

## SEQUENCE LISTING

<110> XENCOR, INC.

<120> HETERODIMERIC ANTIBODIES THAT BIND ENPP3 AND CD3

<130> 067461-5240-WO

<140> PCT/US2020/020493

<141> 2020-02-28

<150> 62/929,687

<151> 2019-11-01

<150> 62/812,922

<151> 2019-03-01

<160> 579

<170> PatentIn version 3.5

<210> 1

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 1

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 2

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> See specification as filed for detailed description of

substitutions and preferred embodiments

<400> 2

Gly Gly Gly Gly Ser

1 5

<210> 3

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> See specification as filed for detailed description of substitutions and preferred embodiments

<400> 3

Gly Ser Gly Gly Ser

1 5

<210> 4

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> See specification as filed for detailed description of substitutions and preferred embodiments

<400> 4

Gly Gly Gly Ser

1

<210> 5

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

peptide

<400> 5

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro  
1 5 10 15

<210> 6

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 6

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Lys Thr His Thr Cys Pro  
1 5 10 15

Pro Cys Pro

<210> 7

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 7

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10 15

<210> 8

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 8

Gly Ser Thr Ser Gly Ser Gly Lys Pro Gly Ser Gly Glu Gly Ser Thr

1 5 10 15

Lys Gly

<210> 9  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 9  
Ile Arg Pro Arg Ala Ile Gly Gly Ser Lys Pro Arg Val Ala  
1 5 10

<210> 10  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

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

<210> 11  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 11  
Gly Gly Lys Gly Ser Gly Gly Lys Gly Ser Gly Gly Lys Gly Ser  
1 5 10 15

<210> 12

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

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 12  
Gly Gly Gly Lys Ser Gly Gly Gly Lys Ser Gly Gly Gly Lys Ser  
1 5 10 15

<210> 13  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 13  
Gly Lys Gly Lys Ser Gly Lys Gly Lys Ser Gly Lys Gly Lys Ser  
1 5 10 15

<210> 14  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 14  
Gly Gly Gly Lys Ser Gly Gly Lys Gly Ser Gly Lys Gly Gly Ser  
1 5 10 15

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

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 15

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser  
1 5 10 15

<210> 16

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 16

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

Lys Gly Lys Ser  
20

<210> 17

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 17

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
1 5 10 15

Gly Gly Gly Ser  
20

<210> 18

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 18  
Ser Thr Ala Gly Asp Thr His Leu Gly Gly Glu Asp Phe Asp  
1 5 10

<210> 19  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 19  
Gly Glu Gly Gly Ser Gly Glu Gly Gly Ser Gly Glu Gly Gly Ser  
1 5 10 15

<210> 20  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 20  
Gly Gly Glu Gly Ser Gly Gly Glu Gly Ser Gly Gly Glu Gly Ser  
1 5 10 15

<210> 21  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 21  
Gly Gly Gly Glu Ser Gly Gly Gly Glu Ser Gly Gly Gly Glu Ser  
1 5 10 15

<210> 22  
<211> 15  
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 22

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Glu | Gly | Glu | Ser | Gly | Glu | Gly | Glu | Ser | Gly | Glu | Gly | Glu | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |

<210> 23

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 23

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Gly | Gly | Glu | Ser | Gly | Gly | Glu | Gly | Ser | Gly | Glu | Gly | Gly | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |

<210> 24

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 24

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Glu | Gly | Glu | Ser | Gly | Glu | Gly | Glu | Ser | Gly | Glu | Gly | Glu | Ser | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

|     |     |     |     |
|-----|-----|-----|-----|
| Glu | Gly | Glu | Ser |
|     |     |     | 20  |

<210> 25

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic



peptide

<400> 25

Pro Arg Gly Ala Ser Lys Ser Gly Ser Ala Ser Gln Thr Gly Ser Ala  
1 5 10 15

Pro Gly Ser

<210> 26

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 26

Gly Thr Ala Ala Ala Gly Ala Gly Ala Ala Gly Gly Ala Ala Ala Gly  
1 5 10 15

Ala Ala Gly

<210> 27

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 27

Gly Thr Ser Gly Ser Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly  
1 5 10 15

Gly Gly Gly

<210> 28

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 28

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10

<210> 29

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 29

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser  
20 25

<210> 30

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 30

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
20 25 30

<210> 31

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 31

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly  
20 25 30

Gly Gly Ser  
35

<210> 32

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 32

Gly Gly Gly Gly Ala  
1 5

<210> 33

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 33

Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala  
1 5 10

<210> 34

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 34

Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala  
1 5 10 15

<210> 35

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 35

Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly  
1 5 10 15

Gly Gly Gly Ala  
20

<210> 36

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 36

Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly  
1 5 10 15

Gly Gly Gly Ala Gly Gly Gly Gly Ala  
20 25

<210> 37

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 37

Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly  
1 5 10 15

Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala  
20 25 30

<210> 38

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 38

Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly  
1 5 10 15

Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly Gly Gly Ala Gly Gly  
20 25 30

Gly Gly Ala  
35

<210> 39

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 39

Asp Pro Ala Leu Val His Gln Arg Pro Ala Pro Pro Gly Gly Gly Gly  
1 5 10 15

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly  
20 25 30

<210> 40

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 40

Gly Lys Pro Gly Ser  
1 5

<210> 41

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 41

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser Gly Lys Pro Gly Ser  
20 25

<210> 42

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 42

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser  
20 25 30

<210> 43  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 43  
Gly Gly Gly Glu Ser  
1 5

<210> 44  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 44  
Lys Thr His Thr Cys Pro Pro Cys Pro  
1 5

<210> 45  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 45  
Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro  
1 5 10 15

<210> 46  
<211> 19  
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 46

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Lys Thr His Thr Cys Pro  
1 5 10 15

Pro Cys Pro

<210> 47

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 47

Gly Lys Pro Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro  
1 5 10

<210> 48

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 1 Fab-Fc Side

<400> 48

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

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



Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 49

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 1 scFv-Fc Side

<400> 49

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
115 120 125

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys  
130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
145 150 155 160

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

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
195 200 205

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

Leu Ser Leu Ser Pro Gly Lys  
225 230

<210> 50

<211> 329  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> 1 + 1 Fab-scFv-Fc Backbone 2 Fab-Fc Side

<400> 50  
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 51

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 2 scFv-Fc Side

<400> 51

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
115 120 125

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys  
130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
145 150 155 160

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys

165

170

175

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
 180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
 195 200 205

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

Leu Ser Leu Ser Pro Gly Lys  
 225 230

&lt;210&gt; 52

&lt;211&gt; 329

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

&lt;223&gt; 1 + 1 Fab-scFv-Fc Backbone 3 Fab-Fc Side

&lt;400&gt; 52

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Glu Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270



Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 53

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 3 scFv-Fc Side

<400> 53

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

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

85

90

95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
 100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
 115 120 125

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys  
 130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
 145 150 155 160

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

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
 180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
 195 200 205

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

Leu Ser Leu Ser Pro Gly Lys  
 225 230

<210> 54

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 4 Fab-Fc Side

<400> 54

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Glu Asn Glu Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Glu Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 55

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 4 scFv-Fc Side

<400> 55

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala

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

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

Leu Ser Leu Ser Pro Gly Lys  
 225 230

<210> 56  
 <211> 329  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> 1 + 1 Fab-scFv-Fc Backbone 5 Fab-Fc Side

<400> 56  
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
 1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
 85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
 100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 57

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 5 scFv-Fc Side

<400> 57

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
115 120 125



Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Gln Leu Thr Lys  
 130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
 145 150 155 160

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

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
 180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
 195 200 205

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

Leu Ser Leu Ser Pro Gly Lys  
 225 230

<210> 58  
 <211> 329  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> 1 + 1 Fab-scFv-Fc Backbone 6 Fab-Fc Side

<400> 58  
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
 1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Ala Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 59

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 6 scFv-Fc Side

<400> 59

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

Ala Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
115 120 125

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys  
130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
145 150 155 160

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

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
195 200 205

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

Leu Ser Leu Ser Pro Gly Lys  
225 230

<210> 60

<211> 329  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> 1 + 1 Fab-scFv-Fc Backbone 7 Fab-Fc Side

<400> 60  
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Ser Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 61

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 7 scFv-Fc Side

<400> 61

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

Ser Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
115 120 125

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys  
130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
145 150 155 160

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys

165

170

175

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
 180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
 195 200 205

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

Leu Ser Leu Ser Pro Gly Lys  
 225 230

&lt;210&gt; 62

&lt;211&gt; 327

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

&lt;223&gt; 1 + 1 Fab-scFv-Fc Backbone 8 Fab-Fc Side

&lt;400&gt; 62

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg  
 1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr  
 65 70 75 80



Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro  
100 105 110

Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
115 120 125

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
130 135 140

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp  
145 150 155 160

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Phe  
165 170 175

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
180 185 190

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu  
195 200 205

Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
210 215 220

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys  
225 230 235 240

Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp  
245 250 255

Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys  
260 265 270

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
 275 280 285

Arg Leu Thr Val Asp Lys Ser Arg Trp Glu Glu Gly Asp Val Phe Ser  
 290 295 300

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser  
 305 310 315 320

Leu Ser Leu Ser Leu Gly Lys  
 325

<210> 63

<211> 229

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 8 scFv-Fc Side

<400> 63

Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe  
 1 5 10 15

Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 20 25 30

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 35 40 45

Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val  
 50 55 60

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser  
 65 70 75 80

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

85

90

95

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser  
 100 105 110

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 115 120 125

Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Gln Met Thr Lys Asn Gln  
 130 135 140

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

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

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu  
 180 185 190

Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser  
 195 200 205

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

Leu Ser Leu Gly Lys  
 225

<210> 64

<211> 326

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 9 Fab-Fc Side

<400> 64

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg  
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Asn Phe Gly Thr Gln Thr  
65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Thr Val Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro Ala Pro  
100 105 110

Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp  
115 120 125

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp  
130 135 140

Val Ser His Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly  
145 150 155 160

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Phe Asn  
165 170 175

Ser Thr Phe Arg Val Val Ser Val Leu Thr Val Val His Gln Asp Trp  
180 185 190

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro  
195 200 205

Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Gln Pro Arg Glu  
210 215 220

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn  
225 230 235 240

Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile  
245 250 255

Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr  
260 265 270

Thr Pro Pro Met Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys  
275 280 285

Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys  
290 295 300

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu  
305 310 315 320

Ser Leu Ser Pro Gly Lys  
325

<210> 65

<211> 228

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 9 scFv-Fc Side

<400> 65

Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro Ala Pro Pro Val

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

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

Ser Pro Gly Lys  
 225

<210> 66  
 <211> 326  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> 1 + 1 Fab-scFv-Fc Backbone 10 Fab-Fc Side

<400> 66  
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg  
 1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Asn Phe Gly Thr Gln Thr  
 65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asp Thr Lys Val Asp Lys  
 85 90 95

Thr Val Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro Ala Pro  
 100 105 110

Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp  
115 120 125

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp  
130 135 140

Val Lys His Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly  
145 150 155 160

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Phe Asn  
165 170 175

Ser Thr Phe Arg Val Val Ser Val Leu Thr Val Val His Gln Asp Trp  
180 185 190

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro  
195 200 205

Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Gln Pro Arg Glu  
210 215 220

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn  
225 230 235 240

Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile  
245 250 255

Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr  
260 265 270

Thr Pro Pro Met Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys  
275 280 285

Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys  
290 295 300

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu  
305 310 315 320



Ser Leu Ser Pro Gly Lys  
325

<210> 67

<211> 228

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 10 scFv-Fc Side

<400> 67

Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro Ala Pro Pro Val  
1 5 10 15

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

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys  
35 40 45

His Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu  
50 55 60

Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr  
65 70 75 80

Phe Arg Val Val Ser Val Leu Thr Val Val His Gln Asp Trp Leu Asn  
85 90 95

Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ala Pro  
100 105 110

Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Gln Pro Arg Glu Pro Gln  
115 120 125

Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val  
 130 135 140

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

Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro  
 165 170 175

Pro Met Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr  
 180 185 190

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val  
 195 200 205

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

Ser Pro Gly Lys  
 225

<210> 68  
 <211> 329  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 polypeptide

<220>  
 <223> 1 + 1 Fab-scFv-Fc Backbone 11 Fab-Fc Side

<400> 68  
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
 1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Leu His Glu Ala Leu His Ser His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 69

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 11 scFv-Fc Side

<400> 69

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
115 120 125

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys  
130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
145 150 155 160

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

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
195 200 205

Cys Ser Val Leu His Glu Ala Leu His Ser His Tyr Thr Gln Lys Ser  
210 215 220

Leu Ser Leu Ser Pro Gly Lys  
225 230

<210> 70

<211> 329  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> 1 + 1 Fab-scFv-Fc Backbone 12 Fab-Fc Side

<400> 70  
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ala Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

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

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 71

<211> 231

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 1 + 1 Fab-scFv-Fc Backbone 12 scFv-Fc Side

<400> 71

Glu Arg Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Arg Pro Ala  
1 5 10 15

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
20 25 30

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
35 40 45

Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Lys Trp Tyr Val Asp  
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
65 70 75 80

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
115 120 125

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys  
130 135 140

Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
145 150 155 160

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys



165

170

175

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
 180 185 190

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
 195 200 205

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

Leu Ser Leu Ser Pro Gly Lys  
 225 230

&lt;210&gt; 72

&lt;211&gt; 329

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

&lt;223&gt; 2 + 1 Fab2-scFv-Fc Backbone 1 Fab-Fc Side

&lt;400&gt; 72

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 73

<211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 1 Fab-scFv-Fc Side

<400> 73

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
20 25 30

Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val  
35 40 45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
50 55 60

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala

85

90

95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
 100 105 110

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr  
 115 120 125

Lys Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
 130 135 140

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
 145 150 155 160

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr  
 165 170 175

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
 180 185 190

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys  
 195 200 205

Ser Leu Ser Leu Ser Pro Gly Lys  
 210 215

<210> 74

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 2 Fab-Fc Side

<400> 74

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
 210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
 225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
 245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
 260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
 275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
 290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
 305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 325

<210> 75  
 <211> 216  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> 2 + 1 Fab2-scFv-Fc Backbone 2 Fab-scFv-Fc Side

<400> 75  
 Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
 1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val

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

<210> 76  
 <211> 329  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> 2 + 1 Fab2-scFv-Fc Backbone 3 Fab-Fc Side

<400> 76  
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
 1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
 85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
 100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
 115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
 130 135 140



Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
 145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
 165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
 180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
 195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
 210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
 225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Glu Val Ser Gly Phe Tyr Pro  
 245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
 260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
 275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
 290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
 305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 325

<210> 77  
 <211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 3 Fab-scFv-Fc Side

<400> 77

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
20 25 30

Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val  
35 40 45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
50 55 60

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
85 90 95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
100 105 110

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr  
115 120 125

Lys Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
130 135 140

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
145 150 155 160

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr  
165 170 175

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
180 185 190

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys  
195 200 205

Ser Leu Ser Leu Ser Pro Gly Lys  
210 215

<210> 78

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 4 Fab-Fc Side

<400> 78

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Glu Asn Glu Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Glu Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
 290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
 305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 325

<210> 79

<211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 4 Fab-scFv-Fc Side

<400> 79

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
 1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
 20 25 30

Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val  
 35 40 45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
 50 55 60

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
 65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
 85 90 95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
100 105 110

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr  
115 120 125

Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
130 135 140

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
145 150 155 160

Lys Thr Thr Pro Pro Val Leu Asp Ser Lys Gly Ser Phe Phe Leu Tyr  
165 170 175

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
180 185 190

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys  
195 200 205

Ser Leu Ser Leu Ser Pro Gly Lys  
210 215

<210> 80

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 5 Fab-Fc Side

<400> 80

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu  
 225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
 245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
 260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
 275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
 290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
 305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 325

<210> 81

<211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 5 Fab-scFv-Fc Side

<400> 81

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
 1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
 20 25 30



Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val  
35 40 45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
50 55 60

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
85 90 95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
100 105 110

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Gln Leu Thr  
115 120 125

Lys Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
130 135 140

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
145 150 155 160

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr  
165 170 175

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
180 185 190

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys  
195 200 205

Ser Leu Ser Leu Ser Pro Gly Lys  
210 215

<210> 82

<211> 329  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> 2 + 1 Fab2-scFv-Fc Backbone 6 Fab-Fc Side

<400> 82  
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Ala Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 83

<211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 6 Fab-scFv-Fc Side

<400> 83

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
20 25 30

Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val  
35 40 45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
50 55 60

Tyr Ala Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
85 90 95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
100 105 110

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr  
115 120 125

Lys Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
130 135 140

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
145 150 155 160

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr

165

170

175

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
 180 185 190

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys  
 195 200 205

Ser Leu Ser Leu Ser Pro Gly Lys  
 210 215

<210> 84

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 7 Fab-Fc Side

<400> 84

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
 85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Ser Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
 290 295 300

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
 305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 325

<210> 85

<211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 7 Fab-scFv-Fc Side

<400> 85

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
 1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
 20 25 30

Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val  
 35 40 45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
 50 55 60

Tyr Ser Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
 65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
 85 90 95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro

|                                 |                     |                 |
|---------------------------------|---------------------|-----------------|
| 100                             | 105                 | 110             |
| Arg Glu Pro Gln Val Tyr Thr     | Leu Pro Pro Ser Arg | Glu Gln Met Thr |
| 115                             | 120                 | 125             |
| Lys Asn Gln Val Lys Leu Thr     | Cys Leu Val Lys Gly | Phe Tyr Pro Ser |
| 130                             | 135                 | 140             |
| Asp Ile Ala Val Glu Trp Glu Ser | Asn Gly Gln Pro Glu | Asn Asn Tyr     |
| 145                             | 150                 | 155             |
| Lys Thr Thr Pro Pro Val Leu Asp | Ser Asp Gly Ser Phe | Phe Leu Tyr     |
| 165                             | 170                 | 175             |
| Ser Lys Leu Thr Val Asp Lys Ser | Arg Trp Gln Gln Gly | Asn Val Phe     |
| 180                             | 185                 | 190             |
| Ser Cys Ser Val Met His Glu Ala | Leu His Asn His Tyr | Thr Gln Lys     |
| 195                             | 200                 | 205             |
| Ser Leu Ser Leu Ser Pro Gly Lys |                     |                 |
| 210                             | 215                 |                 |

<210> 86  
 <211> 329  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> 2 + 1 Fab2-scFv-Fc Backbone 8 Fab-Fc Side

<400> 86  
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
 1 5 10 15

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



Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Glu Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
 225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro  
 245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn  
 260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
 275 280 285

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val  
 290 295 300

Phe Ser Cys Ser Val Leu His Glu Ala Leu His Ser His Tyr Thr Gln  
 305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 325

<210> 87  
 <211> 216  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 polypeptide

<220>  
 <223> 2 + 1 Fab2-scFv-Fc Backbone 8 Fab-scFv-Fc Side

<400> 87  
 Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
 1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
 20 25 30

Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val

35

40

45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
 50 55 60

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
 65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
 85 90 95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
 100 105 110

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr  
 115 120 125

Lys Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
 130 135 140

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
 145 150 155 160

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr  
 165 170 175

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
 180 185 190

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

Ser Leu Ser Leu Ser Pro Gly Lys  
 210 215

&lt;210&gt; 88

&lt;211&gt; 329

&lt;212&gt; PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 9 Fab-Fc Side

<400> 88

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys  
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys  
100 105 110

Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
115 120 125

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
130 135 140

Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
145 150 155 160

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
165 170 175

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
180 185 190

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
195 200 205

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
210 215 220

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met  
225 230 235 240

Thr Lys Asn Gln Val Ser Leu Thr Cys Asp Val Ala Gly Phe Tyr Pro  
245 250 255

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn  
260 265 270

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
275 280 285

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

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
305 310 315 320

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
325

<210> 89

<211> 216

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> 2 + 1 Fab2-scFv-Fc Backbone 9 Fab-scFv-Fc Side

<400> 89

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
1 5 10 15

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
20 25 30

Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Lys Trp Tyr Val  
35 40 45

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
50 55 60

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
65 70 75 80

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
85 90 95

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
100 105 110

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr  
115 120 125

Lys Asn Gln Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
130 135 140

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
145 150 155 160

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr  
165 170 175

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
180 185 190

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys  
195 200 205

Ser Leu Ser Leu Ser Pro Gly Lys  
210 215

<210> 90

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Constant Light Domain - Kappa

<400> 90

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe  
20 25 30

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
50 55 60

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

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
100 105

<210> 91

<211> 106

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Constant Light Domain - Lambda

