SEQUENCE LISTING

<110> Julius-Maximilians-Universität Würzburg

<120> Dual antigen-induced bipartite functional complementation

<130> W1010 PCT S3

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<151> 2012-01-13

<160> 198

<170> PatentIn version 3.5

<210> 1
<211> 119
<212> PRT
<213> VH anti-CD3

<400> 1

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

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

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

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

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

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

Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Thr Val Thr Val Ser Ser
115

<210> 2
<211> 111
<212> PRT
<213> VL anti-CD3

<400> 2

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

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

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

Asp Thr Ser Lys Val Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
    50                  55                  60

Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Asn Ser Leu Glu Ala Glu
65                  70                  75                  80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Leu Thr
                85                  90                  95

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Gly Ser Ala Ala Ala
            100                 105                 110
```

<210> 3
<211> 119
<212> PRT
<213> VH anti-CD3

<400> 3

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Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
1               5                   10                  15

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

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

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

Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80

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

Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly
            100                 105                 110

Thr Thr Leu Thr Val Ser Ser
        115
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<210> 4
<211> 106
<212> PRT
<213> VL anti-CD3

<400> 4

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Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
```

1 5 10 15

Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr
35 40 45

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

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Leu Thr
85 90 95

Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
100 105

<210> 5
<211> 122
<212> PRT
<213> huMAb anti-CD variant 9 VH

<400> 5

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 Tyr Ser Phe Thr Gly Tyr
20 25 30

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

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

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

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

<210> 6
<211> 113

<212> PRT
<213> huMAb anti-CD variant 1 VL

<400> 6

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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 Asp Ile Arg Asn Tyr
            20                  25                  30

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

Tyr Tyr Thr Ser Arg Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Gly Asn Thr Leu Pro Trp
                85                  90                  95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Ile Lys Arg
            100                 105                 110

Thr
```

<210> 7
<211> 119
<212> PRT
<213> Anti-CD3 VH (L2K)

<400> 7

```
Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
1               5                  10                  15

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

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

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

Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80

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

Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Thr Leu Thr Val Ser Ser
115

<210> 8
<211> 106
<212> PRT
<213> Anti-CD3 VL (L2K)

<400> 8

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

Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr
35 40 45

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

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Leu Thr
85 90 95

Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
100 105

<210> 9
<211> 119
<212> PRT
<213> Anti-CD3 VH (145.2C11)

<400> 9

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

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

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

Ala Tyr Ile Thr Ser Ser Ser Ile Asn Ile Lys Tyr Ala Asp Ala Val
50 55 60

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

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

Ala Arg Phe Asp Trp Asp Lys Asn Tyr Trp Gly Gln Gly Thr Met Val
            100                 105                 110

Thr Val Ser Ser Ala Lys Thr
        115
```

<210> 10
<211> 110
<212> PRT
<213> Anti-CD3 VL (145.2C11)

<400> 10

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

Asp Arg Val Thr Ile Asn Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr
            20                  25                  30

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

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

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

Glu Asp Ile Gly Ser Tyr Tyr Cys Gln Gln Tyr Tyr Asn Tyr Pro Trp
                85                  90                  95

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

<210> 11
<211> 114
<212> PRT
<213> Anti-HIS VH

<400> 11

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

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

Tyr Met Asn Trp Val Lys Gln Ser Pro Gly Lys Gly Leu Glu Trp Ile
        35                  40                  45
```

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

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

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

Glu Ser Gln Ser Gly Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr Val
100 105 110

Ser Ala

<210> 12
<211> 116
<212> PRT
<213> Anti-HIS VL

<400> 12

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

Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile
20 25 30

Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro
35 40 45

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

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

Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys
85 90 95

Phe Gln Gly Ser His Val Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu
100 105 110

Glu Ile Lys Arg
115

<210> 13
<211> 128
<212> PRT
<213> Anti-DIG VH

<400> 13

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

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

Ala Met Ser Trp Ile Arg Gln Thr Pro Glu Asn Arg Leu Glu Trp Val
35 40 45

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

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

Leu Gln Met Ser Ser Leu Gly Ser Glu Asp Thr Ala Met Tyr Tyr Cys
85 90 95

Ala Arg Pro Gly Ser Pro Tyr Glu Tyr Asp Lys Ala Tyr Tyr Ser Met
100 105 110

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

<210> 14
<211> 118
<212> PRT
<213> Anti-DIG VL

<400> 14

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

Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp Ile Lys Asn Tyr
20 25 30

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

Tyr Tyr Ser Ser Thr Leu Leu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

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

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

Pro Thr Val Ser Ile Phe
115

<210> 15
<211> 10
<212> PRT
<213> Anti-CD3 VH CDR1 (WT)

<400> 15

Gly Tyr Thr Phe Thr Arg Tyr Thr Met His
1 5 10

<210> 16
<211> 17
<212> PRT
<213> Anti-CD3 VH CDR2 (VH5)

<400> 16

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

Gly

<210> 17
<211> 10
<212> PRT
<213> Anti-CD3 VH CDR3 (WT)

<400> 17

Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr
1 5 10

<210> 18
<211> 10
<212> PRT
<213> Anti-CD3 VK CDR1 (WT)

<400> 18

Arg Ala Ser Gln Ser Val Ser Tyr Met Asn
1 5 10

<210> 19
<211> 7
<212> PRT
<213> Anti-CD3 VK CDR2 (WT)

<400> 19

Asp Thr Ser Lys Val Ala Ser
1 5

<210> 20
<211> 9
<212> PRT
<213> Anti-CD3 VK CDR3 (WT)

<400> 20

Gln Gln Trp Ser Ser Asn Pro Leu Thr

1 5

<210> 21
<211> 10
<212> PRT
<213> Anti-CD3 VH CDR1 (WT)

<400> 21

Gly Tyr Thr Phe Thr Arg Tyr Thr Met His
1 5 10

<210> 22
<211> 17
<212> PRT
<213> Anti-CD3 VH CDR2 (WT)

<400> 22

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

Asp

<210> 23
<211> 10
<212> PRT
<213> Anti-CD3 VH CDR3 (WT)

<400> 23

Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr
1 5 10

<210> 24
<211> 10
<212> PRT
<213> Anti-CD3 VK CDR1 (WT)

<400> 24

Arg Ala Ser Ser Ser Val Ser Tyr Met Asn
1 5 10

<210> 25
<211> 7
<212> PRT
<213> Anti-CD3 VK CDR2 (WT)

<400> 25

Asp Thr Ser Lys Val Ala Ser
1 5

<210> 26
<211> 9
<212> PRT
<213> Anti-CD3 VK CDR3 (WT)

<400> 26

Gln Gln Trp Ser Ser Asn Pro Leu Thr
1 5

<210> 27
<211> 10
<212> PRT
<213> Anti-CD3 VH CDR1 (UCHT-1)

<400> 27

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

<210> 28
<211> 17
<212> PRT
<213> Anti-CD3 VH CDR2 (UCHT-1)

<400> 28

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

Asp

<210> 29
<211> 11
<212> PRT
<213> Anti-CD3 VH CDR3 (UCHT-1)

<400> 29

Tyr Tyr Gly Asp Ser Asp Trp Tyr Phe Asp Val
1 5 10

<210> 30
<211> 11
<212> PRT
<213> Anti-CD3 VL CDR1 (UCHT-1)

<400> 30

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

<210> 31
<211> 7
<212> PRT
<213> Anti-CD3 VL CDR2 (UCHT-1)

<400> 31

Tyr Thr Ser Arg Leu Glu Ser
1 5

<210> 32
<211> 9
<212> PRT
<213> Anti-CD3 VL CDR3 (UCHT-1)

<400> 32

Gln Gln Gly Asn Thr Leu Pro Trp Thr
1 5

<210> 33
<211> 8
<212> PRT
<213> Anit-CD3 VH CDR 1 (L2K)

<400> 33

Gly Tyr Thr Phe Thr Arg Tyr Thr
1 5

<210> 34
<211> 8
<212> PRT
<213> Anti-CD3 VH CDR 2 (L2K)

<400> 34

Ile Asn Pro Ser Arg Gly Tyr Thr
1 5

<210> 35
<211> 12
<212> PRT
<213> Anti-CD3 VH CDR 3 (L2K)

<400> 35

Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr
1 5 10

<210> 36
<211> 5
<212> PRT
<213> Anti-CD3 VL CDR 1 (L2K)

<400> 36

Ser Ser Val Ser Tyr
1 5

<210> 37
<211> 9
<212> PRT
<213> Anti-CD3 VL CDR 3 (L2K)

<400> 37

Gln Gln Trp Ser Ser Asn Pro Leu Thr
1 5

<210> 38
<211> 8
<212> PRT
<213> Anti-CD3 VH CDR 1 (145-2C11)

<400> 38

Gly Phe Thr Phe Ser Gly Tyr Gly
1 5

<210> 39
<211> 8
<212> PRT
<213> Anti-CD3 VH CDR 2 (145-2C11)

<400> 39

Ile Thr Ser Ser Ser Ile Asn Ile
1 5

<210> 40
<211> 9
<212> PRT
<213> Anti-CD3 VH CDR 3 (145-2C11)

<400> 40

Ala Arg Phe Asp Trp Asp Lys Asn Tyr
1 5

<210> 41
<211> 6
<212> PRT
<213> Anti-CD3 VL CDR 1 (145-2C11)

<400> 41

Gln Asp Ile Ser Asn Tyr
1 5

<210> 42
<211> 9
<212> PRT
<213> Anti-CD3 VL CDR 3 (145-2C11)

<400> 42

Gln Gln Tyr Tyr Asn Tyr Pro Trp Thr
1 5

<210> 43
<211> 8
<212> PRT
<213> Anti-HIS VH CDR1

<400> 43

Gly Tyr Thr Phe Thr Asp Tyr Tyr
1 5

<210> 44
<211> 8
<212> PRT
<213> Anti-HIS VH CDR2

<400> 44

Ile Asn Pro Asn Asn Gly Gly Thr

1 5

<210> 45
<211> 7
<212> PRT
<213> Anti-HIS VH CDR3

<400> 45

Glu Ser Gln Ser Gly Ala Tyr
1 5

<210> 46
<211> 11
<212> PRT
<213> Anti-HIS VL CDR1

<400> 46

Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr
1 5 10

<210> 47
<211> 9
<212> PRT
<213> Anti-HIS VL CDR3

<400> 47

Phe Gln Gly Ser His Val Pro Phe Thr
1 5

<210> 48
<211> 8
<212> PRT
<213> Anti-DIG VH CDR1

<400> 48

Gly Phe Thr Phe Ser Asp Tyr Ala
1 5

<210> 49
<211> 8
<212> PRT
<213> Anti-DIG VH CDR2

<400> 49

Ile Asn Ile Gly Ala Thr Tyr Ala
1 5

<210> 50
<211> 6
<212> PRT
<213> Anti-DIG VL CDR1

<400> 50

Gln Asp Ile Lys Asn Tyr
1 5

<210> 51
<211> 123
<212> PRT
<213> Anti-HLA-A2 VH

<400> 51

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

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

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

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

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

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

Ala Lys Asn Gly Glu Ser Gly Pro Leu Asp Tyr Trp Tyr Phe Asp Leu
            100                 105                 110

Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 52
<211> 108
<212> PRT
<213> Anti-HLA-A2 VL

<400> 52

```
Asp Val 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 Asp Ile Ser Asn Tyr
            20                  25                  30

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

Tyr Asp Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Ser Phe Pro Leu
```

85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Asp Ile Lys Arg
100 105

<210> 53
<211> 118
<212> PRT
<213> Anti-HLA-Cw6 VH

<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 Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

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

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

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

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

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

Val Thr Val Ser Ser Ala
115

<210> 54
<211> 108
<212> PRT
<213> Anti-HLA-Cw6 VL

<400> 54

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

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

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

Asp Asp Ser Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
50 55 60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Asn Phe Asp Ser Pro
85 90 95

Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
100 105

<210> 55
<211> 120
<212> PRT
<213> Anti-EpCAM VH

<400> 55

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

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

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

Ile Gly Asp Ile Phe Pro Gly Ser Gly Asn Ile His Tyr Asn Glu Lys
50 55 60

Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala
65 70 75 80

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

Cys Ala Arg Leu Arg Asn Trp Asp Glu Pro Met Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 56
<211> 113
<212> PRT
<213> Anti-EpCAM VL

<400> 56

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

Glu Lys Val Thr 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 Tyr Cys Gln Asn
85 90 95

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

Lys

<210> 57
<211> 120
<212> PRT
<213> Anti-HER2 VH

<400> 57

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 Lys Asp Thr
20 25 30

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

Ala Arg Ile Tyr Pro Thr Asn Gly Tyr Thr Arg 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

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

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 58
<211> 107
<212> PRT
<213> Anti-HER2 VL

<400> 58

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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 Asp Val Asn Thr 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 Phe 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 His Tyr Thr Thr Pro Pro
                85                  90                  95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 59
<211> 119
<212> PRT
<213> Anti-EGFR-1 VH

<400> 59

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Val Ser Ser Gly
            20                  25                  30

Asp Tyr Tyr Trp Thr Trp Ile Arg Gln Ser Pro Gly Lys Gly Leu Glu
        35                  40                  45

Trp Ile Gly His Ile Tyr Tyr Ser Gly Asn Thr Asn Tyr Asn Pro Ser
    50                  55                  60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr
                85                  90                  95

Cys Val Arg Asp Arg Val Thr Gly Ala Phe Asp Ile Trp Gly Gln Gly
            100                 105                 110

Thr Met Val Thr Val Ser Ser
        115
```

<210> 60
<211> 107
<212> PRT
<213> Anti-EGFR-1 VL

<400> 60

```
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 Ser Gln Asp Ile Ser Asn Tyr
            20                  25                  30

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

Tyr Asp Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

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

Glu Asp Ile Ala Thr Tyr Phe Cys Gln His Phe Asp His Leu Pro Leu
                85                  90                  95

Ala Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 61
<211> 127
<212> PRT
<213> Anti-CEA VH

<400> 61

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

Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr
            20                  25                  30

Phe Thr Thr Tyr Thr Ile His Trp Val Arg Gln Arg Pro Gly His Asp
        35                  40                  45

Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Ser Asp Tyr
    50                  55                  60

Asn Gln Asn Phe Lys Gly Lys Thr Thr Leu Thr Ala Asp Lys Ser Ser
65                  70                  75                  80

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

Val Tyr Tyr Cys Ala Arg Arg Ala Asp Tyr Gly Asn Tyr Glu Tyr Thr
            100                 105                 110
```

Trp Phe Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 62
<211> 110
<212> PRT
<213> Anti-CEA VL

<400> 62

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

Asp Arg Val Asn Val Thr Tyr Lys Ala Ser Gln Asn Val Gly Thr Asn
20 25 30

Val Ala Trp Phe Gln Gln Lys Pro Gly Gln Ser Pro Lys Val 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 Ser Asn Val Gln Ser
65 70 75 80

Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr His Thr Tyr Pro Leu
85 90 95

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

<210> 63
<211> 120
<212> PRT
<213> Anti-CD45 VH

<400> 63

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

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

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

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

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

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

Ala Arg Gly Asn Tyr Tyr Arg Tyr Gly Asp Ala Met Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Ser Val Thr Val Ser
115 120

<210> 64
<211> 111
<212> PRT
<213> Anti-CD45 VL

<400> 64

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 Ser Tyr Leu His 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 Arg
85 90 95

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

<210> 65
<211> 121
<212> PRT
<213> VH anti-CD138

<400> 65

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

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

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

Glu Ile Leu Pro Gly Thr Gly Arg Thr Ile Tyr Asn Glu Lys Phe Lys
50 55 60

Gly Lys Ala Thr Phe Thr Ala Asp Ile Ser Ser Asn Thr Val Gln Met
65 70 75 80

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

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

Gln Gly Thr Ser Val Thr Val Ser Ser
115 120

<210> 66
<211> 110
<212> PRT
<213> VL anti-CD138

<400> 66

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

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

Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Glu Leu Leu Ile
35 40 45

Tyr Tyr Thr Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Ile Gly Thr Tyr Tyr Cys Gln Gln Tyr Ser Lys Leu Pro Arg
85 90 95

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

<210> 67
<211> 246
<212> PRT
<213> Anti-HLA-A2 scFv

<400> 67

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

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

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

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

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

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

Ala Lys Asn Gly Glu Ser Gly Pro Leu Asp Tyr Trp Tyr Phe Asp Leu
            100                 105                 110

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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Val Val Met Thr Gln
    130                 135                 140

Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr
145                 150                 155                 160

Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr Leu Asn Trp Tyr Gln Gln
                165                 170                 175

Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Asp Ala Ser Asn Leu
            180                 185                 190

Glu Thr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
        195                 200                 205

Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr
    210                 215                 220

Tyr Cys Gln Gln Tyr Ser Ser Phe Pro Leu Thr Phe Gly Gly Gly Thr
225                 230                 235                 240

Lys Val Asp Ile Lys Arg
                245
```

<210> 68
<211> 245
<212> PRT
<213> Anti-HLA-Cw6 scFv

<400> 68

```
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 Thr Phe Ser Ser Tyr
```

20 25 30

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

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

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

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

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

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

Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Pro
130 135 140

Pro Ser Val Ser Val Ala Pro Gly Gln Thr Ala Arg Ile Ser Cys Ser
145 150 155 160

Gly Asp Ala Leu Gly Asp Lys Tyr Ala Ser Trp Tyr Gln Gln Lys Pro
165 170 175

Gly Gln Ala Pro Val Leu Val Ile Tyr Asp Asp Ser Asp Arg Pro Ser
180 185 190

Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn Ser Gly Asn Thr Ala Thr
195 200 205

Leu Thr Ile Ser Gly Thr Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
210 215 220

Gln Ser Tyr Asp Asn Phe Asp Ser Pro Val Phe Gly Gly Gly Thr Lys
225 230 235 240

Leu Thr Val Leu Gly
245

<210> 69
<211> 248
<212> PRT
<213> Anti-EpCAM scFv

<400> 69

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

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

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

Ile Gly Asp Ile Phe Pro Gly Ser Gly Asn Ile His Tyr Asn Glu Lys
    50                  55                  60

Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala
65                  70                  75                  80

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

Cys Ala Arg Leu Arg Asn Trp Asp Glu Pro Met Asp Tyr Trp Gly Gln
            100                 105                 110

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

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

Ser Leu Thr Val Thr Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser
145                 150                 155                 160

Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu Thr Trp
                165                 170                 175

Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala
            180                 185                 190

Ser Thr Arg Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser
        195                 200                 205

Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu
    210                 215                 220

Ala Val Tyr Tyr Cys Gln Asn Asp Tyr Ser Tyr Pro Leu Thr Phe Gly
225                 230                 235                 240

Ala Gly Thr Lys Leu Glu Ile Lys
                245
```

<210> 70
<211> 242
<212> PRT
<213> Anti-HER2 scFv

<400> 70

```
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 Lys Asp Thr
            20                  25                  30

