SEQUENCE LISTING

<110> Chang Tse-Wen

<120> Molecular constructs with targeting and effector elements

<130> P2896-PCT

<160> 71

<170> BiSSAP 1.3

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<220>
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Gly Gly Gly Ser
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<210> 2
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Gly Ser Gly Ser
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<210> 3
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<220>
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<400> 3
Gly Gly Ser Gly
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<210> 4
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<400> 4
Gly Ser Gly Gly Ser
1 5

<210> 5
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<220>
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<400> 5
Ser Gly Gly Ser Gly
1 5

<210> 6
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<220>
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<400> 6
Gly Gly Gly Gly Ser
1 5

<210> 7
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<220>
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<400> 7
Gly Gly Ser Gly Gly Ser
1 5

<210> 8
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<220>
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<400> 8
Gly Gly Ser Gly Gly Ser Gly
1 5

<210> 9
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<212> PRT
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<220>
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<400> 9
Ser Gly Ser Gly Gly Ser Gly Ser
1 5

<210> 10
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<212> PRT
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<220>
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<400> 10
Gly Ser Gly Gly Ser Gly Ser Gly Ser
1 5

<210> 11
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<212> PRT
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<220>
<223> filler sequence-11

<400> 11
Ser Gly Gly Ser Gly Gly Ser Gly Ser Gly
1 5 10

<210> 12
<211> 11
<212> PRT
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<220>
<223> filler sequence-12

<400> 12
Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Ser
1 5 10

<210> 13
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<220>
<223> filler sequence-13

<400> 13
Ser Gly Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser
1 5 10

<210> 14
<211> 13
<212> PRT
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<220>
<223> filler sequence-14

<400> 14
Gly Gly Gly Gly Ser Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10

<210> 15
<211> 14
<212> PRT
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<220>
<223> filler sequence-15

<400> 15
Gly Gly Gly Ser Gly Ser Gly Ser Gly Ser Gly Gly Gly Ser
1 5 10

<210> 16
<211> 15
<212> PRT
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<220>
<223> filler sequence-16

<400> 16
Ser Gly Ser Gly Gly Gly Gly Gly Ser Gly Gly Ser Gly Ser Gly
1 5 10 15

<210> 17
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide core-1

<400> 17
Cys Gly Gly Ser Gly Gly Ser Gly Gly Ser Lys Gly Ser Gly Ser Lys
1 5 10 15

<210> 18
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptitde core-2

<400> 18
Cys Gly Gly Ser Gly Gly Ser Gly Gly Ser Lys Gly Ser Gly Ser Lys
1 5 10 15
Gly Ser Lys

<210> 19
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide-3

<400> 19
Cys Gly Ser Lys Gly Ser Lys Gly Ser Lys Gly Ser Lys Gly Ser Lys
1 5 10 15
Gly Ser Lys Gly Ser Lys Gly Ser Lys Gly Ser Lys Gly Ser Lys
20 25 30

<210> 20
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> hapten

<400> 20
Trp Ala Asp Trp Pro Gly Pro Pro
1 5

<210> 21
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> Xaa is homopropargylglycine

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide core-4

<400> 21
Xaa Gly Gly Ser Gly Gly Ser Gly Gly Ser Lys Gly Ser Gly Ser Lys
1 5 10 15

<210> 22
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> Xaa is homopropargylglycine

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide core-5

<400> 22
Xaa Gly Gly Ser Gly Gly Ser Gly Gly Ser Lys Gly Ser Gly Ser Lys
1 5 10 15
Gly Ser Lys

<210> 23
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> Xaa is L-azidohomoalanine

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide core-6

<400> 23

Xaa Gly Gly Ser Gly Gly Ser Gly Gly Ser Lys Gly Ser Gly Ser Lys
1 5 10 15
Gly Ser Lys

<210> 24
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> Xaa is homopropargylglycine

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide core-7

<400> 24
Xaa Gly Gly Ser Gly Gly Ser Gly Gly Ser Lys Gly Ser Gly Ser Lys
1 5 10 15
Gly Ser Gly Ser Cys
20

<210> 25
<211> 7
<212> PRT
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<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide core-8

<220>
<221> MOD_RES
<222> 2,4,6
<223> Xaa is PEGylated amino acid with two EG units

<400> 25
Cys Xaa Lys Xaa Lys Xaa Lys
1 5

<210> 26
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> 1
<223> ACETYLATION

<220>
<223> polypeptide core-9

<220>
<221> MOD_RES
<222> 2,4,6,8,10
<223> Xaa is PEGylated amino acid with six EG units

<400> 26
Cys Xaa Lys Xaa Lys Xaa Lys Xaa Lys Xaa Lys
1 5 10

<210> 27
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> 24C10-VH

<400> 27
Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Ile Ser Cys Lys Thr Ser Gly Tyr Ala Phe Ser Phe Ser
20 25 30
Trp Met Asn Trp Val Lys Trp Gly Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Arg Ile Tyr Pro Gly Asn Gly Asp Thr Asn Tyr Asn Gly Lys Phe
50 55 60
Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr
65 70 75 80
Met Gln Leu Ser Ser Leu Thr Ser Val Asp Ser Ala Val Tyr Phe Cys
85 90 95
Ala Arg Trp Val Tyr Ser Gly Asn Asn Tyr Ala Val Asp Tyr Trp Gly
100 105 110
Gln Gly Thr Ser Val Thr Val Ser Ser
115 120

<210> 28
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> 24C10-VL

<400> 28
Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95
Thr His Val Pro Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
100 105 110
Lys

<210> 29
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> 1F10-VH

<400> 29
Gln Ile Gln Leu Val Gln Ser Gly Pro Glu Leu Lys Lys Pro Gly Glu
1 5 10 15

```
Thr Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
            20                  25                  30
Ser Met His Trp Val Lys Gln Ala Pro Gly Glu Gly Leu Lys Trp Met
        35                  40                  45
Gly Trp Ile Asn Thr Glu Thr Gly Glu Pro Thr Tyr Ala Asp Asp Phe
    50                  55                  60
Lys Gly Arg Phe Ala Phe Ser Leu Glu Thr Ser Ala Ser Thr Ala Tyr
65                  70                  75                  80
Leu Gln Ile Asn Asn Leu Lys Asn Glu Asp Thr Ala Thr Tyr Phe Cys
                85                  90                  95
Tyr Tyr Gly Ser Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
            100                 105                 110
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<210> 30
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> 1F10-VL

<400> 30

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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 Lys Ala Ser Gln Ser Val Asp Tyr Asp
            20                  25                  30
Gly Asp Gly Tyr Met Asp Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
        35                  40                  45
Lys Leu Leu Ile Phe Ala Ala Ser Asn Leu Lys Ser Gly Ile 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 Gln Thr Asn
                85                  90                  95
Glu Tyr Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
            100                 105                 110
```

<210> 31
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> LH7.2-VH

<400> 31

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

<210> 32
<211> 108
<212> PRT

<213> Artificial Sequence

<220>
<223> LH7.2-VL

<400> 32
Asp Val Gln Ile Thr Gln Ser Pro Ser Tyr Leu Ala Ala Ser Pro Gly
1 5 10 15
Glu Thr Ile Thr Ile Asn Cys Arg Ala Ser Lys Ser Ile Ser Lys Tyr
20 25 30
Leu Ala Trp Tyr Gln Glu Lys Pro Gly Lys Thr Asn Lys Leu Leu Ile
35 40 45
Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80
Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln His Asn Glu Tyr Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100 105