<400> 91

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

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

Phe Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro  
35 40 45

Val Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn  
50 55 60

Lys Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys  
65 70 75 80

Ser His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val  
85 90 95

Glu Lys Thr Val Ala Pro Thr Glu Cys Ser  
100 105

<210> 92

<211> 254

<212> PRT

<213> Artificial Sequence



<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv scFv

<400> 92

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
245 250

<210> 93

<211> 125

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv Variable Heavy (vh) Domain

<400> 93

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

<210> 94

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv vhCDR1

<400> 94

Thr Tyr Ala Met Asn

1 5

<210> 95

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv vhCDR2

<400> 95

Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser

1 5 10 15

Val Lys Gly

<210> 96

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv vhCDR3

<400> 96

His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr  
1 5 10

<210> 97

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv Variable Light (v1) Domain

<400> 97

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe

50

55

60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
 65 70 75 80

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

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

&lt;210&gt; 98

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv v1CDR1

&lt;400&gt; 98

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
 1 5 10

&lt;210&gt; 99

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv v1CDR2

&lt;400&gt; 99

Gly Thr Asn Lys Arg Ala Pro  
 1 5

&lt;210&gt; 100

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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv v1CDR3

<400> 100  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 101  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High - [anti-CD3]\_H1.30\_L1.47\_scFv Linker

<400> 101  
Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 102  
<211> 254  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv scFv

<400> 102

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 Thr Tyr  
 20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
 100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
 130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
 165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
 180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
 195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
245 250

<210> 103

<211> 125

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv Variable Heavy  
(vh) Domain

<400> 103

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 Thr Tyr  
20 25 30

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

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

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

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



Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

<210> 104  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv vhCDR1

<400> 104  
Thr Tyr Ala Met Asn  
1 5

<210> 105  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv vhCDR2

<400> 105  
Arg Ile Arg Ser Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser  
1 5 10 15

Val Lys Gly

<210> 106  
<211> 14

<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv vhCDR3

<400> 106  
His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr  
1 5 10

<210> 107  
<211> 109  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv Variable Light (v1) Domain

<400> 107  
Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly  
1 5 10 15

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn

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

<210> 108

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv v1CDR1

<400> 108

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
 1 5 10

<210> 109

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv v1CDR2

<400> 109

Gly Thr Asn Lys Arg Ala Pro  
 1 5

<210> 110

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv v1CDR3

<400> 110  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 111  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int #1 - [anti-CD3]\_H1.32\_L1.47\_scFv Linker

<400> 111  
Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 112  
<211> 254  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>  
<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv scFv

<400> 112  
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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe  
 100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
 130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
 165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
 180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
 195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
 210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
 225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
245 250

<210> 113

<211> 125

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv Variable Heavy  
(vh) Domain

<400> 113

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe  
100 105 110

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

<210> 114  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv vhCDR1

<400> 114  
Thr Tyr Ala Met Asn  
1 5

<210> 115  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv vhCDR2

<400> 115  
Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser  
1 5 10 15

Val Lys Gly

<210> 116  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv vhCDR3

<400> 116

His Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr  
1 5 10

<210> 117

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv Variable Light  
(v1) Domain

<400> 117

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 118



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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv v1CDR1

<400> 118  
Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 119  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv v1CDR2

<400> 119  
Gly Thr Asn Lys Arg Ala Pro  
1 5

<210> 120  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv v1CDR3

<400> 120  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 121  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #2 - [anti-CD3]\_H1.89\_L1.47\_scFv Linker

<400> 121  
Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 122  
<211> 254  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv scFv

<400> 122  
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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Pro Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
245 250

<210> 123

<211> 125

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv Variable Heavy (vh) Domain

<400> 123

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Pro Tyr Val Ser Trp Phe  
100 105 110

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

<210> 124

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv vHCDR1

<400> 124

Thr Tyr Ala Met Asn  
1 5

<210> 125

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv vHCDR2

<400> 125

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

Val Lys Gly

<210> 126

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv vHCDR3

<400> 126

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

<210> 127

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

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv Variable Light (v1) Domain

<400> 127  
Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly  
1 5 10 15

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 128  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv v1CDR1

<400> 128  
Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 129  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv v1CDR2

<400> 129  
Gly Thr Asn Lys Arg Ala Pro  
1 5

<210> 130  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv v1CDR3

<400> 130  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 131  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.90\_L1.47\_scFv Linker

<400> 131

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 132

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv scFv

<400> 132

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 Thr Tyr  
20 25 30

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

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

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

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



Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Lys Pro  
115 120 125

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
245 250

<210> 133

<211> 125

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv Variable Heavy (vh) Domain

<400> 133

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120 125

<210> 134

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv vhCDR1

<400> 134

Thr Tyr Ala Met Asn

1 5

<210> 135  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv vhCDR2

<400> 135  
Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser  
1 5 10 15

Val Lys Gly

<210> 136  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv vhCDR3

<400> 136  
His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Asp Tyr  
1 5 10

<210> 137  
<211> 109  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv Variable  
Light (v1) Domain

<400> 137

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 138

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv v1CDR1

<400> 138

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 139  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv v1CDR2

<400> 139  
Gly Thr Asn Lys Arg Ala Pro  
1 5

<210> 140  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv v1CDR3

<400> 140  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 141  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Anti-CD3-Intermediate - [anti-CD3]\_H1.33\_L1.47\_scFv Linker

<400> 141  
Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 142

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv scFv

<400> 142

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
 130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
 165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
 180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
 195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
 210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
 225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
 245 250

<210> 143

<211> 125

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv Variable Heavy (vh) Domain

<400> 143

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

<210> 144

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv vhCDR1

<400> 144

Thr Tyr Ala Met Ser  
1 5

<210> 145

<211> 19

<212> PRT

<213> Artificial Sequence



<220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <220>  
 <223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv vhCDR2  
  
 <400> 145  
 Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser  
 1 5 10 15  
  
 Val Lys Gly  
  
  
 <210> 146  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <220>  
 <223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv vhCDR3  
  
 <400> 146  
 His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr  
 1 5 10  
  
 <210> 147  
 <211> 109  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide  
  
 <220>  
 <223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv Variable Light (v1) Domain  
  
 <400> 147  
 Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly  
 1 5 10 15

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 148

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv v1CDR1

<400> 148

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 149

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv v1CDR2

<400> 149

Gly Thr Asn Lys Arg Ala Pro

1 5

<210> 150

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv v1CDR3

<400> 150

Ala Leu Trp Tyr Ser Asn His Trp Val

1 5

<210> 151

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int - [anti-CD3]\_H1.31\_L1.47\_scFv Linker

<400> 151

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly

1 5 10 15

Lys Pro Gly Ser  
20

<210> 152

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv scFv

<400> 152

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Lys Pro  
100 105 110

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
115 120 125

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

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr  
145 150 155 160

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

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

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

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

Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp  
225 230 235 240

Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
245 250

<210> 153

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv Variable Light (v1) Domain

<400> 153

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 154

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv v1CDR1

<400> 154

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 155

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv v1CDR2

<400> 155

Gly Thr Asn Lys Arg Ala Pro  
1 5

<210> 156  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv v1CDR3

<400> 156  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 157  
<211> 125  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv Variable Heavy (vh) Domain

<400> 157  
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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

<210> 158

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv vhCDR1

<400> 158

Thr Tyr Ala Met Asn  
1 5

<210> 159

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv vhCDR2

<400> 159

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

Val Lys Gly



<210> 160  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv vhCDR3

<400> 160  
His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr  
1 5 10

<210> 161  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High[VL-VH] - [anti-CD3]\_L1.47\_ H1.30\_scFv Linker

<400> 161  
Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 162  
<211> 254  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv scFv

<400> 162

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Lys Pro  
100 105 110

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
115 120 125

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

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr  
145 150 155 160

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

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

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

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

Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp  
225 230 235 240

Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
245 250

<210> 163

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv Variable  
Light (v1) Domain

<400> 163

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 164  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv v1CDR1

<400> 164  
Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 165  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv v1CDR2

<400> 165  
Gly Thr Asn Lys Arg Ala Pro  
1 5

<210> 166  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv v1CDR3

<400> 166

Ala Leu Trp Tyr Ser Asn His Trp Val

1 5

<210> 167

<211> 125

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv Variable Heavy (vh) Domain

<400> 167

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

<210> 168  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<220>  
 <223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv vhCDR1

<400> 168  
 Thr Tyr Ala Met Asn  
 1 5

<210> 169  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<220>  
 <223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv vhCDR2

<400> 169  
 Arg Ile Arg Ser Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser  
 1 5 10 15

Val Lys Gly

<210> 170  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

peptide

<220>

<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv vhCDR3

<400> 170

His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr  
1 5 10

<210> 171

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int #1[VL-VH] - [anti-CD3]\_L1.47\_ H1.32\_scFv Linker

<400> 171

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 172

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv scFv

<400> 172

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Lys Pro  
100 105 110

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
115 120 125

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

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr  
145 150 155 160

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

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

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

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



Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp  
 225 230 235 240

Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
 245 250

<210> 173

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv Variable Light (v1) Domain

<400> 173

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
 35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
 50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
 65 70 75 80

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

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

<210> 174  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <220>  
 <223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv v1CDR1  
  
 <400> 174  
 Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
 1 5 10  
  
 <210> 175  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <220>  
 <223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv v1CDR2  
  
 <400> 175  
 Gly Thr Asn Lys Arg Ala Pro  
 1 5  
  
 <210> 176  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <220>  
 <223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv v1CDR3  
  
 <400> 176  
 Ala Leu Trp Tyr Ser Asn His Trp Val  
 1 5

<210> 177  
<211> 125  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv Variable Heavy (vh) Domain

<400> 177  
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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe  
100 105 110

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

<210> 178  
<211> 5  
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv vhCDR1

<400> 178

Thr Tyr Ala Met Asn

1 5

<210> 179

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv vhCDR2

<400> 179

Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser

1 5 10 15

Val Lys Gly

<210> 180

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv vhCDR3

<400> 180

His Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr

1 5 10

<210> 181  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int #2[VL-VH] - [anti-CD3]\_L1.47\_ H1.89\_scFv Linker

<400> 181  
Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 182  
<211> 254  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv scFv

<400> 182  
Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly  
1 5 10 15

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Lys Pro  
100 105 110

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
115 120 125

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

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr  
145 150 155 160

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

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

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

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

Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asp Pro Tyr Val Ser Trp  
225 230 235 240

Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
245 250

<210> 183  
<211> 109  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv Variable Light (v1) Domain

<400> 183  
Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly  
1 5 10 15

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 184  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv v1CDR1

<400> 184  
Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 185  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv v1CDR2

<400> 185  
Gly Thr Asn Lys Arg Ala Pro  
1 5

<210> 186  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv v1CDR3

<400> 186  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 187  
<211> 125  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic



polypeptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv Variable Heavy (vh) Domain

<400> 187

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Pro Tyr Val Ser Trp Phe  
100 105 110

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

<210> 188

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv vhCDR1

<400> 188  
Thr Tyr Ala Met Asn  
1 5

<210> 189  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv vhCDR2

<400> 189  
Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser  
1 5 10 15

Val Lys Gly

<210> 190  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv vhCDR3

<400> 190  
His Gly Asn Phe Gly Asp Pro Tyr Val Ser Trp Phe Ala Tyr  
1 5 10

<210> 191  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.90\_scFv Linker

<400> 191

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 192

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv scFv

<400> 192

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Lys Pro  
100 105 110

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
115 120 125

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

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr  
145 150 155 160

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

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

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

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

Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp  
225 230 235 240

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

<210> 193

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
Variable Light (v1) Domain

<400> 193

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 194

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
v1CDR1

<400> 194

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 195  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
v1CDR2

<400> 195  
Gly Thr Asn Lys Arg Ala Pro  
1 5

<210> 196  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
v1CDR3

<400> 196  
Ala Leu Trp Tyr Ser Asn His Trp Val  
1 5

<210> 197  
<211> 125  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>  
<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
Variable Heavy (vh) Domain

<400> 197

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120 125

<210> 198

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
vhCDR1

<400> 198

Thr Tyr Ala Met Asn  
1 5

<210> 199  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
vhCDR2

<400> 199  
Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser  
1 5 10 15

Val Lys Gly

<210> 200  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
vhCDR3

<400> 200  
His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Asp Tyr  
1 5 10

<210> 201  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide



<220>

<223> Anti-CD3-Intermediate[VL-VH] - [anti-CD3]\_L1.47\_ H1.33\_scFv  
Linker

<400> 201

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 202

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv scFv

<400> 202

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Lys Pro  
100 105 110

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
115 120 125

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

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr  
145 150 155 160

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

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

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

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

Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp  
225 230 235 240

Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
245 250

<210> 203

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv Variable  
Light (v1) Domain

<400> 203

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

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

Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly  
35 40 45

Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe  
50 55 60

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala  
65 70 75 80

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

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

<210> 204

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv v1CDR1

<400> 204

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn  
1 5 10

<210> 205  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <220>  
 <223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv v1CDR2  
  
 <400> 205  
 Gly Thr Asn Lys Arg Ala Pro  
 1 5  
  
 <210> 206  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <220>  
 <223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv v1CDR3  
  
 <400> 206  
 Ala Leu Trp Tyr Ser Asn His Trp Val  
 1 5  
  
 <210> 207  
 <211> 125  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide  
  
 <220>  
 <223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv Variable Heavy (vh) Domain  
  
 <400> 207  
 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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

<210> 208

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv vhCDR1

<400> 208

Thr Tyr Ala Met Ser  
1 5

<210> 209

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv vhCDR2

<400> 209

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

Val Lys Gly

<210> 210

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv vhCDR3

<400> 210

His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr  
1 5 10

<210> 211

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> CD3 High-Int[VL-VH] - [anti-CD3]\_L1.47\_ H1.31\_scFv Linker

<400> 211

Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly  
1 5 10 15

Lys Pro Gly Ser  
20

<210> 212  
<211> 875  
<212> PRT  
<213> Homo sapiens

<400> 212  
Met Glu Ser Thr Leu Thr Leu Ala Thr Glu Gln Pro Val Lys Lys Asn  
1 5 10 15

Thr Leu Lys Lys Tyr Lys Ile Ala Cys Ile Val Leu Leu Ala Leu Leu  
20 25 30

Val Ile Met Ser Leu Gly Leu Gly Leu Gly Leu Gly Leu Arg Lys Leu  
35 40 45

Glu Lys Gln Gly Ser Cys Arg Lys Lys Cys Phe Asp Ala Ser Phe Arg  
50 55 60

Gly Leu Glu Asn Cys Arg Cys Asp Val Ala Cys Lys Asp Arg Gly Asp  
65 70 75 80

Cys Cys Trp Asp Phe Glu Asp Thr Cys Val Glu Ser Thr Arg Ile Trp  
85 90 95

Met Cys Asn Lys Phe Arg Cys Gly Glu Thr Arg Leu Glu Ala Ser Leu  
100 105 110

Cys Ser Cys Ser Asp Asp Cys Leu Gln Arg Lys Asp Cys Cys Ala Asp  
115 120 125

Tyr Lys Ser Val Cys Gln Gly Glu Thr Ser Trp Leu Glu Glu Asn Cys  
130 135 140

Asp Thr Ala Gln Gln Ser Gln Cys Pro Glu Gly Phe Asp Leu Pro Pro  
145 150 155 160

Val Ile Leu Phe Ser Met Asp Gly Phe Arg Ala Glu Tyr Leu Tyr Thr  
165 170 175

Trp Asp Thr Leu Met Pro Asn Ile Asn Lys Leu Lys Thr Cys Gly Ile  
180 185 190

His Ser Lys Tyr Met Arg Ala Met Tyr Pro Thr Lys Thr Phe Pro Asn  
195 200 205

His Tyr Thr Ile Val Thr Gly Leu Tyr Pro Glu Ser His Gly Ile Ile  
210 215 220

Asp Asn Asn Met Tyr Asp Val Asn Leu Asn Lys Asn Phe Ser Leu Ser  
225 230 235 240

Ser Lys Glu Gln Asn Asn Pro Ala Trp Trp His Gly Gln Pro Met Trp  
245 250 255

Leu Thr Ala Met Tyr Gln Gly Leu Lys Ala Ala Thr Tyr Phe Trp Pro  
260 265 270

Gly Ser Glu Val Ala Ile Asn Gly Ser Phe Pro Ser Ile Tyr Met Pro  
275 280 285

Tyr Asn Gly Ser Val Pro Phe Glu Glu Arg Ile Ser Thr Leu Leu Lys  
290 295 300

Trp Leu Asp Leu Pro Lys Ala Glu Arg Pro Arg Phe Tyr Thr Met Tyr  
305 310 315 320

Phe Glu Glu Pro Asp Ser Ser Gly His Ala Gly Gly Pro Val Ser Ala  
325 330 335

Arg Val Ile Lys Ala Leu Gln Val Val Asp His Ala Phe Gly Met Leu  
340 345 350



Met Glu Gly Leu Lys Gln Arg Asn Leu His Asn Cys Val Asn Ile Ile  
355 360 365

Leu Leu Ala Asp His Gly Met Asp Gln Thr Tyr Cys Asn Lys Met Glu  
370 375 380

Tyr Met Thr Asp Tyr Phe Pro Arg Ile Asn Phe Phe Tyr Met Tyr Glu  
385 390 395 400

Gly Pro Ala Pro Arg Ile Arg Ala His Asn Ile Pro His Asp Phe Phe  
405 410 415

Ser Phe Asn Ser Glu Glu Ile Val Arg Asn Leu Ser Cys Arg Lys Pro  
420 425 430

Asp Gln His Phe Lys Pro Tyr Leu Thr Pro Asp Leu Pro Lys Arg Leu  
435 440 445

His Tyr Ala Lys Asn Val Arg Ile Asp Lys Val His Leu Phe Val Asp  
450 455 460

Gln Gln Trp Leu Ala Val Arg Ser Lys Ser Asn Thr Asn Cys Gly Gly  
465 470 475 480

Gly Asn His Gly Tyr Asn Asn Glu Phe Arg Ser Met Glu Ala Ile Phe  
485 490 495

Leu Ala His Gly Pro Ser Phe Lys Glu Lys Thr Glu Val Glu Pro Phe  
500 505 510

Glu Asn Ile Glu Val Tyr Asn Leu Met Cys Asp Leu Leu Arg Ile Gln  
515 520 525

Pro Ala Pro Asn Asn Gly Thr His Gly Ser Leu Asn His Leu Leu Lys  
530 535 540

Val Pro Phe Tyr Glu Pro Ser His Ala Glu Glu Val Ser Lys Phe Ser  
545 550 555 560

Val Cys Gly Phe Ala Asn Pro Leu Pro Thr Glu Ser Leu Asp Cys Phe  
565 570 575

Cys Pro His Leu Gln Asn Ser Thr Gln Leu Glu Gln Val Asn Gln Met  
580 585 590

Leu Asn Leu Thr Gln Glu Glu Ile Thr Ala Thr Val Lys Val Asn Leu  
595 600 605

Pro Phe Gly Arg Pro Arg Val Leu Gln Lys Asn Val Asp His Cys Leu  
610 615 620

Leu Tyr His Arg Glu Tyr Val Ser Gly Phe Gly Lys Ala Met Arg Met  
625 630 635 640

Pro Met Trp Ser Ser Tyr Thr Val Pro Gln Leu Gly Asp Thr Ser Pro  
645 650 655

Leu Pro Pro Thr Val Pro Asp Cys Leu Arg Ala Asp Val Arg Val Pro  
660 665 670

Pro Ser Glu Ser Gln Lys Cys Ser Phe Tyr Leu Ala Asp Lys Asn Ile  
675 680 685

Thr His Gly Phe Leu Tyr Pro Pro Ala Ser Asn Arg Thr Ser Asp Ser  
690 695 700

Gln Tyr Asp Ala Leu Ile Thr Ser Asn Leu Val Pro Met Tyr Glu Glu  
705 710 715 720

Phe Arg Lys Met Trp Asp Tyr Phe His Ser Val Leu Leu Ile Lys His  
725 730 735

Ala Thr Glu Arg Asn Gly Val Asn Val Val Ser Gly Pro Ile Phe Asp  
740 745 750

Tyr Asn Tyr Asp Gly His Phe Asp Ala Pro Asp Glu Ile Thr Lys His  
755 760 765

Leu Ala Asn Thr Asp Val Pro Ile Pro Thr His Tyr Phe Val Val Leu  
770 775 780

Thr Ser Cys Lys Asn Lys Ser His Thr Pro Glu Asn Cys Pro Gly Trp  
785 790 795 800