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

Ala Arg Ile Tyr Pro Thr Asn Gly Tyr Thr Arg 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

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

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

Gly Ser Gly Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser
    130                 135                 140

Ser Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala
145                 150                 155                 160

Ser Gln Asp Val Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly
                165                 170                 175

Lys Ala Pro Lys Leu Leu Ile Tyr Ser Ala Ser Phe Leu Tyr Ser Gly
            180                 185                 190

Val Pro Ser Arg Phe Ser Gly Ser Arg Ser Gly Thr Asp Phe Thr Leu
        195                 200                 205

Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln
    210                 215                 220

Gln His Tyr Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu
225                 230                 235                 240

Ile Lys
```

<210> 71
<211> 241
<212> PRT

<213> Anti-EGFR(1) scFv

<400> 71

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Val Ser Ser Gly
            20                  25                  30

Asp Tyr Tyr Trp Thr Trp Ile Arg Gln Ser Pro Gly Lys Gly Leu Glu
        35                  40                  45

Trp Ile Gly His Ile Tyr Tyr Ser Gly Asn Thr Asn Tyr Asn Pro Ser
    50                  55                  60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr
                85                  90                  95

Cys Val Arg Asp Arg Val Thr Gly Ala Phe Asp Ile Trp Gly Gln Gly
            100                 105                 110

Thr Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
    130                 135                 140

Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Gln Ala Ser
145                 150                 155                 160

Gln Asp Ile Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys
                165                 170                 175

Ala Pro Lys Leu Leu Ile Tyr Asp Ala Ser Asn Leu Glu Thr Gly Val
            180                 185                 190

Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr
        195                 200                 205

Ile Ser Ser Leu Gln Pro Glu Asp Ile Ala Thr Tyr Phe Cys Gln His
    210                 215                 220

Phe Asp His Leu Pro Leu Ala Phe Gly Gly Gly Thr Lys Val Glu Ile
225                 230                 235                 240

Lys
```

<210> 72
<211> 252
<212> PRT
<213> Anti-CEA scFv

<400> 72

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

Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr
            20                  25                  30

Phe Thr Thr Tyr Thr Ile His Trp Val Arg Gln Arg Pro Gly His Asp
        35                  40                  45

Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Ser Asp Tyr
    50                  55                  60

Asn Gln Asn Phe Lys Gly Lys Thr Thr Leu Thr Ala Asp Lys Ser Ser
65                  70                  75                  80

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

Val Tyr Tyr Cys Ala Arg Arg Ala Asp Tyr Gly Asn Tyr Glu Tyr Thr
            100                 105                 110

Trp Phe Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly
        115                 120                 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile
    130                 135                 140

Glu Leu Thr Gln Ser Pro Lys Phe Met Ser Thr Ser Val Gly Asp Arg
145                 150                 155                 160

Val Asn Val Thr Tyr Lys Ala Ser Gln Asn Val Gly Thr Asn Val Ala
                165                 170                 175

Trp Phe Gln Gln Lys Pro Gly Gln Ser Pro Lys Val Leu Ile Tyr Ser
            180                 185                 190

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

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn Val Gln Ser Glu Asp
    210                 215                 220

Leu Ala Glu Tyr Phe Cys Gln Gln Tyr His Thr Tyr Pro Leu Thr Phe
225                 230                 235                 240

Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Asp
```

245 250

<210> 73
<211> 250
<212> PRT
<213> Anti-CD45 scFv

<400> 73

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 Ser Tyr Leu His 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 Arg
85 90 95

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

Ile Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
115 120 125

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

Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser
145 150 155 160

Arg Tyr Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu
165 170 175

Trp Ile Gly Glu Ile Asn Pro Thr Ser Ser Thr Ile Asn Phe Thr Pro
180 185 190

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

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

Tyr Cys Ala Arg Gly Asn Tyr Tyr Arg Tyr Gly Asp Ala Met Asp Tyr
225 230 235 240

Trp Gly Gln Gly Thr Ser Val Thr Val Ser
245 250

<210> 74
<211> 246
<212> PRT
<213> Anti-CD138 scFv

<400> 74

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

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

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

Glu Ile Leu Pro Gly Thr Gly Arg Thr Ile Tyr Asn Glu Lys Phe Lys
50 55 60

Gly Lys Ala Thr Phe Thr Ala Asp Ile Ser Ser Asn Thr Val Gln Met
65 70 75 80

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

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

Gln Gly Thr Ser Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Thr
130 135 140

Ser Ser Leu Ser Ala Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Ser
145 150 155 160

Ala Ser Gln Gly Ile Asn Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro
165 170 175

Asp Gly Thr Val Glu Leu Leu Ile Tyr Tyr Thr Ser Thr Leu Gln Ser
180 185 190

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

Leu Thr Ile Ser Asn Leu Glu Pro Glu Asp Ile Gly Thr Tyr Tyr Cys
210 215 220

Gln Gln Tyr Ser Lys Leu Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu
225 230 235 240

Glu Ile Lys Arg Thr Val
245

<210> 75
<211> 8
<212> PRT
<213> Anti-HLA-A2 VH CDR1

<400> 75

Gly Val Thr Leu Ser Asp Tyr Gly
1 5

<210> 76
<211> 8
<212> PRT
<213> Anti-HLA-A2 VH CDR2

<400> 76

Ile Arg Asn Asp Gly Ser Asp Lys
1 5

<210> 77
<211> 16
<212> PRT
<213> Anti-HLA-A2 VH CDR3

<400> 77

Ala Lys Asn Gly Glu Ser Gly Pro Leu Asp Tyr Trp Tyr Phe Asp Leu
1 5 10 15

<210> 78
<211> 6
<212> PRT
<213> Anti-HLA-A2 VL CDR1

<400> 78

Gln Asp Ile Ser Asn Tyr
1 5

<210> 79
<211> 9
<212> PRT
<213> Anti-HLA-A2 VL CDR3

<400> 79

Gln Gln Tyr Ser Ser Phe Pro Leu Thr
1 5

<210> 80
<211> 8
<212> PRT
<213> Anti-HLA-Cw6 VH CDR1

<400> 80

Gly Phe Thr Phe Ser Ser Tyr Ala
1 5

<210> 81
<211> 8
<212> PRT
<213> Anti-HLA-Cw6 VH CDR2

<400> 81

Ile Ser Gly Ser Gly Gly Ser Thr
1 5

<210> 82
<211> 10
<212> PRT
<213> Anti-HLA-Cw6 VH CDR3

<400> 82

Ala Arg Tyr Ser Phe Ser Trp Phe Asp Val
1 5 10

<210> 83
<211> 6
<212> PRT
<213> Anti-HLA-Cw6 VL CDR1

<400> 83

Ala Leu Gly Asp Lys Tyr
1 5

<210> 84
<211> 10
<212> PRT
<213> Anti-HLA-Cw6 VL CDR3

<400> 84

Gln Ser Tyr Asp Asn Phe Asp Ser Pro Val
1 5 10

<210> 85
<211> 8
<212> PRT
<213> Anti-EpCAM CDR1 VH

<400> 85

Gly Tyr Ala Phe Thr Asn Tyr Trp
1 5

<210> 86
<211> 8
<212> PRT
<213> Anti-EpCAM CDR2 VH

<400> 86

Ile Phe Pro Gly Ser Gly Asn Ile
1 5

<210> 87
<211> 12
<212> PRT
<213> Anti-EpCAM CDR3 VH

<400> 87

Ala Arg Leu Arg Asn Trp Asp Glu Pro Met Asp Tyr
1 5 10

<210> 88
<211> 12
<212> PRT
<213> Anti-EpCAM CDR1 VL

<400> 88

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

<210> 89
<211> 9
<212> PRT
<213> Anti-EpCAM CDR3 VL

<400> 89

Gln Asn Asp Tyr Ser Tyr Pro Leu Thr
1 5

<210> 90
<211> 8
<212> PRT
<213> Anti-HER2 VH CDR1

<400> 90

Gly Phe Asn Ile Lys Asp Thr Tyr
1 5

<210> 91
<211> 8
<212> PRT
<213> Anti-HER2 VH CDR2

<400> 91

Ile Tyr Pro Thr Asn Gly Tyr Thr
1 5

<210> 92
<211> 13
<212> PRT
<213> Anti-HER2 VH CDR3

<400> 92

Ser Arg Trp Gly Gly Asp Gly Phe Tyr Ala Met Asp Tyr

1 5 10

<210> 93
<211> 6
<212> PRT
<213> Anti-HER2 VL CDR1

<400> 93

Gln Asp Val Asn Thr Ala
1 5

<210> 94
<211> 9
<212> PRT
<213> Anti-HER2 VL CDR3

<400> 94

Gln Gln His Tyr Thr Thr Pro Pro Thr
1 5

<210> 95
<211> 10
<212> PRT
<213> Anti-EGFR-1 VH CDR1

<400> 95

Gly Gly Ser Val Ser Ser Gly Asp Tyr Tyr
1 5 10

<210> 96
<211> 7
<212> PRT
<213> Anti-EGFR-1 VH CDR2

<400> 96

Ile Tyr Tyr Ser Gly Asn Thr
1 5

<210> 97
<211> 11
<212> PRT
<213> Anti-EGFR-1 VH CDR3

<400> 97

Val Arg Asp Arg Val Thr Gly Ala Phe Asp Ile
1 5 10

<210> 98
<211> 6
<212> PRT
<213> Anti-EGFR-1 VL CDR1

<400> 98

Gln Asp Ile Ser Asn Tyr
1 5

<210> 99
<211> 9
<212> PRT
<213> Anti-EGFR-1 VL CDR3

<400> 99

Gln His Phe Asp His Leu Pro Leu Ala
1 5

<210> 100
<211> 8
<212> PRT
<213> Anti-CEA VH CDR1

<400> 100

Gly Tyr Thr Phe Thr Thr Tyr Thr
1 5

<210> 101
<211> 8
<212> PRT
<213> Anti-CEA VH CDR2

<400> 101

Ile Asn Pro Ser Ser Gly Tyr Ser
1 5

<210> 102
<211> 16
<212> PRT
<213> Anti-CEA VH CDR3

<400> 102

Ala Arg Arg Ala Asp Tyr Gly Asn Tyr Glu Tyr Thr Trp Phe Ala Tyr
1 5 10 15

<210> 103
<211> 6
<212> PRT
<213> Anti-CEA VL CDR1

<400> 103

Gln Asn Val Gly Thr Asn
1 5

<210> 104
<211> 9
<212> PRT
<213> Anti-CEA VL CDR3

<400> 104

Gln Gln Tyr His Thr Tyr Pro Leu Thr
1 5

<210> 105

<211> 5
<212> PRT
<213> Anti-CD45 VH CDR 1

<400> 105

Gly Phe Asp Phe Ser
1 5

<210> 106
<211> 9
<212> PRT
<213> Anti-CD45 VH CDR 2

<400> 106

Glu Ile Asn Pro Thr Ser Ser Thr Ile
1 5

<210> 107
<211> 10
<212> PRT
<213> Anti-CD45 VL CDR 1

<400> 107

Lys Ser Val Ser Thr Ser Gly Tyr Ser Tyr
1 5 10

<210> 108
<211> 9
<212> PRT
<213> Anti-CD45 VL CDR 3

<400> 108

Gln His Ser Arg Glu Leu Pro Phe Thr
1 5

<210> 109
<211> 8
<212> PRT
<213> Anti-CD138 VH CDR1

<400> 109

Gly Tyr Thr Phe Ser Asn Tyr Trp
1 5

<210> 110
<211> 8
<212> PRT
<213> Anti-CD138 VH CDR2

<400> 110

Ile Leu Pro Gly Thr Gly Arg Thr
1 5

<210> 111
<211> 15
<212> PRT

<213> Anti-CD138 VH CDR3

<400> 111

Ala Arg Glu Gln Tyr Tyr Gly Asn Phe Tyr Tyr Ala Met Asp Tyr
1 5 10 15

<210> 112
<211> 6
<212> PRT
<213> Anti-CD138 VL CDR1

<400> 112

Gln Gly Ile Asn Asn Tyr
1 5

<210> 113
<211> 9
<212> PRT
<213> Anti-CD138 VL CDR3

<400> 113

Gln Gln Tyr Ser Lys Leu Pro Arg Thr
1 5

<210> 114
<211> 388
<212> PRT
<213> pelB-CD3VL-scFvEPCAM(VH-VL)-6His

<400> 114

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile
20 25 30

Met Ser Ala Ser Pro Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser
35 40 45

Ser Ser Val Ser Tyr Met Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser
50 55 60

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

Tyr Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile
85 90 95

Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp
100 105 110

Ser Ser Asn Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
115 120 125

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

Glu Leu Val Arg Pro Gly Thr Ser Val Lys Ile Ser Cys Lys Ala Ser
145                 150                 155                 160

Gly Tyr Ala Phe Thr Asn Tyr Trp Leu Gly Trp Val Lys Gln Arg Pro
                165                 170                 175

Gly His Gly Leu Glu Trp Ile Gly Asp Ile Phe Pro Gly Ser Gly Asn
            180                 185                 190

Ile His Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp
        195                 200                 205

Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Phe Glu
    210                 215                 220

Asp Ser Ala Val Tyr Phe Cys Ala Arg Leu Arg Asn Trp Asp Glu Pro
225                 230                 235                 240

Met Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly
                245                 250                 255

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

Met Thr Gln Ser Pro Ser Ser Leu Thr Val Thr Ala Gly Glu Lys Val
        275                 280                 285

Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln
    290                 295                 300

Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys
305                 310                 315                 320

Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val Pro Asp Arg
                325                 330                 335

Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
            340                 345                 350

Val Gln Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Asn Asp Tyr Ser
        355                 360                 365

Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys His His
    370                 375                 380

His His His His
385
```

<210> 115
<211> 404
<212> PRT
<213> pelB-CD3VH-scFvHer2-6HIS

<400> 115

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu
20 25 30

Leu Ala Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Thr Ser Gly
35 40 45

Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys Gln Arg Pro Gly
50 55 60

Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr
65 70 75 80

Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys
85 90 95

Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp
100 105 110

Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu
115 120 125

Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly Gly
130 135 140

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

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

Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr Tyr Ile His Trp
180 185 190

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

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

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

```
Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ser Arg Trp Gly
                245                 250                 255

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

Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
        275                 280                 285

Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
    290                 295                 300

Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Val
305                 310                 315                 320

Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
                325                 330                 335

Leu Leu Ile Tyr Ser Ala Ser Phe Leu Tyr Ser Gly Val Pro Ser Arg
            340                 345                 350

Phe Ser Gly Ser Arg Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
        355                 360                 365

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Tyr Thr
    370                 375                 380

Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys His His
385                 390                 395                 400

His His His His
```

<210> 116
<211> 403
<212> PRT
<213> pelB-CD3VH-scFvEGFR(1)-6HIS

<400> 116

```
Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                   10                  15

Ala Gln Pro Ala Met Ala Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu
            20                  25                  30

Leu Ala Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Thr Ser Gly
        35                  40                  45

Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys Gln Arg Pro Gly
    50                  55                  60

Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr
```

65 70 75 80

Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys
85 90 95

Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp
100 105 110

Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu
115 120 125

Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly Gly
130 135 140

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

Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu Thr Leu Ser Leu
165 170 175

Thr Cys Thr Val Ser Gly Gly Ser Val Ser Ser Gly Asp Tyr Tyr Trp
180 185 190

Thr Trp Ile Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Ile Gly His
195 200 205

Ile Tyr Tyr Ser Gly Asn Thr Asn Tyr Asn Pro Ser Leu Lys Ser Arg
210 215 220

Leu Thr Ile Ser Ile Asp Thr Ser Lys Thr Gln Phe Ser Leu Lys Leu
225 230 235 240

Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys Val Arg Asp
245 250 255

Arg Val Thr Gly Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr
260 265 270

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

Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser
290 295 300

Val Gly Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Ser
305 310 315 320

Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu
325 330 335

Leu Ile Tyr Asp Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg Phe

340 345 350

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu
355 360 365

Gln Pro Glu Asp Ile Ala Thr Tyr Phe Cys Gln His Phe Asp His Leu
370 375 380

Pro Leu Ala Phe Gly Gly Gly Thr Lys Val Glu Ile Lys His His His
385 390 395 400

His His His

<210> 117
<211> 414
<212> PRT
<213> pelB-CD3VH-scFvCEA-6HIS

<400> 117

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu
20 25 30

Leu Ala Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Thr Ser Gly
35 40 45

Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys Gln Arg Pro Gly
50 55 60

Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr
65 70 75 80

Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys
85 90 95

Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp
100 105 110

Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu
115 120 125

Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly Gly
130 135 140

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ser Arg Val Ala
145 150 155 160

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
165 170 175

```
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Thr Tyr
            180                 185                 190

Thr Ile His Trp Val Arg Gln Arg Pro Gly His Asp Leu Glu Trp Ile
        195                 200                 205

Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Ser Asp Tyr Asn Gln Asn Phe
    210                 215                 220

Lys Gly Lys Thr Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr
225                 230                 235                 240

Met Gln Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                245                 250                 255

Ala Arg Arg Ala Asp Tyr Gly Asn Tyr Glu Tyr Thr Trp Phe Ala Tyr
            260                 265                 270

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser
        275                 280                 285

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln
    290                 295                 300

Ser Pro Lys Phe Met Ser Thr Ser Val Gly Asp Arg Val Asn Val Thr
305                 310                 315                 320

Tyr Lys Ala Ser Gln Asn Val Gly Thr Asn Val Ala Trp Phe Gln Gln
                325                 330                 335

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

Tyr Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
        355                 360                 365

Phe Thr Leu Thr Ile Ser Asn Val Gln Ser Glu Asp Leu Ala Glu Tyr
    370                 375                 380

Phe Cys Gln Gln Tyr His Thr Tyr Pro Leu Thr Phe Gly Gly Gly Thr
385                 390                 395                 400

Lys Leu Glu Ile Lys Arg Ala Asp His His His His His His
                405                 410
```

<210> 118
<211> 392
<212> PRT
<213> pelB-CD3VL-scFvCEA-6HIS

<400> 118

```
Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                  10                  15

Ala Gln Pro Ala Met Ala Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile
            20                  25                  30

Met Ser Ala Ser Pro Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser
        35                  40                  45

Ser Ser Val Ser Tyr Met Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser
    50                  55                  60

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

Tyr Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile
                85                  90                  95

Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp
            100                 105                 110

Ser Ser Asn Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
        115                 120                 125

Ser Gly Gly Gly Gly Ser Ser Arg Val Ala Gln Val Gln Leu Gln Gln
    130                 135                 140

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

Lys Ala Ser Gly Tyr Thr Phe Thr Thr Tyr Thr Ile His Trp Val Arg
                165                 170                 175

Gln Arg Pro Gly His Asp Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser
            180                 185                 190

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

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

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

Gly Asn Tyr Glu Tyr Thr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Thr
                245                 250                 255

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
            260                 265                 270
```

```
Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Lys Phe Met Ser
        275                 280                 285

Thr Ser Val Gly Asp Arg Val Asn Val Thr Tyr Lys Ala Ser Gln Asn
    290                 295                 300

Val Gly Thr Asn Val Ala Trp Phe Gln Gln Lys Pro Gly Gln Ser Pro
305                 310                 315                 320

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

Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
            340                 345                 350

Asn Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr His
        355                 360                 365

Thr Tyr Pro Leu Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
    370                 375                 380

Ala Asp His His His His His His
385                 390
```

