Asp Leu Lys Met Asn
65                  70                  75                  80
Ser Pro Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys Ala Arg Val Gly
                85                  90                  95
Pro Leu Gly Val Asp Tyr Phe Asn Ile Trp Gly Pro Gly Thr Leu Val
            100                 105                 110
Thr Val Ser Leu
        115
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<210> 8
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:8 (LC VR 4)

<400> 8
Asp Ile Val Met Thr Gln Thr Pro Ser Ser Val Glu Ala Ala Val Gly
1 5 10 15
Gly Thr Val Thr Ile Lys Cys Gln Ala Gly Gln Ser Ile Asn Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Arg Pro Lys Leu Leu Ile
35 40 45
Tyr Tyr Ala Ser Thr Leu Glu Ser Gly Val Pro Ser Arg Phe Lys Gly
50 55 60
Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Asp Leu Glu Ser
65 70 75 80
Ala Asp Ala Ala Thr Tyr Tyr Cys Gln Ser Trp His Tyr Ile Ser Arg
85 90 95
Ser Tyr Ala Phe Gly Gly Gly Thr Glu Val Val Val Lys
100 105

<210> 9
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:9 (HC VR 5)

<400> 9
Gln Ser Val Glu Glu Ser Gly Gly Arg Leu Val Thr Pro Gly Thr Pro
1 5 10 15
Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Ser Tyr Val
20 25 30
Met Gly Trp Phe Arg Gln Ala Ala Gly Lys Gly Leu Glu Tyr Ile Gly
35 40 45
Tyr Ile Asn Ala Asp Gly Ser Pro Tyr Tyr Ala Thr Trp Val Asn Gly
50 55 60
Arg Phe Thr Ile Ser Lys Thr Pro Thr Thr Met Asp Leu Lys Ile Asn
65 70 75 80
Ser Pro Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys Ala Arg Val Gly
85 90 95
Pro Leu Gly Val Asp Tyr Phe Asn Ile Trp Gly Pro Gly Thr Leu Val
100 105 110
Thr Val Ser Leu
115

<210> 10
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:10 (LC VR 5)

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

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

<210> 11
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:11 (HC VR 6)

<400> 11
Gln Ser Val Glu Glu Ser Gly Gly Arg Leu Val Thr Pro Gly Thr Pro
1 5 10 15
Leu Thr Leu Thr Cys Thr Val Ser Gly Ile Asp Leu Ser Ser Tyr Thr
20 25 30
Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile Gly
35 40 45
Ile Ile Tyr Ala Gly Gly Ser Thr Ala Tyr Ala Ser Trp Ala Lys Gly
50 55 60
Arg Phe Thr Ile Ser Lys Thr Ser Thr Thr Val Asp Leu Lys Ile Thr
65 70 75 80
Ser Pro Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys Ala Arg Ser Ser
85 90 95
Ser Asp Gly Tyr Asp Tyr Phe Asn Ile Trp Gly Pro Gly Thr Leu Val
100 105 110
Thr Val Ser Leu
115

<210> 12
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:12 (LC VR 6)

<400> 12
Gly Val Val Met Thr Gln Thr Pro Ser Ser Val Ser Ala Ala Val Gly
1 5 10 15
Gly Thr Val Thr Ile Asn Cys Gln Ala Ser Gln Ser Ile Gly Ser Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile
35 40 45
Tyr Gln Ala Ser Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Arg Gly Ser Gly Thr His Phe Thr Leu Thr Ile Ser Asp Val Gln Ser
65 70 75 80
Asp Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Thr Val Thr Ala Ala Ser
85 90 95
Asn Val Asp Asn Ala Phe Gly Gly Gly Thr Glu Val Val Val Lys
100 105 110

<210> 13
<211> 115
<212> PRT
<213> Artificial Sequence

<220>

<223> SEQ ID NO:13 (HC VR 7)

<400> 13
Arg Ser Val Glu Glu Ser Gly Gly Arg Leu Val Thr Pro Gly Thr Pro
1 5 10 15
Leu Thr Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Ser His Gly
20 25 30
Ile Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Ile Gly
35 40 45
Thr Ile Gly Thr Gly Val Ile Thr Tyr Phe Ala Ser Trp Ala Lys Gly
50 55 60
Arg Phe Thr Gly Ser Lys Thr Ser Thr Thr Val Asp Leu Lys Ile Thr
65 70 75 80
Ser Pro Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys Ala Arg Gly Ser
85 90 95
Ala Trp Asn Asp Pro Phe Asp Pro Trp Gly Pro Gly Thr Leu Val Thr
100 105 110
Val Ser Ser
115

<210> 14
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:14 (LC VR 7)