Leu Asp Val Leu Pro Phe Ile Ile Pro His Arg Pro Thr Asn Val Glu  
805 810 815

Ser Cys Pro Glu Gly Lys Pro Glu Ala Leu Trp Val Glu Glu Arg Phe  
820 825 830

Thr Ala His Ile Ala Arg Val Arg Asp Val Glu Leu Leu Thr Gly Leu  
835 840 845

Asp Phe Tyr Gln Asp Lys Val Gln Pro Val Ser Glu Ile Leu Gln Leu  
850 855 860

Lys Thr Tyr Leu Pro Thr Phe Glu Thr Thr Ile  
865 870 875

<210> 213  
<211> 845  
<212> PRT  
<213> Homo sapiens

<400> 213  
Leu Leu Val Ile Met Ser Leu Gly Leu Gly Leu Gly Leu Gly Leu Arg  
1 5 10 15

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

Phe Arg Gly Leu Glu Asn Cys Arg Cys Asp Val Ala Cys Lys Asp Arg  
35 40 45

Gly Asp Cys Cys Trp Asp Phe Glu Asp Thr Cys Val Glu Ser Thr Arg  
50 55 60

Ile Trp Met Cys Asn Lys Phe Arg Cys Gly Glu Thr Arg Leu Glu Ala  
65 70 75 80

Ser Leu Cys Ser Cys Ser Asp Asp Cys Leu Gln Arg Lys Asp Cys Cys  
85 90 95

Ala Asp Tyr Lys Ser Val Cys Gln Gly Glu Thr Ser Trp Leu Glu Glu  
100 105 110

Asn Cys Asp Thr Ala Gln Gln Ser Gln Cys Pro Glu Gly Phe Asp Leu  
115 120 125

Pro Pro Val Ile Leu Phe Ser Met Asp Gly Phe Arg Ala Glu Tyr Leu  
130 135 140

Tyr Thr Trp Asp Thr Leu Met Pro Asn Ile Asn Lys Leu Lys Thr Cys  
145 150 155 160

Gly Ile His Ser Lys Tyr Met Arg Ala Met Tyr Pro Thr Lys Thr Phe  
165 170 175

Pro Asn His Tyr Thr Ile Val Thr Gly Leu Tyr Pro Glu Ser His Gly  
180 185 190

Ile Ile Asp Asn Asn Met Tyr Asp Val Asn Leu Asn Lys Asn Phe Ser  
195 200 205

Leu Ser Ser Lys Glu Gln Asn Asn Pro Ala Trp Trp His Gly Gln Pro  
210 215 220

Met Trp Leu Thr Ala Met Tyr Gln Gly Leu Lys Ala Ala Thr Tyr Phe  
225 230 235 240

Trp Pro Gly Ser Glu Val Ala Ile Asn Gly Ser Phe Pro Ser Ile Tyr  
245 250 255

Met Pro Tyr Asn Gly Ser Val Pro Phe Glu Glu Arg Ile Ser Thr Leu  
260 265 270

Leu Lys Trp Leu Asp Leu Pro Lys Ala Glu Arg Pro Arg Phe Tyr Thr  
275 280 285

Met Tyr Phe Glu Glu Pro Asp Ser Ser Gly His Ala Gly Gly Pro Val  
290 295 300

Ser Ala Arg Val Ile Lys Ala Leu Gln Val Val Asp His Ala Phe Gly  
305 310 315 320

Met Leu Met Glu Gly Leu Lys Gln Arg Asn Leu His Asn Cys Val Asn  
325 330 335

Ile Ile Leu Leu Ala Asp His Gly Met Asp Gln Thr Tyr Cys Asn Lys  
340 345 350

Met Glu Tyr Met Thr Asp Tyr Phe Pro Arg Ile Asn Phe Phe Tyr Met  
355 360 365

Tyr Glu Gly Pro Ala Pro Arg Ile Arg Ala His Asn Ile Pro His Asp  
370 375 380

Phe Phe Ser Phe Asn Ser Glu Glu Ile Val Arg Asn Leu Ser Cys Arg  
385 390 395 400

Lys Pro Asp Gln His Phe Lys Pro Tyr Leu Thr Pro Asp Leu Pro Lys  
405 410 415

Arg Leu His Tyr Ala Lys Asn Val Arg Ile Asp Lys Val His Leu Phe  
420 425 430

Val Asp Gln Gln Trp Leu Ala Val Arg Ser Lys Ser Asn Thr Asn Cys  
435 440 445

Gly Gly Gly Asn His Gly Tyr Asn Asn Glu Phe Arg Ser Met Glu Ala  
 450 455 460

Ile Phe Leu Ala His Gly Pro Ser Phe Lys Glu Lys Thr Glu Val Glu  
 465 470 475 480

Pro Phe Glu Asn Ile Glu Val Tyr Asn Leu Met Cys Asp Leu Leu Arg  
 485 490 495

Ile Gln Pro Ala Pro Asn Asn Gly Thr His Gly Ser Leu Asn His Leu  
 500 505 510

Leu Lys Val Pro Phe Tyr Glu Pro Ser His Ala Glu Glu Val Ser Lys  
 515 520 525

Phe Ser Val Cys Gly Phe Ala Asn Pro Leu Pro Thr Glu Ser Leu Asp  
 530 535 540

Cys Phe Cys Pro His Leu Gln Asn Ser Thr Gln Leu Glu Gln Val Asn  
 545 550 555 560

Gln Met Leu Asn Leu Thr Gln Glu Glu Ile Thr Ala Thr Val Lys Val  
 565 570 575

Asn Leu Pro Phe Gly Arg Pro Arg Val Leu Gln Lys Asn Val Asp His  
 580 585 590

Cys Leu Leu Tyr His Arg Glu Tyr Val Ser Gly Phe Gly Lys Ala Met  
 595 600 605

Arg Met Pro Met Trp Ser Ser Tyr Thr Val Pro Gln Leu Gly Asp Thr  
 610 615 620

Ser Pro Leu Pro Pro Thr Val Pro Asp Cys Leu Arg Ala Asp Val Arg  
 625 630 635 640

Val Pro Pro Ser Glu Ser Gln Lys Cys Ser Phe Tyr Leu Ala Asp Lys  
 645 650 655

Asn Ile Thr His Gly Phe Leu Tyr Pro Pro Ala Ser Asn Arg Thr Ser  
660 665 670

Asp Ser Gln Tyr Asp Ala Leu Ile Thr Ser Asn Leu Val Pro Met Tyr  
675 680 685

Glu Glu Phe Arg Lys Met Trp Asp Tyr Phe His Ser Val Leu Leu Ile  
690 695 700

Lys His Ala Thr Glu Arg Asn Gly Val Asn Val Val Ser Gly Pro Ile  
705 710 715 720

Phe Asp Tyr Asn Tyr Asp Gly His Phe Asp Ala Pro Asp Glu Ile Thr  
725 730 735

Lys His Leu Ala Asn Thr Asp Val Pro Ile Pro Thr His Tyr Phe Val  
740 745 750

Val Leu Thr Ser Cys Lys Asn Lys Ser His Thr Pro Glu Asn Cys Pro  
755 760 765

Gly Trp Leu Asp Val Leu Pro Phe Ile Ile Pro His Arg Pro Thr Asn  
770 775 780

Val Glu Ser Cys Pro Glu Gly Lys Pro Glu Ala Leu Trp Val Glu Glu  
785 790 795 800

Arg Phe Thr Ala His Ile Ala Arg Val Arg Asp Val Glu Leu Leu Thr  
805 810 815

Gly Leu Asp Phe Tyr Gln Asp Lys Val Gln Pro Val Ser Glu Ile Leu  
820 825 830

Gln Leu Lys Thr Tyr Leu Pro Thr Phe Glu Thr Thr Ile  
835 840 845

<210> 214  
 <211> 874  
 <212> PRT  
 <213> Mus musculus

<400> 214

Met Asp Ser Arg Leu Ala Leu Ala Thr Glu Glu Pro Ile Lys Lys Asp  
 1 5 10 15

Ser Leu Lys Lys Tyr Lys Ile Leu Cys Val Val Leu Leu Ala Leu Leu  
 20 25 30

Val Ile Val Ser Leu Gly Leu Gly Leu Gly Leu Gly Leu Arg Lys Pro  
 35 40 45

Glu Glu Gln Gly Ser Cys Arg Lys Lys Cys Phe Asp Ser Ser His Arg  
 50 55 60

Gly Leu Glu Gly Cys Arg Cys Asp Ser Gly Cys Thr Gly Arg Gly Asp  
 65 70 75 80

Cys Cys Trp Asp Phe Glu Asp Thr Cys Val Lys Ser Thr Gln Ile Trp  
 85 90 95

Thr Cys Asn Leu Phe Arg Cys Gly Glu Asn Arg Leu Glu Thr Ala Leu  
 100 105 110

Cys Ser Cys Ala Asp Asp Cys Leu Gln Arg Lys Asp Cys Cys Ala Asp  
 115 120 125

Tyr Lys Thr Val Cys Gln Gly Glu Ser Pro Trp Val Thr Glu Ala Cys  
 130 135 140

Ala Ser Ser Gln Glu Pro Gln Cys Pro Pro Gly Phe Asp Leu Pro Pro  
 145 150 155 160

Val Ile Leu Phe Ser Met Asp Gly Phe Arg Ala Glu Tyr Leu Gln Thr  
 165 170 175



Trp Ser Thr Leu Leu Pro Asn Ile Asn Lys Leu Lys Thr Cys Gly Ile  
180 185 190

His Ser Lys Tyr Met Arg Ala Met Tyr Pro Thr Lys Thr Phe Pro Asn  
195 200 205

His Tyr Thr Ile Val Thr Gly Leu Tyr Pro Glu Ser His Gly Ile Ile  
210 215 220

Asp Asn Asn Met Tyr Asp Val His Leu Asn Lys Asn Phe Ser Leu Ser  
225 230 235 240

Ser Val Glu Lys Ser Asn Pro Ala Trp Trp Ser Gly Gln Pro Ile Trp  
245 250 255

Leu Thr Ala Met Tyr Gln Gly Leu Lys Ala Ala Cys Tyr Tyr Trp Pro  
260 265 270

Gly Ser Asp Val Ala Val Asn Gly Ser Phe Pro Thr Ile Tyr Arg Asn  
275 280 285

Tyr Ser Asn Ser Val Pro Tyr Glu Arg Arg Ile Thr Thr Leu Leu Gln  
290 295 300

Trp Leu Asp Leu Pro Lys Ala Asp Arg Pro Ser Phe Tyr Thr Ile Tyr  
305 310 315 320

Val Glu Glu Pro Asp Ser Ala Gly His Ser Ser Gly Pro Val Ser Ala  
325 330 335

Gly Val Ile Lys Ala Leu Gln Ser Val Asp Asn Ala Phe Gly Met Leu  
340 345 350

Met Glu Gly Leu Lys Gln Arg Asn Leu His Asn Cys Val Asn Ile Ile  
355 360 365

Val Leu Ala Asp His Gly Met Asp Gln Thr Ser Cys Asp Arg Val Glu  
370 375 380

Tyr Met Thr Asp Tyr Phe Pro Lys Ile Asn Phe Tyr Met Tyr Gln Gly  
 385 390 395 400

Pro Ala Pro Arg Ile Arg Thr Arg Asn Ile Pro Gln Asp Phe Phe Thr  
 405 410 415

Phe Asn Ser Glu Glu Ile Val Arg Asn Leu Ser Cys Arg Lys Pro Asp  
 420 425 430

Gln His Phe Lys Pro Tyr Leu Thr Pro Asp Leu Pro Lys Arg Leu His  
 435 440 445

Tyr Ala Lys Asn Val Arg Ile Asp Lys Ala His Leu Met Val Asp Arg  
 450 455 460

Gln Trp Leu Ala Phe Arg Ser Lys Gly Ser Ser Asn Cys Gly Gly Gly  
 465 470 475 480

Thr His Gly Tyr Asn Asn Glu Phe Lys Ser Met Glu Ala Ile Phe Leu  
 485 490 495

Ala His Gly Pro Ser Phe Ile Glu Lys Thr Val Ile Glu Pro Phe Glu  
 500 505 510

Asn Ile Glu Val Tyr Asn Leu Leu Cys Asp Leu Leu His Ile Glu Pro  
 515 520 525

Ala Pro Asn Asn Gly Thr His Gly Ser Leu Asn His Leu Leu Lys Thr  
 530 535 540

Pro Phe Tyr Lys Pro Ser His Ala Gly Glu Leu Ser Thr Pro Ala Asp  
 545 550 555 560

Cys Gly Phe Thr Thr Pro Leu Pro Thr Asp Pro Leu Asp Cys Ser Cys  
 565 570 575

Pro Ala Leu Gln Asn Thr Pro Gly Leu Glu Glu Gln Ala Asn Gln Arg  
580 585 590

Leu Asn Leu Ser Glu Gly Glu Val Ala Ala Thr Val Lys Ala Asn Leu  
595 600 605

Pro Phe Gly Arg Pro Arg Val Met Gln Lys Asn Gly Asp His Cys Leu  
610 615 620

Leu Tyr His Arg Asp Tyr Ile Ser Gly Tyr Gly Lys Ala Met Lys Met  
625 630 635 640

Pro Met Trp Ser Ser Tyr Thr Val Leu Lys Pro Gly Asp Thr Ser Ser  
645 650 655

Leu Pro Pro Thr Val Pro Asp Cys Leu Arg Ala Asp Val Arg Val Ala  
660 665 670

Pro Ser Glu Ser Gln Lys Cys Ser Phe Tyr Leu Ala Asp Lys Asn Ile  
675 680 685

Thr His Gly Phe Leu Tyr Pro Ala Ile Lys Gly Thr Asn Glu Ser Arg  
690 695 700

Tyr Asp Ala Leu Ile Thr Ser Asn Leu Val Pro Met Tyr Lys Glu Phe  
705 710 715 720

Lys Lys Met Trp Asp Tyr Phe His Glu Val Leu Leu Ile Lys Tyr Ala  
725 730 735

Ile Glu Arg Asn Gly Leu Asn Val Val Ser Gly Pro Ile Phe Asp Tyr  
740 745 750

Asn Tyr Asp Gly His Phe Asp Ala Pro Asp Glu Ile Thr Gln Tyr Val  
755 760 765

Ala Gly Thr Asp Val Pro Ile Pro Thr His Tyr Phe Val Val Leu Thr  
770 775 780

Ser Cys Lys Asp Gln Thr His Thr Pro Asp Ser Cys Pro Gly Trp Leu  
785 790 795 800

Asp Val Leu Pro Phe Ile Val Pro His Arg Pro Thr Asn Ile Glu Ser  
805 810 815

Cys Ser Glu Asn Lys Thr Glu Asp Leu Trp Val Glu Glu Arg Phe Gln  
820 825 830

Ala His Ala Ala Arg Val Arg Asp Val Glu Leu Leu Thr Gly Leu Asp  
835 840 845

Phe Tyr Gln Glu Lys Ala Gln Pro Val Ser Gln Ile Leu Gln Leu Lys  
850 855 860

Thr Tyr Leu Pro Thr Phe Glu Thr Ile Ile  
865 870

<210> 215  
<211> 844  
<212> PRT  
<213> Mus musculus

<400> 215  
Leu Leu Val Ile Val Ser Leu Gly Leu Gly Leu Gly Leu Gly Leu Arg  
1 5 10 15

Lys Pro Glu Glu Gln Gly Ser Cys Arg Lys Lys Cys Phe Asp Ser Ser  
20 25 30

His Arg Gly Leu Glu Gly Cys Arg Cys Asp Ser Gly Cys Thr Gly Arg  
35 40 45

Gly Asp Cys Cys Trp Asp Phe Glu Asp Thr Cys Val Lys Ser Thr Gln  
50 55 60

Ile Trp Thr Cys Asn Leu Phe Arg Cys Gly Glu Asn Arg Leu Glu Thr  
65 70 75 80

Ala Leu Cys Ser Cys Ala Asp Asp Cys Leu Gln Arg Lys Asp Cys Cys  
85 90 95

Ala Asp Tyr Lys Thr Val Cys Gln Gly Glu Ser Pro Trp Val Thr Glu  
100 105 110

Ala Cys Ala Ser Ser Gln Glu Pro Gln Cys Pro Pro Gly Phe Asp Leu  
115 120 125

Pro Pro Val Ile Leu Phe Ser Met Asp Gly Phe Arg Ala Glu Tyr Leu  
130 135 140

Gln Thr Trp Ser Thr Leu Leu Pro Asn Ile Asn Lys Leu Lys Thr Cys  
145 150 155 160

Gly Ile His Ser Lys Tyr Met Arg Ala Met Tyr Pro Thr Lys Thr Phe  
165 170 175

Pro Asn His Tyr Thr Ile Val Thr Gly Leu Tyr Pro Glu Ser His Gly  
180 185 190

Ile Ile Asp Asn Asn Met Tyr Asp Val His Leu Asn Lys Asn Phe Ser  
195 200 205

Leu Ser Ser Val Glu Lys Ser Asn Pro Ala Trp Trp Ser Gly Gln Pro  
210 215 220

Ile Trp Leu Thr Ala Met Tyr Gln Gly Leu Lys Ala Ala Cys Tyr Tyr  
225 230 235 240

Trp Pro Gly Ser Asp Val Ala Val Asn Gly Ser Phe Pro Thr Ile Tyr  
245 250 255

Arg Asn Tyr Ser Asn Ser Val Pro Tyr Glu Arg Arg Ile Thr Thr Leu  
260 265 270

Leu Gln Trp Leu Asp Leu Pro Lys Ala Asp Arg Pro Ser Phe Tyr Thr  
275 280 285

Ile Tyr Val Glu Glu Pro Asp Ser Ala Gly His Ser Ser Gly Pro Val  
290 295 300

Ser Ala Gly Val Ile Lys Ala Leu Gln Ser Val Asp Asn Ala Phe Gly  
305 310 315 320

Met Leu Met Glu Gly Leu Lys Gln Arg Asn Leu His Asn Cys Val Asn  
325 330 335

Ile Ile Val Leu Ala Asp His Gly Met Asp Gln Thr Ser Cys Asp Arg  
340 345 350

Val Glu Tyr Met Thr Asp Tyr Phe Pro Lys Ile Asn Phe Tyr Met Tyr  
355 360 365

Gln Gly Pro Ala Pro Arg Ile Arg Thr Arg Asn Ile Pro Gln Asp Phe  
370 375 380

Phe Thr Phe Asn Ser Glu Glu Ile Val Arg Asn Leu Ser Cys Arg Lys  
385 390 395 400

Pro Asp Gln His Phe Lys Pro Tyr Leu Thr Pro Asp Leu Pro Lys Arg  
405 410 415

Leu His Tyr Ala Lys Asn Val Arg Ile Asp Lys Ala His Leu Met Val  
420 425 430

Asp Arg Gln Trp Leu Ala Phe Arg Ser Lys Gly Ser Ser Asn Cys Gly  
435 440 445

Gly Gly Thr His Gly Tyr Asn Asn Glu Phe Lys Ser Met Glu Ala Ile  
450 455 460

Phe Leu Ala His Gly Pro Ser Phe Ile Glu Lys Thr Val Ile Glu Pro  
465 470 475 480

Phe Glu Asn Ile Glu Val Tyr Asn Leu Leu Cys Asp Leu Leu His Ile  
485 490 495

Glu Pro Ala Pro Asn Asn Gly Thr His Gly Ser Leu Asn His Leu Leu  
500 505 510

Lys Thr Pro Phe Tyr Lys Pro Ser His Ala Gly Glu Leu Ser Thr Pro  
515 520 525

Ala Asp Cys Gly Phe Thr Thr Pro Leu Pro Thr Asp Pro Leu Asp Cys  
530 535 540

Ser Cys Pro Ala Leu Gln Asn Thr Pro Gly Leu Glu Glu Gln Ala Asn  
545 550 555 560

Gln Arg Leu Asn Leu Ser Glu Gly Glu Val Ala Ala Thr Val Lys Ala  
565 570 575

Asn Leu Pro Phe Gly Arg Pro Arg Val Met Gln Lys Asn Gly Asp His  
580 585 590

Cys Leu Leu Tyr His Arg Asp Tyr Ile Ser Gly Tyr Gly Lys Ala Met  
595 600 605

Lys Met Pro Met Trp Ser Ser Tyr Thr Val Leu Lys Pro Gly Asp Thr  
610 615 620

Ser Ser Leu Pro Pro Thr Val Pro Asp Cys Leu Arg Ala Asp Val Arg  
625 630 635 640

Val Ala Pro Ser Glu Ser Gln Lys Cys Ser Phe Tyr Leu Ala Asp Lys  
645 650 655

Asn Ile Thr His Gly Phe Leu Tyr Pro Ala Ile Lys Gly Thr Asn Glu  
660 665 670

Ser Arg Tyr Asp Ala Leu Ile Thr Ser Asn Leu Val Pro Met Tyr Lys  
675 680 685

Glu Phe Lys Lys Met Trp Asp Tyr Phe His Glu Val Leu Leu Ile Lys  
690 695 700

Tyr Ala Ile Glu Arg Asn Gly Leu Asn Val Val Ser Gly Pro Ile Phe  
705 710 715 720