<210> 119
<211> 414
<212> PRT
<213> pelB-(aCD3)VH-scFvHLA-Cw6-myc-6His

<400> 119

```
Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                   10                  15

Ala Gln Pro Ala Met Ala Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu
            20                  25                  30

Leu Ala Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Thr Ser Gly
        35                  40                  45

Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys Gln Arg Pro Gly
    50                  55                  60

Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr
65                  70                  75                  80

Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys
                85                  90                  95

Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp
            100                 105                 110
```

```
Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu
        115                 120                 125

Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly Gly
    130                 135                 140

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

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

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

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

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

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

Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Tyr Ser Phe Ser Trp
                245                 250                 255

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

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

Gly Ser Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro
    290                 295                 300

Gly Gln Thr Ala Arg Ile Ser Cys Ser Gly Asp Ala Leu Gly Asp Lys
305                 310                 315                 320

Tyr Ala Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val
                325                 330                 335

Ile Tyr Asp Asp Ser Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser
            340                 345                 350

Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln
        355                 360                 365

Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Asn Phe Asp
    370                 375                 380
```

eolf-seql

Ser Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Glu Gln
385 390 395 400

Lys Leu Ile Ser Glu Glu Asp Leu His His His His His His
405 410

<210> 120
<211> 391
<212> PRT
<213> pelB-CD3VL-scFvCD138-6His

<400> 120

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile
20 25 30

Met Ser Ala Ser Pro Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser
35 40 45

Ser Ser Val Ser Tyr Met Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser
50 55 60

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

Tyr Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile
85 90 95

Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp
100 105 110

Ser Ser Asn Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
115 120 125

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

Gln Ser Gly Ser Glu Leu Met Pro Gly Ala Ser Val Lys Ile Ser Cys
145 150 155 160

Lys Ala Thr Gly Tyr Thr Phe Ser Asn Tyr Trp Ile Glu Trp Val Lys
165 170 175

Gln Arg Pro Gly His Gly Leu Glu Trp Ile Gly Glu Ile Leu Pro Gly
180 185 190

Thr Gly Arg Thr Ile Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr Phe
195 200 205

Thr Ala Asp Ile Ser Ser Asn Thr Val Gln Met Gln Leu Ser Ser Leu

210 215 220

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

Gly Asn Phe Tyr Tyr Ala Met Asp Tyr Trp Gly Gln Gly Thr Ser Val
245 250 255

Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
260 265 270

Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Thr Ser Ser Leu Ser Ala
275 280 285

Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Ser Ala Ser Gln Gly Ile
290 295 300

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

Leu Leu Ile Tyr Tyr Thr Ser Thr Leu Gln Ser Gly Val Pro Ser Arg
325 330 335

Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn
340 345 350

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

Leu Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Thr
370 375 380

Val His His His His His His
385 390

<210> 121
<211> 408
<212> PRT
<213> pelB-CD3VH-scFvCD138-6His

<400> 121

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu
20 25 30

Leu Ala Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Thr Ser Gly
35 40 45

Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys Gln Arg Pro Gly
50 55 60

```
Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr
65                  70                  75                  80

Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys
                85                  90                  95

Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp
            100                 105                 110

Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu
        115                 120                 125

Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly Gly
    130                 135                 140

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

Gln Gln Ser Gly Ser Glu Leu Met Pro Gly Ala Ser Val Lys Ile Ser
                165                 170                 175

Cys Lys Ala Thr Gly Tyr Thr Phe Ser Asn Tyr Trp Ile Glu Trp Val
            180                 185                 190

Lys Gln Arg Pro Gly His Gly Leu Glu Trp Ile Gly Glu Ile Leu Pro
        195                 200                 205

Gly Thr Gly Arg Thr Ile Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr
    210                 215                 220

Phe Thr Ala Asp Ile Ser Ser Asn Thr Val Gln Met Gln Leu Ser Ser
225                 230                 235                 240

Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg Glu Gln Tyr
                245                 250                 255

Tyr Gly Asn Phe Tyr Tyr Ala Met Asp Tyr Trp Gly Gln Gly Thr Ser
            260                 265                 270

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
        275                 280                 285

Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Thr Ser Ser Leu Ser
    290                 295                 300

Ala Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Ser Ala Ser Gln Gly
305                 310                 315                 320

Ile Asn Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val
                325                 330                 335
```

```
Glu Leu Leu Ile Tyr Tyr Thr Ser Thr Leu Gln Ser Gly Val Pro Ser
            340                 345                 350

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

Asn Leu Glu Pro Glu Asp Ile Gly Thr Tyr Tyr Cys Gln Gln Tyr Ser
    370                 375                 380

Lys Leu Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
385                 390                 395                 400

Thr Val His His His His His His
                405
```

<210> 122
<211> 404
<212> PRT
<213> pelB-(aHis)VH-scFvHLA-A2(VH-VL)-myc

<400> 122

```
Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                   10                  15

Ala Gln Pro Ala Met Ala Gln Val Gln Leu Gln Gln Ser Gly Pro Glu
            20                  25                  30

Asp Val Lys Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly
        35                  40                  45

Tyr Thr Phe Thr Asp Tyr Tyr Met Asn Trp Val Lys Gln Ser Pro Gly
    50                  55                  60

Lys Gly Leu Glu Trp Ile Gly Asp Ile Asn Pro Asn Asn Gly Gly Thr
65                  70                  75                  80

Ser Tyr Asn Gln Lys Phe Lys Gly Arg Ala Thr Leu Thr Val Asp Lys
                85                  90                  95

Ser Ser Ser Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Glu Asp
            100                 105                 110

Ser Ser Val Tyr Tyr Cys Glu Ser Gln Ser Gly Ala Tyr Trp Gly Gln
        115                 120                 125

Gly Thr Thr Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly
    130                 135                 140

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

```
Gln Pro Gly Gly Ser Leu Arg Val Ser Cys Ala Ala Ser Gly Val Thr
                165                 170                 175

Leu Ser Asp Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly
            180                 185                 190

Leu Glu Trp Met Ala Phe Ile Arg Asn Asp Gly Ser Asp Lys Tyr Tyr
        195                 200                 205

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

Lys Thr Val Ser Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala
225                 230                 235                 240

Val Tyr Tyr Cys Ala Lys Asn Gly Glu Ser Gly Pro Leu Asp Tyr Trp
                245                 250                 255

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

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Val
        275                 280                 285

Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
    290                 295                 300

Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr Leu Asn
305                 310                 315                 320

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Asp
                325                 330                 335

Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
            340                 345                 350

Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu Asp
        355                 360                 365

Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Ser Phe Pro Leu Thr Phe
    370                 375                 380

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

Glu Glu Asp Leu
```

<210> 123
<211> 410
<212> PRT

eolf-seq1

<213> pelB-(aHis)VL-scFvCD45(VL-VH)-myc

<400> 123

```
Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                  10                  15

Ala Gln Pro Ala Met Ala Asp Tyr Lys Asp Ile Leu Met Thr Gln Thr
            20                  25                  30

Pro Ser Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys
        35                  40                  45

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

Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys
65                  70                  75                  80

Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly
                85                  90                  95

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

Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Phe Thr Phe
        115                 120                 125

Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Gly Gly Gly Gly Ser Gly
    130                 135                 140

Gly Gly Gly Ser Gly Gly Asp Ile Val Leu Thr Gln Ser Pro Ala Ser
145                 150                 155                 160

Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser
                165                 170                 175

Lys Ser Val Ser Thr Ser Gly Tyr Ser Tyr Leu His Trp Tyr Gln Gln
            180                 185                 190

Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu
        195                 200                 205

Glu Ser Gly Val Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
    210                 215                 220

Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp Ala Ala Thr Tyr
225                 230                 235                 240

Tyr Cys Gln His Ser Arg Glu Leu Pro Phe Thr Phe Gly Ser Gly Thr
                245                 250                 255
```

```
Lys Leu Glu Ile Lys Lys Ile Ser Gly Gly Gly Gly Ser Gly Gly Gly
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Ser Gln Val Gln Leu Val Glu Ser Gly
        275                 280                 285

Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala
    290                 295                 300

Ser Gly Phe Asp Phe Ser Arg Tyr Trp Met Ser Trp Val Arg Gln Ala
305                 310                 315                 320

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

Thr Ile Asn Phe Thr Pro Ser Leu Lys Asp Lys Val Phe Ile Ser Arg
            340                 345                 350

Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Lys Val Arg Ser
        355                 360                 365

Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Arg Gly Asn Tyr Tyr Arg Tyr
    370                 375                 380

Gly Asp Ala Met Asp Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser
385                 390                 395                 400

Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
                405                 410


<210>  124
<211>  415
<212>  PRT
<213>  pelB-(aCD3)VH-scFvHLA-A2(VH-VL)-myc-6His

<400>  124

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                   10                  15

Ala Gln Pro Ala Met Ala Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu
            20                  25                  30

Leu Ala Arg Pro Gly Ala Ser Val Lys Met Ser Cys Lys Thr Ser Gly
        35                  40                  45

Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys Gln Arg Pro Gly
    50                  55                  60

Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr
65                  70                  75                  80

Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys
```

85 90 95

Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp
100 105 110

Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu
115 120 125

Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Gly Gly Gly
130 135 140

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

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

Ala Ser Gly Val Thr Leu Ser Asp Tyr Gly Met His Trp Val Arg Gln
180 185 190

Ala Pro Gly Lys Gly Leu Glu Trp Met Ala Phe Ile Arg Asn Asp Gly
195 200 205

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

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

Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asn Gly Glu Ser Gly
245 250 255

Pro Leu Asp Tyr Trp Tyr Phe Asp Leu Trp Gly Arg Gly Thr Leu Val
260 265 270

Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
275 280 285

Gly Gly Ser Asp Val Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
290 295 300

Ser Val Gly Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile
305 310 315 320

Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
325 330 335

Leu Leu Ile Tyr Asp Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg
340 345 350

Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser

355 360 365

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Ser
370 375 380

Phe Pro Leu Thr Phe Gly Gly Gly Thr Lys Val Asp Ile Lys Arg Glu
385 390 395 400

Gln Lys Leu Ile Ser Glu Glu Asp Leu His His His His His His
405 410 415

<210> 125
<211> 406
<212> PRT
<213> pelB-(aCD3)VL-scFvCD45(VL-VH)-myc-6His

<400> 125

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile
20 25 30

Met Ser Ala Ser Pro Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser
35 40 45

Ser Ser Val Ser Tyr Met Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser
50 55 60

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

Tyr Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile
85 90 95

Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp
100 105 110

Ser Ser Asn Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Asp Ile Val Leu
130 135 140

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

Ile Ser Cys Arg Ala Ser Lys Ser Val Ser Thr Ser Gly Tyr Ser Tyr
165 170 175

Leu His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile
180 185 190

```
Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Ala Arg Phe Ser Gly
        195                 200                 205

Ser Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu
    210                 215                 220

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln His Ser Arg Glu Leu Pro Phe
225                 230                 235                 240

Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Lys Ile Ser Gly Gly
                245                 250                 255

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ser Gln Val
            260                 265                 270

Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu
        275                 280                 285

Lys Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr Trp Met
    290                 295                 300

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

Ile Asn Pro Thr Ser Ser Thr Ile Asn Phe Thr Pro Ser Leu Lys Asp
                325                 330                 335

Lys Val Phe Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln
            340                 345                 350

Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys Ala Arg
        355                 360                 365

Gly Asn Tyr Tyr Arg Tyr Gly Asp Ala Met Asp Tyr Trp Gly Gln Gly
    370                 375                 380

Thr Ser Val Thr Val Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
385                 390                 395                 400

His His His His His His
                405
```

<210> 126
<211> 415
<212> PRT
<213> pelB-VHaDIG-scFvEGFR-FLAG-6HIS

<400> 126

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Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                   10                  15
```

```
Ala Gln Pro Ala Met Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly
            20                  25                  30

Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Val Ser Gly
        35                  40                  45

Phe Thr Phe Ser Asp Tyr Ala Met Ser Trp Ile Arg Gln Thr Pro Glu
    50                  55                  60

Asn Arg Leu Glu Trp Val Ala Ser Ile Asn Ile Gly Ala Thr Tyr Ala
65                  70                  75                  80

Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
                85                  90                  95

Ala Lys Asn Thr Leu Phe Leu Gln Met Ser Ser Leu Gly Ser Glu Asp
            100                 105                 110

Thr Ala Met Tyr Tyr Cys Ala Arg Pro Gly Ser Pro Tyr Glu Tyr Asp
        115                 120                 125

Lys Ala Tyr Tyr Ser Met Ala Tyr Trp Gly Pro Gly Thr Ser Val Thr
    130                 135                 140

Val Ser Ser Ala Lys Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
145                 150                 155                 160

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Val Ser Ser Gly
            180                 185                 190

Asp Tyr Tyr Trp Thr Trp Ile Arg Gln Ser Pro Gly Lys Gly Leu Glu
        195                 200                 205

Trp Ile Gly His Ile Tyr Tyr Ser Gly Asn Thr Asn Tyr Asn Pro Ser
    210                 215                 220

Leu Lys Ser Arg Leu Thr Ile Ser Ile Asp Thr Ser Lys Thr Gln Phe
225                 230                 235                 240

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr
                245                 250                 255

Cys Val Arg Asp Arg Val Thr Gly Ala Phe Asp Ile Trp Gly Gln Gly
            260                 265                 270

Thr Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
        275                 280                 285
```

```
Ser Gly Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
    290                 295                 300

Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Gln Ala Ser
305                 310                 315                 320

Gln Asp Ile Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys
                325                 330                 335

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

Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr
        355                 360                 365

Ile Ser Ser Leu Gln Pro Glu Asp Ile Ala Thr Tyr Phe Cys Gln His
    370                 375                 380

Phe Asp His Leu Pro Leu Ala Phe Gly Gly Gly Thr Lys Val Glu Ile
385                 390                 395                 400

Lys Asp Tyr Lys Asp Asp Asp Asp Lys His His His His His His
                405                 410                 415
```

<210> 127
<211> 412
<212> PRT
<213> pelB-VLaDIG-scFvEpCAM-myc-6HIS

<400> 127

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Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                   10                  15

Ala Gln Pro Ala Met Ala Asp Val Gln Met Thr Gln Ser Thr Ser Ser
            20                  25                  30

Leu Ser Ala Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Arg Ala Ser
        35                  40                  45

Gln Asp Ile Lys Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Gly
    50                  55                  60

Thr Val Lys Leu Leu Ile Tyr Tyr Ser Ser Thr Leu Leu Ser Gly Val
65                  70                  75                  80

Pro Ser Arg Phe Ser Gly Arg Gly Ser Gly Thr Asp Phe Ser Leu Thr
                85                  90                  95

Ile Thr Asn Leu Glu Arg Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln
            100                 105                 110
```

```
Ser Ile Thr Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
        115                 120                 125

Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Gly Gly Ser Gly
    130                 135                 140

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

Val Arg Pro Gly Thr Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr
                165                 170                 175

Ala Phe Thr Asn Tyr Trp Leu Gly Trp Val Lys Gln Arg Pro Gly His
            180                 185                 190

Gly Leu Glu Trp Ile Gly Asp Ile Phe Pro Gly Ser Gly Asn Ile His
        195                 200                 205

Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser
    210                 215                 220

Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Phe Glu Asp Ser
225                 230                 235                 240

Ala Val Tyr Phe Cys Ala Arg Leu Arg Asn Trp Asp Glu Pro Met Asp
                245                 250                 255

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

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Leu Val Met Thr
        275                 280                 285

Gln Ser Pro Ser Ser Leu Thr Val Thr Ala Gly Glu Lys Val Thr Met
    290                 295                 300

Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn
305                 310                 315                 320

Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu
                325                 330                 335

Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val Pro Asp Arg Phe Thr
            340                 345                 350

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Val Gln
        355                 360                 365

Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Asn Asp Tyr Ser Tyr Pro
    370                 375                 380
```

```
Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Glu Gln Lys Leu
385                 390                 395                 400

Ile Ser Glu Glu Asp Leu His His His His His His
                405                 410
```

<210> 128
<211> 400
<212> PRT
<213> pelB-murineCD3VH-scFvEpCAM-6His

<400> 128

```
Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1               5                   10                  15

Ala Gln Pro Ala Met Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly
            20                  25                  30

Leu Val Gln Pro Gly Lys Ser Leu Lys Leu Ser Cys Glu Ala Ser Gly
        35                  40                  45

Phe Thr Phe Ser Gly Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly
    50                  55                  60

Arg Gly Leu Glu Ser Val Ala Tyr Ile Thr Ser Ser Ser Ile Asn Ile
65                  70                  75                  80

Lys Tyr Ala Asp Ala Val Lys Gly Arg Phe Thr Val Ser Arg Asp Asn
                85                  90                  95

Ala Lys Asn Leu Leu Phe Leu Gln Met Asn Ile Leu Lys Ser Glu Asp
            100                 105                 110

Thr Ala Met Tyr Tyr Cys Ala Arg Phe Asp Trp Asp Lys Asn Tyr Trp
        115                 120                 125

Gly Gln Gly Thr Met Val Thr Val Ser Ser Ala Lys Thr Ser Ser Gly
    130                 135                 140

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

Pro Gly Thr Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ala Phe
                165                 170                 175

Thr Asn Tyr Trp Leu Gly Trp Val Lys Gln Arg Pro Gly His Gly Leu
            180                 185                 190

Glu Trp Ile Gly Asp Ile Phe Pro Gly Ser Gly Asn Ile His Tyr Asn
        195                 200                 205

Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser
```

210 215 220

Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Phe Glu Asp Ser Ala Val
225 230 235 240

Tyr Phe Cys Ala Arg Leu Arg Asn Trp Asp Glu Pro Met Asp Tyr Trp
245 250 255

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

Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Leu Val Met Thr Gln Ser
275 280 285

Pro Ser Ser Leu Thr Val Thr Ala Gly Glu Lys Val Thr Met Ser Cys
290 295 300

Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
305 310 315 320

Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr
325 330 335

Trp Ala Ser Thr Arg Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser
340 345 350

Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu
355 360 365

Asp Leu Ala Val Tyr Tyr Cys Gln Asn Asp Tyr Ser Tyr Pro Leu Thr
370 375 380

Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys His His His His His His
385 390 395 400

<210> 129
<211> 384
<212> PRT
<213> pelB-murineCD3VL-scFvEGFR1-6His

<400> 129

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
20 25 30

Leu Pro Ala Ser Leu Gly Asp Arg Val Thr Ile Asn Cys Gln Ala Ser
35 40 45

Gln Asp Ile Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys
50 55 60