<210> 33
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> 1F10 scFv

<400> 33
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 Lys Ala Ser Gln Ser Val Asp Tyr Asp
20 25 30
Gly Asp Gly Tyr Met Asp Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45
Lys Leu Leu Ile Phe Ala Ala Ser Asn Leu Lys Ser Gly Ile 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 Gln Thr Asn
85 90 95
Glu Tyr Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Gly
100 105 110
Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys
115 120 125
Gly Gln Ile Gln Leu Val Gln Ser Gly Pro Glu Leu Lys Lys Pro Gly
130 135 140
Glu Thr Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp
145 150 155 160
Tyr Ser Met His Trp Val Lys Gln Ala Pro Gly Glu Gly Leu Lys Trp
165 170 175
Met Gly Trp Ile Asn Thr Glu Thr Gly Glu Pro Thr Tyr Ala Asp Asp
180 185 190
Phe Lys Gly Arg Phe Ala Phe Ser Leu Glu Thr Ser Ala Ser Thr Ala
195 200 205
Tyr Leu Gln Ile Asn Asn Leu Lys Asn Glu Asp Thr Ala Thr Tyr Phe
210 215 220
Cys Tyr Tyr Gly Ser Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
225 230 235 240
Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Cys
245 250

<210> 34
<211> 260
<212> PRT
<213> Artificial Sequence

<220>
<223> CVII scFv

<400> 34
Asp Val Gln Ile Thr Gln Ser Pro Ser Tyr Leu Ala Ala Ser Pro Gly
1 5 10 15
Glu Thr Ile Thr Ile Asn Cys Arg Ala Ser Lys Ser Ile Ser Lys Tyr
20 25 30
Leu Ala Trp Tyr Gln Glu Lys Pro Gly Lys Thr Asn Lys Leu Leu Ile
35 40 45
Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80
Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln His Asn Glu Tyr Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Gly Ser Thr Ser
100 105 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Glu Val
115 120 125
Met Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly Ser Leu
130 135 140
Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met
145 150 155 160
Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val Ala Thr
165 170 175
Ile Thr Ser Gly Gly Asp Tyr Thr Phe Tyr Pro Asp Ser Val Lys Gly
180 185 190
Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln
195 200 205
Met Ser Ser Arg Arg Ser Glu Asp Thr Ala Met Tyr Tyr Cys Ala Arg
210 215 220
His Gly Glu Ile Gly Tyr Gly Ser Ser Ala Trp Phe Ala Tyr Trp Gly
225 230 235 240
Gln Gly Thr Leu Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gly Gly
245 250 255
Gly Gly Ser Cys
260

<210> 35
<211> 257
<212> PRT
<213> Artificial Sequence

<220>
<223> Trastuzumab scFv

<400> 35
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 Arg Gly Ser Thr Ser
100 105 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Glu Val
115 120 125
Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu
130 135 140
Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr Tyr Ile
145 150 155 160

```
His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg
                165                 170                 175
Ile Tyr Pro Thr Asn Gly Tyr Thr Arg Tyr Ala Asp Ser Val Lys Gly
            180                 185                 190
Arg Phe Thr Ile Ser Ala Asp Thr Ser Lys Asn Thr Ala Tyr Leu Gln
        195                 200                 205
Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ser Arg
    210                 215                 220
Trp Gly Gly Asp Gly Phe Tyr Ala Met Asp Tyr Trp Gly Gln Gly Thr
225                 230                 235                 240
Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
                245                 250                 255
Cys
```

<210> 36
<211> 257
<212> PRT
<213> Artificial Sequence

<220>
<223> Rituximab scFv

<400> 36

```
Gln Ile Val Leu Ser Gln Ser Pro Ala Ile Leu Ser Ala Ser Pro Gly
1               5                   10                  15
Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Ile
            20                  25                  30
His Trp Phe Gln Gln Lys Pro Gly Ser Ser Pro Lys Pro Trp Ile Tyr
        35                  40                  45
Ala Thr Ser Asn Leu Ala Ser Gly Val Pro Val Arg Phe Ser Gly Ser
    50                  55                  60
Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Val Glu Ala Glu
65                  70                  75                  80
Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Thr Ser Asn Pro Pro Thr
                85                  90                  95
Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Gly Ser Thr Ser Gly
            100                 105                 110
Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val Gln
        115                 120                 125
Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala Ser Val Lys
    130                 135                 140
Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr Asn Met His
145                 150                 155                 160
Trp Val Lys Gln Thr Pro Gly Arg Gly Leu Glu Trp Ile Gly Ala Ile
                165                 170                 175
Tyr Pro Gly Asn Gly Asp Thr Ser Tyr Asn Gln Lys Phe Lys Gly Lys
            180                 185                 190
Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu
        195                 200                 205
Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg Ser
    210                 215                 220
Thr Tyr Tyr Gly Gly Asp Trp Tyr Phe Asn Val Trp Gly Ala Gly Thr
225                 230                 235                 240
Thr Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
                245                 250                 255
Cys
```

<210> 37
<211> 256
<212> PRT
<213> Artificial Sequence

<220>
<223> Centuxiamb scFv

<400> 37

```
Asp Ile Leu Leu Thr Gln Ser Pro Val Ile Leu Ser Val Ser Pro Gly
1               5                  10                  15
Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
            20                  25                  30
Ile His Trp Tyr Gln Gln Arg Thr Asn Gly Ser Pro Arg Leu Leu Ile
        35                  40                  45
Lys Tyr Ala Ser Glu Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Ser
65                  70                  75                  80
Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
                85                  90                  95
Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Gly Ser Thr Ser
            100                 105                 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val
        115                 120                 125
Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
    130                 135                 140
Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145                 150                 155                 160
His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
                165                 170                 175
Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
            180                 185                 190
Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
        195                 200                 205
Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
    210                 215                 220
Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225                 230                 235                 240
Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Cys
                245                 250                 255
```