Asp Tyr Asn Tyr Asp Gly His Phe Asp Ala Pro Asp Glu Ile Thr Gln  
725 730 735

Tyr Val Ala Gly Thr Asp Val Pro Ile Pro Thr His Tyr Phe Val Val  
740 745 750

Leu Thr Ser Cys Lys Asp Gln Thr His Thr Pro Asp Ser Cys Pro Gly  
755 760 765

Trp Leu Asp Val Leu Pro Phe Ile Val Pro His Arg Pro Thr Asn Ile  
770 775 780

Glu Ser Cys Ser Glu Asn Lys Thr Glu Asp Leu Trp Val Glu Glu Arg  
785 790 795 800

Phe Gln Ala His Ala Ala Arg Val Arg Asp Val Glu Leu Leu Thr Gly  
805 810 815

Leu Asp Phe Tyr Gln Glu Lys Ala Gln Pro Val Ser Gln Ile Leu Gln  
820 825 830

Leu Lys Thr Tyr Leu Pro Thr Phe Glu Thr Ile Ile  
835 840

<210> 216

<211> 874

<212> PRT

<213> Macaca fascicularis

<400> 216



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

Thr Leu Lys Lys Tyr Lys Ile Ala Cys Ile Val Leu Leu Ala Leu Leu  
 20 25 30

Val Ile Met Ser Leu Gly Leu Gly Leu Gly Leu Gly Leu Arg Lys Leu  
 35 40 45

Glu Lys Gln Gly Ser Cys Arg Lys Lys Cys Phe Asp Ala Ser Phe Arg  
 50 55 60

Gly Leu Glu Asn Cys Arg Cys Asp Val Ala Cys Glu Asp Arg Gly Asp  
 65 70 75 80

Cys Cys Trp Asp Phe Glu Asp Thr Cys Val Glu Ser Thr Arg Ile Trp  
 85 90 95

Thr Cys Asn Lys Phe Arg Cys Gly Glu Thr Arg Leu Glu Ala Ser Leu  
 100 105 110

Cys Ser Cys Ser Asp Asp Cys Leu Gln Arg Lys Asp Cys Cys Ala Asp  
 115 120 125

Tyr Lys Ser Val Cys Gln Gly Glu Thr Ser Trp Leu Glu Glu Asn Cys  
 130 135 140

Asp Thr Ala Gln Gln Ser Gln Cys Pro Glu Gly Phe Asp Leu Pro Pro  
 145 150 155 160

Val Ile Leu Phe Ser Met Asp Gly Phe Arg Ala Glu Tyr Leu Tyr Thr  
 165 170 175

Trp Asp Thr Leu Met Pro Asn Ile Asn Lys Leu Lys Thr Cys Gly Ile  
 180 185 190

His Ser Lys Tyr Met Arg Ala Met Tyr Pro Thr Lys Thr Phe Pro Asn  
 195 200 205

His Tyr Thr Ile Val Thr Gly Leu Tyr Pro Glu Ser His Gly Ile Ile  
210 215 220

Asp Asn Asn Met Tyr Asp Val Asn Leu Asn Lys Asn Phe Ser Leu Ser  
225 230 235 240

Ser Glu Glu Gln Asn Asn Pro Ala Trp Trp His Gly Gln Pro Met Trp  
245 250 255

Leu Thr Ala Met Tyr Gln Gly Leu Lys Ala Ala Thr Tyr Phe Trp Pro  
260 265 270

Gly Ser Glu Val Ala Ile Asn Gly Ser Phe Pro Ser Ile Tyr Met Pro  
275 280 285

Tyr Asn Arg Ser Val Pro Tyr Glu Glu Arg Ile Ser Thr Leu Leu Lys  
290 295 300

Trp Leu Asp Leu Pro Lys Ala Glu Arg Pro Ser Phe Tyr Thr Met Tyr  
305 310 315 320

Phe Glu Glu Pro Asp Ser Ser Gly His Ala Gly Gly Pro Val Ser Ala  
325 330 335

Arg Val Ile Lys Ala Leu Gln Val Val Asp His Ala Phe Gly Met Leu  
340 345 350

Met Glu Gly Leu Lys Gln Arg Asn Leu His Asn Cys Val Asn Ile Ile  
355 360 365

Leu Leu Ala Asp His Gly Met Asp Gln Thr Tyr Cys Asn Lys Met Glu  
370 375 380

Tyr Met Thr Asp Tyr Phe Pro Arg Ile Asn Phe Tyr Met Tyr Glu Gly  
385 390 395 400

Pro Ala Pro Arg Ile Arg Ala Leu Asn Val Pro His Asp Phe Phe Ser  
405 410 415

Cys Lys Tyr Glu Asp Thr Tyr Met Lys Lys Arg Cys Arg Lys Pro Asp  
420 425 430

Gln His Phe Lys Pro Tyr Leu Thr Pro Asp Leu Pro Lys Arg Leu His  
435 440 445

Tyr Ala Lys Asn Val Arg Ile Asp Lys Val His Leu Phe Val Asp Arg  
450 455 460

Gln Trp Leu Ala Val Gly Ser Lys Ser Asn Thr Asn Cys Gly Gly Gly  
465 470 475 480

Asn His Gly Tyr Asn Asn Glu Phe Arg Ser Met Glu Ala Ile Phe Leu  
485 490 495

Ala His Gly Pro Ser Phe Lys Glu Lys Thr Glu Val Glu Pro Phe Glu  
500 505 510

Asn Ile Glu Val Tyr Asn Leu Met Cys Asp Leu Leu Arg Ile Gln Pro  
515 520 525

Ala Pro Asn Asn Gly Thr Arg Gly Ser Leu Asn His Leu Leu Lys Val  
530 535 540

Pro Phe Tyr Glu Pro Ser His Ala Glu Glu Val Ser Lys Phe Ser Val  
545 550 555 560

Cys Gly Phe Ala Asn Pro Leu Pro Thr Asn Asn Leu Ser Cys Leu Cys  
565 570 575

Pro His Leu Gln Asn Ser Ile Gln Leu Glu Gln Val Asn Gln Met Leu  
580 585 590

Asn Leu Thr Gln Glu Glu Ile Thr Ala Thr Val Lys Val Asn Leu Pro  
595 600 605

Phe Gly Arg Pro Arg Val Leu Gln Lys Asn Val Asp Asn Cys Leu Leu  
610 615 620

Tyr His Arg Glu Tyr Val Ser Gly Phe Gly Lys Ala Met Arg Met Pro  
625 630 635 640

Met Trp Ser Ser Tyr Thr Val Pro Gln Leu Gly Asp Thr Ser Pro Leu  
645 650 655

Pro Pro Thr Val Pro Asp Cys Leu Arg Ala Asp Val Arg Val Pro Pro  
660 665 670

Ser Glu Ser Gln Lys Cys Ser Phe Tyr Leu Ala Asp Glu Asn Ile Thr  
675 680 685

His Gly Phe Leu Tyr Pro Pro Ala Ile Asn Arg Thr Ser Asp Ser Gln  
690 695 700

Tyr Asp Ala Leu Ile Met Ser Asn Leu Val Pro Met Tyr Glu Glu Phe  
705 710 715 720

Arg Lys Met Trp Asp Tyr Phe His Ser Val Leu Leu Ile Lys His Ala  
725 730 735

Thr Glu Arg Asn Gly Val Asn Val Val Ser Gly Pro Ile Phe Asp Tyr  
740 745 750

Asn Tyr Asp Gly His Phe Asp Ala Pro Glu Glu Ile Thr Lys His Ile  
755 760 765

Ala Asn Thr Asp Ile Pro Ile Pro Thr His Tyr Phe Val Val Leu Thr  
770 775 780

Ser Cys Lys Asn Lys Ser His Thr Pro Glu Asn Cys Pro Gly Trp Leu  
785 790 795 800

Asp Val Leu Pro Phe Ile Ile Pro His Arg Pro Thr Asn Val Glu Ser  
805 810 815

Cys Pro Glu Gly Lys Pro Glu Ala Leu Trp Val Glu Glu Arg Phe Thr  
820 825 830

Ala His Ile Ala Arg Val Arg Asp Val Glu Leu Leu Thr Gly Leu Asp  
835 840 845

Phe Tyr Gln Asp Lys Ala Gln Pro Val Ser Glu Ile Leu Gln Leu Lys  
850 855 860

Thr Tyr Leu Pro Thr Phe Glu Thr Thr Ile  
865 870

<210> 217

<211> 844

<212> PRT

<213> Macaca fascicularis

<400> 217

Leu Leu Val Ile Met Ser Leu Gly Leu Gly Leu Gly Leu Gly Leu Arg  
1 5 10 15

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

Phe Arg Gly Leu Glu Asn Cys Arg Cys Asp Val Ala Cys Glu Asp Arg  
35 40 45

Gly Asp Cys Cys Trp Asp Phe Glu Asp Thr Cys Val Glu Ser Thr Arg  
50 55 60

Ile Trp Thr Cys Asn Lys Phe Arg Cys Gly Glu Thr Arg Leu Glu Ala  
65 70 75 80

Ser Leu Cys Ser Cys Ser Asp Asp Cys Leu Gln Arg Lys Asp Cys Cys  
85 90 95

Ala Asp Tyr Lys Ser Val Cys Gln Gly Glu Thr Ser Trp Leu Glu Glu  
100 105 110

Asn Cys Asp Thr Ala Gln Gln Ser Gln Cys Pro Glu Gly Phe Asp Leu  
115 120 125

Pro Pro Val Ile Leu Phe Ser Met Asp Gly Phe Arg Ala Glu Tyr Leu  
130 135 140

Tyr Thr Trp Asp Thr Leu Met Pro Asn Ile Asn Lys Leu Lys Thr Cys  
145 150 155 160

Gly Ile His Ser Lys Tyr Met Arg Ala Met Tyr Pro Thr Lys Thr Phe  
165 170 175

Pro Asn His Tyr Thr Ile Val Thr Gly Leu Tyr Pro Glu Ser His Gly  
180 185 190

Ile Ile Asp Asn Asn Met Tyr Asp Val Asn Leu Asn Lys Asn Phe Ser  
195 200 205

Leu Ser Ser Glu Glu Gln Asn Asn Pro Ala Trp Trp His Gly Gln Pro  
210 215 220

Met Trp Leu Thr Ala Met Tyr Gln Gly Leu Lys Ala Ala Thr Tyr Phe  
225 230 235 240

Trp Pro Gly Ser Glu Val Ala Ile Asn Gly Ser Phe Pro Ser Ile Tyr  
245 250 255

Met Pro Tyr Asn Arg Ser Val Pro Tyr Glu Glu Arg Ile Ser Thr Leu  
260 265 270

Leu Lys Trp Leu Asp Leu Pro Lys Ala Glu Arg Pro Ser Phe Tyr Thr  
275 280 285

Met Tyr Phe Glu Glu Pro Asp Ser Ser Gly His Ala Gly Gly Pro Val  
290 295 300

Ser Ala Arg Val Ile Lys Ala Leu Gln Val Val Asp His Ala Phe Gly  
 305 310 315 320

Met Leu Met Glu Gly Leu Lys Gln Arg Asn Leu His Asn Cys Val Asn  
 325 330 335

Ile Ile Leu Leu Ala Asp His Gly Met Asp Gln Thr Tyr Cys Asn Lys  
 340 345 350

Met Glu Tyr Met Thr Asp Tyr Phe Pro Arg Ile Asn Phe Tyr Met Tyr  
 355 360 365

Glu Gly Pro Ala Pro Arg Ile Arg Ala Leu Asn Val Pro His Asp Phe  
 370 375 380

Phe Ser Cys Lys Tyr Glu Asp Thr Tyr Met Lys Lys Arg Cys Arg Lys  
 385 390 395 400

Pro Asp Gln His Phe Lys Pro Tyr Leu Thr Pro Asp Leu Pro Lys Arg  
 405 410 415

Leu His Tyr Ala Lys Asn Val Arg Ile Asp Lys Val His Leu Phe Val  
 420 425 430

Asp Arg Gln Trp Leu Ala Val Gly Ser Lys Ser Asn Thr Asn Cys Gly  
 435 440 445

Gly Gly Asn His Gly Tyr Asn Asn Glu Phe Arg Ser Met Glu Ala Ile  
 450 455 460

Phe Leu Ala His Gly Pro Ser Phe Lys Glu Lys Thr Glu Val Glu Pro  
 465 470 475 480

Phe Glu Asn Ile Glu Val Tyr Asn Leu Met Cys Asp Leu Leu Arg Ile  
 485 490 495

Gln Pro Ala Pro Asn Asn Gly Thr Arg Gly Ser Leu Asn His Leu Leu  
500 505 510

Lys Val Pro Phe Tyr Glu Pro Ser His Ala Glu Glu Val Ser Lys Phe  
515 520 525

Ser Val Cys Gly Phe Ala Asn Pro Leu Pro Thr Asn Asn Leu Ser Cys  
530 535 540

Leu Cys Pro His Leu Gln Asn Ser Ile Gln Leu Glu Gln Val Asn Gln  
545 550 555 560

Met Leu Asn Leu Thr Gln Glu Glu Ile Thr Ala Thr Val Lys Val Asn  
565 570 575

Leu Pro Phe Gly Arg Pro Arg Val Leu Gln Lys Asn Val Asp Asn Cys  
580 585 590

Leu Leu Tyr His Arg Glu Tyr Val Ser Gly Phe Gly Lys Ala Met Arg  
595 600 605

Met Pro Met Trp Ser Ser Tyr Thr Val Pro Gln Leu Gly Asp Thr Ser  
610 615 620

Pro Leu Pro Pro Thr Val Pro Asp Cys Leu Arg Ala Asp Val Arg Val  
625 630 635 640

Pro Pro Ser Glu Ser Gln Lys Cys Ser Phe Tyr Leu Ala Asp Glu Asn  
645 650 655

Ile Thr His Gly Phe Leu Tyr Pro Pro Ala Ile Asn Arg Thr Ser Asp  
660 665 670

Ser Gln Tyr Asp Ala Leu Ile Met Ser Asn Leu Val Pro Met Tyr Glu  
675 680 685

Glu Phe Arg Lys Met Trp Asp Tyr Phe His Ser Val Leu Leu Ile Lys  
690 695 700



His Ala Thr Glu Arg Asn Gly Val Asn Val Val Ser Gly Pro Ile Phe  
705 710 715 720

Asp Tyr Asn Tyr Asp Gly His Phe Asp Ala Pro Glu Glu Ile Thr Lys  
725 730 735

His Ile Ala Asn Thr Asp Ile Pro Ile Pro Thr His Tyr Phe Val Val  
740 745 750

Leu Thr Ser Cys Lys Asn Lys Ser His Thr Pro Glu Asn Cys Pro Gly  
755 760 765

Trp Leu Asp Val Leu Pro Phe Ile Ile Pro His Arg Pro Thr Asn Val  
770 775 780

Glu Ser Cys Pro Glu Gly Lys Pro Glu Ala Leu Trp Val Glu Glu Arg  
785 790 795 800

Phe Thr Ala His Ile Ala Arg Val Arg Asp Val Glu Leu Leu Thr Gly  
805 810 815

Leu Asp Phe Tyr Gln Asp Lys Ala Gln Pro Val Ser Glu Ile Leu Gln  
820 825 830

Leu Lys Thr Tyr Leu Pro Thr Phe Glu Thr Thr Ile  
835 840

<210> 218

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> AN1[ENPP3]\_H1L1 Variable heavy (vh) domain

<400> 218

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Ala Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr Trp Gly  
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 219

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> AN1[ENPP3]\_H1L1 vhCDR1

<400> 219

Asn Tyr Gly Met Ser  
1 5

<210> 220  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1L1 vhCDR2

<400> 220  
Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val Lys  
1 5 10 15

Gly

<210> 221  
<211> 12  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1L1 vhCDR3

<400> 221  
His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr  
1 5 10

<210> 222  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> AN1[ENPP3]\_H1L1 Variable light (vl) domain

<400> 222

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

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

<210> 223

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> AN1[ENPP3]\_H1L1 v1CDR1

<400> 223

Arg Ala Ser Gln Ser Ile Gly Thr Ser Ile His  
1 5 10

<210> 224

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> AN1[ENPP3]\_H1L1 v1CDR2

<400> 224

Tyr Ala Ser Glu Ser Ile Ser  
1 5

<210> 225

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> AN1[ENPP3]\_H1L1 v1CDR3

<400> 225

Gln Gln Ser Asn Ser Trp Pro Tyr Thr  
1 5

<210> 226

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP28278 Chain 1 - AN1[alphaENPP3]\_H1L1\_IgG1\_PVA\_/S267K

<400> 226

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Ala Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Pro Val Ala Gly

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     | 230 |     | 235 |     | 240 |     |     |     |     |     |     |     |     |     |
| Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | Pro | Lys | Asp | Thr | Leu | Met | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ser | Arg | Thr | Pro | Glu | Val | Thr | Cys | Val | Val | Val | Asp | Val | Lys | His | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Asp | Pro | Glu | Val | Lys | Phe | Asn | Trp | Tyr | Val | Asp | Gly | Val | Glu | Val | His |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asn | Ala | Lys | Thr | Lys | Pro | Arg | Glu | Glu | Gln | Tyr | Asn | Ser | Thr | Tyr | Arg |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Val | Val | Ser | Val | Leu | Thr | Val | Leu | His | Gln | Asp | Trp | Leu | Asn | Gly | Lys |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Glu | Tyr | Lys | Cys | Lys | Val | Ser | Asn | Lys | Ala | Leu | Pro | Ala | Pro | Ile | Glu |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Lys | Thr | Ile | Ser | Lys | Ala | Lys | Gly | Gln | Pro | Arg | Glu | Pro | Gln | Val | Tyr |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Thr | Leu | Pro | Pro | Ser | Arg | Glu | Glu | Met | Thr | Lys | Asn | Gln | Val | Ser | Leu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Thr | Cys | Leu | Val | Lys | Gly | Phe | Tyr | Pro | Ser | Asp | Ile | Ala | Val | Glu | Trp |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Ser | Asn | Gly | Gln | Pro | Glu | Asn | Asn | Tyr | Lys | Thr | Thr | Pro | Pro | Val |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Leu | Asp | Ser | Asp | Gly | Ser | Phe | Phe | Leu | Tyr | Ser | Lys | Leu | Thr | Val | Asp |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Lys | Ser | Arg | Trp | Gln | Gln | Gly | Asn | Val | Phe | Ser | Cys | Ser | Val | Met | His |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 227  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP28278 Chain 2 - AN1[alphaENPP3]\_H1L1\_IgG1\_PVA\_/S267K

<400> 227  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 228

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> AN1[ENPP3]\_H1\_L1.33 Variable heavy (vh) domain

<400> 228

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 Ala Phe Ser Asn Tyr  
 20 25 30

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

35

40

45

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

Ala Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr Trp Gly  
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser  
 115 120

&lt;210&gt; 229

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;220&gt;

&lt;223&gt; AN1[ENPP3]\_H1\_L1.33 vhCDR1

&lt;400&gt; 229

Asn Tyr Gly Met Ser  
 1 5

&lt;210&gt; 230

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;220&gt;

<223> AN1[ENPP3]\_H1\_L1.33 vhCDR2

<400> 230

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ile | Ser | Ser | Gly | Gly | Gly | Thr | Thr | Tyr | Tyr | Leu | Asp | Ser | Val | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Gly

<210> 231

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> AN1[ENPP3]\_H1\_L1.33 vhCDR3

<400> 231

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Arg | Arg | Val | Tyr | Tyr | Gly | Tyr | Tyr | Phe | Asp | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |

<210> 232

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> AN1[ENPP3]\_H1\_L1.33 Variable light (vl) domain

<400> 232

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ile | Leu | Leu | Thr | Gln | Ser | Pro | Asp | Phe | Gln | Ser | Val | Thr | Pro | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Val | Thr | Ile | Thr | Cys | Arg | Ala | Ser | Gln | Ser | Ile | Gly | Thr | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile

35

40

45

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

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

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

&lt;210&gt; 233

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; AN1[ENPP3]\_H1\_L1.33 v1CDR1

&lt;400&gt; 233

Arg Ala Ser Gln Ser Ile Gly Thr Ser Ile His  
 1 5 10

&lt;210&gt; 234

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; AN1[ENPP3]\_H1\_L1.33 v1CDR2