<400> 14
Ala Leu Val Met Thr Gln Thr Pro Ala Ser Val Ser Ala Ala Val Gly
1 5 10 15
Gly Thr Val Thr Thr Lys Cys Gln Ala Ser Gln Ser Val Tyr Gly Asn
20 25 30
Asn Asp Leu Ala Trp Tyr Gln His Lys Pro Gly Gln Pro Pro Lys Leu
35 40 45
Leu Ile Tyr Leu Ala Ser Thr Leu Ala Thr Gly Val Pro Ser Arg Phe
50 55 60
Ser Gly Ser Gly Ser Gly Thr Gln Phe Thr Leu Thr Ile Thr Gly Val
65 70 75 80
Gln Ser Asp Asp Ala Ala Thr Tyr Tyr Cys Leu Gly Gly Gly Asp Asp
85 90 95
Glu Ala Asp Asn Val Phe Gly Gly Gly Thr Glu Val Val Val Lys
100 105 110

<210> 15
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:15 (HC VR 8)

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

100 105 110
Thr Val Ser Leu
115

<210> 16
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:16 (LC VR 8)

<400> 16
Ala Ile Asp Met Thr Gln Thr Pro Ala Ser Val Ser Glu Pro Val Gly
1 5 10 15
Gly Thr Val Thr Ile Lys Cys Gln Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Arg Pro Lys Leu Leu Ile
35 40 45
Tyr Asp 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 Val Gln Ser
65 70 75 80
Asp Asp Ala Ala Ala Tyr Tyr Cys Gln Gln Gly Tyr Ala Val Ser Tyr
85 90 95
Val Glu Asn Ile Phe Gly Gly Gly Thr Glu Val Val Val Lys
100 105 110

<210> 17
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:17 (HC VR 9)

<400> 17
Gln Ser Met Glu Glu Ser Gly Gly Arg Leu Val Thr Pro Gly Thr Pro
1 5 10 15
Leu Thr Leu Thr Cys Thr Ala Ser Gly Phe Ser Leu Ser Asn Tyr Gly
20 25 30
Val Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile Gly
35 40 45
Ile Ile Tyr Gly Gly Ser Asp Ile Thr Ala Tyr Ala Ser Trp Ala Lys
50 55 60
Gly Arg Phe Thr Ile Ser Lys Thr Ser Thr Thr Val Asp Leu Thr Ile
65 70 75 80
Thr Ser Pro Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys Ala Lys Ser
85 90 95
Tyr Thr Asn Gly Met Asp Tyr Tyr Asn Ile Trp Gly Pro Gly Thr Leu
100 105 110
Val Thr Val Ser Leu
115

<210> 18
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:18 (LC VR 9)

<400> 18
Ala Phe Asp Leu Thr Gln Thr Pro Ser Ser Val Glu Ala Pro Val Gly
1 5 10 15

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

<210> 19
<211> 129
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:19 (HC VR 29AM4-5))