```
Ala Pro Lys Leu Leu Ile Tyr Tyr Thr Asn Lys Leu Ala Asp Gly Val
65                  70                  75                  80

Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Arg Asp Ser Ser Phe Thr
                85                  90                  95

Ile Ser Ser Leu Glu Ser Glu Asp Ile Gly Ser Tyr Tyr Cys Gln Gln
            100                 105                 110

Tyr Tyr Asn Tyr Pro Trp Thr Phe Gly Pro Gly Thr Lys Leu Glu Ile
        115                 120                 125

Lys Arg Ala Asp Ser Ser Gly Gly Gly Gln Val Gln Leu Gln Glu Ser
    130                 135                 140

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

Val Ser Gly Gly Ser Val Ser Ser Gly Asp Tyr Tyr Trp Thr Trp Ile
                165                 170                 175

Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Ile Gly His Ile Tyr Tyr
            180                 185                 190

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

Ser Ile Asp Thr Ser Lys Thr Gln Phe Ser Leu Lys Leu Ser Ser Val
    210                 215                 220

Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys Val Arg Asp Arg Val Thr
225                 230                 235                 240

Gly Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
                245                 250                 255

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp
            260                 265                 270

Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp
        275                 280                 285

Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr Leu
    290                 295                 300

Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
305                 310                 315                 320

Asp Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly Ser
                325                 330                 335
```

Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu
340 345 350

Asp Ile Ala Thr Tyr Phe Cys Gln His Phe Asp His Leu Pro Leu Ala
355 360 365

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys His His His His His His
370 375 380

<210> 130
<211> 558
<212> PRT
<213> pelB-ta(DIG*EpCAM)-Myc-6HIS

<400> 130

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
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Ala Gln Pro Ala Met Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly
20 25 30

Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Val Ser Gly
35 40 45

Phe Thr Phe Ser Asp Tyr Ala Met Ser Trp Ile Arg Gln Thr Pro Glu
50 55 60

Asn Arg Leu Glu Trp Val Ala Ser Ile Asn Ile Gly Ala Thr Tyr Ala
65 70 75 80

Tyr Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
85 90 95

Ala Lys Asn Thr Leu Phe Leu Gln Met Ser Ser Leu Gly Ser Glu Asp
100 105 110

Thr Ala Met Tyr Tyr Cys Ala Arg Pro Gly Ser Pro Tyr Glu Tyr Asp
115 120 125

Lys Ala Tyr Tyr Ser Met Ala Tyr Trp Gly Pro Gly Thr Ser Val Thr
130 135 140

Val Ser Ser Ala Lys Thr Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
145 150 155 160

Gly Ser Gly Gly Gly Gly Ser Gly Asp Val Gln Met Thr Gln Ser Thr
165 170 175

Ser Ser Leu Ser Ala Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Arg
180 185 190

```
Ala Ser Gln Asp Ile Lys Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro
        195                 200                 205

Gly Gly Thr Val Lys Leu Leu Ile Tyr Tyr Ser Ser Thr Leu Leu Ser
    210                 215                 220

Gly Val Pro Ser Arg Phe Ser Gly Arg Gly Ser Gly Thr Asp Phe Ser
225                 230                 235                 240

Leu Thr Ile Thr Asn Leu Glu Arg Glu Asp Ile Ala Thr Tyr Phe Cys
                245                 250                 255

Gln Gln Ser Ile Thr Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu
            260                 265                 270

Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Gly Gly
        275                 280                 285

Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Leu Glu Gln Ser Gly Ala
    290                 295                 300

Glu Leu Val Arg Pro Gly Thr Ser Val Lys Ile Ser Cys Lys Ala Ser
305                 310                 315                 320

Gly Tyr Ala Phe Thr Asn Tyr Trp Leu Gly Trp Val Lys Gln Arg Pro
                325                 330                 335

Gly His Gly Leu Glu Trp Ile Gly Asp Ile Phe Pro Gly Ser Gly Asn
            340                 345                 350

Ile His Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp
        355                 360                 365

Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Phe Glu
    370                 375                 380

Asp Ser Ala Val Tyr Phe Cys Ala Arg Leu Arg Asn Trp Asp Glu Pro
385                 390                 395                 400

Met Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly
                405                 410                 415

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Leu Val
            420                 425                 430

Met Thr Gln Ser Pro Ser Ser Leu Thr Val Thr Ala Gly Glu Lys Val
        435                 440                 445

Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln
    450                 455                 460
```

```
Lys Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys
465                 470                 475                 480

Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val Pro Asp Arg
                485                 490                 495

Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
            500                 505                 510

Val Gln Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Asn Asp Tyr Ser
        515                 520                 525

Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Glu Gln
    530                 535                 540

Lys Leu Ile Ser Glu Glu Asp Leu His His His His His His
545                 550                 555
```

<210> 131
<211> 9
<212> PRT
<213> Anti-DIG VL CDR3

<400> 131

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Gln Gln Ser Ile Thr Leu Pro Pro Thr
1               5
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<210> 132
<211> 8
<212> PRT
<213> Anti-CD45 VH CDR1

<400> 132

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Gly Phe Asp Phe Ser Arg Tyr Trp
1               5
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<210> 133
<211> 8
<212> PRT
<213> Anti-CD45 VH CDR2

<400> 133

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Ile Asn Pro Thr Ser Ser Thr Ile
1               5
```

<210> 134
<211> 14
<212> PRT
<213> Anti-CD45 VH CDR3

<400> 134

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Ala Arg Gly Asn Tyr Tyr Arg Tyr Gly Asp Ala Met Asp Tyr
1               5                   10
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<210> 135
<211> 1167
<212> DNA
<213> Nucleotide sequence encoding pelB-CD3VL-scFvEPCAM(VH-VL)-6His

<400> 135
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gtcaccatga cctgcagagc cagttcaagt gtaagttaca tgaactggta ccagcagaag 180

tcaggcacct cccccaaaag atggatttat gacacatcca aagtggcttc tggagtccct 240

tatcgcttca gtggcagtgg gtctgggacc tcatactctc tcacaatcag cagcatggag 300

gctgaagatg ctgccactta ttactgccaa cagtggagta gtaacccgct cacgttcggt 360

gctgggacca agctggagct gaaatccgga ggtggtggat ccgaggtgca gctgctcgag 420

cagtctggag ctgagctggt aaggcctggg acttcagtga agatatcctg caaggcttct 480

ggatacgcct tcactaacta ctggctaggt tgggtaaagc agaggcctgg acatggactt 540

gagtggattg gagatatttt ccctggaagt ggtaatatcc actacaatga gaagttcaag 600

ggcaaagcca cactgactgc agacaaatct tcgagcacag cctatatgca gctcagtagc 660

ctgacatttg aggactctgc tgtctatttc tgtgcaagac tgaggaactg ggacgagcct 720

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ggcggcggct ccggtggtgg tggttctgag ctcgtgatga cacagtctcc atcctccctg 840

actgtgacag caggagagaa ggtcactatg agctgcaagt ccagtcagag tctgttaaac 900

agtggaaatc aaaagaacta cttgacctgg taccagcaga aaccagggca gcctcctaaa 960

ctgttgatct actgggcatc cactagggaa tctggggtcc ctgatcgctt cacaggcagt 1020

ggatctggaa cagatttcac tctcaccatc agcagtgtgc aggctgaaga cctggcagtt 1080

tattactgtc agaatgatta tagttatccg ctcacgttcg gtgctgggac caagcttgag 1140

atcaaacatc atcaccatca tcattag 1167

<210> 136
<211> 1215
<212> DNA
<213> Nucleotide sequence encoding pelB-CD3VH-scFvHer2/neu-6HIS

<400> 136
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atggccgata tcaaactgca gcagtcaggg gctgaactgg caagacctgg ggcctcagtg 120

aagatgtcct gcaagacttc tggctacacc tttactaggt acacgatgca ctgggtaaaa 180

cagaggcctg gacagggtct ggaatggatt ggatacatta atcctagccg tggttatact 240

aattacaatc agaagttcaa ggacaaggcc acattgacta cagacaaatc ctccagcaca 300

gcctacatgc aactgagcag cctgacatct gaggactctg cagtctatta ctgtgcaaga 360

tattatgatg atcattactg ccttgactac tggggccaag gcaccactct cacagtctcc 420

tcaggtggtg gtggttctgg cggcggcggc tccggtggtg gtggttctga ggttcagctg 480

gtggagtctg gcggtggcct ggtgcagcca gggggctcac tccgtttgtc ctgtgcagct 540

tctggcttca acattaaaga cacctatata cactgggtgc gtcaggcccc gggtaagggc 600

ctggaatggg ttgcaaggat ttatcctacg aatggttata ctagatatgc cgatagcgtc 660

aagggccgtt tcactataag cgcagacaca tccaaaaaca cagcctacct gcagatgaac 720

agcctgcgtg ctgaggacac tgccgtctat tattgttcta ggtggggagg ggacggcttc 780

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aatactgctg tagcctggta tcaacagaaa ccaggaaaag ctccgaaact actgatttac 1020

tcggcatcct tcctctactc tggagtccct tctcgcttct ctggatccag atctgggacg 1080

gatttcactc tgaccatcag cagtctgcag ccggaagact tcgcaactta ttactgtcag 1140

caacattata ctactcctcc cacgttcgga cagggtacca aggtggagat caaacatcat 1200

caccatcatc attag 1215

<210> 137
<211> 1212
<212> DNA
<213> Nucleotide sequence encoding pelB-CD3VH-scFvEGFR (1) -6HIS

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aagatgtcct gcaagacttc tggctacacc tttactaggt acacgatgca ctgggtaaaa 180

cagaggcctg gacagggtct ggaatggatt ggatacatta atcctagccg tggttatact 240

aattacaatc agaagttcaa ggacaaggcc acattgacta cagacaaatc ctccagcaca 300

gcctacatgc aactgagcag cctgacatct gaggactctg cagtctatta ctgtgcaaga 360

tattatgatg atcattactg ccttgactac tggggccaag gcaccactct cacagtctcc 420

tcaggtggtg gtggttctgg cggcggcggc tccggtggtg gtggttctca ggtgcagctg 480

caggagtcgg gcccaggact ggtgaagcct tcggagaccc tgtccctcac ctgcactgtc 540

tctggtggct ccgtcagcag tggtgattac tactggacct ggatccggca gtccccaggg 600

aagggactgg agtggattgg acacatctat tacagtggga acaccaatta taacccctcc 660

ctcaagagcc gactcaccat atcaattgac acgtccaaga ctcagttctc cctgaagctg 720

agttctgtga ccgctgcgga cacggccatt tattactgtg tgcgagatcg agtgactggt 780

gcttttgata tctggggcca agggacaatg gtcaccgtct cttccggtgg tggtggttct 840

ggcggcggcg gctccggtgg tggtggttct gacatccaga tgacccagtc tccatcctcc 900

ctgtctgcat ctgtcggaga cagagtcacc atcacttgcc aggcgagtca ggacatcagc 960

aactatttaa attggtatca gcagaaacca gggaaagccc ctaaactcct gatctacgat 1020

gcatccaatt tggaaacagg ggtcccatca aggttcagtg gaagtggatc tgggacagat 1080

tttactttca ccatcagcag cctgcagcct gaagatattg caacatattt ctgtcaacac 1140

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catcatcatt ag 1212

<210> 138
<211> 1245
<212> DNA
<213> Nucleotide sequence encoding pelB-CD3VH-scFvCEA-6HIS

<400> 138
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aagatgtcct gcaagacttc tggctacacc tttactaggt acacgatgca ctgggtaaaa 180

cagaggcctg gacagggtct ggaatggatt ggatacatta atcctagccg tggttatact 240

aattacaatc agaagttcaa ggacaaggcc acattgacta cagacaaatc ctccagcaca 300

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tattatgatg atcattactg ccttgactac tggggccaag gcaccactct cacagtctcc 420

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accgtgcatc atcaccatca tcattag 1227

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<210> 147
<211> 1248
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gctgtctatt tctgtgcaag actgaggaac tgggacgagc ctatggacta ctggggccaa 780
gggaccacgg tcaccgtctc ctcaggtggt ggtggttctg gcggcggcgg ctccggtggt 840
ggtggttctg agctcgtgat gacacagtct ccatcctccc tgactgtgac agcaggagag 900
aaggtcacta tgagctgcaa gtccagtcag agtctgttaa acagtggaaa tcaaaagaac 960
tacttgacct ggtaccagca gaaaccaggg cagcctccta aactgttgat ctactgggca 1020
tccactaggg aatctggggt ccctgatcgc ttcacaggca gtggatctgg aacagatttc 1080
actctcacca tcagcagtgt gcaggctgaa gacctggcag tttattactg tcagaatgat 1140
tatagttatc cgctcacgtt cggtgctggg accaagcttg agatcaaaga acagaaactg 1200
atctctgaag aagacctgca tcatcaccat catcattag 1239

<210> 149
<211> 1203
<212> DNA
<213> Nucleotide sequence encoding pelB-murineCD3VH-scFvEpCaAM-6His

<400> 149
atgaaatatc tgctgccgac cgcggcggcg ggcctgctgc tgctggcggc gcagccggcg 60

atggcggaag tgcagctggt ggaaagcggc ggcggcctgg tgcagccggg caaaagcctg 120

aaactgagct gcgaagcgag cggctttacc tttagcggct atggcatgca ttgggtgcgc 180

caggcgccgg gccgcggcct ggaaagcgtg gcgtatatta ccagcagcag cattaacatt 240

aaatatgcgg atgcggtgaa aggccgcttt accgtgagcc gcgataacgc gaaaaacctg 300

ctgtttctgc agatgaacat tctgaaaagc gaagataccg cgatgtatta ttgcgcgcgc 360

tttgattggg ataaaaacta ttggggccag ggcaccatgg tgaccgtgag cagcgcgaaa 420

accagcagcg gcggcggcga ggtgcagctg ctcgagcagt ctggagctga gctggtaagg 480

cctgggactt cagtgaagat atcctgcaag gcttctggat acgccttcac taactactgg 540

ctaggttggg taaagcagag gcctggacat ggacttgagt ggattggaga tattttccct 600

ggaagtggta atatccacta caatgagaag ttcaagggca aagccacact gactgcagac 660

aaatcttcga gcacagccta tatgcagctc agtagcctga catttgagga ctctgctgtc 720

tatttctgtg caagactgag gaactgggac gagcctatgg actactgggg ccaagggacc 780

acggtcaccg tctcctcagg tggtggtggt tctggcggcg gcggctccgg tggtggtggt 840

tctgagctcg tgatgacaca gtctccatcc tccctgactg tgacagcagg agagaaggtc 900

actatgagct gcaagtccag tcagagtctg ttaaacagtg gaaatcaaaa gaactacttg 960

acctggtacc agcagaaacc agggcagcct cctaaactgt tgatctactg ggcatccact 1020

agggaatctg gggtccctga tcgcttcaca ggcagtggat ctggaacaga tttcactctc 1080

accatcagca gtgtgcaggc tgaagacctg gcagtttatt actgtcagaa tgattatagt 1140

tatccgctca cgttcggtgc tgggaccaag cttgagatca aacatcatca ccatcatcat 1200

tag 1203

<210> 150
<211> 1155
<212> DNA
<213> Nucleotide sequence encoding pelB-murineCD3VL-scFvEGFR-6His

<400> 150
atgaaatatc tgctgccgac cgcggcggcg ggcctgctgc tgctggcggc gcagccggcg 60

atggcggata ttcagatgac ccagagcccg agcagcctgc cggcgagcct gggcgatcgc 120

gtgaccatta actgccaggc gagccaggat attagcaact atctgaactg gtatcagcag 180

aaaccgggca aagcgccgaa actgctgatt tattatacca acaaactggc ggatggcgtg 240

ccgagccgct ttagcggcag cggcagcggc cgcgatagca gctttaccat tagcagcctg 300

gaaagcgaag atattggcag ctattattgc cagcagtatt ataactatcc gtggaccttt 360

ggcccgggca ccaaactgga aattaaacgc gcggatagca gcggcggcgg ccaggtgcag 420

ctgcaggagt cgggcccagg actggtgaag ccttcggaga ccctgtccct cacctgcact 480

gtctctggtg gctccgtcag cagtggtgat tactactgga cctggatccg gcagtcccca 540

gggaagggac tggagtggat tggacacatc tattacagtg ggaacaccaa ttataacccc 600

tccctcaaga gccgactcac catatcaatt gacacgtcca agactcagtt ctccctgaag 660

ctgagttctg tgaccgctgc ggacacggcc atttattact gtgtgcgaga tcgagtgact 720

ggtgcttttg atatctgggg ccaagggaca atggtcaccg tctcttccgg tggtggtggt 780

tctggcggcg gcggctccgg tggtggtggt tctgacatcc agatgaccca gtctccatcc 840

tccctgtctg catctgtcgg agacagagtc accatcactt gccaggcgag tcaggacatc 900

agcaactatt taaattggta tcagcagaaa ccagggaaag cccctaaact cctgatctac 960

gatgcatcca atttggaaac aggggtccca tcaaggttca gtggaagtgg atctgggaca 1020

gattttactt tcaccatcag cagcctgcag cctgaagata ttgcaacata tttctgtcaa 1080

cactttgatc atctcccgct cgctttcggc ggagggacca aggtggagat caaacatcat 1140

caccatcatc attag 1155

<210> 151
<211> 1677
<212> DNA
<213> Nucleotide sequence encoding pelB-ta(DIG*EpCAM)-Myc-6HIS