&lt;400&gt; 234

Tyr Ala Ser Glu Ser Ile Ser

1 5

<210> 235  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1\_L1.33 v1CDR3

<400> 235  
Gln Gln Ser Asn Ser Trp Pro Tyr Thr  
1 5

<210> 236  
<211> 121  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> AN1[ENPP3]\_H1\_L1.77 Variable heavy (vh) domain

<400> 236  
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 Ala Phe Ser Asn Tyr  
20 25 30

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

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp 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 | Ala | Glu | Asp | Thr | Ala | Val | Tyr | Tyr | Cys |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ala | Arg | His | Arg | Arg | Val | Tyr | Tyr | Gly | Tyr | Tyr | Phe | Asp | Tyr | Trp | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser |     |     |     |     |     |     |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |

<210> 237  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> AN1[ENPP3]\_H1\_L1.77 vhCDR1

<400> 237  
 Asn Tyr Gly Met Ser  
 1 5

<210> 238  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> AN1[ENPP3]\_H1\_L1.77 vhCDR2

<400> 238  
 Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val Lys  
 1 5 10 15

Gly

<210> 239  
<211> 12  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1\_L1.77 vhCDR3

<400> 239  
His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr  
1 5 10

<210> 240  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> AN1[ENPP3]\_H1\_L1.77 Variable light (vl) domain

<400> 240  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

Glu Tyr Glu 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 Thr Ile Asn Ser Leu Glu Ala

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     | 70  |     | 75  |     | 80  |     |     |     |     |     |     |     |     |     |
| Glu | Asp | Ala | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Ser | Asn | Ser | Trp | Pro | Tyr |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Phe | Gly | Gly | Gly | Thr | Lys | Leu | Glu | Ile | Lys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |

<210> 241  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> AN1[ENPP3]\_H1\_L1.77 v1CDR1

|                                                  |
|--------------------------------------------------|
| <400> 241                                        |
| Arg Ala Ser Gln Ser Ile Gly Thr Ser Ile His      |
| 1                      5                      10 |

<210> 242  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> AN1[ENPP3]\_H1\_L1.77 v1CDR2

|                             |
|-----------------------------|
| <400> 242                   |
| Tyr Glu Ser Glu Ser Ile Ser |
| 1                      5    |

<210> 243  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence



<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1\_L1.77 v1CDR3

<400> 243  
Gln Gln Ser Asn Ser Trp Pro Tyr Thr  
1 5

<210> 244  
<211> 121  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1 Variable heavy (vh) domain

<400> 244  
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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr Trp Gly

100

105

110

Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 245

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1 vhCDR1

<400> 245

Asn Tyr Gly Met Ser  
1 5

<210> 246

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1 vhCDR2

<400> 246

Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val Thr  
1 5 10 15

Gly

<210> 247

<211> 12

<212> PRT

<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1 vhCDR3

<400> 247  
His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr  
1 5 10

<210> 248  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1 Variable light (vl) domain

<400> 248  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys

<210> 249  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> AN1[ENPP3]\_H1.8\_L1 v1CDR1

<400> 249  
 Arg Ala Ser Gln Ser Ile Gly Thr Ser Ile His  
 1 5 10

<210> 250  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> AN1[ENPP3]\_H1.8\_L1 v1CDR2

<400> 250  
 Tyr Ala Ser Glu Ser Ile Ser  
 1 5

<210> 251  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> AN1[ENPP3]\_H1.8\_L1 v1CDR3

<400> 251

Gln Gln Ser Asn Ser Trp Pro Tyr Thr  
1 5

<210> 252

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.33 Variable heavy (vh) domain

<400> 252

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr Trp Gly  
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 253

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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1.33 vhCDR1

<400> 253  
Asn Tyr Gly Met Ser  
1 5

<210> 254  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1.33 vhCDR2

<400> 254  
Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val Thr  
1 5 10 15

Gly

<210> 255  
<211> 12  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1.33 vhCDR3

<400> 255

His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr  
1 5 10

<210> 256

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.33 Variable light (vl) domain

<400> 256

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

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

<210> 257

<211> 11

<212> PRT

<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1.33 v1CDR1

<400> 257  
Arg Ala Ser Gln Ser Ile Gly Thr Ser Ile His  
1                  5                  10

<210> 258  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1.33 v1CDR2

<400> 258  
Tyr Ala Ser Glu Ser Ile Ser  
1                  5

<210> 259  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> AN1[ENPP3]\_H1.8\_L1.33 v1CDR3

<400> 259  
Gln Gln Ser Asn Ser Trp Pro Tyr Thr  
1                  5

<210> 260  
<211> 121  
<212> PRT  
<213> Artificial Sequence



<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 Variable heavy (vh) domain

<400> 260

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr Trp Gly  
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 261

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 vhCDR1

<400> 261

Asn Tyr Gly Met Ser  
1 5

<210> 262

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 vhCDR2

<400> 262

Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val Thr  
1 5 10 15

Gly

<210> 263

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 vhCDR3

<400> 263

His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe Asp Tyr  
1 5 10

<210> 264

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 Variable light (v1) domain

<400> 264

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

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

<210> 265

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 v1CDR1

<400> 265

Arg Ala Ser Gln Ser Ile Gly Thr Ser Ile His  
1 5 10

<210> 266

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 v1CDR2

<400> 266

Tyr Glu Ser Glu Ser Ile Ser  
1 5

<210> 267

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> AN1[ENPP3]\_H1.8\_L1.77 v1CDR3

<400> 267

Gln Gln Ser Asn Ser Trp Pro Tyr Thr  
1 5

<210> 268

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-7.213 Variable heavy (vh) domain

<400> 268

Trp Gly Leu Ser Glu Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr  
1 5 10 15

Gly Tyr Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu  
20 25 30

Trp Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala Gln  
35 40 45

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

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

Tyr Cys Ala Arg Glu Leu Arg Tyr Phe Gly Trp Leu Leu Ser Ser Leu  
85 90 95

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
100 105

<210> 269

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-7.213 vhCDR1

<400> 269

Gly Tyr Tyr Met His  
1 5

<210> 270

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-7.213 vhCDR2

<400> 270

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Ile | Asn | Pro | Asn | Ser | Gly | Gly | Thr | Asn | Tyr | Ala | Gln | Lys | Phe | Gln |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |

Gly

<210> 271

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-7.213 vhCDR3

<400> 271

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Leu | Arg | Tyr | Phe | Gly | Trp | Leu | Leu | Ser | Ser | Leu | Asp | Tyr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     |

<210> 272

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> H16-7.213 Variable light (vl) domain

<400> 272

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

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

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

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

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

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

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

<210> 273

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-7.213 v1CDR1

<400> 273

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

<210> 274

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-7.213 v1CDR2

<400> 274

Ala Ala Ser Ser Leu Gln Ser

1 5

<210> 275

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-7.213 v1CDR3

<400> 275

Gln Gln Ser Tyr Ser Phe Pro Leu Thr

1 5

<210> 276

<211> 104

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> H16-9.69 Variable heavy (vh) domain

<400> 276

Trp Gly Leu Ser Glu Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr

1 5 10 15

Ser Tyr Asp Ile His Trp Val Arg Gln Ala Thr Gly Gln Gly Leu Glu

20 25 30

Trp Met Gly Trp Met Asn Pro Asn Ser Gly Asn Thr Val Tyr Ala Gln

35 40 45



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

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

Tyr Cys Ala Arg Thr Val Leu Leu Trp Pro Phe Asp Tyr Trp Gly Gln  
85 90 95

Gly Thr Leu Val Thr Val Ser Ser  
100

<210> 277

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-9.69 vHCDR1

<400> 277

Ser Tyr Asp Ile His  
1 5

<210> 278

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-9.69 vHCDR2

<400> 278

Trp Met Asn Pro Asn Ser Gly Asn Thr Val Tyr Ala Gln Lys Phe Gln  
1 5 10 15

Gly

<210> 279

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-9.69 vHCDR3

<400> 279

Thr Val Leu Leu Trp Pro Phe Asp Tyr  
1 5

<210> 280

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> H16-9.69 Variable light (v1) domain

<400> 280

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

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

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

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

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

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

Tyr Tyr Ser Thr Pro Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu  
100 105 110

Ile Lys

<210> 281

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-9.69 v1CDR1

<400> 281

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

Ala

<210> 282

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-9.69 v1CDR2

<400> 282  
Trp Ala Ser Thr Arg Glu Ser  
1 5

<210> 283  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-9.69 vLCDR3

<400> 283  
Gln Gln Tyr Tyr Ser Thr Pro Pro Trp Thr  
1 5 10

<210> 284  
<211> 115  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>  
<223> H16-1.52 Variable heavy (vh) domain

<400> 284  
Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
1 5 10 15

Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg  
20 25 30

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

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

Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu  
65 70 75 80

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

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

Val Ser Ser  
115

<210> 285  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.52 vhCDR1

<400> 285  
Ser Tyr Ala Met Ser  
1 5

<210> 286  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.52 vhCDR2

<400> 286  
Ala Ile Ser Gly Ser Asp Gly Ser Pro Tyr Tyr Ala Asp Ser Val Lys  
1 5 10 15

Gly

<210> 287

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-1.52 vhCDR3

<400> 287

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Gly | Tyr | Ser | Ser | Gly | Trp | Asn | Tyr | Phe | Asp | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |

<210> 288

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> H16-1.52 Variable light (v1) domain

<400> 288

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Ala | Thr | Ile | Asn | Cys | Lys | Ser | Ser | Gln | Ser | Val | Leu | Tyr | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Asn | Asn | Lys | Asn | Tyr | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Gln |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

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

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

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

Tyr Tyr Ser Thr Met Cys Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile  
100 105 110

Lys

<210> 289

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-1.52 v1CDR1

<400> 289

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

Ala

<210> 290

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-1.52 v1CDR2

<400> 290  
Trp Ala Ser Thr Arg Glu Ser  
1 5

<210> 291  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.52 vLCDR3

<400> 291  
Gln Glu Tyr Tyr Ser Thr Met Cys Ser  
1 5

<210> 292  
<211> 122  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>  
<223> Ha16-1(1)23 Variable heavy (vh) domain

<400> 292  
Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu Arg Leu  
1 5 10 15

Ser Cys Ala Ala Ser Gly Phe Thr Phe Arg Ser Tyr Gly Met His Trp  
20 25 30

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

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



Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
65 70 75 80

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

Tyr Tyr Gly Ser Gly Ser Tyr Tyr Tyr Tyr Tyr Gly Met Asp Val Trp  
100 105 110

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

<210> 293

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(1)23 vhCDR1

<400> 293

Ser Tyr Gly Met His  
1 5

<210> 294

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(1)23 vhCDR2

<400> 294

Val Ile Trp Ser Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys  
1 5 10 15

Gly

<210> 295

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha16-1(1)23 vhCDR3

<400> 295

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gly | Tyr | Tyr | Gly | Ser | Gly | Ser | Tyr | Tyr | Tyr | Tyr | Tyr | Gly | Met | Asp |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

Val

<210> 296

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Ha16-1(1)23 Variable light (vl) domain

<400> 296

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Ala | Thr | Leu | Thr | Cys | Thr | Gly | Asn | Ser | Asn | Asn | Val | Gly | Thr | Gln |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ala | Ala | Trp | Leu | Gln | Gln | His | Gln | Gly | His | Pro | Pro | Lys | Leu | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |     |

Ser Tyr Arg Asn Asn Asn Arg Pro Ser Gly Ile Ser Glu Arg Leu Ser  
50 55 60

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

Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Asp Ser Ser Leu  
85 90 95

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

<210> 297

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(1)23 v1CDR1

<400> 297

Thr Gly Asn Ser Asn Asn Val Gly Thr Gln Gly Ala Ala  
1 5 10

<210> 298

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(1)23 v1CDR2

<400> 298

Arg Asn Asn Asn Arg Pro Ser  
1 5

<210> 299  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(1)23 v1CDR3

<400> 299  
Ser Ala Trp Asp Ser Ser Leu Ser Ala Val Val  
1 5 10

<210> 300  
<211> 104  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-9.44 Variable heavy (vh) domain

<400> 300  
Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr Tyr  
1 5 10 15

Trp Ser Trp Ile Arg Gln Ser Ala Gly Lys Gly Leu Glu Trp Ile Gly  
20 25 30

Arg Ile Tyr Thr Gly Val Ser Thr Asn Tyr Asn Pro Ser Leu Lys Ser  
35 40 45

Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu Lys  
50 55 60

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

Asp Tyr Tyr Asp Ser Ser Gly Tyr Tyr Pro Phe Asp Tyr Trp Gly Gln  
85 90 95

Gly Thr Leu Val Thr Val Ser Ser  
100

<210> 301  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-9.44 vHCDR1

<400> 301  
Ser Tyr Tyr Trp Ser  
1 5

<210> 302  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-9.44 vHCDR2

<400> 302  
Arg Ile Tyr Thr Gly Val Ser Thr Asn Tyr Asn Pro Ser Leu Lys Ser  
1 5 10 15

<210> 303  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

peptide

<220>

<223> H16-9.44 vhCDR3

<400> 303

Asp Tyr Tyr Asp Ser Ser Gly Tyr Tyr Pro Phe Asp Tyr  
1 5 10

<210> 304

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-9.44 Variable light (vl) domain

<400> 304

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

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

Tyr Ala Ala Ser Ser Leu Glu Asn Gly Val Pro Ser Lys 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 Asn Ser Ser Pro Phe  
85 90 95

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

<210> 305  
<211> 11  
<212> PRT  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-9.44 vLCDR1

<400> 305  
Arg Ala Ser Gln Gly Ile Ser Asn Tyr Leu Ala  
1 5 10

<210> 306  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-9.44 vLCDR2

<400> 306  
Ala Ala Ser Ser Leu Glu Asn  
1 5

<210> 307  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-9.44 vLCDR3

<400> 307  
Gln Gln Tyr Asn Ser Ser Pro Phe Thr  
1 5

<210> 308  
<211> 121  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1.67 Variable heavy (vh) domain

<400> 308  
Val Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln Thr Leu Ser Leu  
1 5 10 15

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

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

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

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

Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg Ala  
85 90 95

Gly Thr Met Val Arg Gly Ala His Tyr Tyr Gly Met Asp Val Trp Gly  
100 105 110

Gln Gly Thr Thr Val Thr Val Ser Ser  
115 120

<210> 309  
<211> 7  
<212> PRT



<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-1.67 vhCDR1

<400> 309

Ser Phe Gly Tyr Tyr Trp Ser  
1 5

<210> 310

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-1.67 vhCDR2

<400> 310

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

<210> 311

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-1.67 vhCDR3

<400> 311

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

<210> 312

<211> 109

<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1.67 Variable light (vl) domain

<400> 312  
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15

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

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

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

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

<210> 313  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1.67 vLCDR1

<400> 313  
Arg Ala Ser Gln Ser Ile Ser Asn Tyr Leu Asn  
1 5 10

<210> 314  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.67 v1CDR2

<400> 314  
Ala Ala Ser Ser Leu Gln Ser  
1 5

<210> 315  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.67 v1CDR3

<400> 315  
Gln Gln Ile Tyr Ser Thr Pro Pro Glu Trp Thr  
1 5 10

<210> 316  
<211> 121  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Ha1 6-1 (3,5)36 Variable heavy (vh) domain

<400> 316

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

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

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

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

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

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

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

Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 317

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha1 6-1 (3,5)36 vhCDR1

<400> 317

Ser Ser Ser Tyr Tyr Trp Gly  
1 5

<210> 318  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha1 6-1 (3,5)36 vhCDR2

<400> 318  
Ser Met Tyr Tyr Ser Gly Ser Thr Tyr His Asn Pro Ser Leu Lys Ser  
1 5 10 15

<210> 319  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha1 6-1 (3,5)36 vhCDR3

<400> 319  
His Tyr Ile Thr Val Ala Gly Ile Phe Asp Tyr  
1 5 10

<210> 320  
<211> 110  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> Ha1 6-1 (3,5)36 Variable light (vl) domain

<400> 320  
Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln

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

<210> 321  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> Ha1 6-1 (3,5)36 v1CDR1

<400> 321  
 Ser Gly Ser Ser Thr Asn Ile Gly Ser Thr Ile Val Asn  
 1 5 10

<210> 322  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha1 6-1 (3,5)<sub>36</sub> v1CDR2

<400> 322

Ser Asn Asn Gln Arg Pro Ser  
1 5

<210> 323

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha1 6-1 (3,5)<sub>36</sub> v1CDR3

<400> 323

Ala Ala Trp Asp Ala Ser Leu Asn Gly Pro Val  
1 5 10

<210> 324

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> H16-1.86 Variable heavy (vh) domain

<400> 324

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

Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr Tyr Trp Ser Trp  
20 25 30

Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile Tyr

35

40

45

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

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

Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg Ala Tyr Gly  
 85 90 95

Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr  
 100 105 110

Val Ser Ser  
 115

<210> 325

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<220>

<223> H16-1.86 vhCDR1

<400> 325

Ser Tyr Tyr Trp Ser  
 1 5

<210> 326

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<220>



<223> H16-1.86 vhCDR2

<400> 326

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

<210> 327

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-1.86 vhCDR3

<400> 327

Ala Tyr Gly Tyr Tyr Tyr Tyr Gly Met Asp Val  
1 5 10

<210> 328

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-1.86 Variable light (v1) domain

<400> 328

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 Thr Ser Gln Ser Ile Ser Ser Tyr  
20 25 30

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

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

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

&lt;210&gt; 329

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; H16-1.86 v1CDR1

&lt;400&gt; 329

Arg Thr Ser Gln Ser Ile Ser Ser Tyr Leu Asn  
 1 5 10

&lt;210&gt; 330

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; H16-1.86 v1CDR2

&lt;400&gt; 330

Ala Ala Ser Ser Leu Gln Ser  
 1 5

&lt;210&gt; 331

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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1.86 vLCDR3

<400> 331  
Gln Gln Thr Tyr Ser Ser Pro Pro Trp Thr  
1 5 10

<210> 332  
<211> 117  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-9.10 Variable heavy (vh) domain

<400> 332  
Leu Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln Thr Leu Ser  
1 5 10 15

Leu Thr Cys Ala Ile Ser Gly Asp Ser Val Ser Ser Asn Ser Ala Ala  
20 25 30

Trp Asn Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu Trp Leu Gly  
35 40 45

Arg Thr Tyr Tyr Arg Ser Lys Trp Tyr Asn Ala Tyr Ala Val Ser Val  
50 55 60

Lys Ser Arg Met Thr Ile Asn Pro Asp Thr Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Gln Leu Asn Ser Val Thr Pro Glu Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Arg Glu Ala Gly Gly Trp Phe Asp Pro Trp Gly Gln Gly Thr Leu  
 100 105 110

Val Thr Val Ser Ser  
 115

<210> 333  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<220>  
 <223> H16-9.10 vhCDR1

<400> 333  
 Ser Asn Ser Ala Ala Trp Asn  
 1 5

<210> 334  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<220>  
 <223> H16-9.10 vhCDR2

<400> 334  
 Arg Thr Tyr Tyr Arg Ser Lys Trp Tyr Asn Ala Tyr Ala Val Ser Val  
 1 5 10 15

Lys Ser

<210> 335

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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-9.10 vhCDR3

<400> 335  
Glu Ala Gly Gly Trp Phe Asp Pro  
1 5

<210> 336  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-9.10 Variable light (v1) domain

<400> 336  
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
1 5 10 15

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

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

<210> 337

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-9.10 vLCDR1

<400> 337

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

<210> 338

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-9.10 vLCDR2

<400> 338

Ala Ala Ser Ser Leu Gln Ser  
 1 5

<210> 339

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-9.10 vLCDR3

<400> 339

Gln Gln Ala Asn Ser Phe Pro Pro Thr  
1 5

<210> 340

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-9.33 Variable heavy (vh) domain

<400> 340

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

Thr Leu Ser Leu Thr Cys Ala Ile Ser Gly Asp Ser Val Ser Ser Asn  
20 25 30

Ser Ala Ala Trp Asn Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu  
35 40 45

Trp Leu Gly Arg Thr Tyr Tyr Arg Ser Lys Tyr Tyr Asn Ala Tyr Pro  
50 55 60

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

Gln Phe Ser Leu Gln Leu Asn Ser Val Thr Pro Glu Asp Thr Ala Val  
85 90 95

Tyr Tyr Cys Ala Arg Glu Ala Gly Gly Trp Phe Asp Pro Trp Gly Gln  
100 105 110

Gly Thr Leu Val Thr Val Ser Ser

115

120

<210> 341  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> H16-9.33 vhCDR1

<400> 341  
 Ser Asn Ser Ala Ala Trp Asn  
 1 5

<210> 342  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> H16-9.33 vhCDR2