<210> 38
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Nivolumab scFv

<400> 38

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Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
1               5                  10                  15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
        35                  40                  45
Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65                  70                  75                  80
Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Ser Ser Asn Trp Pro Arg
                85                  90                  95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Gly Ser Thr Ser
            100                 105                 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val
        115                 120                 125
Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu
    130                 135                 140
Arg Leu Asp Cys Lys Ala Ser Gly Ile Thr Phe Ser Asn Ser Gly Met
145                 150                 155                 160
His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Val
                165                 170                 175
Ile Trp Tyr Asp Gly Ser Lys Arg Tyr Tyr Ala Asp Ser Val Lys Gly
            180                 185                 190
```

Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe Leu Gln
195 200 205
Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Thr
210 215 220
Asn Asp Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ser
225 230 235 240
Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Cys
245 250

<210> 39
<211> 255
<212> PRT
<213> Artificial Sequence

<220>
<223> Ipilimumab scFv

<400> 39
Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Gly Ser Ser
20 25 30
Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45
Ile Tyr Gly Ala Phe Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
50 55 60
Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65 70 75 80
Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
85 90 95
Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly Ser Thr Ser
100 105 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val
115 120 125
Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu
130 135 140
Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Thr Met
145 150 155 160
His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Thr Phe
165 170 175
Ile Ser Tyr Asp Gly Asn Asn Lys Tyr Tyr Ala Asp Ser Val Lys Gly
180 185 190
Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln
195 200 205
Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Ile Tyr Tyr Cys Ala Arg
210 215 220
Thr Gly Trp Leu Gly Pro Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val
225 230 235 240
Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Cys
245 250 255

<210> 40
<211> 260
<212> PRT
<213> Artificial Sequence

<220>
<223> Ranibizuman scFv

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

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

<210> 41
<211> 258
<212> PRT
<213> Artificial Sequence

<220>
<223> Adalimumab scFv

<400> 41
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 Gly Ile Arg Asn Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Val Ala Thr Tyr Tyr Cys Gln Arg Tyr Asn Arg Ala Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Gly Ser Thr Ser
100 105 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Glu Val
115 120 125
Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg Ser Leu
130 135 140
Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr Ala Met
145 150 155 160
His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ala
165 170 175
Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val Glu Gly
180 185 190
Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr Leu Gln
195 200 205
Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys
210 215 220
Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly Gln Gly
225 230 235 240
Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
245 250 255

Ser Cys

<210> 42
<211> 255
<212> PRT
<213> Artificial Sequence

<220>
<223> mutated teplizumab scFv

<400> 42
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 Ser Ala Ser Ser Ser Val Ser Tyr Met
20 25 30
Asn Trp Tyr Gln Gln Thr Pro Gly Lys Ala Pro Lys Arg Trp Ile Tyr
35 40 45
Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60
Gly Ser Gly Thr Asp Tyr Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu
65 70 75 80
Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Phe Thr
85 90 95
Phe Gly Gln Gly Thr Lys Leu Gln Ile Thr Arg Gly Ser Thr Ser Gly
100 105 110
Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val Gln
115 120 125
Leu Val Gln Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu Arg
130 135 140
Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr Thr Met His
145 150 155 160
Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile
165 170 175
Asn Pro Ser Arg Gly Tyr Thr Asn Tyr Asn Gln Lys Val Lys Asp Arg
180 185 190
Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Ala Phe Leu Gln Met
195 200 205
Asp Ser Leu Arg Pro Glu Asp Thr Gly Val Tyr Phe Cys Ala Arg Tyr
210 215 220
Tyr Asp Asp His Tyr Ser Leu Asp Tyr Trp Gly Gln Gly Thr Pro Val
225 230 235 240
Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Cys
245 250 255

<210> 43
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> scFv of adalimumab- forward primer

<400> 43
gtatctctcg agaaaagaga tattcagatg acgcaatccc c 41

<210> 44
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> scFv of adalimumab- reverse primer

<400> 44
gtatctgcgg ccgcttaaca ggagccaccg ccac 34

<210> 45
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> CCK analogue

<220>
<221> MOD_RES
<222> 8
<223> SO4H modification
SULFATATION

<220>
<221> MOD_RES
<222> 9,12
<223> Xaa is NOR-leucine

<400> 45
Cys Gly Gly Gly Gly Ser Asp Tyr Xaa Gly Trp Xaa Asp Phe
1 5 10

<210> 46
<211> 134
<212> PRT
<213> Artificial Sequence

<220>
<223> II6B3-VH

<400> 46
Glu Val Lys Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Met Lys Leu Ser Cys Val Ala Ser Gly Ile Thr Phe Ser Asp Tyr
20 25 30
Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45
Ala Glu Ile Arg Leu Lys Ser Ser Asn Tyr Ala Thr His Tyr Ala Glu
50 55 60
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
65 70 75 80
Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
85 90 95
Tyr Cys Thr Pro Leu Thr Gly Gly Phe Val Tyr Trp Gly Gln Gly Thr
100 105 110
Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro
115 120 125
Leu Val Pro Gly Ser Leu
130

<210> 47
<211> 129
<212> PRT
<213> Artificial Sequence

<220>
<223> II6B3-VL

<400> 47
Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Phe Cys Arg Ser Ser Gln Ser Ile Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Lys Val Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro

50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
85 90 95
Ser His Val Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110
Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Lys
115 120 125
Leu

<210> 48
<211> 741
<212> PRT
<213> Artificial Sequence

<220>
<223> (scFv anti-collagen II)-(scFv anti-TNF-alpha)-hIgG4.Fc

<400> 48
Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Phe Cys Arg Ser Ser Gln Ser Ile Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Lys Val Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
85 90 95
Ser His Val Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110
Arg Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser
115 120 125
Thr Lys Gly Glu Val Lys Leu Glu Glu Ser Gly Gly Leu Val Gln
130 135 140
Pro Gly Gly Ser Met Lys Leu Ser Cys Val Ala Ser Gly Ile Thr Phe
145 150 155 160
Ser Asp Tyr Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu
165 170 175
Glu Trp Val Ala Glu Ile Arg Leu Lys Ser Ser Asn Tyr Ala Thr His
180 185 190
Tyr Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser
195 200 205
Lys Ser Ser Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr
210 215 220
Gly Ile Tyr Tyr Cys Thr Pro Leu Thr Gly Gly Phe Val Tyr Trp Gly
225 230 235 240
Gln Gly Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr Gly Gly Gly
245 250 255
Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu
260 265 270
Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg Ser Leu Arg Leu
275 280 285
Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr Ala Met His Trp
290 295 300
Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ala Ile Thr
305 310 315 320
Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val Glu Gly Arg Phe
325 330 335
Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr Leu Gln Met Asn
340 345 350
Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Val Ser
355 360 365
Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu

370 375 380
Val Thr Val Ser Ser Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser
385 390 395 400
Gly Glu Gly Ser Thr Lys Gly Asp Ile Gln Met Thr Gln Ser Pro Ser
405 410 415
Ser Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala
420 425 430
Ser Gln Gly Ile Arg Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly
435 440 445
Lys Ala Pro Lys Leu Leu Ile Tyr Ala Ala Ser Thr Leu Gln Ser Gly
450 455 460
Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu
465 470 475 480
Thr Ile Ser Ser Leu Gln Pro Glu Asp Val Ala Thr Tyr Tyr Cys Gln
485 490 495
Arg Tyr Asn Arg Ala Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu
500 505 510
Ile Lys Arg Ala Ser Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe
515 520 525
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
530 535 540
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
545 550 555 560
Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val
565 570 575
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser
580 585 590
Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
595 600 605
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser
610 615 620
Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
625 630 635 640
Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln
645 650 655
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
660 665 670
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
675 680 685
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu
690 695 700
Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser
705 710 715 720
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
725 730 735
Leu Ser Leu Gly Lys
740

<210> 49
<211> 1015
<212> PRT
<213> Artificial Sequence

<220>
<223> fusion protein containing scFv specific for human collagen type II, scFv specific for TNF-alpha and scFv specific for human IL-17

<400> 49
Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Phe Cys Arg Ser Ser Gln Ser Ile Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Lys Val Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80

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Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
                85                  90                  95
Ser His Val Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
            100                 105                 110
Arg Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser
        115                 120                 125
Thr Lys Gly Glu Val Lys Leu Glu Glu Ser Gly Gly Gly Leu Val Gln
    130                 135                 140
Pro Gly Gly Ser Met Lys Leu Ser Cys Val Ala Ser Gly Ile Thr Phe
145                 150                 155                 160
Ser Asp Tyr Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu
                165                 170                 175
Glu Trp Val Ala Glu Ile Arg Leu Lys Ser Ser Asn Tyr Ala Thr His
            180                 185                 190
Tyr Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser
        195                 200                 205
Lys Ser Ser Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr
    210                 215                 220
Gly Ile Tyr Tyr Cys Thr Pro Leu Thr Gly Gly Phe Val Tyr Trp Gly
225                 230                 235                 240
Gln Gly Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr Gly Gly Gly
                245                 250                 255
Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu
            260                 265                 270
Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg Ser Leu Arg Leu
        275                 280                 285
Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr Ala Met His Trp
    290                 295                 300
Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ala Ile Thr
305                 310                 315                 320
Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val Glu Gly Arg Phe
                325                 330                 335
Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr Leu Gln Met Asn
            340                 345                 350
Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Val Ser
        355                 360                 365
Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu
    370                 375                 380
Val Thr Val Ser Ser Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser
385                 390                 395                 400
Gly Glu Gly Ser Thr Lys Gly Asp Ile Gln Met Thr Gln Ser Pro Ser
                405                 410                 415
Ser Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala
            420                 425                 430
Ser Gln Gly Ile Arg Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly
        435                 440                 445
Lys Ala Pro Lys Leu Leu Ile Tyr Ala Ala Ser Thr Leu Gln Ser Gly
    450                 455                 460
Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu
465                 470                 475                 480
Thr Ile Ser Ser Leu Gln Pro Glu Asp Val Ala Thr Tyr Tyr Cys Gln
                485                 490                 495
Arg Tyr Asn Arg Ala Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu
            500                 505                 510
Ile Lys Arg Ala Ser Gly Gly Ser Pro Pro Cys Pro Ser Cys Pro Ala
        515                 520                 525
Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
    530                 535                 540
Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
545                 550                 555                 560
Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val
                565                 570                 575
Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