<400> 151
atgaaatacc tgctgccgac cgctgctgct ggtctgctgc tcctcgctgc ccagccggcg 60

atggccgaag tgcagctggt ggaaagcggc ggcggcctgg tgaaaccggg cggcagcctg 120

aaactgagct gcgcggtgag cggctttacc tttagcgatt atgcgatgag ctggattcgc 180

cagaccccgg aaaaccgcct ggaatgggtg gcgagcatta acattggcgc gacctatgcg 240

tattatccgg atagcgtgaa aggccgcttt accattagcc gcgataacgc gaaaaacacc 300

ctgtttctgc agatgagcag cctgggcagc gaagataccg cgatgtatta ttgcgcgcgc 360

ccgggcagcc cgtatgaata tgataaagcg tattatagca tggcgtattg gggcccgggc 420

accagcgtga ccgtgagcag cgcgaaaacc tcctcaggtg gtggtggttc tggcggcggc 480

ggctccggtg gtggtggttc tggtgatgtg cagatgaccc agagcaccag cagcctgagc 540

gcgagcctgg gcgatcgcgt gaccattagc tgccgcgcga gccaggatat taaaaactat 600

ctgaactggt atcagcagaa accgggcggc accgtgaaac tgctgattta ttatagcagc 660

accctgctga gcggcgtgcc gagccgcttt agcggccgcg gcagcggcac cgattttagc 720

ctgaccatta ccaacctgga acgcgaagat attgcgacct atttttgcca gcagagcatt 780

accctgccgc cgacctttgg cggcggcacc aaactggaaa ttaaacgcgc ggatgcggcg 840

ccgaccgtga gcatttttgg tggttccgga ggtggtggat ccgaggtgca gctgctcgag 900

cagtctggag ctgagctggt aaggcctggg acttcagtga agatatcctg caaggcttct 960

ggatacgcct tcactaacta ctggctaggt tgggtaaagc agaggcctgg acatggactt 1020

gagtggattg gagatatttt ccctggaagt ggtaatatcc actacaatga gaagttcaag 1080

ggcaaagcca cactgactgc agacaaatct tcgagcacag cctatatgca gctcagtagc 1140

ctgacatttg aggactctgc tgtctatttc tgtgcaagac tgaggaactg ggacgagcct 1200

atggactact ggggccaagg gaccacggtc accgtctcct caggtggtgg tggttctggc 1260

ggcggcggct ccggtggtgg tggttctgag ctcgtgatga cacagtctcc atcctccctg 1320

actgtgacag caggagagaa ggtcactatg agctgcaagt ccagtcagag tctgttaaac 1380

agtggaaatc aaaagaacta cttgacctgg taccagcaga aaccagggca gcctcctaaa 1440

ctgttgatct actgggcatc cactagggaa tctggggtcc ctgatcgctt cacaggcagt 1500

ggatctggaa cagatttcac tctcaccatc agcagtgtgc aggctgaaga cctggcagtt 1560

tattactgtc agaatgatta tagttatccg ctcacgttcg gtgctgggac caagcttgag 1620

atcaaagaac agaaactgat ctctgaagaa gacctgcatc atcaccatca tcattag 1677

<210> 152
<211> 124
<212> PRT
<213> Anti-CD19 VH

<400> 152

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

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

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

Gly Gln Ile Trp Pro Gly Asp Gly Asp Thr Asn Tyr Asn Gly Lys Phe
50 55 60

Lys Gly Lys Ala Thr Leu Thr Ala Asp Glu Ser Ser Ser Thr Ala Tyr
65 70 75 80

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

Ala Arg Arg Glu Thr Thr Thr Val Gly Arg Tyr Tyr Tyr Ala Met Asp
100 105 110

Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 153
<211> 112
<212> PRT
<213> Anti-CD19 VL

<400> 153

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

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

Gly Asp Ser Tyr Leu Asn Trp Tyr Gln Gln Ile Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Tyr Asp Ala Ser Asn Leu Val Ser Gly Ile Pro Pro
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 Lys Val Asp Ala Ala Thr Tyr His Cys Gln Gln Ser Thr
85 90 95

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

<210> 154
<211> 251
<212> PRT
<213> scFv anti CD19 (VH-linker-VL)

<400> 154

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

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

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

Gly Gln Ile Trp Pro Gly Asp Gly Asp Thr Asn Tyr Asn Gly Lys Phe
50 55 60

Lys Gly Lys Ala Thr Leu Thr Ala Asp Glu Ser Ser Ser Thr Ala Tyr
65 70 75 80

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

Ala Arg Arg Glu Thr Thr Thr Val Gly Arg Tyr Tyr Tyr Ala Met Asp
100 105 110

Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly
115 120 125

```
Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Gln Leu Thr
    130                 135                 140

Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile
145                 150                 155                 160

Ser Cys Lys Ala Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Leu
                165                 170                 175

Asn Trp Tyr Gln Gln Ile Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr
            180                 185                 190

Asp Ala Ser Asn Leu Val Ser Gly Ile Pro Pro Arg Phe Ser Gly Ser
        195                 200                 205

Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Lys Val
    210                 215                 220

Asp Ala Ala Thr Tyr His Cys Gln Gln Ser Thr Glu Asp Pro Trp Thr
225                 230                 235                 240

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Ser
                245                 250
```

<210> 155
<211> 8
<212> PRT
<213> Anti-CD19 VH CDR1

<400> 155

```
Gly Tyr Ala Phe Ser Ser Tyr Trp
1               5
```

<210> 156
<211> 8
<212> PRT
<213> Anti-CD19 VH CDR2

<400> 156

```
Ile Trp Pro Gly Asp Gly Asp Thr
1               5
```

<210> 157
<211> 17
<212> PRT
<213> Anti-CD19 VH CDR3

<400> 157

```
Ala Arg Arg Glu Thr Thr Thr Val Gly Arg Tyr Tyr Tyr Ala Met Asp
1               5                   10                  15

Tyr
```

<210> 158
<211> 10
<212> PRT
<213> Anti-CD19 VL CDR1

<400> 158

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

<210> 159
<211> 9
<212> PRT
<213> Anti-CD19 VL CDR3

<400> 159

Gln Gln Ser Thr Glu Asp Pro Trp Thr
1 5

<210> 160
<211> 451
<212> PRT
<213> Clostridium perfringens Iota toxin component Ia (a.a.23-454) 6x histidine tag two protease cleavage sites

<400> 160

Met Ala Ser Thr Thr His His His His His His Asp Thr Asp Ile Pro
1 5 10 15

Thr Thr Gly Gly Gly Ser Arg Pro Asp Asp Asp Asp Lys Glu Asn Leu
20 25 30

Tyr Phe Gln Gly His Met Ala Phe Ile Glu Arg Pro Glu Asp Phe Leu
35 40 45

Lys Asp Lys Glu Asn Ala Ile Gln Trp Glu Lys Lys Glu Ala Glu Arg
50 55 60

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

Lys Lys Asp Ser Glu Gln Ile Ser Asn Tyr Ser Gln Thr Arg Gln Tyr
85 90 95

Phe Tyr Asp Tyr Gln Ile Glu Ser Asn Pro Arg Glu Lys Glu Tyr Lys
100 105 110

Asn Leu Arg Asn Ala Ile Ser Lys Asn Lys Ile Asp Lys Pro Ile Asn
115 120 125

Val Tyr Tyr Phe Glu Ser Pro Glu Lys Phe Ala Phe Asn Lys Glu Ile
130 135 140

```
Arg Thr Glu Asn Gln Asn Glu Ile Ser Leu Glu Lys Phe Asn Glu Leu
145                 150                 155                 160

Lys Glu Thr Ile Gln Asp Lys Leu Phe Lys Gln Asp Gly Phe Lys Asp
                165                 170                 175

Val Ser Leu Tyr Glu Pro Gly Asn Gly Asp Glu Lys Pro Thr Pro Leu
            180                 185                 190

Leu Ile His Leu Lys Leu Pro Lys Asn Thr Gly Met Leu Pro Tyr Ile
        195                 200                 205

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

Ile Asp Lys Ile Val Arg Ile Val Ile Glu Gly Lys Gln Tyr Ile Lys
225                 230                 235                 240

Ala Glu Ala Ser Ile Val Asn Ser Leu Asp Phe Lys Asp Asp Val Ser
                245                 250                 255

Lys Gly Asp Leu Trp Gly Lys Glu Asn Tyr Ser Asp Trp Ser Asn Lys
            260                 265                 270

Leu Thr Pro Asn Glu Leu Ala Asp Val Asn Asp Tyr Met Arg Gly Gly
        275                 280                 285

Tyr Thr Ala Ile Asn Asn Tyr Leu Ile Ser Asn Gly Pro Leu Asn Asn
    290                 295                 300

Pro Asn Pro Glu Leu Asp Ser Lys Val Asn Asn Ile Glu Asn Ala Leu
305                 310                 315                 320

Lys Leu Thr Pro Ile Pro Ser Asn Leu Ile Val Tyr Arg Arg Ser Gly
                325                 330                 335

Pro Gln Glu Phe Gly Leu Thr Leu Thr Ser Pro Glu Tyr Asp Phe Asn
            340                 345                 350

Lys Ile Glu Asn Ile Asp Ala Phe Lys Glu Lys Trp Glu Gly Lys Val
        355                 360                 365

Ile Thr Tyr Pro Asn Phe Ile Ser Thr Ser Ile Gly Ser Val Asn Met
    370                 375                 380

Ser Ala Phe Ala Lys Arg Lys Ile Ile Leu Arg Ile Asn Ile Pro Lys
385                 390                 395                 400

Asp Ser Pro Gly Ala Tyr Leu Ser Ala Ile Pro Gly Tyr Ala Gly Glu
                405                 410                 415
```

Tyr Glu Val Leu Leu Asn His Gly Ser Lys Phe Lys Ile Asn Lys Val
420 425 430

Asp Ser Tyr Lys Asp Gly Thr Val Thr Lys Leu Ile Leu Asp Ala Thr
435 440 445

Leu Ile Asn
450

<210> 161
<211> 300
<212> PRT
<213> Burkholderia sp. CCGE1002 Shiga toxin subunit A (a.a.24-285) 6x histidine tag two protease cleavage sites

<400> 161

Met Ala Ser Thr Thr His His His His His His Asp Thr Asp Ile Pro
1 5 10 15

Thr Thr Gly Gly Gly Ser Arg Pro Asp Asp Asp Asp Lys Glu Asn Leu
20 25 30

Tyr Phe Gln Gly His Met Glu Phe Ser Val Asp Phe Thr Ser Pro Gln
35 40 45

Lys Tyr Val Gln Ser Leu Gly Ala Ile Arg Ala Ala Met Gly Asp Ala
50 55 60

Met Ser Leu Thr Asn Ile Pro Gly Asn Lys Ile Leu Tyr Gln Leu Arg
65 70 75 80

Pro Asp Ala Ser Asn Ile Val Glu Gly Val Thr Ile Glu Ile Ile Gly
85 90 95

Val Gly Arg Asn Asn Ser Pro Ser Asn Arg Asp Val Arg Phe Val Ile
100 105 110

Asn Pro Ser Asp Leu Tyr Leu Thr Gly Phe Ile Val Gly Arg Ile Phe
115 120 125

Tyr Arg Phe Ser Asp Phe Ser Asp Thr Ala Ser Gly Arg Val Gln Val
130 135 140

Asn Ala Pro Arg His Leu Val Asp Phe Thr Ile Asp Met Thr Val Asp
145 150 155 160

Ser Ser Tyr Leu Ser Leu Ala Arg Ser Ala Gly Val Ser Ala Asp Arg
165 170 175

Thr Asp Leu Ser Ile Asp Arg Tyr Ser Leu Met Lys Gly Tyr Arg Asp
180 185 190

```
Leu Ile Asn His Val Ser Ser Thr Arg Thr Ile Asn Gly Ala Glu Ala
        195                 200                 205

Arg Ala Leu Leu Ser Tyr Ala Thr Val Leu Ser Glu Ala Val Arg Phe
    210                 215                 220

Arg Ser Ile Gln Gly Asn Phe Ala Ser Thr Ala Leu Gly Asp Asp Ala
225                 230                 235                 240

Phe Thr Pro Tyr Arg Leu Ser Leu Glu Asp Ser Asn Arg Thr Thr Arg
                245                 250                 255

Trp Asp Arg Leu Ser Asp Glu Ile Arg Lys Ala His Tyr Gly Ala Ile
            260                 265                 270

Lys Ile Ala Thr His Gly Ala Ala Pro Ile Leu Leu Ala Asn Val Arg
        275                 280                 285

Asp Val Phe Gly Met Thr Thr Cys Thr Ser Lys Lys
    290                 295                 300
```

<210> 162
<211> 521
<212> PRT
<213> Anthrax lethal factor endopeptidase no PA-binding region (34-295) 6x histidine tag

<400> 162

```
Gln Arg Met Leu Ala Arg Tyr Glu Lys Trp Glu Lys Ile Lys Gln His
1               5                   10                  15

Tyr Gln His Trp Ser Asp Ser Leu Ser Glu Glu Gly Arg Gly Leu Leu
            20                  25                  30

Lys Lys Leu Gln Ile Pro Ile Glu Pro Lys Lys Asp Asp Ile Ile His
        35                  40                  45

Ser Leu Ser Gln Glu Glu Lys Glu Leu Leu Lys Arg Ile Gln Ile Asp
    50                  55                  60

Ser Ser Asp Phe Leu Ser Thr Glu Glu Lys Glu Phe Leu Lys Lys Leu
65                  70                  75                  80

Gln Ile Asp Ile Arg Asp Ser Leu Ser Glu Glu Glu Lys Glu Leu Leu
                85                  90                  95

Asn Arg Ile Gln Val Asp Ser Ser Asn Pro Leu Ser Glu Lys Glu Lys
            100                 105                 110

Glu Phe Leu Lys Lys Leu Lys Leu Asp Ile Gln Pro Tyr Asp Ile Asn
        115                 120                 125
```

```
Gln Arg Leu Gln Asp Thr Gly Gly Leu Ile Asp Ser Pro Ser Ile Asn
    130                 135                 140

Leu Asp Val Arg Lys Gln Tyr Lys Arg Asp Ile Gln Asn Ile Asp Ala
145                 150                 155                 160

Leu Leu His Gln Ser Ile Gly Ser Thr Leu Tyr Asn Lys Ile Tyr Leu
                165                 170                 175

Tyr Glu Asn Met Asn Ile Asn Asn Leu Thr Ala Thr Leu Gly Ala Asp
            180                 185                 190

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

Glu Phe Lys Lys Asn Phe Lys Tyr Ser Ile Ser Ser Asn Tyr Met Ile
    210                 215                 220

Val Asp Ile Asn Glu Arg Pro Ala Leu Asp Asn Glu Arg Leu Lys Trp
225                 230                 235                 240

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

Lys Leu Ile Leu Gln Arg Asn Ile Gly Leu Glu Ile Lys Asp Val Gln
            260                 265                 270

Ile Ile Lys Gln Ser Glu Lys Glu Tyr Ile Arg Ile Asp Ala Lys Val
        275                 280                 285

Val Pro Lys Ser Lys Ile Asp Thr Lys Ile Gln Glu Ala Gln Leu Asn
    290                 295                 300

Ile Asn Gln Glu Trp Asn Lys Ala Leu Gly Leu Pro Lys Tyr Thr Lys
305                 310                 315                 320

Leu Ile Thr Phe Asn Val His Asn Arg Tyr Ala Ser Asn Ile Val Glu
                325                 330                 335

Ser Ala Tyr Leu Ile Leu Asn Glu Trp Lys Asn Asn Ile Gln Ser Asp
            340                 345                 350

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

Val Phe Thr Asp Ile Thr Leu Pro Asn Ile Ala Glu Gln Tyr Thr His
    370                 375                 380

Gln Asp Glu Ile Tyr Glu Gln Val His Ser Lys Gly Leu Tyr Val Pro
385                 390                 395                 400
```

```
Glu Ser Arg Ser Ile Leu Leu His Gly Pro Ser Lys Gly Val Glu Leu
                405                 410                 415

Arg Asn Asp Ser Glu Gly Phe Ile His Glu Phe Gly His Ala Val Asp
            420                 425                 430

Asp Tyr Ala Gly Tyr Leu Leu Asp Lys Asn Gln Ser Asp Leu Val Thr
        435                 440                 445

Asn Ser Lys Lys Phe Ile Asp Ile Phe Lys Glu Glu Gly Ser Asn Leu
    450                 455                 460

Thr Ser Tyr Gly Arg Thr Asn Glu Ala Glu Phe Phe Ala Glu Ala Phe
465                 470                 475                 480

Arg Leu Met His Ser Thr Asp His Ala Glu Arg Leu Lys Val Gln Lys
                485                 490                 495

Asn Ala Pro Lys Thr Phe Gln Phe Ile Asn Asp Gln Ile Lys Phe Ile
            500                 505                 510

Ile Asn Ser His His His His His His
        515                 520
```

<210> 163
<211> 389
<212> PRT
<213> Corynebacterium diphtheria toxin 6x histidine tag

<400> 163

```
Met Gly Ala Asp Asp Val Val Asp Ser Ser Lys Ser Phe Val Met Glu
1               5                   10                  15

Asn Phe Ser Ser Tyr His Gly Thr Lys Pro Gly Tyr Val Asp Ser Ile
            20                  25                  30

Gln Lys Gly Ile Gln Lys Pro Lys Ser Gly Thr Gln Gly Asn Tyr Asp
        35                  40                  45

Asp Asp Trp Lys Gly Phe Tyr Ser Thr Asp Asn Lys Tyr Asp Ala Ala
    50                  55                  60

Gly Tyr Ser Val Asp Asn Glu Asn Pro Leu Ser Gly Lys Ala Gly Gly
65                  70                  75                  80

Val Val Lys Val Thr Tyr Pro Gly Leu Thr Lys Val Leu Ala Leu Lys
                85                  90                  95

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

Glu Pro Leu Met Glu Gln Val Gly Thr Glu Glu Phe Ile Lys Arg Phe
```

```
        115                 120                 125

Gly Asp Gly Ala Ser Arg Val Val Leu Ser Leu Pro Phe Ala Glu Gly
    130                 135                 140

Ser Ser Ser Val Glu Tyr Ile Asn Asn Trp Glu Gln Ala Lys Ala Leu
145                 150                 155                 160

Ser Val Glu Leu Glu Ile Asn Phe Glu Thr Arg Gly Lys Arg Gly Gln
                165                 170                 175

Asp Ala Met Tyr Glu Tyr Met Ala Gln Ala Cys Ala Gly Asn Arg Val
            180                 185                 190

Arg Arg Ser Val Gly Ser Ser Leu Ser Cys Ile Asn Leu Asp Trp Asp
        195                 200                 205

Val Ile Arg Asp Lys Thr Lys Thr Lys Ile Glu Ser Leu Lys Glu His
    210                 215                 220

Gly Pro Ile Lys Asn Lys Met Ser Glu Ser Pro Asn Lys Thr Val Ser
225                 230                 235                 240

Glu Glu Lys Ala Lys Gln Tyr Leu Glu Glu Phe His Gln Thr Ala Leu
                245                 250                 255

Glu His Pro Glu Leu Ser Glu Leu Lys Thr Val Thr Gly Thr Asn Pro
            260                 265                 270

Val Phe Ala Gly Ala Asn Tyr Ala Ala Trp Ala Val Asn Val Ala Gln
        275                 280                 285

Val Ile Asp Ser Glu Thr Ala Asp Asn Leu Glu Lys Thr Thr Ala Ala
    290                 295                 300

Leu Ser Ile Leu Pro Gly Ile Gly Ser Val Met Gly Ile Ala Asp Gly
305                 310                 315                 320

Ala Val His His Asn Thr Glu Glu Ile Val Ala Gln Ser Ile Ala Leu
                325                 330                 335

Ser Ser Leu Met Val Ala Gln Ala Ile Pro Leu Val Gly Glu Leu Val
            340                 345                 350

Asp Ile Gly Phe Ala Ala Tyr Asn Phe Val Glu Asp Ser Ile Ile Arg
        355                 360                 365

Thr Gly Phe Gln Gly Glu Ser Gly His Lys Thr Gln Pro His Met His
    370                 375                 380

His His His His His
```

385

<210> 164
<211> 506
<212> PRT
<213> Clostridium perfringens str. 13 pfoA perfringolysin O 6x histidine tag