<400> 342  
 Arg Thr Tyr Tyr Arg Ser Lys Tyr Tyr Asn Ala Tyr Pro Val Ser Val  
 1 5 10 15

Lys Ser

<210> 343  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide



<220>

<223> H16-9.33 vhCDR3

<400> 343

Glu Ala Gly Gly Trp Phe Asp Pro  
1 5

<210> 344

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-9.33 Variable light (v1) domain

<400> 344

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Asn Gln Gly Ile Arg Ser Trp  
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 Ser 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 Phe Ala Thr Tyr Tyr Cys Gln Gln Ala Asn Ser Phe Pro Pro  
85 90 95

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

<210> 345

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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-9.33 vLCDR1

<400> 345  
Arg Ala Asn Gln Gly Ile Arg Ser Trp Leu Ala  
1 5 10

<210> 346  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-9.33 vLCDR2

<400> 346  
Ala Ala Ser Ser Leu Gln Ser  
1 5

<210> 347  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-9.33 vLCDR3

<400> 347  
Gln Gln Ala Asn Ser Phe Pro Pro Thr  
1 5

<210> 348  
<211> 124  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1.68 Variable heavy (vh) domain

<400> 348  
Glu Val His Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Arg Ser Tyr  
20 25 30

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

Ala Val Ile Trp Tyr Asp Gly Ser Asn Lys 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 Met Ala Met Tyr Tyr Cys  
85 90 95

Ala Arg Ser Arg Ile Thr Ile Phe Gly Val Val His Tyr Gly Met Asp  
100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser  
115 120

<210> 349  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1.68 vhCDR1

<400> 349  
Ser Tyr Gly Met His  
1 5

<210> 350  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1.68 vhCDR2

<400> 350  
Val Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys  
1 5 10 15

Gly

<210> 351  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1.68 vhCDR3

<400> 351  
Ser Arg Ile Thr Ile Phe Gly Val Val His Tyr Gly Met Asp Val  
1 5 10 15

<210> 352  
<211> 106  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1.68 Variable light (v1) domain

<400> 352  
Thr Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp  
1 5 10 15

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

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

Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser  
50 55 60

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

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

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

<210> 353  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-1.68 v1CDR1

<400> 353

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

<210> 354

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-1.68 v1CDR2

<400> 354

Ala Ala Ser Ser Leu Gln Ser  
1 5

<210> 355

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-1.68 v1CDR3

<400> 355

Gln Gln Ser Tyr Ser Ser Ala Pro Thr  
1 5

<210> 356

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Ha16-1(1)1 Variable heavy (vh) domain

<400> 356

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

Val Ser Gly Gly Ser Ile Ser Ser Tyr Tyr Trp Ser Trp Ile Arg Gln  
20 25 30

Pro Pro Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile Tyr Tyr Ser Gly  
35 40 45

Ser Thr Asn Tyr Asn Pro Ser Leu Lys Ser Arg Val Thr Ile Ser Val  
50 55 60

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

Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg Ala Val Ser Tyr Tyr Tyr  
85 90 95

Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser  
100 105 110

<210> 357

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(1)1 vHCDR1

<400> 357

Ser Tyr Tyr Trp Ser  
1 5

<210> 358  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(1)1 vhCDR2

<400> 358  
Tyr Ile Tyr Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys Ser  
1 5 10 15

<210> 359  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(1)1 vhCDR3

<400> 359  
Ala Val Ser Tyr Tyr Tyr Tyr Gly Met Asp Val  
1 5 10

<210> 360  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> Ha16-1(1)1 Variable light (vl) domain

<400> 360  
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 Thr Ile Gln Asn Ile Asn Ser Tyr  
20 25 30

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

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

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

<210> 361

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(1)1 v1CDR1

<400> 361

Arg Thr Ile Gln Asn Ile Asn Ser Tyr Leu Asn  
1 5 10

<210> 362

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(1)1 vLCDR2

<400> 362

Ala Thr Ser Ser Leu Gln Ser

1 5

<210> 363

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha16-1(1)1 vLCDR3

<400> 363

Gln Gln Thr Tyr Ser Thr Leu Phe Thr

1 5

<210> 364

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Ha1 6-1 (3,5)18 Variable heavy (vh) domain

<400> 364

Gly Pro Gly Leu Val Lys Pro Ser Glu Thr Leu Ser Leu Thr Cys Thr

1 5 10 15

Val Pro Gly Gly Ser Ile Arg Ser Tyr Phe Trp Ser Trp Ile Arg Gln

20 25 30

Pro Ala Gly Lys Gly Leu Glu Trp Ile Gly Arg Phe Tyr Phe Ser Gly

35 40 45

Ser Thr Asn Tyr Asn Pro Ser Leu Lys Ser Arg Val Thr Met Ser Val  
50 55 60

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

Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg Asp Tyr Gly Asp His Tyr  
85 90 95

Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 365  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Ha1 6-1 (3,5)18 vhCDR1

<400> 365  
Ser Tyr Phe Trp Ser  
1 5

<210> 366  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Ha1 6-1 (3,5)18 vhCDR2

<400> 366

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

<210> 367

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha1 6-1 (3,5)18 vhCDR3

<400> 367

Asp Tyr Gly Asp His Tyr Tyr Tyr Tyr Gly Met Asp Val  
1 5 10

<210> 368

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Ha1 6-1 (3,5)18 Variable light (vl) domain

<400> 368

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

Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn Tyr Val  
20 25 30

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

Asp Asn Asn Lys Arg Ser Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser  
50 55 60

Lys Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly  
65 70 75 80

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

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

<210> 369

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha1 6-1 (3,5)18 v1CDR1

<400> 369

Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn Tyr Val Ser  
1 5 10

<210> 370

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha1 6-1 (3,5)18 v1CDR2

<400> 370

Asp Asn Asn Lys Arg Ser Ser  
1 5

<210> 371

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha1 6-1 (3,5)18 v1CDR3

<400> 371

Gly Thr Trp Asp Ser Ser Leu Ser Ala Val Ile  
1 5 10

<210> 372

<211> 86

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Ha16-1(2,4)4 Variable heavy (vh) domain

<400> 372

Gly Phe Thr Phe Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro  
1 5 10 15

Gly Lys Gly Leu Glu Trp Val Ala Ile Ile Trp Tyr Asp Glu Ser Asn  
20 25 30

Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp  
35 40 45

Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu  
50 55 60

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

Tyr Ser Tyr Tyr Gly Met  
85

<210> 373  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(2,4)4 vHCDR1

<400> 373  
Ser Tyr Gly Met His  
1 5

<210> 374  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(2,4)4 vHCDR2

<400> 374  
Ile Ile Trp Tyr Asp Glu Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys  
1 5 10 15

Gly

<210> 375  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(2,4)4 vHCDR3

<400> 375

Ala Tyr Ser Gly Ser Tyr Gly Tyr Ser Tyr Tyr Gly Met  
1 5 10

<210> 376

<211> 93

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Ha16-1(2,4)4 Variable light (v1) domain

<400> 376

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

Lys Tyr Ala Cys Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Val Leu  
20 25 30

Val Ile Tyr Gln Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe  
35 40 45

Ser Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr  
50 55 60

Gln Ala Met Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Asp Asn Arg  
65 70 75 80

Thr Ala Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
85 90

<210> 377

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic



peptide

<220>

<223> Ha16-1(2,4)4 v1CDR1

<400> 377

Pro Gly Ser Gly Asp Lys Leu Gly Asp Lys Tyr Ala Cys  
1 5 10

<210> 378

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(2,4)4 v1CDR2

<400> 378

Gln Asp Ser Lys Arg Pro Ser  
1 5

<210> 379

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(2,4)4 v1CDR3

<400> 379

Gln Ala Trp Asp Asn Arg Thr Ala Val  
1 5

<210> 380

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Ha16-1(3,5)56 Variable heavy (vh) domain

<400> 380

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

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

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

Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe  
50 55 60

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

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

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

Thr Thr Val Thr Val Ser Ser  
115

<210> 381

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha16-1(3,5)56 vhCDR1

<400> 381  
Ser Tyr Trp Ile Gly  
1 5

<210> 382  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Ha16-1(3,5)56 vhCDR2

<400> 382  
Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe Gln  
1 5 10 15

Gly

<210> 383  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Ha16-1(3,5)56 vhCDR3

<400> 383  
Lys Asp Tyr Tyr Tyr Val Met Asp Val  
1 5 10

<210> 384  
<211> 94  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Ha16-1(3,5)56 Variable light (v1) domain

<400> 384

Asp Thr Ile Ser Cys Thr Gly Thr Ser Ser Asp Val Gly Asn Tyr Asn  
1 5 10 15

Tyr Val Ser Trp Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met  
20 25 30

Ile Tyr Ala Val Asn Asn Arg Pro Ser Gly Val Ser Asn Arg Phe Ser  
35 40 45

Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln  
50 55 60

Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr Ser Ser Arg  
65 70 75 80

Asn Leu Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
85 90

<210> 385

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha16-1(3,5)56 v1CDR1

<400> 385

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

<210> 386

<211> 7

<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(3,5)56 v1CDR2

<400> 386  
Ala Val Asn Asn Arg Pro Ser  
1 5

<210> 387  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(3,5)56 v1CDR3

<400> 387  
Ser Ser Tyr Thr Ser Ser Arg Asn Leu Val Val  
1 5 10

<210> 388  
<211> 123  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-7.8 Variable heavy (vh) domain

<400> 388  
Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln  
1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly

20

25

30

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

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

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

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

Cys Ala Arg Val Ala Ile Val Thr Thr Ile Pro Gly Gly Met Asp Val  
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser  
 115 120

&lt;210&gt; 389

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; H16-7.8 vhCDR1

&lt;400&gt; 389

Ser Gly Gly Tyr Tyr Trp Ser  
 1 5

&lt;210&gt; 390

&lt;211&gt; 16

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-7.8 vhCDR2

<400> 390

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ile | Tyr | Tyr | Ser | Gly | Ser | Thr | Tyr | Tyr | Asn | Pro | Ser | Leu | Lys | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

<210> 391

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-7.8 vhCDR3

<400> 391

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ala | Ile | Val | Thr | Thr | Ile | Pro | Gly | Gly | Met | Asp | Val |
| 1   |     |     | 5   |     |     |     | 10  |     |     |     |     |     |

<210> 392

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> H16-7.8 Variable light (vl) domain

<400> 392

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ile | Val | Leu | Thr | Gln | Ser | Pro | Asp | Phe | Gln | Ser | Val | Thr | Pro | Lys |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Val | Thr | Ile | Thr | Cys | Arg | Ala | Ser | Gln | Ser | Ile | Gly | Ile | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile

35

40

45

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

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

Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Ser Arg Ser Phe Pro Trp  
 85 90 95

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

&lt;210&gt; 393

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; H16-7.8 v1CDR1

&lt;400&gt; 393

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

&lt;210&gt; 394

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; H16-7.8 v1CDR2

&lt;400&gt; 394

Tyr Ala Ser Gln Ser Phe Ser



1 5

<210> 395  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-7.8 vLCDR3

<400> 395  
His Gln Ser Arg Ser Phe Pro Trp Thr  
1 5

<210> 396  
<211> 126  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1.93 Variable heavy (vh) domain

<400> 396  
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
1 5 10 15

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

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

Gly Trp Ile Ser Ala Tyr Asn Gly Asn Thr Tyr Tyr Ala Gln Lys Leu  
50 55 60

Gln Ala Arg Val Thr Met Thr Thr Asp Thr Ser Thr Ser Thr Ala Tyr

|                                                                 |     |     |     |
|-----------------------------------------------------------------|-----|-----|-----|
| 65                                                              | 70  | 75  | 80  |
| Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys |     |     |     |
|                                                                 | 85  | 90  | 95  |
| Ala Arg Asp Gly Tyr Ser Ser Ser Trp Ser Leu Leu His Tyr Tyr Gly |     |     |     |
|                                                                 | 100 | 105 | 110 |
| Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser         |     |     |     |
|                                                                 | 115 | 120 | 125 |

<210> 397  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> H16-1.93 vhCDR1

<400> 397  
 Ser Tyr Gly Ile Ser  
 1 5

<210> 398  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> H16-1.93 vhCDR2

<400> 398  
 Trp Ile Ser Ala Tyr Asn Gly Asn Thr Tyr Tyr Ala Gln Lys Leu Gln  
 1 5 10 15

Ala

<210> 399  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1.93 vhCDR3

<400> 399  
Asp Gly Tyr Ser Ser Ser Trp Ser Leu Leu His Tyr Tyr Gly Met Asp  
1 5 10 15

Val

<210> 400  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1.93 Variable light (vl) domain

<400> 400  
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15

Asp Arg Ile Thr Ile Thr Trp Arg Ser Ser Gln Gly Ile Tyr Asn Ser  
20 25 30

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

Tyr Ala Ala Ser Thr 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 Val Ala Thr Tyr Tyr Cys Gln Lys Tyr Asn Ser Ala Pro Phe  
 85 90 95

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

&lt;210&gt; 401

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;220&gt;

&lt;223&gt; H16-1.93 v1CDR1

&lt;400&gt; 401

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

&lt;210&gt; 402

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;220&gt;

&lt;223&gt; H16-1.93 v1CDR2

&lt;400&gt; 402

Ala Ala Ser Thr Leu His Ser  
 1 5

&lt;210&gt; 403

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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1.93 vLCDR3

<400> 403  
Gln Lys Tyr Asn Ser Ala Pro Phe Thr  
1 5

<210> 404  
<211> 116  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> Ha1 6-1(3,5)27.1 Variable heavy (vh) domain

<400> 404  
Leu Val Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Glu Ser Leu Lys  
1 5 10 15

Ile Ser Cys Lys Gly Ser Gly Tyr Arg Phe Thr Ser Tyr Trp Ile Gly  
20 25 30

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

Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe Gln Gly Gln  
50 55 60

Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr Leu Gln Trp  
65 70 75 80

Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys Ala Arg Lys

85

90

95

Asp Tyr Tyr Tyr Tyr Ser Met Asp Val Trp Gly Gln Gly Thr Thr Val  
 100 105 110

Thr Val Ser Ser  
 115

&lt;210&gt; 405

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; Ha1 6-1(3,5)27.1 vhCDR1

&lt;400&gt; 405

Ser Tyr Trp Ile Gly  
 1 5

&lt;210&gt; 406

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 peptide

&lt;220&gt;

&lt;223&gt; Ha1 6-1(3,5)27.1 vhCDR2

&lt;400&gt; 406

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

Gly

&lt;210&gt; 407

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

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha1 6-1(3,5)27.1 vhCDR3

<400> 407  
Lys Asp Tyr Tyr Tyr Ser Met Asp Val  
1 5 10

<210> 408  
<211> 111  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> Ha1 6-1(3,5)27.1 Variable light (vl) domain

<400> 408  
Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln  
1 5 10 15

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

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

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

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

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr Arg Ser

85

90

95

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

&lt;210&gt; 409

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
peptide

&lt;220&gt;

&lt;223&gt; Ha1 6-1(3,5)27.1 v1CDR1

&lt;400&gt; 409

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

&lt;210&gt; 410

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
peptide

&lt;220&gt;

&lt;223&gt; Ha1 6-1(3,5)27.1 v1CDR2

&lt;400&gt; 410

Gly Val Asn Ile Arg Pro Ser  
1 5

&lt;210&gt; 411

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
peptide



<220>

<223> Ha1 6-1(3,5)27.1 v1CDR3

<400> 411

Ser Ser Tyr Thr Arg Ser Ser Ile Leu Val Val  
1 5 10

<210> 412

<211> 124

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-1.61 Variable heavy (vh) domain

<400> 412

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
20 25 30

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

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

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

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

Ala Arg Ser Arg Ile Thr Ile Phe Gly Val Val His Tyr Gly Met Asp  
100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser

115

120

<210> 413  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> H16-1.61 vhCDR1

<400> 413  
 Ser Tyr Gly Met His  
 1 5

<210> 414  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> H16-1.61 vhCDR2

<400> 414  
 Val Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys  
 1 5 10 15

Gly

<210> 415  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-1.61 vhCDR3

<400> 415

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

<210> 416

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-1.61 Variable light (vl) domain

<400> 416

Asp Thr 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 Arg Ala Ser Gln Ser Ile Ser Ser Tyr  
20 25 30

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

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

Ser Glu 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 Ser Tyr Asn Ser Pro Ile  
85 90 95

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

<210> 417

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

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.61 vLCDR1

<400> 417  
Arg Ala Ser Gln Ser Ile Ser Ser Tyr Leu Asn  
1 5 10

<210> 418  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.61 vLCDR2

<400> 418  
Ala Ala Ser Ser Leu Glu Ser  
1 5

<210> 419  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> H16-1.61 vLCDR3

<400> 419  
Gln Gln Ser Tyr Asn Ser Pro Ile Thr  
1 5

<210> 420  
<211> 119  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1 (3,5)5 Variable heavy (vh) domain

<400> 420  
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu  
1 5 10 15

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

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

Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe  
50 55 60

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

Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys  
85 90 95

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

Thr Thr Val Thr Val Ser Ser  
115

<210> 421  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1 (3,5)5 vhCDR1

<400> 421  
Ser Tyr Trp Ile Gly  
1 5

<210> 422  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1 (3,5)5 vhCDR2

<400> 422  
Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe Gln  
1 5 10 15

Gly

<210> 423  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-1 (3,5)5 vhCDR3

<400> 423  
Lys Asp Tyr Tyr Tyr Tyr Thr Met Asp Val  
1 5 10

<210> 424  
<211> 111  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> H16-1 (3,5)5 Variable light (v1) domain

<400> 424  
Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln  
1 5 10 15

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

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

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

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

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

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

<210> 425  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H16-1 (3,5)5 v1CDR1

<400> 425

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

<210> 426

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-1 (3,5)5 v1CDR2

<400> 426

Ala Val Ser Asn Arg Pro Ser  
1 5

<210> 427

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-1 (3,5)5 v1CDR3

<400> 427

Ser Ser Tyr Thr Ile Ser Arg Ile Leu Val Val  
1 5 10

<210> 428

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide



<220>

<223> H16-7.200 Variable heavy (vh) domain

<400> 428

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

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

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

Trp Phe Gly Phe Ile Tyr Tyr Ser Gly Ser Ala Tyr Tyr Asn Pro Ser  
50 55 60

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

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

Cys Ala Arg Glu Arg Asn Tyr Gly Gly Asn Ser Phe Asp Tyr Trp Gly  
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 429

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-7.200 vhCDR1

<400> 429

Ser Gly Asp Tyr Tyr Trp Ser  
1 5

<210> 430

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-7.200 vhCDR2

<400> 430

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

<210> 431

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-7.200 vhCDR3

<400> 431

Glu Arg Asn Tyr Gly Gly Asn Ser Phe Asp Tyr  
1 5 10

<210> 432

<211> 111

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> H16-7.200 Variable light (vl) domain

<400> 432

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser  
20 25 30

Asn Gly Tyr Asn Tyr Leu Asp Trp Tyr Leu Gln Lys Pro Gly Gln Ser  
35 40 45

Pro Gln Leu Leu Ile Tyr Leu Gly Ser Asn Arg Ala 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 Val Gly Val Tyr Tyr Cys Met Gln Ala  
85 90 95

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

<210> 433

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H16-7.200 v1CDR1

<400> 433

Arg Ser Ser Gln Ser Leu Leu His Ser Asn Gly Tyr Asn Tyr Leu Asp  
1 5 10 15

<210> 434

<211> 7

<212> PRT

<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-7.200 v1CDR2

<400> 434  
Leu Gly Ser Asn Arg Ala Ser  
1 5

<210> 435  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> H16-7.200 v1CDR3

<400> 435  
Met Gln Ala Leu Gln Thr Ile Thr  
1 5

<210> 436  
<211> 119  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> Ha16-1(3,5)42 Variable heavy (vh) domain

<400> 436  
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu  
1 5 10 15

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

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

Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe  
50 55 60

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

Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys  
85 90 95

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

Thr Thr Val Thr Val Ser Ser  
115

<210> 437

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(3,5)42 vhCDR1

<400> 437

Ser Tyr Trp Ile Gly  
1 5

<210> 438

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(3,5)42 vhCDR2

<400> 438

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

Gly

<210> 439

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(3,5)42 vhCDR3

<400> 439

Lys Asp Tyr Tyr Tyr Ser Met Asp Val  
1 5 10

<210> 440

<211> 111

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Ha16-1(3,5)42 Variable light (vl) domain