            580                 585                 590
Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
        595                 600                 605
Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly
    610                 615                 620
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Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
625 630 635 640
Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr
645 650 655
Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser
660 665 670
Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
675 680 685
Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr
690 695 700
Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe
705 710 715 720
Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
725 730 735
Ser Leu Ser Leu Ser Leu Gly Lys Gly Thr Gly Gly Gly Gly Ser Gly
740 745 750
Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val Leu Thr Gln Ser
755 760 765
Pro Gly Thr Leu Ser Leu Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys
770 775 780
Arg Ala Ser Gln Ser Val Ser Ser Ser Tyr Leu Ala Trp Tyr Gln Gln
785 790 795 800
Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Gly Ala Ser Ser Arg
805 810 815
Ala Thr Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
820 825 830
Phe Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu Asp Phe Ala Val Tyr
835 840 845
Tyr Cys Gln Gln Tyr Gly Ser Ser Pro Cys Thr Phe Gly Gln Gly Thr
850 855 860
Arg Leu Glu Ile Lys Arg Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly
865 870 875 880
Ser Gly Glu Gly Ser Thr Lys Gly Glu Val Gln Leu Val Glu Ser Gly
885 890 895
Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala
900 905 910
Ser Gly Phe Thr Phe Ser Asn Tyr Trp Met Asn Trp Val Arg Gln Ala
915 920 925
Pro Gly Lys Gly Leu Glu Trp Val Ala Ala Ile Asn Gln Asp Gly Ser
930 935 940
Glu Lys Tyr Tyr Val Gly Ser Val Lys Gly Arg Phe Thr Ile Ser Arg
945 950 955 960
Asp Asn Ala Lys Asn Ser Leu Tyr Leu Gln Met Asn Ser Leu Arg Val
965 970 975
Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg Asp Tyr Tyr Asp Ile Leu
980 985 990
Thr Asp Tyr Tyr Ile His Tyr Trp Tyr Phe Asp Leu Trp Gly Arg Gly
995 1000 1005
Thr Leu Val Thr Val Ser Ser
1010 1015

<210> 50
<211> 735
<212> PRT
<213> Artificial Sequence

<220>
<223> fusion protein containing TNF-alpha soluble receptor and scFv specific for collagen type II

<400> 50
Leu Pro Ala Gln Val Ala Phe Thr Pro Tyr Ala Pro Glu Pro Gly Ser
1 5 10 15
Thr Cys Arg Leu Arg Glu Tyr Tyr Asp Gln Thr Ala Gln Met Cys Cys
20 25 30
Ser Lys Cys Ser Pro Gly Gln His Ala Lys Val Phe Cys Thr Lys Thr
35 40 45
Ser Asp Thr Val Cys Asp Ser Cys Glu Asp Ser Thr Tyr Thr Gln Leu

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    50                  55                  60
Trp Asn Trp Val Pro Glu Cys Leu Ser Cys Gly Ser Arg Cys Ser Ser
65                  70                  75                  80
Asp Gln Val Glu Thr Gln Ala Cys Thr Arg Glu Gln Asn Arg Ile Cys
                85                  90                  95
Thr Cys Arg Pro Gly Trp Tyr Cys Ala Leu Ser Lys Gln Glu Gly Cys
            100                 105                 110
Arg Leu Cys Ala Pro Leu Arg Lys Cys Arg Pro Gly Phe Gly Val Ala
        115                 120                 125
Arg Pro Gly Thr Glu Thr Ser Asp Val Val Cys Lys Pro Cys Ala Pro
    130                 135                 140
Gly Thr Phe Ser Asn Thr Thr Ser Ser Thr Asp Ile Cys Arg Pro His
145                 150                 155                 160
Gln Ile Cys Asn Val Val Ala Ile Pro Gly Asn Ala Ser Met Asp Ala
                165                 170                 175
Val Cys Thr Ser Thr Ser Pro Thr Arg Ser Met Ala Pro Gly Ala Val
            180                 185                 190
His Leu Pro Gln Pro Val Ser Thr Arg Ser Gln His Thr Gln Pro Thr
        195                 200                 205
Pro Glu Pro Ser Thr Ala Pro Ser Thr Ser Phe Leu Leu Pro Met Gly
    210                 215                 220
Pro Ser Pro Pro Ala Glu Gly Ser Thr Gly Asp Glu Pro Lys Ser Cys
225                 230                 235                 240
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
                245                 250                 255
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
            260                 265                 270
Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
        275                 280                 285
Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
    290                 295                 300
His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
305                 310                 315                 320
Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
                325                 330                 335
Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
            340                 345                 350
Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
        355                 360                 365
Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser
    370                 375                 380
Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
385                 390                 395                 400
Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
                405                 410                 415
Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
            420                 425                 430
Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
        435                 440                 445
His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
    450                 455                 460
Pro Gly Lys Gly Gly Gly Ala Ser Gly Gly Gly Gly Ser Gly Gly Gly
465                 470                 475                 480
Gly Ser Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser
                485                 490                 495
Leu Gly Asp Gln Ala Ser Ile Phe Cys Arg Ser Ser Gln Ser Ile Val
            500                 505                 510
His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly
        515                 520                 525
Gln Ser Pro Lys Val Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly
    530                 535                 540
Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu
545                 550                 555                 560
Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe
                565                 570                 575
Gln Gly Ser His Val Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu
            580                 585                 590
Ile Lys Arg Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu
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595 600 605
Gly Ser Thr Lys Gly Glu Val Lys Leu Glu Glu Ser Gly Gly Gly Leu
610 615 620
Val Gln Pro Gly Gly Ser Met Lys Leu Ser Cys Val Ala Ser Gly Ile
625 630 635 640
Thr Phe Ser Asp Tyr Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys
645 650 655
Gly Leu Glu Trp Val Ala Glu Ile Arg Leu Lys Ser Ser Asn Tyr Ala
660 665 670
Thr His Tyr Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
675 680 685
Asp Ser Lys Ser Ser Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu
690 695 700
Asp Thr Gly Ile Tyr Tyr Cys Thr Pro Leu Thr Gly Gly Phe Val Tyr
705 710 715 720
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr
725 730 735

<210> 51
<211> 719
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain of fusion protein containing intact antibody for human TNF-alpha and scFv specific for collagen type II

<400> 51
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val
50 55 60
Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser 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 Lys Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly
100 105 110
Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser
115 120 125
Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala
130 135 140
Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val
145 150 155 160
Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala
165 170 175
Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val
180 185 190
Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His
195 200 205
Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys
210 215 220
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
225 230 235 240
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
245 250 255
Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
260 265 270
Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
275 280 285
His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
290 295 300
Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
305 310 315 320

Lys Asp Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
325 330 335
Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
340 345 350
Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Arg Asn Gln Val Ser
355 360 365
Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
370 375 380
Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
385 390 395 400
Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
405 410 415
Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
420 425 430
His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
435 440 445
Pro Gly Lys Gly Gly Gly Ala Ser Gly Gly Gly Gly Ser Gly Gly Gly
450 455 460
Gly Ser Glu Val Lys Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Pro
465 470 475 480
Gly Gly Ser Met Lys Leu Ser Cys Val Ala Ser Gly Ile Thr Phe Ser
485 490 495
Asp Tyr Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu
500 505 510
Trp Val Ala Glu Ile Arg Leu Lys Ser Ser Asn Tyr Ala Thr His Tyr
515 520 525
Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys
530 535 540
Ser Ser Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly
545 550 555 560
Ile Tyr Tyr Cys Thr Pro Leu Thr Gly Gly Phe Val Tyr Trp Gly Gln
565 570 575
Gly Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr Gly Ser Thr Ser
580 585 590
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Asp Val
595 600 605
Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln
610 615 620
Ala Ser Ile Phe Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly
625 630 635 640
Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys
645 650 655
Val Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg
660 665 670
Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg
675 680 685
Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His
690 695 700
Val Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
705 710 715

<210> 52
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> light chain of fusion protein containing intact antibody for human TNF-alpha and scFv specific for collagen type II

<400> 52
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Arg Asn Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly

50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Val Ala Thr Tyr Tyr Cys Gln Arg Tyr Asn Arg Ala Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
100 105 110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205
Phe Asn Arg Gly Glu Cys
210

<210> 53
<211> 721
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain of fusion protein containing intact antibody for human IL-17 and scFv specific for collagen type VII

<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 Asn Tyr
20 25 30
Trp Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Ala Ile Asn Gln Asp Gly Ser Glu Lys Tyr Tyr Val Gly Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Val Arg Asp Tyr Tyr Asp Ile Leu Thr Asp Tyr Tyr Ile His Tyr Trp
100 105 110
Tyr Phe Asp Leu Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Ala
115 120 125
Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser
130 135 140
Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe
145 150 155 160
Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly
165 170 175
Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu
180 185 190
Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr
195 200 205
Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg
210 215 220
Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro
225 230 235 240
Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
245 250 255
Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
260 265 270
Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
275 280 285

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
290 295 300
Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
305 310 315 320
Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
325 330 335
Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
340 345 350
Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
355 360 365
Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
370 375 380
Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
385 390 395 400
Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
405 410 415
Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
420 425 430
Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
435 440 445
Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Gly Gly Ala Ser Gly Gly
450 455 460
Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Met Leu Val Glu Ser Gly
465 470 475 480
Gly Gly Leu Val Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala
485 490 495
Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Thr
500 505 510
Pro Glu Lys Arg Leu Glu Trp Val Ala Thr Ile Thr Ser Gly Gly Asp
515 520 525
Tyr Thr Phe Tyr Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg
530 535 540
Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Arg Arg Ser
545 550 555 560
Glu Asp Thr Ala Met Tyr Tyr Cys Ala Arg His Gly Glu Ile Gly Tyr
565 570 575
Gly Ser Ser Ala Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
580 585 590
Val Ser Ala Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu
595 600 605
Gly Ser Thr Lys Gly Asp Val Gln Ile Thr Gln Ser Pro Ser Tyr Leu
610 615 620
Ala Ala Ser Pro Gly Glu Thr Ile Thr Ile Asn Cys Arg Ala Ser Lys
625 630 635 640
Ser Ile Ser Lys Tyr Leu Ala Trp Tyr Gln Glu Lys Pro Gly Lys Thr
645 650 655
Asn Lys Leu Leu Ile Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro
660 665 670
Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
675 680 685
Ser Ser Leu Glu Pro Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln His
690 695 700
Asn Glu Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
705 710 715 720
Arg

<210> 54
<211> 215
<212> PRT
<213> Artificial Sequence

<220>
<223> light chain of fusion protein containing intact antibody for human IL-17 and scFv specific for collagen type VII

<400> 54
Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly

```
1               5                   10                  15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
            20                  25                  30
Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
        35                  40                  45
Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
    50                  55                  60
Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65                  70                  75                  80
Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
                85                  90                  95
Cys Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Thr Val Ala
            100                 105                 110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
        115                 120                 125
Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
    130                 135                 140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145                 150                 155                 160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
                165                 170                 175
Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
            180                 185                 190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
        195                 200                 205
Ser Phe Asn Arg Gly Glu Cys
    210                 215
```

<210> 55
<211> 742
<212> PRT
<213> Artificial Sequence

<220>
<223> fusion protein containing scFv specific for human collagen type VII and scFv specific for BAFF

<400> 55

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Asp Val Gln Ile Thr Gln Ser Pro Ser Tyr Leu Ala Ala Ser Pro Gly
1               5                   10                  15
Glu Thr Ile Thr Ile Asn Cys Arg Ala Ser Lys Ser Ile Ser Lys Tyr
            20                  25                  30
Leu Ala Trp Tyr Gln Glu Lys Pro Gly Lys Thr Asn Lys Leu Leu Ile
        35                  40                  45
Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65                  70                  75                  80
Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln His Asn Glu Tyr Pro Tyr
                85                  90                  95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Gly Ser Thr Ser
            100                 105                 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Glu Val
        115                 120                 125
Met Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly Ser Leu
    130                 135                 140
Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met
145                 150                 155                 160
Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val Ala Thr
                165                 170                 175
Ile Thr Ser Gly Gly Asp Tyr Thr Phe Tyr Pro Asp Ser Val Lys Gly
            180                 185                 190
Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln
        195                 200                 205
Met Ser Ser Arg Arg Ser Glu Asp Thr Ala Met Tyr Tyr Cys Ala Arg
    210                 215                 220
His Gly Glu Ile Gly Tyr Gly Ser Ser Ala Trp Phe Ala Tyr Trp Gly
225                 230                 235                 240
```

```
Gln Gly Thr Leu Val Thr Val Ser Ala Ala Ser Gly Gly Ser Pro Pro
                245                 250                 255
Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe
            260                 265                 270
Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
        275                 280                 285
Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val
    290                 295                 300
Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
305                 310                 315                 320
Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val
                325                 330                 335
Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys
            340                 345                 350
Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser
        355                 360                 365
Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
    370                 375                 380
Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val
385                 390                 395                 400
Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
                405                 410                 415
Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
            420                 425                 430
Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp
        435                 440                 445
Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
    450                 455                 460
Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys Gly Gly
465                 470                 475                 480
Gly Gly Ser Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln
                485                 490                 495
Leu Gln Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser Ser Val Arg
            500                 505                 510
Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Asn Asn Asn Ala Ile Asn
        515                 520                 525
Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Gly Ile
    530                 535                 540
Ile Pro Met Phe Gly Thr Ala Lys Tyr Ser Gln Asn Phe Gln Gly Arg
545                 550                 555                 560
Val Ala Ile Thr Ala Asp Glu Ser Thr Gly Thr Ala Ser Met Glu Leu
                565                 570                 575
Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Ser
            580                 585                 590
Arg Asp Leu Leu Leu Phe Pro His His Ala Leu Ser Pro Trp Gly Arg
        595                 600                 605
Gly Thr Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
    610                 615                 620
Gly Ser Gly Gly Gly Gly Ser Ala Phe Ser Ser Glu Leu Thr Gln Asp
625                 630                 635                 640
Pro Ala Val Ser Val Ala Leu Gly Gln Thr Val Arg Val Thr Cys Gln
                645                 650                 655
Gly Asp Ser Leu Arg Ser Tyr Tyr Ala Ser Trp Tyr Gln Gln Lys Pro
            660                 665                 670
Gly Gln Ala Pro Val Leu Val Ile Tyr Gly Lys Asn Asn Arg Pro Ser
        675                 680                 685
Gly Ile Pro Asp Arg Phe Ser Gly Ser Ser Ser Gly Asn Thr Ala Ser
    690                 695                 700
Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
705                 710                 715                 720
Ser Ser Arg Asp Ser Ser Gly Asn His Trp Val Phe Gly Gly Gly Thr
                725                 730                 735
Glu Leu Thr Val Leu Gly
            740
```