<400> 164

Met Ile Arg Phe Lys Lys Thr Lys Leu Ile Ala Ser Ile Ala Met Ala
1 5 10 15

Leu Cys Leu Phe Ser Gln Pro Val Ile Ser Phe Ser Lys Asp Ile Thr
20 25 30

Asp Lys Asn Gln Ser Ile Asp Ser Gly Ile Ser Ser Leu Ser Tyr Asn
35 40 45

Arg Asn Glu Val Leu Ala Ser Asn Gly Asp Lys Ile Glu Ser Phe Val
50 55 60

Pro Lys Glu Gly Lys Lys Thr Gly Asn Lys Phe Ile Val Val Glu Arg
65 70 75 80

Gln Lys Arg Ser Leu Thr Thr Ser Pro Val Asp Ile Ser Ile Ile Asp
85 90 95

Ser Val Asn Asp Arg Thr Tyr Pro Gly Ala Leu Gln Leu Ala Asp Lys
100 105 110

Ala Phe Val Glu Asn Arg Pro Thr Ile Leu Met Val Lys Arg Lys Pro
115 120 125

Ile Asn Ile Asn Ile Asp Leu Pro Gly Leu Lys Gly Glu Asn Ser Ile
130 135 140

Lys Val Asp Asp Pro Thr Tyr Gly Lys Val Ser Gly Ala Ile Asp Glu
145 150 155 160

Leu Val Ser Lys Trp Asn Glu Lys Tyr Ser Ser Thr His Thr Leu Pro
165 170 175

Ala Arg Thr Gln Tyr Ser Glu Ser Met Val Tyr Ser Lys Ser Gln Ile
180 185 190

Ser Ser Ala Leu Asn Val Asn Ala Lys Val Leu Glu Asn Ser Leu Gly
195 200 205

Val Asp Phe Asn Ala Val Ala Asn Asn Glu Lys Lys Val Met Ile Leu
210 215 220

Ala Tyr Lys Gln Ile Phe Tyr Thr Val Ser Ala Asp Leu Pro Lys Asn
225 230 235 240

```
Pro Ser Asp Leu Phe Asp Asp Ser Val Thr Phe Asn Asp Leu Lys Gln
                245                 250                 255

Lys Gly Val Ser Asn Glu Ala Pro Pro Leu Met Val Ser Asn Val Ala
            260                 265                 270

Tyr Gly Arg Thr Ile Tyr Val Lys Leu Glu Thr Thr Ser Ser Ser Lys
        275                 280                 285

Asp Val Gln Ala Ala Phe Lys Ala Leu Ile Lys Asn Thr Asp Ile Lys
    290                 295                 300

Asn Ser Gln Gln Tyr Lys Asp Ile Tyr Glu Asn Ser Ser Phe Thr Ala
305                 310                 315                 320

Val Val Leu Gly Gly Asp Ala Gln Glu His Asn Lys Val Val Thr Lys
                325                 330                 335

Asp Phe Asp Glu Ile Arg Lys Val Ile Lys Asp Asn Ala Thr Phe Ser
            340                 345                 350

Thr Lys Asn Pro Ala Tyr Pro Ile Ser Tyr Thr Ser Val Phe Leu Lys
        355                 360                 365

Asp Asn Ser Val Ala Ala Val His Asn Lys Thr Asp Tyr Ile Glu Thr
    370                 375                 380

Thr Ser Thr Glu Tyr Ser Lys Gly Lys Ile Asn Leu Asp His Ser Gly
385                 390                 395                 400

Ala Tyr Val Ala Gln Phe Glu Val Ala Trp Asp Glu Val Ser Tyr Asp
                405                 410                 415

Lys Glu Gly Asn Glu Val Leu Thr His Lys Thr Trp Asp Gly Asn Tyr
            420                 425                 430

Gln Asp Lys Thr Ala His Tyr Ser Thr Val Ile Pro Leu Glu Ala Asn
        435                 440                 445

Ala Arg Asn Ile Arg Ile Lys Ala Arg Glu Cys Thr Gly Leu Ala Trp
    450                 455                 460

Glu Trp Trp Arg Asp Val Ile Ser Glu Tyr Asp Val Pro Leu Thr Asn
465                 470                 475                 480

Asn Ile Asn Val Ser Ile Trp Gly Thr Thr Leu Tyr Pro Gly Ser Ser
                485                 490                 495

Ile Thr Tyr Asn His His His His His His
            500                 505
```

<210> 165
<211> 273
<212> PRT
<213> Ricin A chain 6x histidine tag

<400> 165

```
Ile Phe Pro Lys Gln Tyr Pro Ile Ile Asn Phe Thr Thr Ala Gly Ala
1               5                  10                  15

Thr Val Gln Ser Tyr Thr Asn Phe Ile Arg Ala Val Arg Gly Arg Leu
            20                  25                  30

Thr Thr Gly Ala Asp Val Arg His Glu Ile Pro Val Leu Pro Asn Arg
        35                  40                  45

Val Gly Leu Pro Ile Asn Gln Arg Phe Ile Leu Val Glu Leu Ser Asn
    50                  55                  60

His Ala Glu Leu Ser Val Thr Leu Ala Leu Asp Val Thr Asn Ala Tyr
65                  70                  75                  80

Val Val Gly Tyr Arg Ala Gly Asn Ser Ala Tyr Phe Phe His Pro Asp
                85                  90                  95

Ala Gln Glu Asp Ala Glu Ala Ile Thr His Leu Phe Thr Asp Val Gln
            100                 105                 110

Asn Arg Tyr Thr Phe Ala Phe Gly Gly Asn Tyr Asp Arg Leu Glu Gln
        115                 120                 125

Leu Ala Gly Asn Leu Arg Glu Asn Ile Glu Leu Gly Asn Gly Pro Leu
    130                 135                 140

Glu Glu Ala Ile Ser Ala Leu Tyr Tyr Tyr Ser Thr Gly Gly Thr Gln
145                 150                 155                 160

Leu Pro Thr Leu Ala Arg Ser Phe Ile Ile Cys Ile Gln Met Ile Ser
                165                 170                 175

Glu Ala Ala Arg Phe Gln Tyr Ile Glu Gly Glu Met Arg Thr Arg Ile
            180                 185                 190

Arg Tyr Asn Arg Arg Ser Ala Pro Asp Pro Ser Val Ile Thr Leu Glu
        195                 200                 205

Asn Ser Trp Gly Arg Leu Ser Thr Ala Ile Gln Glu Ser Asn Gln Gly
    210                 215                 220

Ala Phe Ala Ser Pro Ile Gln Leu Gln Arg Arg Asn Gly Ser Lys Phe
225                 230                 235                 240
```

Ser Val Tyr Asp Val Ser Ile Leu Ile Pro Ile Ile Ala Leu Met Val
245 250 255

Tyr Arg Cys Ala Pro Pro Pro Ser Ser Gln Phe His His His His His
260 265 270

His

<210> 166
<211> 285
<212> PRT
<213> Ricin A chain linker peptide 6x histidine tag

<400> 166

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

Thr Val Gln Ser Tyr Thr Asn Phe Ile Arg Ala Val Arg Gly Arg Leu
20 25 30

Thr Thr Gly Ala Asp Val Arg His Glu Ile Pro Val Leu Pro Asn Arg
35 40 45

Val Gly Leu Pro Ile Asn Gln Arg Phe Ile Leu Val Glu Leu Ser Asn
50 55 60

His Ala Glu Leu Ser Val Thr Leu Ala Leu Asp Val Thr Asn Ala Tyr
65 70 75 80

Val Val Gly Tyr Arg Ala Gly Asn Ser Ala Tyr Phe Phe His Pro Asp
85 90 95

Ala Gln Glu Asp Ala Glu Ala Ile Thr His Leu Phe Thr Asp Val Gln
100 105 110

Asn Arg Tyr Thr Phe Ala Phe Gly Gly Asn Tyr Asp Arg Leu Glu Gln
115 120 125

Leu Ala Gly Asn Leu Arg Glu Asn Ile Glu Leu Gly Asn Gly Pro Leu
130 135 140

Glu Glu Ala Ile Ser Ala Leu Tyr Tyr Tyr Ser Thr Gly Gly Thr Gln
145 150 155 160

Leu Pro Thr Leu Ala Arg Ser Phe Ile Ile Cys Ile Gln Met Ile Ser
165 170 175

Glu Ala Ala Arg Phe Gln Tyr Ile Glu Gly Glu Met Arg Thr Arg Ile
180 185 190

```
Arg Tyr Asn Arg Arg Ser Ala Pro Asp Pro Ser Val Ile Thr Leu Glu
        195                 200                 205

Asn Ser Trp Gly Arg Leu Ser Thr Ala Ile Gln Glu Ser Asn Gln Gly
    210                 215                 220

Ala Phe Ala Ser Pro Ile Gln Leu Gln Arg Arg Asn Gly Ser Lys Phe
225                 230                 235                 240

Ser Val Tyr Asp Val Ser Ile Leu Ile Pro Ile Ile Ala Leu Met Val
                245                 250                 255

Tyr Arg Cys Ala Pro Pro Pro Ser Ser Gln Phe Ser Leu Leu Ile Arg
            260                 265                 270

Pro Val Val Pro Asn Phe Asn His His His His His His
        275                 280                 285
```

<210> 167
<211> 256
<212> PRT
<213> Plant RIP bouganin with reduced immunogenic potential 6x histidine tag

<400> 167

```
Tyr Asn Thr Val Ser Phe Asn Leu Gly Glu Ala Tyr Glu Tyr Pro Thr
1               5                   10                  15

Phe Ile Gln Asp Leu Arg Asn Glu Leu Ala Lys Gly Thr Pro Val Cys
            20                  25                  30

Gln Leu Pro Val Thr Leu Gln Thr Ile Ala Asp Asp Lys Arg Phe Val
        35                  40                  45

Leu Val Asp Ile Thr Thr Thr Ser Lys Lys Thr Val Lys Val Ala Ile
    50                  55                  60

Asp Val Thr Asp Val Tyr Val Val Gly Tyr Gln Asp Lys Trp Asp Gly
65                  70                  75                  80

Lys Asp Arg Ala Val Phe Leu Asp Lys Val Pro Thr Val Ala Thr Ser
                85                  90                  95

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

Ser Tyr Gln Lys Leu Val Asn Ala Ala Lys Ala Asp Arg Lys Ala Leu
        115                 120                 125

Glu Leu Gly Val Asn Lys Leu Glu Phe Ser Ile Glu Ala Ile His Gly
    130                 135                 140

Lys Thr Ile Asn Gly Gln Glu Ala Ala Lys Phe Phe Leu Ile Val Ile
```

145 150 155 160

Gln Met Val Ser Glu Ala Ala Arg Phe Lys Tyr Ile Glu Thr Glu Val
165 170 175

Val Asp Arg Gly Leu Tyr Gly Ser Phe Lys Pro Asn Phe Lys Val Leu
180 185 190

Asn Leu Glu Asn Asn Trp Gly Asp Ile Ser Asp Ala Ile His Lys Ser
195 200 205

Ser Pro Gln Cys Thr Thr Ile Asn Pro Ala Leu Gln Leu Ile Ser Pro
210 215 220

Ser Asn Asp Pro Trp Val Val Asn Lys Val Ser Gln Ile Ser Pro Asp
225 230 235 240

Met Gly Ile Leu Lys Phe Lys Ser Ser Lys His His His His His His
245 250 255

<210> 168
<211> 149
<212> PRT
<213> Human RNASE3 ribonuclease (RNase A family, 3) protein without N-terminale signal peptide but with a N-terminal nuclear localisation sequence 6x histidine tag

<400> 168

Pro Lys Lys Lys Arg Lys Val Glu Ala Ser Arg Pro Pro Gln Phe Thr
1 5 10 15

Arg Ala Gln Trp Phe Ala Ile Gln His Ile Ser Leu Asn Pro Pro Arg
20 25 30

Cys Thr Ile Ala Met Arg Ala Ile Asn Asn Tyr Arg Trp Arg Cys Lys
35 40 45

Asn Gln Asn Thr Phe Leu Arg Thr Thr Phe Ala Asn Val Val Asn Val
50 55 60

Cys Gly Asn Gln Ser Ile Arg Cys Pro His Asn Arg Thr Leu Asn Asn
65 70 75 80

Cys His Arg Ser Arg Phe Arg Val Pro Leu Leu His Cys Asp Leu Ile
85 90 95

Asn Pro Gly Ala Gln Asn Ile Ser Asn Cys Thr Tyr Ala Asp Arg Pro
100 105 110

Gly Arg Arg Phe Tyr Val Val Ala Cys Asp Asn Arg Asp Pro Arg Asp
115 120 125

Ser Pro Arg Tyr Pro Val Val Pro Val His Leu Asp Thr Thr Ile His
130 135 140

His His His His His
145

<210> 169
<211> 18
<212> PRT
<213> Antigen for human myeloma cell line U266 antibody IgE-ND

<400> 169

Leu Ser Pro His Leu Leu Trp Asp Leu Phe Arg Val Gly Leu Pro Gly
1 5 10 15

Ala Ala

<210> 170
<211> 146
<212> PRT
<213> Dermatophagoides farinae

<400> 170

Met Ile Ser Lys Ile Leu Cys Leu Ser Leu Leu Val Ala Ala Val Val
1 5 10 15

Ala Asp Gln Val Asp Val Lys Asp Cys Ala Asn Asn Glu Ile Lys Lys
20 25 30

Val Met Val Asp Gly Cys His Gly Ser Asp Pro Cys Ile Ile His Arg
35 40 45

Gly Lys Pro Phe Thr Leu Glu Ala Leu Phe Asp Ala Asn Gln Asn Thr
50 55 60

Lys Thr Ala Lys Ile Glu Ile Lys Ala Ser Leu Asp Gly Leu Glu Ile
65 70 75 80

Asp Val Pro Gly Ile Asp Thr Asn Ala Cys His Phe Met Lys Cys Pro
85 90 95

Leu Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro
100 105 110

Lys Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Ile
115 120 125

Gly Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Gly Lys Ile
130 135 140

Arg Asp
145

<210> 171
<211> 320
<212> PRT
<213> Dermatophagoides pteronyssinus

<400> 171

Met Lys Ile Val Leu Ala Ile Ala Ser Leu Leu Ala Leu Ser Ala Val
1 5 10 15

Tyr Ala Arg Pro Ser Ser Ile Lys Thr Phe Glu Glu Tyr Lys Lys Ala
20 25 30

Phe Asn Lys Ser Tyr Ala Thr Phe Glu Asp Glu Glu Ala Ala Arg Lys
35 40 45

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

Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Arg Phe Leu
65 70 75 80

Met Ser Ala Glu Ala Phe Glu His Leu Lys Thr Gln Phe Asp Leu Asn
85 90 95

Ala Glu Thr Asn Ala Cys Ser Ile Asn Gly Asn Ala Pro Ala Glu Ile
100 105 110

Asp Leu Arg Gln Met Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly
115 120 125

Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala
130 135 140

Tyr Leu Ala Tyr Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu
145 150 155 160

Val Asp Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg
165 170 175

Gly Ile Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr
180 185 190

Arg Tyr Val Ala Arg Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg
195 200 205

Phe Gly Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys
210 215 220

Ile Arg Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile
225 230 235 240

```
Gly Ile Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Arg Thr Ile
                245                 250                 255

Ile Gln Arg Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile
            260                 265                 270

Val Gly Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn
        275                 280                 285

Ser Trp Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala
    290                 295                 300

Asn Ile Asp Leu Met Met Ile Glu Glu Tyr Pro Tyr Val Val Ile Leu
305                 310                 315                 320
```

<210> 172
<211> 141
<212> PRT
<213> Tyrophagus putrescentiae

<400> 172

```
Met Lys Phe Leu Ile Leu Phe Ala Leu Val Ala Val Ala Ala Ala Gly
1               5                   10                  15

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

Val Asp Gly Cys Glu Gly Asp Leu Cys Val Ile His Lys Ser Lys Pro
        35                  40                  45

Val His Val Ile Ala Glu Phe Thr Ala Asn Gln Asp Thr Cys Lys Ile
    50                  55                  60

Glu Val Lys Val Thr Gly Gln Leu Asn Gly Leu Glu Val Pro Ile Pro
65                  70                  75                  80

Gly Ile Glu Thr Asp Gly Cys Lys Val Leu Lys Cys Pro Leu Lys Lys
                85                  90                  95

Gly Thr Lys Tyr Thr Met Asn Tyr Ser Val Asn Val Pro Ser Val Val
            100                 105                 110

Pro Asn Ile Lys Thr Val Val Lys Leu Leu Ala Thr Gly Glu His Gly
        115                 120                 125

Val Leu Ala Cys Gly Ala Val Asn Thr Asp Val Lys Pro
    130                 135                 140
```

<210> 173
<211> 109
<212> PRT
<213> Felis catus

<400> 173

Met Arg Gly Ala Leu Leu Val Leu Ala Leu Leu Val Thr Gln Ala Leu
1 5 10 15

Gly Val Lys Met Ala Glu Thr Cys Pro Ile Phe Tyr Asp Val Phe Phe
20 25 30

Ala Val Ala Asn Gly Asn Glu Leu Leu Leu Asp Leu Ser Leu Thr Lys
35 40 45

Val Asn Ala Thr Glu Pro Glu Arg Thr Ala Met Lys Lys Ile Gln Asp
50 55 60

Cys Tyr Val Glu Asn Gly Leu Ile Ser Arg Val Leu Asp Gly Leu Val
65 70 75 80

Met Thr Thr Ile Ser Ser Ser Lys Asp Cys Met Gly Glu Ala Val Gln
85 90 95

Asn Thr Val Glu Asp Leu Lys Leu Asn Thr Leu Gly Arg
100 105

<210> 174
<211> 92
<212> PRT
<213> Felis catus

<400> 174

Met Lys Gly Ala Cys Val Leu Val Leu Leu Trp Ala Ala Leu Leu Leu
1 5 10 15

Ile Ser Gly Gly Asn Cys Glu Ile Cys Pro Ala Val Lys Arg Asp Val
20 25 30

Asp Leu Phe Leu Thr Gly Thr Pro Asp Glu Tyr Val Glu Gln Val Ala
35 40 45

Gln Tyr Lys Ala Leu Pro Val Val Leu Glu Asn Ala Arg Ile Leu Lys
50 55 60

Asn Cys Val Asp Ala Lys Met Thr Glu Glu Asp Lys Glu Asn Ala Leu
65 70 75 80

Ser Val Leu Asp Lys Ile Tyr Thr Ser Pro Leu Cys
85 90

<210> 175
<211> 146
<212> PRT
<213> Felis catus

<400> 175

```
Glu Ile Cys Pro Ala Val Lys Arg Asp Val Asp Leu Phe Leu Thr Gly
1               5                  10                  15

Thr Pro Asp Glu Tyr Val Glu Gln Val Ala Gln Tyr Lys Ala Leu Pro
            20                  25                  30

Val Val Leu Glu Asn Ala Arg Ile Leu Lys Asn Cys Val Asp Ala Lys
        35                  40                  45

Met Thr Glu Glu Asp Lys Glu Asn Ala Leu Ser Leu Leu Asp Lys Ile
    50                  55                  60

Tyr Thr Ser Pro Leu Cys Val Lys Met Ala Glu Thr Cys Pro Ile Phe
65                  70                  75                  80

Tyr Asp Val Phe Phe Ala Val Ala Asn Gly Asn Glu Leu Leu Leu Asp
                85                  90                  95

Leu Ser Leu Thr Lys Val Asn Ala Thr Glu Pro Glu Arg Thr Ala Met
            100                 105                 110

Lys Lys Ile Gln Asp Cys Tyr Val Glu Asn Gly Leu Ile Ser Arg Val
        115                 120                 125

Leu Asp Gly Leu Val Met Thr Thr Ile Ser Ser Ser Lys Asp Cys Met
    130                 135                 140

Gly Glu
145
```