<400> 440

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

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

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

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

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

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

Ser Thr Leu Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 441

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(3,5)42 v1CDR1

<400> 441

Thr Gly Thr Ser Ser Asp Val Gly Arg Phe Asn Tyr Val Ser  
1 5 10

<210> 442

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1(3,5)42 v1CDR2

<400> 442  
Ala Val Asn Ile Arg Pro Ser  
1 5

<210> 443  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> Ha16-1(3,5)42 v1CDR3

<400> 443  
Ser Ser Tyr Thr Ser Ser Ser Thr Leu Leu Val  
1 5 10

<210> 444  
<211> 120  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>  
<223> H1 6-9.65 Variable heavy (vh) domain

<400> 444  
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
20 25 30

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

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



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

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

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

Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 445

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H1 6-9.65 vhCDR1

<400> 445

Ser Tyr Gly Met His  
1 5

<210> 446

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H1 6-9.65 vhCDR2

<400> 446

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

Gly

<210> 447

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H1 6-9.65 vhCDR3

<400> 447

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ser | Ser | Gly | Ser | Tyr | Asp | His | Phe | Asp | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 448

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> H1 6-9.65 Variable light (vl) domain

<400> 448

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Pro | Ala | Ser | Ile | Ser | Cys | Arg | Ser | Ser | Gln | Ser | Leu | Leu | His | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Gly | Tyr | Asn | Cys | Leu | Asp | Trp | Tyr | Leu | Gln | Lys | Pro | Gly | Gln | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Gln | Leu | Leu | Ile | Tyr | Leu | Gly | Ser | Asn | Arg | Ala | 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 Val Gly Val Tyr Tyr Cys Met Gln Ala  
85 90 95

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

<210> 449

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H1 6-9.65 v1CDR1

<400> 449

Arg Ser Ser Gln Ser Leu Leu His Ser Asn Gly Tyr Asn Cys Leu Asp  
1 5 10 15

<210> 450

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> H1 6-9.65 v1CDR2

<400> 450

Leu Gly Ser Asn Arg Ala Ser  
1 5

<210> 451

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> H1 6-9.65 vLCDR3

<400> 451

Met Gln Ala Leu Gln Thr Pro Ile Thr  
1 5

<210> 452

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Ha16-1(3,5)19 Variable heavy (vh) domain

<400> 452

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

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

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

Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe  
50 55 60

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

Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys  
85 90 95

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

Thr Thr Val Thr Val Ser Ser  
115

<210> 453  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(3,5)19 vhCDR1

<400> 453  
Ser Tyr Trp Ile Gly  
1 5

<210> 454  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1(3,5)19 vhCDR2

<400> 454  
Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe Gln  
1 5 10 15

Gly

<210> 455  
<211> 10  
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> Ha16-1(3,5)19 vhCDR3

<400> 455

Lys Asp Tyr Tyr Tyr Ala Met Asp Val  
1 5 10

<210> 456

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> Ha16-1(3,5)19 Variable light (vl) domain

<400> 456

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

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

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

Ile Tyr Gly Ile Ser Ile Arg Pro Ser Gly Val Ser Pro Arg Phe Ser  
50 55 60

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

Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser His Thr Ser Asn Ser  
85 90 95

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Val | Val | Phe | Ala | Gly | Gly | Thr | Lys | Leu | Thr | Val | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |

<210> 457  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> Ha16-1(3,5)19 v1CDR1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Gly | Thr | Ser | Ser | Asp | Val | Gly | Arg | Tyr | Asn | Tyr | Val | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     |

<210> 458  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> Ha16-1(3,5)19 v1CDR2

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ile | Ser | Ile | Arg | Pro | Ser |
| 1   |     |     | 5   |     |     |     |

<210> 459  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <223> Ha16-1(3,5)19 v1CDR3

<400> 459

Ser Ser His Thr Ser Asn Ser Thr Leu Val Val  
1 5 10

<210> 460

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> Ha16-1.80 Variable heavy (vh) domain

<400> 460

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

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

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

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

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

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

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

Gly Thr Thr Val Thr Val Ser Ser  
115 120



<210> 461  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1.80 vhCDR1

<400> 461  
Ser Tyr Tyr Trp Ser  
1 5

<210> 462  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1.80 vhCDR2

<400> 462  
Tyr Val Tyr Phe Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys Ser  
1 5 10 15

<210> 463  
<211> 12  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic peptide

<220>  
<223> Ha16-1.80 vhCDR3

<400> 463  
Ala Thr Arg Asp Tyr Tyr Tyr Tyr Gly Met Asp Val  
1 5 10

<210> 464  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> Ha16-1.80 Variable light (vl) domain

<400> 464  
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 Thr Ser His Asp Ile Ser Asn Tyr  
20 25 30

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

Tyr Ala Ala Ser Ser Leu Gln 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 Thr Tyr Ser Thr Leu Phe  
85 90 95

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

<210> 465  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

peptide

<220>

<223> Ha16-1.80 v1CDR1

<400> 465

Arg Thr Ser His Asp Ile Ser Asn Tyr Leu Asn  
1 5 10

<210> 466

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1.80 v1CDR2

<400> 466

Ala Ala Ser Ser Leu Gln Ser  
1 5

<210> 467

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<220>

<223> Ha16-1.80 v1CDR3

<400> 467

Gln Gln Thr Tyr Ser Thr Leu Phe Thr  
1 5

<210> 468

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP13245 Chain 1 - Numax\_IgG1\_C220S/S364K/E357Q

<400> 468

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

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ala  
20 25 30

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

Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys His Tyr Asn Pro Ser  
50 55 60

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

Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp Thr Ala Thr Tyr Tyr  
85 90 95

Cys Ala Arg Asp Met Ile Phe Asn Phe Tyr Phe Asp Val Trp Gly Gln  
100 105 110

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

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

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

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

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

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

Pro Ser Asp Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp  
210 215 220

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro  
225 230 235 240

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser  
245 250 255

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu Asp  
260 265 270

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

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu  
305 310 315 320

Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys  
325 330 335

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

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr  
355 360 365

Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu

370

375

380

Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu  
 385 390 395 400

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys  
 405 410 415

Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His Glu  
 420 425 430

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly  
 435 440 445

Lys

&lt;210&gt; 469

&lt;211&gt; 485

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

<223> XENP13245 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_  
 Fc(216)\_IgG1\_PVA\_/S267K\_pI(-)\_Isosteric\_A\_L368D/K370S

&lt;400&gt; 469

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 Thr Tyr  
 20 25 30

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

Gly Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp

50

55

60

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser



450

455

460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
 465 470 475 480

Leu Ser Pro Gly Lys  
 485

&lt;210&gt; 470

&lt;211&gt; 213

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

&lt;223&gt; XENP13245 Chain 3 - Numax Light

&lt;400&gt; 470

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

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

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu 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 Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp  
 65 70 75 80

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

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro  
 100 105 110

Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr  
115 120 125

Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys  
130 135 140

Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu  
145 150 155 160

Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser  
165 170 175

Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala  
180 185 190

Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe  
195 200 205

Asn Arg Gly Glu Cys  
210

<210> 471

<211> 455

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP24804 Chain 1 - H16-1.93[ENPP3]\_H1\_IgG1\_pI(-)\_Isosteric\_A/  
PVA\_/S267K/L368D/K370S

<400> 471

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

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

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

Gly Trp Ile Ser Ala Tyr Asn Gly Asn Thr Tyr Tyr Ala Gln Lys Leu  
50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Ser Trp Ser Leu Leu His Tyr Tyr Gly  
100 105 110

Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser  
115 120 125

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

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

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

His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser  
180 185 190

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

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

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

Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
 245 250 255

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

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

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

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
 305 310 315 320

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
 325 330 335

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
 340 345 350

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys  
 355 360 365

Asn Gln Val Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp  
 370 375 380

Ile Ala Val Glu Trp Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys  
 385 390 395 400

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
 405 410 415

Lys Leu Thr Val Asp Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser  
 420 425 430

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser  
435 440 445

Leu Ser Leu Ser Pro Gly Lys  
450 455

<210> 472  
<211> 485  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP24804 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 472  
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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 473

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP24804 Chain 3 - H16-1.93[ENPP3]\_L1

<400> 473

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

Asp Arg Ile Thr Ile Thr Trp Arg Ser Ser Gln Gly Ile Tyr Asn Ser  
20 25 30

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

Tyr Ala Ala Ser Thr 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 Val Ala Thr Tyr Tyr Cys Gln Lys Tyr Asn Ser Ala Pro Phe  
85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp 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> 474

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP26820 Chain 1 - H16-7.8[ENPP3]\_H1\_IgG1\_pI(-)\_Isosteric\_A\_/PVA\_/S267K/L368D/K370S

<400> 474

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

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

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

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

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

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

Cys Ala Arg Val Ala Ile Val Thr Thr Ile Pro Gly Gly Met Asp Val  
100 105 110

Trp Gly Gln Gly Thr Thr 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 Asp Thr Lys Val Asp Lys Lys Val Glu Pro Lys  
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val  
225 230 235 240

Ala 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 Lys  
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 Glu 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 Glu Glu Met Thr Lys Asn Gln Val  
 355 360 365

Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val  
 370 375 380

Glu Trp Glu Ser Asp 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 Glu Gln Gly Asp 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  
 450

&lt;210&gt; 475

&lt;211&gt; 485

&lt;212&gt; PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP26820 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 475

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala

355

360

365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
 385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
 420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
 435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
 450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
 465 470 475 480

Leu Ser Pro Gly Lys  
 485

<210> 476

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

<220>

<223> XENP26820 Chain 3 - H16-7.8[ENPP3]\_L1

<400> 476

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

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

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Ser Arg Ser Phe Pro Trp  
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> 477

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28287 Chain 1 - AN1[alphaENPP3]\_H1\_IgG1\_pI(-)\_Isosteric\_A\_  
PVA\_/S267K/L368D/K370S

<400> 477

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Ala Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 478

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28287 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 478

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
 210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
 225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
 245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
 260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
 305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
 325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
 340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
 355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
 385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 479  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP28287 Chain 3 - AN1[alphaENPP3]\_L1

<400> 479  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 480

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28925 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/\_PVA\_/S267K/L368D/K370S

<400> 480

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly |     |     |
| 225                                                             | 230 | 235 |
| Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile |     |     |
| 245                                                             | 250 | 255 |
| Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu |     |     |
| 260                                                             | 265 | 270 |
| Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His |     |     |
| 275                                                             | 280 | 285 |
| Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg |     |     |
| 290                                                             | 295 | 300 |
| Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys |     |     |
| 305                                                             | 310 | 315 |
| Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu |     |     |
| 325                                                             | 330 | 335 |
| Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr |     |     |
| 340                                                             | 345 | 350 |
| Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu |     |     |
| 355                                                             | 360 | 365 |
| Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp |     |     |
| 370                                                             | 375 | 380 |



Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
 405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
 435 440 445

Gly Lys  
 450

<210> 481

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP28925 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
 \_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 481

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 Thr Tyr  
 20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro

260

265

270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
 305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
 325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
 340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
 355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
 385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
 420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
 435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
 450 455 460

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Met | His | Glu | Ala | Leu | His | Asn | His | Tyr | Thr | Gln | Lys | Ser | Leu | Ser |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| Leu | Ser | Pro | Gly | Lys |
|     |     |     |     | 485 |

<210> 482  
 <211> 214  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> XENP28925 Chain 3 - AN1[alphaENPP3]\_L1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ile | Leu | Leu | Thr | Gln | Ser | Pro | Asp | Phe | Gln | Ser | Val | Thr | Pro | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Val | Thr | Ile | Thr | Cys | Arg | Ala | Ser | Gln | Ser | Ile | Gly | Thr | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | His | Trp | Tyr | Gln | Gln | Lys | Pro | Asp | Gln | Ser | Pro | Lys | 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 | Thr | Ile | Asn | Ser | Leu | Glu | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Asp | Ala | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Ser | Asn | Ser | Trp | Pro | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Phe | Gly | Gly | Gly | Thr | Lys | Leu | 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> 483

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP29516 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 483

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 484  
<211> 485  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP29516 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 484  
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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110



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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
 130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
 165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
 180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
 195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
 210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
 225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
 245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
 260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
 305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 485

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP29516 Chain 3 - AN1[alphaENPP3]\_L1.33

<400> 485

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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

&lt;210&gt; 486

&lt;211&gt; 450

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

<223> XENP30262 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

&lt;400&gt; 486

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 Ala Phe Ser Asn Tyr  
 20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 487

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP30262 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 487

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr

165

170

175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
 180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
 195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
 210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
 225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
 245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
 260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
 305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
 325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
 340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
 355 360 365



Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 488

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP30262 Chain 3 - AN1[alphaENPP3]\_L1.77

<400> 488

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 489

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP26821 Chain 1 - H16-7.8[ENPP3]\_H1\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 489

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

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

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

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

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

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

Cys Ala Arg Val Ala Ile Val Thr Thr Ile Pro Gly Gly Met Asp Val  
100 105 110

Trp Gly Gln Gly Thr Thr 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 Asp Thr Lys Val Asp Lys Lys Val Glu Pro Lys  
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val  
 225 230 235 240

Ala 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 Lys  
 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 Glu 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 Glu Glu Met Thr Lys Asn Gln Val  
355 360 365

Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val  
370 375 380

Glu Trp Glu Ser Asp 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 Glu Gln Gly Asp 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  
450

<210> 490

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP26821 Chain 2 - [alphaCD3]\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 490

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
 225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
 245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
 260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
 305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
 325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
 340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
 355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
 385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 491  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>  
<223> XENP26821 Chain 3 - H16-7.8[ENPP3]\_L1

<400> 491  
Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Glu Ala



|                                                                 |     |    |  |     |  |     |
|-----------------------------------------------------------------|-----|----|--|-----|--|-----|
| 65                                                              |     | 70 |  | 75  |  | 80  |
| Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Ser Arg Ser Phe Pro Trp |     |    |  |     |  |     |
|                                                                 | 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 |
| 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> 492  
 <211> 450  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide  
  
 <220>  
 <223> XENP29436 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A

\_/PVA\_/S267K/L368D/K370S

<400> 492

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val

385                                      390                                      395                                      400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
                                     405                                      410                                      415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
                                     420                                      425                                      430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
                                     435                                      440                                      445

Gly Lys  
                                     450

<210> 493

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP29436 Chain 2 - [alphaCD3]\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)  
                                     \_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 493

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 Thr Tyr  
                                     20                                      25                                      30

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

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

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr

|                                                                 |  |     |  |     |  |     |
|-----------------------------------------------------------------|--|-----|--|-----|--|-----|
| 65                                                              |  | 70  |  | 75  |  | 80  |
| Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr |  |     |  |     |  |     |
|                                                                 |  | 85  |  | 90  |  | 95  |
| Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe |  |     |  |     |  |     |
|                                                                 |  | 100 |  | 105 |  | 110 |
| Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Lys Pro |  |     |  |     |  |     |
|                                                                 |  | 115 |  | 120 |  | 125 |
| Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly |  |     |  |     |  |     |
|                                                                 |  | 130 |  | 135 |  | 140 |
| Ser Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly |  |     |  |     |  |     |
|                                                                 |  | 145 |  | 150 |  | 155 |
| Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr |  |     |  |     |  |     |
|                                                                 |  | 165 |  | 170 |  | 175 |
| Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg |  |     |  |     |  |     |
|                                                                 |  | 180 |  | 185 |  | 190 |
| Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg |  |     |  |     |  |     |
|                                                                 |  | 195 |  | 200 |  | 205 |
| Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly |  |     |  |     |  |     |
|                                                                 |  | 210 |  | 215 |  | 220 |
| Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser |  |     |  |     |  |     |
|                                                                 |  | 225 |  | 230 |  | 235 |
| Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro |  |     |  |     |  |     |
|                                                                 |  | 245 |  | 250 |  | 255 |
| Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro |  |     |  |     |  |     |
|                                                                 |  | 260 |  | 265 |  | 270 |

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser

465                                      470                                      475                                      480

Leu Ser Pro Gly Lys  
485

<210> 494  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP29436 Chain 3 - AN1[alphaENPP3]\_L1

<400> 494  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1                                      5                                      10                                      15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65                                      70                                      75                                      80

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 495

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP28390 Chain 1 - AN1[alphaENPP3]\_H1\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 495

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 Ala Phe Ser Asn Tyr  
20 25 30

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



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

Ala Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 496

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28390 Chain 2 - [alphaCD3]\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 496

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 497

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP28390 Chain 3 - AN1[alphaENPP3]\_L1

<400> 497

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ile | Leu | Leu | Thr | Gln | Ser | Pro | Asp | Phe | Gln | Ser | Val | Thr | Pro | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Val | Thr | Ile | Thr | Cys | Arg | Ala | Ser | Gln | Ser | Ile | Gly | Thr | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | His | Trp | Tyr | Gln | Gln | Lys | Pro | Asp | Gln | Ser | Pro | Lys | 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 | Thr | Ile | Asn | Ser | Leu | Glu | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Asp | Ala | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Ser | Asn | Ser | Trp | Pro | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Phe | Gly | Gly | Gly | Thr | Lys | Leu | 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> 498

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP29463 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 498

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

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

Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg



290

295

300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
 405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
 435 440 445

Gly Lys  
 450

&lt;210&gt; 499

&lt;211&gt; 485

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic

polypeptide

<220>

<223> XENP29463 Chain 2 - [alphaCD3]\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 499

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 Thr Tyr  
20 25 30

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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro

370

375

380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
 385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
 420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
 435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
 450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
 465 470 475 480

Leu Ser Pro Gly Lys  
 485

&lt;210&gt; 500

&lt;211&gt; 214

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

&lt;223&gt; XENP29463 Chain 3 - AN1[alphaENPP3]\_L1.33

&lt;400&gt; 500

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 501  
<211> 450  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP30263 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 501  
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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 502

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP30263 Chain 2 - [alphaCD3]\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 502

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 Thr Tyr  
20 25 30



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

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

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

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

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

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

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
 225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
 245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
 260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
 305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
 325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
 340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
 355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
 385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
 420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 503

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP30263 Chain 3 - AN1[alphaENPP3]\_L1.77

<400> 503

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 504

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP29437 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 504

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 505

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP29437 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

<400> 505

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu  
225 230 235 240

Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
245 250 255

Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg  
260 265 270



Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser Lys  
275 280 285

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

Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
305 310 315 320

Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly  
325 330 335

Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly  
340 345 350

Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
355 360 365

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val Thr  
370 375 380

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

Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp  
405 410 415

Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr  
420 425 430

Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu  
435 440 445

Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu  
450 455 460

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly  
465 470 475 480

Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 506

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP29437 Chain 3 - AN1[alphaENPP3]\_L1

<400> 506

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr

85

90

95

Thr Phe Gly Gly Gly Thr Lys Leu 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> 507

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

<220>

<223> XENP29520 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

<400> 507

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 Ala Phe | Ser Asn Tyr |
|             | 20                              | 25                  | 30          |
| Gly Met Ser | Trp Val Arg Gln Ala Pro         | Gly Gln Arg Leu Glu | Trp Val     |
|             | 35                              | 40                  | 45          |
| Ser Tyr Ile | Ser Ser Gly Gly Gly Thr Thr     | Tyr Tyr Leu Asp     | Ser Val     |
|             | 50                              | 55                  | 60          |
| Thr 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 Arg His | Arg Arg Val Tyr Tyr Gly Tyr Tyr | Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

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

405

410

415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
 435 440 445

Gly Lys  
 450

&lt;210&gt; 508

&lt;211&gt; 723

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

<223> XENP29520 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
 \_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
 E357Q

&lt;400&gt; 508

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 Ala Phe Ser Asn Tyr  
 20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu  
225 230 235 240

Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
245 250 255

Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg  
260 265 270

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser Lys  
275 280 285



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

Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
305 310 315 320

Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly  
325 330 335

Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly  
340 345 350

Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
355 360 365

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val Thr  
370 375 380

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

Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp  
405 410 415

Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr  
420 425 430

Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu  
435 440 445

Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu  
450 455 460

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly  
465 470 475 480

Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 509

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP29520 Chain 3 - AN1[alphaENPP3]\_L1.33

<400> 509

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 510

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP30264 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 510

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
 405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 511

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP30264 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

<400> 511

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu  
225 230 235 240

Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
245 250 255

Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg  
260 265 270

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser Lys  
275 280 285



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

Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
305 310 315 320

Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly  
325 330 335

Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly  
340 345 350

Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
355 360 365

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val Thr  
370 375 380

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

Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp  
405 410 415

Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr  
420 425 430

Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu  
435 440 445

Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu  
450 455 460

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly  
465 470 475 480

Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 512  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP30264 Chain 3 - AN1[alphaENPP3]\_L1.77

<400> 512  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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 |
| 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> 513  
 <211> 452  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> XENP26822 Chain 1 - H16-7.8[ENPP3]\_H1\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

|                                                                 |
|-----------------------------------------------------------------|
| <400> 513                                                       |
| Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln |
| 1 5 10 15                                                       |