<400> 19

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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1               5                   10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Ser Tyr Tyr
            20                  25                  30
Phe Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ala Ser Val Tyr Ser Ser Phe Gly Tyr Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Ala Asp Thr Ser Lys Asn Thr Ala 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 Phe Thr Phe Pro Gly Leu Phe Asp Gly Phe Phe Gly Ala Tyr
            100                 105                 110
Leu Gly Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
        115                 120                 125
Ser
```

<210> 20
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:20 (LC VR 29AM4-5)

<400> 20

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

<210> 21

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

<220>
<223> SEQ ID NO:21 (HC VR 12C4)

<400> 21
Glu Val Lys Leu Glu Glu Ser Gly Gly Gly Leu Met Gln Pro Gly Gly
1 5 10 15
Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30
Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45
Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Ala Thr His Tyr Ala Glu
50 55 60
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
65 70 75 80
Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
85 90 95
Tyr Cys Ile Arg Asp Tyr Asp Tyr Asp Ala Tyr Phe Asp Tyr Trp Gly
100 105 110
Gln Gly Thr Thr Leu Thr Val Ser Ser
115 120

<210> 22
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:22 (LC VR 12C4)

<400> 22
Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
1 5 10 15
Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser Lys Ser Val Ser Thr Ser
20 25 30
Gly Tyr Asn Tyr Met Tyr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45
Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Ala
50 55 60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile His
65 70 75 80
Pro Val Glu Glu Glu Asp Ala Ala Thr Tyr Tyr Cys Gln His Ser Gly
85 90 95
Glu Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 23
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:23 (HC KWAR23)

<400> 23
Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
20 25 30
Tyr Ile His Trp Val Gln Gln Arg Thr Glu Gln Gly Leu Glu Trp Ile
35 40 45
Gly Arg Ile Asp Pro Glu Asp Gly Glu Thr Lys Tyr Ala Pro Lys Phe

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

<210> 24
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:24 (LC VR KWAR23)

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

<210> 25
<211> 330
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO 25: (human IgG1 antibody HC constant region)

<400> 25
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> 26
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO 26: (human IgG antibody LC constant region)

<400> 26
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> 27
<211> 330
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO 27: (human IgG1 antibody HC constant region LALA mutant
(mutations underlined)

<400> 27
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 Ala Ala 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> 28
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:28 (leader sequence antibodies 1-9)

<400> 28
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
1 5 10 15
Val His Ser

<210> 29
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:29 (HAVT20 leader sequence)

<400> 29
Met Ala Cys Pro Gly Phe Leu Trp Ala Leu Val Ile Ser Thr Cys Leu
1 5 10 15
Glu Phe Ser Met Ala
20

<210> 30
<211> 117
<212> PRT
<213> Artificial Sequence

<220>

<223> SEQ ID NO:30 (HC10

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

<210> 31
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:31 (LC 10)

<400> 31
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 Gln Ala Gly Gln Ser Ile Asn Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile
35 40 45
Tyr Tyr Ala Ser Thr Leu Glu Ser Gly Val Pro Asp Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala
65 70 75 80
Glu Asp Val Ala Val Tyr Tyr Cys Gln Ser Trp His Tyr Ile Ser Arg
85 90 95
Ser Tyr Ala Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 32
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:32 (HC VR 11)

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

100 105 110
Val Thr Val Ser Ser
115

<210> 33
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:33 (LC VR 11)

<400> 33
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Gln Ala Gly Gln Ser Ile Asn Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile
35 40 45
Tyr Tyr Ala Ser Thr Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Val Ala Thr Tyr Tyr Cys Gln Ser Trp His Tyr Ile Ser Arg
85 90 95
Ser Tyr Ala Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 34
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:34 (HC VR 12)

<400> 34
Val Gln Leu Val Glu Ser Gly Gly Arg Leu Val Gln Pro Gly Thr Pro
1 5 10 15
Leu Thr Leu Ser Cys Thr Val Ser Gly Phe Ser Leu Ser Ser Tyr Val
20 25 30
Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Ile Gly
35 40 45
Ile Ile Ser Ser Ser Gly Ser Pro Tyr Tyr Ala Ser Trp Val Asn Gly
50 55 60
Arg Phe Thr Ile Ser Lys Thr Ser Thr Thr Met Asp Leu Lys Met Asn
65 70 75 80
Ser Leu Arg Ser Glu Asp Thr Ala Thr Tyr Phe Cys Ala Arg Val Gly
85 90 95
Pro Leu Gly Val Asp Tyr Phe Asn Ile Trp Gly Pro Gly Thr Leu Val
100 105 110
Thr Val Ser Ser
115

<210> 35
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:34 (HC VR 12)

<400> 35
Val Gln Leu Val Glu Ser Gly Gly Arg Leu Val Gln Pro Gly Thr Pro
1 5 10 15

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

<210> 36
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:36 (LC VR 13)

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

<210> 37
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:37 (LC VR 14 +16)

<400> 37
Asp Ile Glu Met Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Leu Thr Cys Gln Ala Ser Gln Ser Val Tyr Gly Asn
20 25 30
Asn Asp Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Lys Leu
35 40 45
Leu Ile Tyr Leu Ala Ser Thr Leu Ala Thr Gly Val Pro Ser Arg Phe
50 55 60
Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu
65 70 75 80
Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gly Gly Gly Asp Asp
85 90 95
Glu Ala Asp Asn Val Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 38
<211> 111
<212> PRT

<213> Artificial Sequence

<220>
<223> SEQ ID NO:38 (LC VR 15)

<400> 38
Glu Leu Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Ser Val Tyr Gly Asn
20 25 30
Asn Asp Leu Ala Trp Tyr Gln Gln Lys Pro Gly Glu Ala Pro Lys Leu
35 40 45
Leu Ile Tyr Leu Ala Ser Thr Leu Ala Thr Gly Val Pro Ser Arg Phe
50 55 60
Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Gly Leu
65 70 75 80
Gln Ser Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gly Gly Gly Asp Asp
85 90 95
Glu Ala Asp Asn Val Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 39
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:39 (leader sequence heavy chains 10-14)

<400> 39
Met Gly Trp Thr Leu Val Phe Leu Phe Leu Leu Ser Val Thr Ala Gly
1 5 10 15
Val His Ser

<210> 40
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> SEQ ID NO:40 (leader sequence light chains 10, 11, 13-16)

<400> 40
Met Val Ser Ser Ala Gln Phe Leu Gly Leu Leu Leu Leu Cys Phe Gln
1 5 10 15
Gly Thr Arg Cys
20