<210> 176
<211> 172
<212> PRT
<213> Arachis hypogaea

<400> 176

```
Met Ala Lys Leu Thr Ile Leu Val Ala Leu Ala Leu Phe Leu Leu Ala
1               5                  10                  15

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

Cys Gln Ser Gln Leu Glu Arg Ala Asn Leu Arg Pro Cys Glu Gln His
        35                  40                  45

Leu Met Gln Lys Ile Gln Arg Asp Glu Asp Ser Tyr Gly Arg Asp Pro
    50                  55                  60

Tyr Ser Pro Ser Gln Asp Pro Tyr Ser Pro Ser Gln Asp Pro Asp Arg
65                  70                  75                  80
```

Arg Asp Pro Tyr Ser Pro Ser Pro Tyr Asp Arg Arg Gly Ala Gly Ser
85 90 95

Ser Gln His Gln Glu Arg Cys Cys Asn Glu Leu Asn Glu Phe Glu Asn
100 105 110

Asn Gln Arg Cys Met Cys Glu Ala Leu Gln Gln Ile Met Glu Asn Gln
115 120 125

Ser Asp Arg Leu Gln Gly Arg Gln Gln Glu Gln Gln Phe Lys Arg Glu
130 135 140

Leu Arg Asn Leu Pro Gln Gln Cys Gly Leu Arg Ala Pro Gln Arg Cys
145 150 155 160

Asp Leu Glu Val Glu Ser Gly Gly Arg Asp Arg Tyr
165 170

<210> 177
<211> 157
<212> PRT
<213> Alternaria alternata (Alternaria rot fungus)

<400> 177

Met Gln Phe Thr Thr Ile Ala Ser Leu Phe Ala Ala Ala Gly Leu Ala
1 5 10 15

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

Thr Thr Glu Gly Asp Tyr Val Trp Lys Ile Ser Glu Phe Tyr Gly Arg
35 40 45

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

Thr Asn Gly Gly Thr Leu Asp Phe Thr Cys Ser Ala Gln Ala Asp Lys
65 70 75 80

Leu Glu Asp His Lys Trp Tyr Ser Cys Gly Glu Asn Ser Phe Met Asp
85 90 95

Phe Ser Phe Asp Ser Asp Arg Ser Gly Leu Leu Leu Lys Gln Lys Val
100 105 110

Ser Asp Asp Ile Thr Tyr Val Ala Thr Ala Thr Leu Pro Asn Tyr Cys
115 120 125

Arg Ala Gly Gly Asn Gly Pro Lys Asp Phe Val Cys Gln Gly Val Ala
130 135 140

Asp Ala Tyr Ile Thr Leu Val Thr Leu Pro Lys Ser Ser

145 150 155

<210> 178
<211> 174
<212> PRT
<213> Canis familiaris

<400> 178

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

Gln Ala Gln Asp Thr Pro Ala Leu Gly Lys Asp Thr Val Ala Val Ser
20 25 30

Gly Lys Trp Tyr Leu Lys Ala Met Thr Ala Asp Gln Glu Val Pro Glu
35 40 45

Lys Pro Asp Ser Val Thr Pro Met Ile Leu Lys Ala Gln Lys Gly Gly
50 55 60

Asn Leu Glu Ala Lys Ile Thr Met Leu Thr Asn Gly Gln Cys Gln Asn
65 70 75 80

Ile Thr Val Val Leu His Lys Thr Ser Glu Pro Gly Lys Tyr Thr Ala
85 90 95

Tyr Glu Gly Gln Arg Val Val Phe Ile Gln Pro Ser Pro Val Arg Asp
100 105 110

His Tyr Ile Leu Tyr Cys Glu Gly Glu Leu His Gly Arg Gln Ile Arg
115 120 125

Met Ala Lys Leu Leu Gly Arg Asp Pro Glu Gln Ser Gln Glu Ala Leu
130 135 140

Glu Asp Phe Arg Glu Phe Ser Arg Ala Lys Gly Leu Asn Gln Glu Ile
145 150 155 160

Leu Glu Leu Ala Gln Ser Glu Thr Cys Ser Pro Gly Gly Gln
165 170

<210> 179
<211> 286
<212> PRT
<213> Triticum aestivum

<400> 179

Met Lys Thr Phe Leu Ile Leu Val Leu Leu Ala Ile Val Ala Thr Thr
1 5 10 15

Ala Thr Thr Ala Val Arg Phe Pro Val Pro Gln Leu Gln Pro Gln Asn
20 25 30

```
Pro Ser Gln Gln Gln Pro Gln Glu Gln Val Pro Leu Val Gln Gln Gln
        35                  40                  45

Gln Phe Leu Gly Gln Gln Gln Pro Phe Pro Pro Gln Gln Pro Tyr Pro
    50                  55                  60

Gln Pro Gln Pro Phe Pro Ser Gln Leu Pro Tyr Leu Gln Leu Gln Pro
65                  70                  75                  80

Phe Pro Gln Pro Gln Leu Pro Tyr Ser Gln Pro Gln Pro Phe Arg Pro
                85                  90                  95

Gln Gln Pro Tyr Pro Gln Pro Gln Pro Gln Tyr Ser Gln Pro Gln Gln
            100                 105                 110

Pro Ile Ser Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
        115                 120                 125

Gln Gln Gln Gln Gln Ile Leu Gln Gln Ile Leu Gln Gln Gln Leu Ile
    130                 135                 140

Pro Cys Met Asp Val Val Leu Gln Gln His Asn Ile Ala His Gly Arg
145                 150                 155                 160

Ser Gln Val Leu Gln Gln Ser Thr Tyr Gln Leu Leu Gln Glu Leu Cys
                165                 170                 175

Cys Gln His Leu Trp Gln Ile Pro Glu Gln Ser Gln Cys Gln Ala Ile
            180                 185                 190

His Asn Val Val His Ala Ile Ile Leu His Gln Gln Gln Lys Gln Gln
        195                 200                 205

Gln Gln Pro Ser Ser Gln Val Ser Phe Gln Gln Pro Leu Gln Gln Tyr
    210                 215                 220

Pro Leu Gly Gln Gly Ser Phe Arg Pro Ser Gln Gln Asn Pro Gln Ala
225                 230                 235                 240

Gln Gly Ser Val Gln Pro Gln Gln Leu Pro Gln Phe Glu Glu Ile Arg
                245                 250                 255

Asn Leu Ala Leu Gln Thr Leu Pro Ala Met Cys Asn Val Tyr Ile Pro
            260                 265                 270

Pro Tyr Cys Thr Ile Ala Pro Phe Gly Ile Phe Gly Thr Asn
        275                 280                 285
```

<210> 180
<211> 491
<212> PRT

<213> Blattella germanica

<400> 180

```
Ala Ile Glu Phe Leu Asn Asn Ile His Asp Leu Leu Gly Ile Pro His
1               5                  10                  15

Ile Pro Val Thr Ala Arg Lys His His Arg Arg Gly Val Gly Ile Thr
            20                  25                  30

Gly Leu Ile Asp Asp Ile Ile Ala Ile Leu Pro Val Asp Asp Leu Tyr
        35                  40                  45

Ala Leu Phe Gln Glu Lys Leu Glu Thr Ser Pro Glu Phe Lys Ala Leu
    50                  55                  60

Tyr Asp Ala Ile Arg Ser Pro Glu Phe Gln Ser Ile Val Gly Thr Leu
65                  70                  75                  80

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

Gly Val Asp Val Asp His Ile Ile Glu Leu Ile His Gln Ile Phe Asn
            100                 105                 110

Ile Val Arg Asp Thr Arg Gly Leu Pro Glu Asp Leu Gln Asp Phe Leu
        115                 120                 125

Ala Leu Ile Pro Thr Asp Gln Val Leu Ala Ile Ala Ala Asp Tyr Leu
    130                 135                 140

Ala Asn Asp Ala Glu Val Lys Ala Ala Val Glu Tyr Leu Lys Ser Asp
145                 150                 155                 160

Glu Phe Glu Thr Ile Val Val Thr Val Asp Ser Leu Pro Glu Phe Lys
                165                 170                 175

Asn Phe Leu Asn Phe Leu Gln Thr Asn Gly Leu Asn Ala Ile Glu Phe
            180                 185                 190

Leu Asn Asn Ile His Asp Leu Leu Gly Ile Pro His Ile Pro Val Thr
        195                 200                 205

Ala Arg Lys His Leu Arg Arg Gly Val Gly Ile Thr Gly Leu Ile Asp
    210                 215                 220

Asp Ile Ile Ala Ile Leu Pro Val Asp Asp Leu Tyr Ala Leu Phe Gln
225                 230                 235                 240

Glu Lys Leu Glu Thr Ser Pro Glu Phe Lys Ala Leu Tyr Asp Ala Ile
                245                 250                 255
```

```
Arg Ser Pro Glu Phe Gln Ser Ile Val Glu Thr Leu Lys Ala Met Pro
            260                 265                 270

Glu Tyr Gln Ser Leu Ile Gln Lys Leu Lys Asp Lys Gly Val Asp Val
        275                 280                 285

Asp His Ile Ile Glu Leu Ile His Gln Ile Phe Asn Ile Val Arg Asp
    290                 295                 300

Thr Arg Gly Leu Pro Glu Asp Leu Gln Asp Phe Leu Ala Leu Ile Pro
305                 310                 315                 320

Ile Asp Gln Ile Leu Ala Ile Ala Ala Asp Tyr Leu Ala Asn Asp Ala
                325                 330                 335

Glu Val Gln Ala Ala Val Glu Tyr Leu Lys Ser Asp Glu Phe Glu Thr
            340                 345                 350

Ile Val Val Thr Val Asp Ser Leu Pro Glu Phe Lys Asn Phe Leu Asn
        355                 360                 365

Phe Leu Gln Thr Asn Gly Leu Asn Ala Ile Glu Phe Ile Asn Asn Ile
    370                 375                 380

His Asp Leu Leu Gly Ile Pro His Ile Pro Ala Thr Gly Arg Lys His
385                 390                 395                 400

Val Arg Arg Gly Val Gly Ile Asn Gly Leu Ile Asp Asp Val Ile Ala
                405                 410                 415

Ile Leu Pro Val Asp Glu Leu Tyr Ala Leu Phe Gln Glu Lys Leu Glu
            420                 425                 430

Ser Ser Pro Glu Phe Lys Ala Leu Tyr Asp Ala Ile Arg Ser Pro Glu
        435                 440                 445

Phe Gln Ser Ile Val Gln Thr Leu Lys Ala Met Pro Glu Tyr Gln Asp
    450                 455                 460

Leu Ile Gln Arg Leu Lys Asp Lys Gly Val Asp Val Asp His Phe Ile
465                 470                 475                 480

Glu Leu Ile Lys Lys Leu Phe Gly Leu Ser His
                485                 490
```

<210> 181
<211> 160
<212> PRT
<213> Betula pendula (Betula verrucosa)

<400> 181

```
Met Gly Val Phe Asn Tyr Glu Thr Glu Thr Thr Ser Val Ile Pro Ala
```

1 5 10 15

Ala Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Asn Leu Phe Pro
20 25 30

Lys Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Glu Gly Asn
35 40 45

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

Phe Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe
65 70 75 80

Lys Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu
85 90 95

Glu Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly
100 105 110

Ser Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu
115 120 125

Val Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu
130 135 140

Leu Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn
145 150 155 160

<210> 182
<211> 160
<212> PRT
<213> Betula pendula (Betula verrucosa)

<400> 182

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

Ala Arg Met Phe Lys Ala Phe Ile Leu Asp Gly Asp Lys Leu Val Pro
20 25 30

Lys Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Glu Gly Asn
35 40 45

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

Phe Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe
65 70 75 80

Lys Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Val Gly Asp Thr Leu
85 90 95

Glu Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly
100 105 110

Cys Val Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asn His Glu
115 120 125

Val Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu
130 135 140

Leu Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn
145 150 155 160

<210> 183
<211> 133
<212> PRT
<213> Betula pendula (Betula verrucosa)

<400> 183

Met Ser Trp Gln Thr Tyr Val Asp Glu His Leu Met Cys Asp Ile Asp
1 5 10 15

Gly Gln Ala Ser Asn Ser Leu Ala Ser Ala Ile Val Gly His Asp Gly
20 25 30

Ser Val Trp Ala Gln Ser Ser Ser Phe Pro Gln Phe Lys Pro Gln Glu
35 40 45

Ile Thr Gly Ile Met Lys Asp Phe Glu Glu Pro Gly His Leu Ala Pro
50 55 60

Thr Gly Leu His Leu Gly Gly Ile Lys Tyr Met Val Ile Gln Gly Glu
65 70 75 80

Ala Gly Ala Val Ile Arg Gly Lys Lys Gly Ser Gly Gly Ile Thr Ile
85 90 95

Lys Lys Thr Gly Gln Ala Leu Val Phe Gly Ile Tyr Glu Glu Pro Val
100 105 110

Thr Pro Gly Gln Cys Asn Met Val Val Glu Arg Leu Gly Asp Tyr Leu
115 120 125

Ile Asp Gln Gly Leu
130

<210> 184
<211> 263
<212> PRT
<213> Phleum pratense

<400> 184

```
Met Ala Ser Ser Ser Ser Val Leu Leu Val Val Val Leu Phe Ala Val
1               5                  10                  15

Phe Leu Gly Ser Ala Tyr Gly Ile Pro Lys Val Pro Pro Gly Pro Asn
            20                  25                  30

Ile Thr Ala Thr Tyr Gly Asp Lys Trp Leu Asp Ala Lys Ser Thr Trp
        35                  40                  45

Tyr Gly Lys Pro Thr Gly Ala Gly Pro Lys Asp Asn Gly Gly Ala Cys
    50                  55                  60

Gly Tyr Lys Asp Val Asp Lys Pro Pro Phe Ser Gly Met Thr Gly Cys
65                  70                  75                  80

Gly Asn Thr Pro Ile Phe Lys Ser Gly Arg Gly Cys Gly Ser Cys Phe
                85                  90                  95

Glu Ile Lys Cys Thr Lys Pro Glu Ala Cys Ser Gly Glu Pro Val Val
            100                 105                 110

Val His Ile Thr Asp Asp Asn Glu Glu Pro Ile Ala Pro Tyr His Phe
        115                 120                 125

Asp Leu Ser Gly His Ala Phe Gly Ala Met Ala Lys Lys Gly Asp Glu
    130                 135                 140

Gln Lys Leu Arg Ser Ala Gly Glu Leu Glu Leu Gln Phe Arg Arg Val
145                 150                 155                 160

Lys Cys Lys Tyr Pro Glu Gly Thr Lys Val Thr Phe His Val Glu Lys
                165                 170                 175

Gly Ser Asn Pro Asn Tyr Leu Ala Leu Leu Val Lys Tyr Val Asn Gly
            180                 185                 190

Asp Gly Asp Val Val Ala Val Asp Ile Lys Glu Lys Gly Lys Asp Lys
        195                 200                 205

Trp Ile Glu Leu Lys Glu Ser Trp Gly Ala Ile Trp Arg Ile Asp Thr
    210                 215                 220

Pro Asp Lys Leu Thr Gly Pro Phe Thr Val Arg Tyr Thr Thr Glu Gly
225                 230                 235                 240

Gly Thr Lys Thr Glu Ala Glu Asp Val Ile Pro Glu Gly Trp Lys Ala
                245                 250                 255

Asp Thr Ser Tyr Glu Ser Lys
            260
```

<210> 185
<211> 122
<212> PRT
<213> Phleum pratense

<400> 185

```
Met Ser Met Ala Ser Ser Ser Ser Ser Ser Leu Leu Ala Met Ala Val
1               5                   10                  15

Leu Ala Ala Leu Phe Ala Gly Ala Trp Cys Val Pro Lys Val Thr Phe
            20                  25                  30

Thr Val Glu Lys Gly Ser Asn Glu Lys His Leu Ala Val Leu Val Lys
        35                  40                  45

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

Asp Glu Trp Val Ala Met Thr Lys Gly Glu Gly Gly Val Trp Thr Phe
65                  70                  75                  80

Asp Ser Glu Glu Pro Leu Gln Gly Pro Phe Asn Phe Arg Phe Leu Thr
                85                  90                  95

Glu Lys Gly Met Lys Asn Val Phe Asp Asp Val Val Pro Glu Lys Tyr
            100                 105                 110

Thr Ile Gly Ala Thr Tyr Ala Pro Glu Glu
        115                 120
```

<210> 186
<211> 159
<212> PRT
<213> Malus domestica

<400> 186

```
Met Gly Val Tyr Thr Phe Glu Asn Glu Phe Thr Ser Glu Ile Pro Pro
1               5                   10                  15

Ser Arg Leu Phe Lys Ala Phe Val Leu Asp Ala Asp Asn Leu Ile Pro
            20                  25                  30

Lys Ile Ala Pro Gln Ala Ile Lys Gln Ala Glu Ile Leu Glu Gly Asn
        35                  40                  45

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

Tyr Gly Tyr Val Lys His Arg Ile Asp Ser Ile Asp Glu Ala Ser Tyr
65                  70                  75                  80

Ser Tyr Ser Tyr Thr Leu Ile Glu Gly Asp Ala Leu Thr Asp Thr Ile
                85                  90                  95
```

```
Glu Lys Ile Ser Tyr Glu Thr Lys Leu Val Ala Cys Gly Ser Gly Ser
            100                 105                 110

Thr Ile Lys Ser Ile Ser His Tyr His Thr Lys Gly Asn Ile Glu Ile
        115                 120                 125

Lys Glu Glu His Val Lys Val Gly Lys Glu Lys Ala His Gly Leu Phe
    130                 135                 140

Lys Leu Ile Glu Ser Tyr Leu Lys Asp His Pro Asp Ala Tyr Asn
145                 150                 155
```