<210> 56
<211> 717
<212> PRT

<213> Artificial Sequence

<220>
<223> heavy chain of fusion protein containing intact antibody for human BAFF and scFv specific for collagen type VII

<400> 56

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Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1               5                  10                  15
Ser Val Arg Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Asn Asn Asn
            20                  25                  30
Ala Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Met Phe Gly Thr Ala Lys Tyr Ser Gln Asn Phe
    50                  55                  60
Gln Gly Arg Val Ala Ile Thr Ala Asp Glu Ser Thr Gly Thr Ala Ser
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Ser Arg Asp Leu Leu Leu Phe Pro His His Ala Leu Ser Pro
            100                 105                 110
Trp Gly Arg Gly Thr Met Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115                 120                 125
Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
    130                 135                 140
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145                 150                 155                 160
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
                165                 170                 175
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
            180                 185                 190
Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
        195                 200                 205
Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
    210                 215                 220
Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
225                 230                 235                 240
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
                245                 250                 255
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
            260                 265                 270
Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
        275                 280                 285
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
    290                 295                 300
Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305                 310                 315                 320
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
                325                 330                 335
Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
            340                 345                 350
Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
        355                 360                 365
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
    370                 375                 380
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385                 390                 395                 400
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
                405                 410                 415
Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
            420                 425                 430
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
        435                 440                 445
Leu Ser Pro Gly Lys Gly Gly Gly Ala Ser Gly Gly Gly Gly Ser Gly
    450                 455                 460
Gly Gly Gly Ser Glu Val Met Leu Val Glu Ser Gly Gly Gly Leu Val
465                 470                 475                 480
Lys Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr
```

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

<210> 57
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> light chain of fusion protein containing intact antibody for human BAFF and scFv specific for collagen type VII

<400> 57
Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala Leu Gly Gln
1 5 10 15
Thr Val Arg Val Thr Cys Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala
20 25 30
Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
35 40 45
Gly Lys Asn Asn Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser
50 55 60
Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala Gln Ala Glu
65 70 75 80
Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Arg Asp Ser Ser Gly Asn His
85 90 95
Trp Val Phe Gly Gly Gly Thr Glu Leu Thr Val Leu Gly Gln Pro Lys
100 105 110
Ala Asn Pro Thr Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
115 120 125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
130 135 140
Ala Val Thr Val Ala Trp Lys Ala Asp Gly Ser Pro Val Lys Ala Gly
145 150 155 160
Val Glu Thr Thr Lys Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
165 170 175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
180 185 190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
195 200 205
Ala Pro Thr Glu Cys Ser
210

<210> 58
<211> 140
<212> PRT
<213> Artificial Sequence

<220>
<223> VH of SPARC

<400> 58
Gln Val Gln Leu Gln Gln Ser Asp Ala Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Asp His
20 25 30
Thr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
35 40 45
Gly Tyr Ile Tyr Pro Arg Asp Gly Ser Thr Lys Tyr Asn Glu Lys Phe
50 55 60
Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Thr Tyr
65 70 75 80
Met Gln Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys
85 90 95
Ala Arg Leu Ala Phe Gly Ile Ile Thr Thr Val Val Arg Tyr Phe Asp
100 105 110
Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Lys Thr Thr
115 120 125
Ala Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Leu
130 135 140

<210> 59
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> VL of SPARC

<400> 59
Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Gly Asn Ile His Asn Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Gln Gly Lys Ser Pro Gln Leu Leu Val
35 40 45
Tyr Asn Ala Lys Thr Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Gln Tyr Ser Leu Lys Ile Asn Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Gly Ser Tyr Tyr Cys Gln His Phe Trp Ser Thr Pro Phe
85 90 95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala Asp Ala Ala
100 105 110
Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Lys Leu Gly
115 120 125

<210> 60
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc fusion protein containing scFv specific for human osteonectin
and scFv specific for RANKL

<400> 60
Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Gly Asn Ile His Asn Tyr

```
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Gln Gly Lys Ser Pro Gln Leu Leu Val
        35                  40                  45
Tyr Asn Ala Lys Thr Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Gln Tyr Ser Leu Lys Ile Asn Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Gly Ser Tyr Tyr Cys Gln His Phe Trp Ser Thr Pro Phe
                85                  90                  95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Gly Ser Thr Ser
            100                 105                 110
Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val
        115                 120                 125
Gln Leu Gln Gln Ser Asp Ala Glu Leu Val Lys Pro Gly Ala Ser Val
    130                 135                 140
Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Asp His Thr Ile
145                 150                 155                 160
His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile Gly Tyr
                165                 170                 175
Ile Tyr Pro Arg Asp Gly Ser Thr Lys Tyr Asn Glu Lys Phe Lys Gly
            180                 185                 190
Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Thr Tyr Met Gln
        195                 200                 205
Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala Arg
    210                 215                 220
Leu Ala Phe Gly Ile Ile Thr Thr Val Val Arg Tyr Phe Asp Val Trp
225                 230                 235                 240
Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Lys Thr Thr Gly Gly
                245                 250                 255
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln
            260                 265                 270
Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg
        275                 280                 285
Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser
    290                 295                 300
Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Gly Ile
305                 310                 315                 320
Thr Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg
                325                 330                 335
Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met
            340                 345                 350
Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp
        355                 360                 365
Pro Gly Thr Thr Val Ile Met Ser Trp Phe Asp Pro Trp Gly Gln Gly
    370                 375                 380
Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Ser Thr Ser Gly
385                 390                 395                 400
Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Glu Ile Val
                405                 410                 415
Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly Glu Arg Ala
            420                 425                 430
Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Arg Gly Arg Tyr Leu Ala
        435                 440                 445
Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Gly
    450                 455                 460
Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly
465                 470                 475                 480
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu Asp
                485                 490                 495
Phe Ala Val Phe Tyr Cys Gln Gln Tyr Gly Ser Ser Pro Arg Thr Phe
            500                 505                 510
Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Ala Ser Gly Gly Ser Pro
        515                 520                 525
Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val
    530                 535                 540
Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
545                 550                 555                 560
Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
```

565 570 575
Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
580 585 590
Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
595 600 605
Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
610 615 620
Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
625 630 635 640
Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
645 650 655
Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
660 665 670
Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
675 680 685
Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
690 695 700
Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg
705 710 715 720
Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
725 730 735
His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
740 745 750

<210> 61
<211> 721
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain of fusion protein containing intact antibody for human RANKL and scFv specific for human osteonectin

<400> 61
Glu Val Gln Leu Leu 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 Gly Ile Thr 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 Lys Asp Pro Gly Thr Thr Val Ile Met Ser Trp Phe Asp Pro Trp
100 105 110
Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
115 120 125
Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr
130 135 140
Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
145 150 155 160
Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
165 170 175
Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
180 185 190
Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn
195 200 205
His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser
210 215 220
Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
225 230 235 240
Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
245 250 255
Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
260 265 270