<210> 187
<211> 96
<212> PRT
<213> Dactylis glomerata

<400> 187

```
Val Lys Val Thr Phe Lys Val Glu Lys Gly Ser Asp Pro Lys Lys Leu
1               5                   10                  15

Val Leu Asp Ile Lys Tyr Thr Arg Pro Gly Asp Thr Leu Ala Glu Val
            20                  25                  30

Glu Leu Arg Gln His Gly Ser Glu Glu Trp Glu Pro Leu Thr Lys Lys
        35                  40                  45

Gly Asn Leu Trp Glu Val Lys Ser Ser Lys Pro Leu Thr Gly Pro Phe
    50                  55                  60

Asn Phe Arg Phe Met Ser Lys Gly Gly Met Arg Asn Val Phe Asp Glu
65                  70                  75                  80

Val Ile Pro Thr Ala Phe Lys Ile Gly Thr Thr Tyr Thr Pro Glu Glu
                85                  90                  95
```

<210> 188
<211> 269
<212> PRT
<213> Phalaris aquatica

<400> 188

```
Met Met Lys Met Val Cys Ser Ser Ser Ser Ser Ser Leu Leu Val Val
1               5                   10                  15

Ala Ala Leu Leu Ala Val Phe Val Gly Ser Ala Gln Gly Ile Ala Lys
            20                  25                  30

Val Pro Pro Gly Pro Asn Ile Thr Ala Glu Tyr Gly Asp Lys Trp Leu
        35                  40                  45
```

```
Asp Ala Lys Ser Thr Trp Tyr Gly Lys Pro Thr Gly Ala Gly Pro Lys
    50                  55                  60

Asp Asn Gly Gly Ala Cys Gly Tyr Lys Asp Val Asp Lys Ala Pro Phe
65                  70                  75                  80

Asn Gly Met Thr Gly Cys Gly Asn Thr Pro Ile Phe Lys Asp Gly Arg
                85                  90                  95

Gly Cys Gly Ser Cys Phe Glu Leu Lys Cys Ser Lys Pro Glu Ser Cys
            100                 105                 110

Ser Gly Glu Pro Ile Thr Val His Ile Thr Asp Asp Asn Glu Glu Pro
        115                 120                 125

Ile Ala Pro Tyr His Phe Asp Leu Ser Gly His Ala Phe Gly Ser Met
    130                 135                 140

Ala Lys Lys Gly Glu Glu Glu Asn Val Arg Gly Ala Gly Glu Leu Glu
145                 150                 155                 160

Leu Gln Phe Arg Arg Val Lys Cys Lys Tyr Pro Asp Gly Thr Lys Pro
                165                 170                 175

Thr Phe His Val Glu Lys Gly Ser Asn Pro Asn Tyr Leu Ala Leu Leu
            180                 185                 190

Val Lys Tyr Val Asp Gly Asp Gly Asp Val Val Ala Val Asp Ile Lys
        195                 200                 205

Glu Lys Gly Lys Asp Lys Trp Ile Glu Leu Lys Glu Ser Trp Gly Ala
    210                 215                 220

Ile Trp Arg Ile Asp Thr Pro Asp Lys Leu Thr Gly Pro Phe Thr Val
225                 230                 235                 240

Arg Tyr Thr Thr Glu Gly Gly Thr Lys Ala Glu Phe Glu Asp Val Ile
                245                 250                 255

Pro Glu Gly Trp Lys Ala Asp Thr His Asp Ala Ser Lys
            260                 265
```

<210> 189
<211> 246
<212> PRT
<213> Cynodon dactylon

<400> 189

```
Ala Ile Gly Asp Lys Pro Gly Pro Asn Ile Thr Ala Thr Tyr Gly Ser
1               5                   10                  15

Lys Trp Leu Glu Ala Arg Ala Thr Phe Tyr Gly Ser Asn Pro Arg Gly
```

20 25 30

Ala Ala Pro Asp Asp His Gly Gly Ala Cys Gly Tyr Lys Asp Val Asp
35 40 45

Lys Pro Pro Phe Asp Gly Met Thr Ala Cys Gly Asn Glu Pro Ile Phe
50 55 60

Lys Asp Gly Leu Gly Cys Arg Ala Cys Tyr Glu Ile Lys Cys Lys Glu
65 70 75 80

Pro Val Glu Cys Ser Gly Glu Pro Val Leu Val Lys Ile Thr Asp Lys
85 90 95

Asn Tyr Glu His Ile Ala Ala Tyr His Phe Asp Leu Ser Gly Lys Ala
100 105 110

Phe Gly Ala Met Ala Lys Lys Gly Gln Glu Asp Lys Leu Arg Lys Ala
115 120 125

Gly Glu Leu Thr Leu Gln Phe Arg Arg Val Lys Cys Lys Tyr Pro Ser
130 135 140

Gly Thr Lys Ile Thr Phe His Ile Glu Lys Gly Ser Asn Asp His Tyr
145 150 155 160

Leu Ala Leu Leu Val Lys Tyr Ala Ala Gly Asp Gly Asn Ile Val Ala
165 170 175

Val Asp Ile Lys Pro Arg Asp Ser Asp Glu Phe Ile Pro Met Lys Ser
180 185 190

Ser Trp Gly Ala Ile Trp Arg Ile Asp Pro Lys Lys Pro Leu Lys Gly
195 200 205

Pro Phe Ser Ile Arg Leu Thr Ser Glu Gly Gly Ala His Leu Val Gln
210 215 220

Asp Asp Val Ile Pro Ala Asn Trp Lys Pro Asp Thr Val Tyr Thr Ser
225 230 235 240

Lys Leu Gln Phe Gly Ala
245

<210> 190
<211> 214
<212> PRT
<213> Bos primigenius

<400> 190

Met Lys Leu Leu Ile Leu Thr Cys Leu Val Ala Val Ala Leu Ala Arg
1 5 10 15

```
Pro Lys His Pro Ile Lys His Gln Gly Leu Pro Gln Glu Val Leu Asn
            20                  25                  30

Glu Asn Leu Leu Arg Phe Phe Val Ala Pro Phe Pro Glu Val Phe Gly
        35                  40                  45

Lys Glu Lys Val Asn Glu Leu Ser Lys Asp Ile Gly Ser Glu Ser Thr
    50                  55                  60

Glu Asp Gln Ala Met Glu Asp Ile Lys Gln Met Glu Ala Glu Ser Ile
65                  70                  75                  80

Ser Ser Ser Glu Glu Ile Val Pro Asn Ser Val Glu Gln Lys His Ile
                85                  90                  95

Gln Lys Glu Asp Val Pro Ser Glu Arg Tyr Leu Gly Tyr Leu Glu Gln
            100                 105                 110

Leu Leu Arg Leu Lys Lys Tyr Lys Val Pro Gln Leu Glu Ile Val Pro
        115                 120                 125

Asn Ser Ala Glu Glu Arg Leu His Ser Met Lys Glu Gly Ile His Ala
    130                 135                 140

Gln Gln Lys Glu Pro Met Ile Gly Val Asn Gln Glu Leu Ala Tyr Phe
145                 150                 155                 160

Tyr Pro Glu Leu Phe Arg Gln Phe Tyr Gln Leu Asp Ala Tyr Pro Ser
                165                 170                 175

Gly Ala Trp Tyr Tyr Val Pro Leu Gly Thr Gln Tyr Thr Asp Ala Pro
            180                 185                 190

Ser Phe Ser Asp Ile Pro Asn Pro Ile Gly Ser Glu Asn Ser Glu Lys
        195                 200                 205

Thr Thr Met Pro Leu Trp
    210
```

<210> 191
<211> 142
<212> PRT
<213> Bos primigenius

<400> 191

```
Met Met Ser Phe Val Ser Leu Leu Leu Val Gly Ile Leu Phe His Ala
1               5                   10                  15

Thr Gln Ala Glu Gln Leu Thr Lys Cys Glu Val Phe Arg Glu Leu Lys
            20                  25                  30
```

```
Asp Leu Lys Gly Tyr Gly Gly Val Ser Leu Pro Glu Trp Val Cys Thr
        35                  40                  45

Thr Phe His Thr Ser Gly Tyr Asp Thr Gln Ala Ile Val Gln Asn Asn
    50                  55                  60

Asp Ser Thr Glu Tyr Gly Leu Phe Gln Ile Asn Asn Lys Ile Trp Cys
65                  70                  75                  80

Lys Asp Asp Gln Asn Pro His Ser Ser Asn Ile Cys Asn Ile Ser Cys
                85                  90                  95

Asp Lys Phe Leu Asp Asp Asp Leu Thr Asp Asp Ile Met Cys Val Lys
            100                 105                 110

Lys Ile Leu Asp Lys Val Gly Ile Asn Tyr Trp Leu Ala His Lys Ala
        115                 120                 125

Leu Cys Ser Glu Lys Leu Asp Gln Trp Leu Cys Glu Lys Leu
    130                 135                 140
```

<210> 192
<211> 386
<212> PRT
<213> Gallus gallus

<400> 192

```
Met Gly Ser Ile Gly Ala Ala Ser Met Glu Phe Cys Phe Asp Val Phe
1               5                   10                  15

Lys Glu Leu Lys Val His His Ala Asn Glu Asn Ile Phe Tyr Cys Pro
            20                  25                  30

Ile Ala Ile Met Ser Ala Leu Ala Met Val Tyr Leu Gly Ala Lys Asp
        35                  40                  45

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

Gly Phe Gly Asp Ser Ile Glu Ala Gln Cys Gly Thr Ser Val Asn Val
65                  70                  75                  80

His Ser Ser Leu Arg Asp Ile Leu Asn Gln Ile Thr Lys Pro Asn Asp
                85                  90                  95

Val Tyr Ser Phe Ser Leu Ala Ser Arg Leu Tyr Ala Glu Glu Arg Tyr
            100                 105                 110

Pro Ile Leu Pro Glu Tyr Leu Gln Cys Val Lys Glu Leu Tyr Arg Gly
        115                 120                 125
```

```
Gly Leu Glu Pro Ile Asn Phe Gln Thr Ala Ala Asp Gln Ala Arg Glu
    130                 135                 140

Leu Ile Asn Ser Trp Val Glu Ser Gln Thr Asn Gly Ile Ile Arg Asn
145                 150                 155                 160

Val Leu Gln Pro Ser Ser Val Asp Ser Gln Thr Ala Met Val Leu Val
                165                 170                 175

Asn Ala Ile Val Phe Lys Gly Leu Trp Glu Lys Ala Phe Lys Asp Glu
            180                 185                 190

Asp Thr Gln Ala Met Pro Phe Arg Val Thr Glu Gln Glu Ser Lys Pro
        195                 200                 205

Val Gln Met Met Tyr Gln Ile Gly Leu Phe Arg Val Ala Ser Met Ala
    210                 215                 220

Ser Glu Lys Met Lys Ile Leu Glu Leu Pro Phe Ala Ser Gly Thr Met
225                 230                 235                 240

Ser Met Leu Val Leu Leu Pro Asp Glu Val Ser Gly Leu Glu Gln Leu
                245                 250                 255

Glu Ser Ile Ile Asn Phe Glu Lys Leu Thr Glu Trp Thr Ser Ser Asn
            260                 265                 270

Val Met Glu Glu Arg Lys Ile Lys Val Tyr Leu Pro Arg Met Lys Met
        275                 280                 285

Glu Glu Lys Tyr Asn Leu Thr Ser Val Leu Met Ala Met Gly Ile Thr
    290                 295                 300

Asp Val Phe Ser Ser Ser Ala Asn Leu Ser Gly Ile Ser Ser Ala Glu
305                 310                 315                 320

Ser Leu Lys Ile Ser Gln Ala Val His Ala Ala His Ala Glu Ile Asn
                325                 330                 335

Glu Ala Gly Arg Glu Val Val Gly Ser Ala Glu Ala Gly Val Asp Ala
            340                 345                 350

Ala Ser Val Ser Glu Glu Phe Arg Ala Asp His Pro Phe Leu Phe Cys
        355                 360                 365

Ile Lys His Ile Ala Thr Asn Ala Val Leu Phe Phe Gly Arg Cys Val
    370                 375                 380

Ser Pro
385
```

<210> 193
<211> 147
<212> PRT
<213> Gallus gallus

<400> 193

Met Arg Ser Leu Leu Ile Leu Val Leu Cys Phe Leu Pro Leu Ala Ala
1 5 10 15

Leu Gly Lys Val Phe Gly Arg Cys Glu Leu Ala Ala Ala Met Lys Arg
20 25 30

His Gly Leu Asp Asn Tyr Arg Gly Tyr Ser Leu Gly Asn Trp Val Cys
35 40 45

Ala Ala Lys Phe Glu Ser Asn Phe Asn Thr Gln Ala Thr Asn Arg Asn
50 55 60

Thr Asp Gly Ser Thr Asp Tyr Gly Ile Leu Gln Ile Asn Ser Arg Trp
65 70 75 80

Trp Cys Asn Asp Gly Arg Thr Pro Gly Ser Arg Asn Leu Cys Asn Ile
85 90 95

Pro Cys Ser Ala Leu Leu Ser Ser Asp Ile Thr Ala Ser Val Asn Cys
100 105 110

Ala Lys Lys Ile Val Ser Asp Gly Asn Gly Met Asn Ala Trp Val Ala
115 120 125

Trp Arg Asn Arg Cys Lys Gly Thr Asp Val Gln Ala Trp Ile Arg Gly
130 135 140

Cys Arg Leu
145

<210> 194
<211> 187
<212> PRT
<213> Equus caballus

<400> 194

Met Lys Leu Leu Leu Leu Cys Leu Gly Leu Ile Leu Val Cys Ala Gln
1 5 10 15

Gln Glu Glu Asn Ser Asp Val Ala Ile Arg Asn Phe Asp Ile Ser Lys
20 25 30

Ile Ser Gly Glu Trp Tyr Ser Ile Phe Leu Ala Ser Asp Val Lys Glu
35 40 45

Lys Ile Glu Glu Asn Gly Ser Met Arg Val Phe Val Asp Val Ile Arg
50 55 60

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

Gly Glu Cys Thr Glu Phe Pro Met Val Phe Asp Lys Thr Glu Glu Asp
85 90 95

Gly Val Tyr Ser Leu Asn Tyr Asp Gly Tyr Asn Val Phe Arg Ile Ser
100 105 110

Glu Phe Glu Asn Asp Glu His Ile Ile Leu Tyr Leu Val Asn Phe Asp
115 120 125

Lys Asp Arg Pro Phe Gln Leu Phe Glu Phe Tyr Ala Arg Glu Pro Asp
130 135 140

Val Ser Pro Glu Ile Lys Glu Glu Phe Val Lys Ile Val Gln Lys Arg
145 150 155 160

Gly Ile Val Lys Glu Asn Ile Ile Asp Leu Thr Lys Ile Asp Arg Cys
165 170 175

Phe Gln Leu Arg Gly Asn Gly Val Ala Gln Ala
180 185

<210> 195
<211> 228
<212> PRT
<213> Equus caballus

<400> 195

Met Leu Lys Val Ser Cys Leu Phe Val Leu Leu Cys Gly Leu Leu Val
1 5 10 15

Pro Ser Ser Ala Gln Gln Ile Pro Pro Glu Val Ser Ser Gln Ile Thr
20 25 30

Asp Ala Leu Thr Gln Gly Leu Leu Asp Gly Asn Phe Leu Ser Leu Leu
35 40 45

Asn Ala Ile Asn Leu Glu Gly Leu Leu Asn Thr Ile Leu Asp Gln Val
50 55 60

Thr Gly Leu Leu Asn Ile Leu Val Gly Pro Leu Leu Gly Pro Ser Asp
65 70 75 80

Ala Glu Ile Lys Leu Gln Asp Thr Arg Leu Leu Gln Leu Ser Leu Glu
85 90 95

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

Ser Val Tyr Leu Lys Leu Leu Ile Leu Glu Pro Leu Thr Leu Tyr Val
115 120 125

Arg Thr Asp Ile Arg Val Gln Leu Arg Leu Glu Ser Asp Glu Asp Gly
130 135 140

Lys Tyr Arg Leu Ala Phe Gly His Cys Ser Leu Leu Pro Arg Ala Ile
145 150 155 160

Glu Leu Gln Ser Gly Asn Pro Leu Ser Leu Pro Val Asn Ala Val Leu
165 170 175

Gly Thr Ile Glu Asn Ala Leu Gly Asn Phe Ile Thr Glu Asp Leu Gly
180 185 190

Ala Gly Leu Cys Pro Thr Leu Asn Ser Leu Val Ser Asn Leu Asp Leu
195 200 205

Gln Leu Val Asn Asn Leu Ile Asn Leu Ile Leu Asp Arg Ala Asn Val
210 215 220

Asp Leu Ser Val
225

<210> 196
<211> 558
<212> DNA
<213> Nucleotide sequence encoding pelB-CD3(VL) - FLAG-BirA-U266Ant-6His

<400> 196
atgaaatacc tgctgccgac cgctgctgct ggtctgctgc tcctcgctgc ccagccggcg 60

atggccgaca ttcagctgac ccagtctcca gcaatcatgt ctgcatctcc aggggagaag 120

gtcaccatga cctgcagagc cagttcaagt gtaagttaca tgaactggta ccagcagaag 180

tcaggcacct cccccaaaag atggatttat gacacatcca aagtggcttc tggagtccct 240

tatcgcttca gtggcagtgg gtctgggacc tcatactctc tcacaatcag cagcatggag 300

gctgaagatg ctgccactta ttactgccaa cagtggagta gtaacccgct cacgttcggt 360

gctgggacca agctggagct gaaatccgga ggtggtggat ccgactacaa ggatgacgat 420

gacaaaggcg gcggcctgaa cgatattttt gaagcgcaga aaattgaatg gcatctgagc 480

ccgcatctgc tgtgggatct gtttcgcgtg ggcctgccgg gcgcggcggg cggcggccat 540

catcaccatc atcattag 558

<210> 197
<211> 185
<212> PRT
<213> pelB-CD3(VL) - FLAG-BirA-U266Ant-6His

<400> 197

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala

1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile
20 25 30

Met Ser Ala Ser Pro Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser
35 40 45

Ser Ser Val Ser Tyr Met Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser
50 55 60

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

Tyr Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile
85 90 95

Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp
100 105 110

Ser Ser Asn Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
115 120 125

Ser Gly Gly Gly Gly Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly Gly
130 135 140

Gly Leu Asn Asp Ile Phe Glu Ala Gln Lys Ile Glu Trp His Leu Ser
145 150 155 160

Pro His Leu Leu Trp Asp Leu Phe Arg Val Gly Leu Pro Gly Ala Ala
165 170 175

Gly Gly Gly His His His His His His
180 185

<210> 198
<211> 18
<212> PRT
<213> Alternative linker

<400> 198

Gly Glu Gly Thr Ser Thr Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
1 5 10 15

Ala Asp