```
His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
        275                 280                 285
Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr
    290                 295                 300
Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
305                 310                 315                 320
Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro
                325                 330                 335
Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
            340                 345                 350
Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val
        355                 360                 365
Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
    370                 375                 380
Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
385                 390                 395                 400
Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr
                405                 410                 415
Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
            420                 425                 430
Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
        435                 440                 445
Ser Pro Gly Lys Gly Gly Gly Ala Ser Gly Gly Gly Gly Ser Gly Gly
    450                 455                 460
Gly Gly Ser Gln Val Gln Leu Gln Gln Ser Asp Ala Glu Leu Val Lys
465                 470                 475                 480
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe
                485                 490                 495
Thr Asp His Thr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu
            500                 505                 510
Glu Trp Ile Gly Tyr Ile Tyr Pro Arg Asp Gly Ser Thr Lys Tyr Asn
        515                 520                 525
Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser
    530                 535                 540
Thr Thr Tyr Met Gln Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val
545                 550                 555                 560
Tyr Phe Cys Ala Arg Leu Ala Phe Gly Ile Ile Thr Thr Val Val Arg
                565                 570                 575
Tyr Phe Asp Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala
            580                 585                 590
Lys Thr Thr Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu
        595                 600                 605
Gly Ser Thr Lys Gly Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu
    610                 615                 620
Ser Ala Ser Val Gly Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Gly
625                 630                 635                 640
Asn Ile His Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Gln Gly Lys Ser
                645                 650                 655
Pro Gln Leu Leu Val Tyr Asn Ala Lys Thr Leu Ala Asp Gly Val Pro
            660                 665                 670
Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Gln Tyr Ser Leu Lys Ile
        675                 680                 685
Asn Ser Leu Gln Pro Glu Asp Phe Gly Ser Tyr Tyr Cys Gln His Phe
    690                 695                 700
Trp Ser Thr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
705                 710                 715                 720
Arg
```

<210> 62
<211> 215
<212> PRT
<213> Artificial Sequence

<220>
<223> light chain of fusion protein containing intact antibody for human RANKL and scFv specific for human osteonectin

<400> 62
Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Arg Gly Arg
20 25 30
Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45
Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
50 55 60
Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65 70 75 80
Pro Glu Asp Phe Ala Val Phe Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
85 90 95
Arg Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
100 105 110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
115 120 125
Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
130 135 140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145 150 155 160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
165 170 175
Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
180 185 190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
195 200 205
Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 63
<211> 292
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain EGF-hIgG1.Fc

<400> 63
Asn Ser Asp Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
1 5 10 15
Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
20 25 30
Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
35 40 45
Trp Trp Glu Leu Arg Ala Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly
50 55 60
Gly Gly Gly Ser Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
65 70 75 80
Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
85 90 95
Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
100 105 110
Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
115 120 125
Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
130 135 140
Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Asp Tyr Lys Cys
145 150 155 160
Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
165 170 175
Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
180 185 190
Ser Arg Asp Glu Leu Thr Arg Asn Gln Val Ser Leu Thr Cys Leu Val
195 200 205
Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
210 215 220
Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp

225 230 235 240
Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
245 250 255
Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
260 265 270
Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Gly
275 280 285
Gly Gly Asp Cys
290

<210> 64
<211> 540
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain EGF-hIgG1.Fc-anti-PD-1

<400> 64
Asn Ser Asp Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
1 5 10 15
Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
20 25 30
Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
35 40 45
Trp Trp Glu Leu Arg Ala Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly
50 55 60
Gly Gly Gly Ser Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
65 70 75 80
Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
85 90 95
Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
100 105 110
Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
115 120 125
Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
130 135 140
Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Asp Tyr Lys Cys
145 150 155 160
Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
165 170 175
Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
180 185 190
Ser Arg Asp Glu Leu Thr Arg Asn Gln Val Ser Leu Thr Cys Leu Val
195 200 205
Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
210 215 220
Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
225 230 235 240
Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
245 250 255
Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
260 265 270
Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Gly
275 280 285
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val
290 295 300
Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly Glu Arg Ala
305 310 315 320
Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala Trp
325 330 335
Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Asp Ala
340 345 350
Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser
355 360 365
Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro Glu Asp Phe
370 375 380
Ala Val Tyr Tyr Cys Gln Gln Ser Ser Asn Trp Pro Arg Thr Phe Gly

385 390 395 400
Gln Gly Thr Lys Val Glu Ile Lys Arg Gly Ser Thr Ser Gly Ser Gly
405 410 415
Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val Gln Leu Val
420 425 430
Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu Arg Leu Asp
435 440 445
Cys Lys Ala Ser Gly Ile Thr Phe Ser Asn Ser Gly Met His Trp Val
450 455 460
Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Val Ile Trp Tyr
465 470 475 480
Asp Gly Ser Lys Arg Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
485 490 495
Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe Leu Gln Met Asn Ser
500 505 510
Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Thr Asn Asp Asp
515 520 525
Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
530 535 540

<210> 65
<211> 545
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain EGF-hIgG1.Fc-anti-CD3

<400> 65
Asn Ser Asp Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
1 5 10 15
Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
20 25 30
Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
35 40 45
Trp Trp Glu Leu Arg Ala Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly
50 55 60
Gly Gly Gly Ser Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
65 70 75 80
Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
85 90 95
Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
100 105 110
Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
115 120 125
Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
130 135 140
Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Asp Tyr Lys Cys
145 150 155 160
Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
165 170 175
Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
180 185 190
Ser Arg Asp Glu Leu Thr Arg Asn Gln Val Ser Leu Thr Cys Leu Val
195 200 205
Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
210 215 220
Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
225 230 235 240
Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
245 250 255
Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
260 265 270
Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Gly
275 280 285
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Gln
290 295 300
Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val

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305                 310                 315                 320
Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met Asn Trp Tyr
                325                 330                 335
Gln Gln Thr Pro Gly Lys Ala Pro Lys Arg Trp Ile Tyr Asp Thr Ser
            340                 345                 350
Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly
        355                 360                 365
Thr Asp Tyr Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu Asp Ile Ala
    370                 375                 380
Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Phe Thr Phe Gly Gln
385                 390                 395                 400
Gly Thr Lys Leu Gln Ile Thr Arg Gly Ser Thr Ser Gly Ser Gly Lys
                405                 410                 415
Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val Gln Leu Val Gln
            420                 425                 430
Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys
        435                 440                 445
Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Arg
    450                 455                 460
Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser
465                 470                 475                 480
Arg Gly Tyr Thr Asn Tyr Asn Gln Lys Val Lys Asp Arg Phe Thr Ile
                485                 490                 495
Ser Arg Asp Asn Ser Lys Asn Thr Ala Phe Leu Gln Met Asp Ser Leu
            500                 505                 510
Arg Pro Glu Asp Thr Gly Val Tyr Phe Cys Ala Arg Tyr Tyr Asp Asp
        515                 520                 525
His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly Thr Pro Val Thr Val Ser
    530                 535                 540
Ser
545
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<210> 66
<211> 292
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain EGF(S2W/D3V)-hIgG1.Fc

<400> 66

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Asn Trp Val Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
1                   5                   10                  15
Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
            20                  25                  30
Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
        35                  40                  45
Trp Trp Glu Leu Arg Ala Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly
    50                  55                  60
Gly Gly Gly Ser Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
65                  70                  75                  80
Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
                85                  90                  95
Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
            100                 105                 110
Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
        115                 120                 125
Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
    130                 135                 140
Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Asp Tyr Lys Cys
145                 150                 155                 160
Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
                165                 170                 175
Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
            180                 185                 190
Ser Arg Asp Glu Leu Thr Arg Asn Gln Val Ser Leu Thr Cys Leu Val
        195                 200                 205
Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
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210 215 220
Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
225 230 235 240
Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
245 250 255
Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
260 265 270
Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Gly
275 280 285
Gly Gly Asp Cys
290

<210> 67
<211> 540
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain EGF(S2W/D3V)-hIgG1.Fc-anti-PD-1

<400> 67
Asn Trp Val Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
1 5 10 15
Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
20 25 30
Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
35 40 45
Trp Trp Glu Leu Arg Ala Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly
50 55 60
Gly Gly Gly Ser Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
65 70 75 80
Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
85 90 95
Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
100 105 110
Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
115 120 125
Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
130 135 140
Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Asp Tyr Lys Cys
145 150 155 160
Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
165 170 175
Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
180 185 190
Ser Arg Asp Glu Leu Thr Arg Asn Gln Val Ser Leu Thr Cys Leu Val
195 200 205
Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
210 215 220
Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
225 230 235 240
Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
245 250 255
Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
260 265 270
Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Gly
275 280 285
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val
290 295 300
Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly Glu Arg Ala
305 310 315 320
Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala Trp
325 330 335
Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Asp Ala
340 345 350
Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser
355 360 365
Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro Glu Asp Phe

370 375 380
Ala Val Tyr Tyr Cys Gln Gln Ser Ser Asn Trp Pro Arg Thr Phe Gly
385 390 395 400
Gln Gly Thr Lys Val Glu Ile Lys Arg Gly Ser Thr Ser Gly Ser Gly
405 410 415
Lys Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val Gln Leu Val
420 425 430
Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu Arg Leu Asp
435 440 445
Cys Lys Ala Ser Gly Ile Thr Phe Ser Asn Ser Gly Met His Trp Val
450 455 460
Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Val Ile Trp Tyr
465 470 475 480
Asp Gly Ser Lys Arg Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
485 490 495
Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe Leu Gln Met Asn Ser
500 505 510
Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Thr Asn Asp Asp
515 520 525
Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
530 535 540

<210> 68
<211> 545
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain EGF(S2W/D3V)-hIgG1.Fc-anti-CD3

<400> 68
Asn Trp Val Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
1 5 10 15
Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
20 25 30
Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
35 40 45
Trp Trp Glu Leu Arg Ala Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly
50 55 60
Gly Gly Gly Ser Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
65 70 75 80
Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
85 90 95
Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
100 105 110
Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
115 120 125
Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
130 135 140
Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Asp Tyr Lys Cys
145 150 155 160
Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
165 170 175
Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
180 185 190
Ser Arg Asp Glu Leu Thr Arg Asn Gln Val Ser Leu Thr Cys Leu Val
195 200 205
Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
210 215 220
Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
225 230 235 240
Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
245 250 255
Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
260 265 270
Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Gly
275 280 285
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Gln

290 295 300
Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val
305 310 315 320
Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met Asn Trp Tyr
325 330 335
Gln Gln Thr Pro Gly Lys Ala Pro Lys Arg Trp Ile Tyr Asp Thr Ser
340 345 350
Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly
355 360 365
Thr Asp Tyr Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu Asp Ile Ala
370 375 380
Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Phe Thr Phe Gly Gln
385 390 395 400
Gly Thr Lys Leu Gln Ile Thr Arg Gly Ser Thr Ser Gly Ser Gly Lys
405 410 415
Pro Gly Ser Gly Glu Gly Ser Thr Lys Gly Gln Val Gln Leu Val Gln
420 425 430
Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys
435 440 445
Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Arg
450 455 460
Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser
465 470 475 480
Arg Gly Tyr Thr Asn Tyr Asn Gln Lys Val Lys Asp Arg Phe Thr Ile
485 490 495
Ser Arg Asp Asn Ser Lys Asn Thr Ala Phe Leu Gln Met Asp Ser Leu
500 505 510
Arg Pro Glu Asp Thr Gly Val Tyr Phe Cys Ala Arg Tyr Tyr Asp Asp
515 520 525
His Tyr Ser Leu Asp Tyr Trp Gly Gln Gly Thr Pro Val Thr Val Ser
530 535 540
Ser
545

<210> 69
<211> 253
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain Somatostatin-hIgG1.Fc

<400> 69
Ala Gly Cys Lys Asn Phe Phe Trp Lys Thr Phe Thr Ser Cys Ala Ser
1 5 10 15
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Pro Ala Pro
20 25 30
Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
35 40 45
Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
50 55 60
Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
65 70 75 80
Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
85 90 95
Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
100 105 110
Trp Leu Asn Gly Lys Asp Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
115 120 125
Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
130 135 140
Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Arg
145 150 155 160
Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
165 170 175
Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
180 185 190
Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser

195 200 205
Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
210 215 220
Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
225 230 235 240
Leu Ser Leu Ser Pro Gly Lys Gly Gly Gly Gly Asp Cys
245 250

<210> 70
<211> 501
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain Somatostatin-hIgG1.Fc-anti-PD-1

<400> 70
Ala Gly Cys Lys Asn Phe Phe Trp Lys Thr Phe Thr Ser Cys Ala Ser
1 5 10 15
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Pro Ala Pro
20 25 30
Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
35 40 45
Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
50 55 60
Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
65 70 75 80
Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
85 90 95
Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
100 105 110
Trp Leu Asn Gly Lys Asp Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
115 120 125
Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
130 135 140
Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Arg
145 150 155 160
Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
165 170 175
Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
180 185 190
Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
195 200 205
Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
210 215 220
Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
225 230 235 240
Leu Ser Leu Ser Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly
245 250 255
Ser Gly Gly Gly Gly Ser Glu Ile Val Leu Thr Gln Ser Pro Ala Thr
260 265 270
Leu Ser Leu Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser
275 280 285
Gln Ser Val Ser Ser Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
290 295 300
Ala Pro Arg Leu Leu Ile Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile
305 310 315 320
Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
325 330 335
Ile Ser Ser Leu Glu Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln
340 345 350
Ser Ser Asn Trp Pro Arg Thr Phe Gly Gln Gly Thr Lys Val Glu Ile
355 360 365
Lys Arg Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly
370 375 380
Ser Thr Lys Gly Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val
385 390 395 400
Gln Pro Gly Arg Ser Leu Arg Leu Asp Cys Lys Ala Ser Gly Ile Thr

405 410 415
Phe Ser Asn Ser Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly
420 425 430
Leu Glu Trp Val Ala Val Ile Trp Tyr Asp Gly Ser Lys Arg Tyr Tyr
435 440 445
Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys
450 455 460
Asn Thr Leu Phe Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala
465 470 475 480
Val Tyr Tyr Cys Ala Thr Asn Asp Asp Tyr Trp Gly Gln Gly Thr Leu
485 490 495
Val Thr Val Ser Ser
500

<210> 71
<211> 506
<212> PRT
<213> Artificial Sequence

<220>
<223> 2-chain Somatostatin-hIgG1.Fc-anti-CD3

<400> 71
Ala Gly Cys Lys Asn Phe Phe Trp Lys Thr Phe Thr Ser Cys Ala Ser
1 5 10 15
Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Pro Ala Pro
20 25 30
Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
35 40 45
Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
50 55 60
Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
65 70 75 80
Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
85 90 95
Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
100 105 110
Trp Leu Asn Gly Lys Asp Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
115 120 125
Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
130 135 140
Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Arg
145 150 155 160
Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
165 170 175
Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
180 185 190
Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
195 200 205
Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
210 215 220
Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
225 230 235 240
Leu Ser Leu Ser Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly
245 250 255
Ser Gly Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
260 265 270
Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Ser Ala Ser
275 280 285
Ser Ser Val Ser Tyr Met Asn Trp Tyr Gln Gln Thr Pro Gly Lys Ala
290 295 300
Pro Lys Arg Trp Ile Tyr Asp Thr Ser Lys Leu Ala Ser Gly Val Pro
305 310 315 320
Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Thr Phe Thr Ile
325 330 335
Ser Ser Leu Gln Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Trp
340 345 350
Ser Ser Asn Pro Phe Thr Phe Gly Gln Gly Thr Lys Leu Gln Ile Thr

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        355                 360                 365
Arg Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser
    370                 375                 380
Thr Lys Gly Gln Val Gln Leu Val Gln Ser Gly Gly Gly Val Val Gln
385                 390                 395                 400
Pro Gly Arg Ser Leu Arg Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe
                405                 410                 415
Thr Arg Tyr Thr Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
            420                 425                 430
Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr Asn Tyr Asn
        435                 440                 445
Gln Lys Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
    450                 455                 460
Thr Ala Phe Leu Gln Met Asp Ser Leu Arg Pro Glu Asp Thr Gly Val
465                 470                 475                 480
Tyr Phe Cys Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp
                485                 490                 495
Gly Gln Gly Thr Pro Val Thr Val Ser Ser
            500                 505
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