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly

| 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Tyr | Tyr | Trp | Ser | Trp | Ile | Arg | Gln | His | Pro | Gly | Lys | Gly | Leu | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Trp | Ile | Gly | Ile | Ile | Tyr | Tyr | Ser | Gly | Ser | Thr | Tyr | Tyr | Asn | Pro | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Lys | Ser | Arg | Val | Thr | Ile | Ser | Val | Asp | Thr | Ser | Lys | Asn | Gln | Phe |
| 65  |     |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |
| Ser | Leu | Lys | Leu | Asn | Ser | Val | Thr | Ala | Ala | Asp | Thr | Ala | Val | Phe | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Cys | Ala | Arg | Val | Ala | Ile | Val | Thr | Thr | Ile | Pro | Gly | Gly | Met | Asp | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Trp | Gly | Gln | Gly | Thr | Thr | 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 | Asp | Thr | Lys | Val | Asp | Lys | Lys | Val | Glu | Pro | Lys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val  
 225 230 235 240

Ala 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 Lys  
 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 Glu 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 Glu Glu Met Thr Lys Asn Gln Val  
 355 360 365

Ser Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val  
 370 375 380

Glu Trp Glu Ser Asp 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 Glu Gln Gly Asp 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  
 450

&lt;210&gt; 514

&lt;211&gt; 725

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

<223> XENP26822 Chain 2 - H16-7.8[ENPP3]\_H1\_CH1\_(G4S)2\_[alphaCD3]  
 \_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
 E357Q

&lt;400&gt; 514

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

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

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

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

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

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

Cys Ala Arg Val Ala Ile Val Thr Thr Ile Pro Gly Gly Met Asp Val  
100 105 110

Trp Gly Gln Gly Thr Thr 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 Lys Val Glu Pro Lys  
210 215 220

Ser Cys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu  
225 230 235 240

Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu  
245 250 255

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

Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg  
275 280 285

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



Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln  
305 310 315 320

Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg  
325 330 335

His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly  
340 345 350

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys  
355 360 365

Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val  
370 375 380

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

Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala  
405 410 415

Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly  
420 425 430

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

Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu  
450 455 460

Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val  
465 470 475 480

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly  
485 490 495

Gly Gly Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
500 505 510

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
515 520 525

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
530 535 540

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
545 550 555 560

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
565 570 575

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
580 585 590

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
595 600 605

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
610 615 620

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
625 630 635 640

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
645 650 655

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
660 665 670

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
675 680 685

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
690 695 700

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
705 710 715 720

Leu Ser Pro Gly Lys  
725

<210> 515  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP26822 Chain 3 - H16-7.8[ENPP3]\_L1

<400> 515  
Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Leu His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Ser Arg Ser Phe Pro Trp  
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> 516

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28438 Chain 1 - AN1[alphaENPP3]\_H1\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 516

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Ala Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     | 230 |     | 235 |     | 240 |     |     |     |     |     |     |     |     |     |
| Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | Pro | Lys | Asp | Thr | Leu | Met | Ile |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Ser | Arg | Thr | Pro | Glu | Val | Thr | Cys | Val | Val | Val | Asp | Val | Lys | His | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Asp | Pro | Glu | Val | Lys | Phe | Asn | Trp | Tyr | Val | Asp | Gly | Val | Glu | Val | His |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asn | Ala | Lys | Thr | Lys | Pro | Arg | Glu | Glu | Glu | Tyr | Asn | Ser | Thr | Tyr | Arg |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Val | Val | Ser | Val | Leu | Thr | Val | Leu | His | Gln | Asp | Trp | Leu | Asn | Gly | Lys |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     |     | 320 |
| Glu | Tyr | Lys | Cys | Lys | Val | Ser | Asn | Lys | Ala | Leu | Pro | Ala | Pro | Ile | Glu |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Lys | Thr | Ile | Ser | Lys | Ala | Lys | Gly | Gln | Pro | Arg | Glu | Pro | Gln | Val | Tyr |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Thr | Leu | Pro | Pro | Ser | Arg | Glu | Glu | Met | Thr | Lys | Asn | Gln | Val | Ser | Leu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Thr | Cys | Asp | Val | Ser | Gly | Phe | Tyr | Pro | Ser | Asp | Ile | Ala | Val | Glu | Trp |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Ser | Asp | Gly | Gln | Pro | Glu | Asn | Asn | Tyr | Lys | Thr | Thr | Pro | Pro | Val |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Leu | Asp | Ser | Asp | Gly | Ser | Phe | Phe | Leu | Tyr | Ser | Lys | Leu | Thr | Val | Asp |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Lys | Ser | Arg | Trp | Glu | Gln | Gly | Asp | Val | Phe | Ser | Cys | Ser | Val | Met | His |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 517  
<211> 723  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP28438 Chain 2 - AN1[alphaENPP3]\_H1\_CH1\_(G4S)2\_[alphaCD3]\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 517  
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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Ala Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu  
225 230 235 240

Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
245 250 255

Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg  
260 265 270

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser Lys  
275 280 285

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



Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
305 310 315 320

Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly  
325 330 335

Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly  
340 345 350

Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
355 360 365

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val Thr  
370 375 380

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

Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp  
405 410 415

Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr  
420 425 430

Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu  
435 440 445

Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu  
450 455 460

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly  
465 470 475 480

Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 518  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP28438 Chain 3 - AN1[alphaENPP3]\_L1

<400> 518  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu 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 |
| 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> 519  
 <211> 450  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> XENP29438 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

<400> 519  
 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 Ala Phe Ser Asn Tyr  
 20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val

35

40

45

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro

435

440

445

Gly Lys  
450

&lt;210&gt; 520

&lt;211&gt; 723

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
polypeptide

&lt;220&gt;

<223> XENP29438 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

&lt;400&gt; 520

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu  
225 230 235 240

Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
245 250 255

Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg  
260 265 270

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser Lys  
275 280 285

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

Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
305 310 315 320



Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly  
325 330 335

Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly  
340 345 350

Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
355 360 365

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val Thr  
370 375 380

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

Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp  
405 410 415

Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr  
420 425 430

Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu  
435 440 445

Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu  
450 455 460

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly  
465 470 475 480

Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 521

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP29438 Chain 3 - AN1[alphaENPP3]\_L1

<400> 521

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 522

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP29467 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

<400> 522

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 Ala Phe Ser Asn Tyr  
 20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

245

250

255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
 405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
 435 440 445

Gly Lys  
450

<210> 523

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP29467 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
\_H1.32\_L1.47\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

<400> 523

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu  
225 230 235 240

Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
245 250 255

Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg  
260 265 270

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser Lys  
275 280 285

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

Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
305 310 315 320



Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly  
325 330 335

Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly  
340 345 350

Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
355 360 365

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val Thr  
370 375 380

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

Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp  
405 410 415

Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr  
420 425 430

Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu  
435 440 445

Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu  
450 455 460

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly  
465 470 475 480

Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 524

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP29467 Chain 3 - AN1[alphaENPP3]\_L1.33

<400> 524

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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

&lt;210&gt; 525

&lt;211&gt; 450

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

<223> XENP30469 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

&lt;400&gt; 525

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 Ala Phe Ser Asn Tyr  
 20 25 30

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

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val

50

55

60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys

450

<210> 526

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP30469 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]\_L1.47\_H1.30\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 526

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
 225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
 245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
 260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
 275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
 290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
 305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
 325 330 335



Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
405 410 415

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
450 455 460

Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 527  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP30469 Chain 3 - AN1[alphaENPP3]\_L1

<400> 527  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 528

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP30470 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 528

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu

260

265

270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
 405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
 435 440 445

Gly Lys  
 450

<210> 529  
<211> 723  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP30470 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]\_L1.47\_H1.32\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 529  
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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335



Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
405 410 415

Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
450 455 460

Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 530  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP30470 Chain 3 - AN1[alphaENPP3]\_L1

<400> 530  
Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu 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



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     | 70  |     | 75  |     | 80  |     |     |     |     |     |     |     |     |     |
| Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr | Tyr | Cys |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ala | Arg | His | Arg | Arg | Val | Tyr | Tyr | Gly | Tyr | Tyr | Phe | 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 | Asp | 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 | Pro | Val | Ala | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | Pro | Lys | Asp | Thr | Leu | Met | Ile |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ser | Arg | Thr | Pro | Glu | Val | Thr | Cys | Val | Val | Val | Asp | Val | Lys | His | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 532

<211> 723  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP30819 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]\_L1.47\_H1.32\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 532  
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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
 225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
 245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
 260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
 275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
 290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
 305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
 325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
 340 345 350



Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
405 410 415

Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
450 455 460

Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 533

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP30819 Chain 3 - AN1[alphaENPP3]\_L1.33

<400> 533

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 534

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP30821 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 534

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His

275

280

285

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
 405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
 435 440 445

Gly Lys  
 450

&lt;210&gt; 535

&lt;211&gt; 723

&lt;212&gt; PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP30821 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]\_L1.47\_H1.32\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 535

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 Ala Phe Ser Asn Tyr  
20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350



Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
405 410 415

Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
450 455 460

Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 536

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP30821 Chain 3 - AN1[alphaENPP3]\_L1.77

<400> 536

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

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

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

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

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

Thr Phe Gly Gly Gly Thr Lys Leu 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> 537

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP31148 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

<400> 537

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 Ala Phe Ser Asn Tyr  
 20 25 30

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

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

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

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

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

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

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

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 538

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP31148 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]\_L1.47\_H1.89\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 538

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 Ala Phe Ser Asn Tyr  
20 25 30

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

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365



Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
 370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
 385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
 405 410 415

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
 420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
 435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
 450 455 460

Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
 465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
 485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
 500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
 515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
 530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
 545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 539

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP31148 Chain 3 - AN1[alphaENPP3]\_L1

<400> 539

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ile | Leu | Leu | Thr | Gln | Ser | Pro | Asp | Phe | Gln | Ser | Val | Thr | Pro | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Lys | Val | Thr | Ile | Thr | Cys | Arg | Ala | Ser | Gln | Ser | Ile | Gly | Thr | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | His | Trp | Tyr | Gln | Gln | Lys | Pro | Asp | Gln | Ser | Pro | Lys | 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 | Thr | Ile | Asn | Ser | Leu | Glu | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Asp | Ala | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Ser | Asn | Ser | Trp | Pro | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Phe | Gly | Gly | Gly | Thr | Lys | Leu | 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> 540

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31149 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 540

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His  
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg

290

295

300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr  
 340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
 355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
 370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
 405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
 435 440 445

Gly Lys  
 450

&lt;210&gt; 541

&lt;211&gt; 723

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic

# polypeptide

<220>

<223> XENP31149 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]\_L1.47\_H1.89\_scFv(GKPGS)4\_Fc(222)\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 541

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365



Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
 370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
 385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
 405 410 415

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
 420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
 435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
 450 455 460

Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
 465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
 485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
 500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
 515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
 530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
 545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
 565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 542

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31149 Chain 3 - AN1[alphaENPP3]\_L1.33

<400> 542

Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Ser  
20 25 30

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

Glu 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu 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> 543  
<211> 450  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP31150 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/\_PVA\_/S267K/L368D/K370S

|                                                                 |
|-----------------------------------------------------------------|
| <400> 543                                                       |
| 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 Ala Phe Ser Asn Tyr |
| 20 25 30                                                        |

|                                                                 |
|-----------------------------------------------------------------|
| Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val |
| 35 40 45                                                        |

|                                                                 |
|-----------------------------------------------------------------|
| Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val |
| 50 55 60                                                        |

|                                                                 |
|-----------------------------------------------------------------|
| Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 |
| 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 Asp 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 Pro Val Ala Gly |     |     |
| 225                                                             | 230 | 235 |
| Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile |     |     |
| 245                                                             | 250 | 255 |
| Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu |     |     |
| 260                                                             | 265 | 270 |
| Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His |     |     |
| 275                                                             | 280 | 285 |
| Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg |     |     |
| 290                                                             | 295 | 300 |

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr  
340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 544

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31150 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
\_L1.47\_H1.89\_scFv(GKPGS)4\_Fc(222)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

<400> 544

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380



Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
405 410 415

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
450 455 460

Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 545

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31150 Chain 3 - AN1[alphaENPP3]\_L1.77

<400> 545

Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Ser  
20 25 30

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

Glu Tyr Glu 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu 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> 546  
 <211> 450  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> XENP31419 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
 \_/PVA\_/S267K/L368D/K370S

<400> 546  
 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 Ala Phe Ser Asn Tyr  
 20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
 35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
 50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His  
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg  
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys



\_L1.47\_H1.89\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

<400> 547

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380



Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
 385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
 405 410 415

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
 420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
 435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
 450 455 460

Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
 465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Glu Pro Lys Ser Ser Asp Lys Thr  
 485 490 495

His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val  
 500 505 510

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr  
 515 520 525

Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu Asp Pro Glu  
 530 535 540

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys  
 545 550 555 560

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser  
 565 570 575

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys  
 580 585 590

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile  
595 600 605

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro  
610 615 620

Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys Leu Thr Cys Leu  
625 630 635 640

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn  
645 650 655

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser  
660 665 670

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg  
675 680 685

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu  
690 695 700

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
705 710 715

<210> 548

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31419 Chain 3 - AN1[alphaENPP3]\_L1.33

<400> 548

Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Ser  
20 25 30

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

Glu 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu 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> 549

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP31471 Chain 1 - AN1[alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 549

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His  
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg  
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr  
340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 550

<211> 719

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31471 Chain 2 - AN1[alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
\_L1.47\_H1.89\_scFv(GKPGS)4\_Fc(216)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

<400> 550

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
405 410 415



Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met  
435 440 445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
450 455 460

Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Glu Pro Lys Ser Ser Asp Lys Thr  
485 490 495

His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val  
500 505 510

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr  
515 520 525

Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu Asp Pro Glu  
530 535 540

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys  
545 550 555 560

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser  
565 570 575

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys  
580 585 590

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile  
595 600 605

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro  
610 615 620

Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys Leu Thr Cys Leu  
625 630 635 640

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn  
645 650 655

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser  
660 665 670

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg  
675 680 685

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu  
690 695 700

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
705 710 715

<210> 551

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31471 Chain 3 - AN1[alphaENPP3]\_L1.77

<400> 551

Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Ser  
20 25 30

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile

35

40

45

Glu Tyr Glu 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 Thr Ile Asn Ser Leu Glu Ala  
 65 70 75 80

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr  
 85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu 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

&lt;210&gt; 552

&lt;211&gt; 442

&lt;212&gt; PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP016432 Nivolumab\_H0L0\_IgG1\_PVA\_/S267K Heavy Chain

<400> 552

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg  
1 5 10 15

Ser Leu Arg Leu Asp Cys Lys Ala Ser Gly Ile Thr Phe Ser Asn Ser  
20 25 30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ala Val Ile Trp Tyr Asp Gly Ser Lys Arg Tyr Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Thr Asn Asp Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser  
100 105 110

Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser  
115 120 125

Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp  
130 135 140

Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr  
145 150 155 160

Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr  
165 170 175

Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln  
180 185 190

Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp  
195 200 205

Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro  
210 215 220

Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro  
225 230 235 240

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys  
245 250 255

Val Val Val Asp Val Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp  
260 265 270

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu  
275 280 285

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu  
290 295 300

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn  
305 310 315 320

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly  
325 330 335

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu  
340 345 350

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr  
355 360 365

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn  
370 375 380

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe  
385 390 395 400

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn  
405 410 415

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr  
420 425 430

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
435 440

<210> 553

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP016432 Nivolumab\_H0L0\_IgG1\_PVA\_/S267K Light Chain

<400> 553

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 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> 554

<211> 451

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP18087 Chain 1 - [alphaSSTR2]\_H1.143\_IgG1\_PVA\_/S267K\_pI(-)  
\_Isosteric\_A\_L368D/K370S

<400> 554

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 Asp Tyr  
20 25 30

Gly Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Phe Ile Ser Asn Leu Gly Tyr Ser Ile Tyr Tyr Ala Asp 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Ala Pro Tyr Asp Tyr Asp Ser Phe Asp Pro Met Asp Tyr 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 Asp 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 Pro Val Ala |     |     |
| 225                                                             | 230 | 235 |
| 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 Lys 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 Glu 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 |
| Lys Glu 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 Glu Glu Met Thr Lys Asn Gln Val Ser |     |     |
| 355                                                             | 360 | 365 |
| Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu |     |     |
| 370                                                             | 375 | 380 |

Trp Glu Ser Asp 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 Glu Gln Gly Asp 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  
 450

<210> 555  
 <211> 485  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> XENP18087 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
 \_IgG1\_C220S/S364K/E357Q

<400> 555  
 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 Thr Tyr  
 20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Gly Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr  
65 70 75 80

Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr  
85 90 95

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Lys Pro  
115 120 125

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

Ser Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly  
145 150 155 160

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro

260

265

270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
 305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
 325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
 340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
 355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
 385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
 420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
 435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
 450 455 460

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Met | His | Glu | Ala | Leu | His | Asn | His | Tyr | Thr | Gln | Lys | Ser | Leu | Ser |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| Leu | Ser | Pro | Gly | Lys |
|     |     |     |     | 485 |

<210> 556  
 <211> 219  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> XENP18087 Chain 3 - [alphaSSTR2]\_L1.30

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ile | Val | Met | Thr | Gln | Ser | Pro | Asp | Ser | Leu | Ala | Val | Ser | Leu | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Ala | Thr | Ile | Asn | Cys | Lys | Ser | Ser | Gln | Ser | Leu | Leu | Asn | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Asn | Arg | Lys | Asn | Tyr | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Asp | Gln |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Pro | Lys | Leu | Leu | Ile | Tyr | Trp | Ala | Ser | Thr | Arg | Glu | Ser | Gly | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Asp | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ser | Ser | Leu | Gln | Ala | Glu | Asp | Val | Ala | Val | Tyr | Tyr | Cys | Lys | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Tyr | Tyr | Leu | Trp | Thr | Phe | Gly | Gly | Gly | Thr | Lys | Val | Glu | Ile | Lys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
 115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe  
 130 135 140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
 145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
 165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu  
 180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
 195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 210 215

<210> 557  
 <211> 453  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
 <223> XENP23535 Chain 1 - [alphaFAP]\_H0\_IgG1\_pI(-)\_Isosteric\_A\_/PVA  
 \_/S267K/L368D/K370S

<400> 557  
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Thr Ser Arg Tyr Thr Phe Thr Glu Tyr  
 20 25 30

Thr Ile His Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Ile  
35 40 45

Gly Gly Ile Asn Pro Asn Asn Gly Ile Pro Asn Tyr Asn Gln Lys Phe  
50 55 60

Lys Gly Arg Val Thr Ile Thr Val Asp Thr Ser Ala Ser Thr Ala Tyr  
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Arg Arg Ile Ala Tyr Gly Tyr Asp Glu Gly His Ala Met Asp  
100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys  
115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly  
130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro  
145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr  
165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val  
180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn  
195 200 205

Val Asn His Lys Pro Ser Asp Thr Lys Val Asp Lys Lys Val Glu Pro  
210 215 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
225 230 235 240

Val Ala 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

Lys 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 Glu 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 Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala  
370 375 380

Val Glu Trp Glu Ser Asp 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 Glu Gln Gly Asp 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  
450

<210> 558

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP23535 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 558

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 Thr Tyr  
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Gly Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp  
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr  
65 70 75 80

Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr  
85 90 95

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Lys Pro  
115 120 125

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

Ser Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly  
145 150 155 160

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175

Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 559

<211> 220

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP23535 Chain 3 - [alphaFAP]\_L0

<400> 559

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser  
20 25 30

Arg Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln  
35 40 45

Pro Pro Lys Leu Leu Ile Phe Trp Ala Ser Thr Arg Glu Ser Gly Val  
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Phe Gly Thr Asp Phe Thr Leu Thr  
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln  
85 90 95

Tyr Phe Ser Tyr Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu Ile  
100 105 110

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp  
115 120 125

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn  
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu  
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp

165

170

175

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr  
 180 185 190

Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser  
 195 200 205

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 210 215 220

&lt;210&gt; 560

&lt;211&gt; 450

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

&lt;220&gt;

<223> XENP25967 Chain 1 - [alphaFAP]\_H1\_IgG1\_PVA\_/S267K-pI(-)  
 \_Isosteric\_A\_L368D/K370S

&lt;400&gt; 560

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 Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Lys Ile Ser Phe Tyr Pro Gly Gly Thr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
 245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
 260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His  
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg  
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr  
340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 561

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP25967 Chain 2 - [alphaFAP]\_H1\_(G4S)2\_[alphaCD3]\_H1.32\_L1.47  
\_scFv(GKPGS)4\_(G4S)2\_IgG1\_C220S/S364K/E357Q

<400> 561

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 Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Lys Ile Ser Phe Tyr Pro Gly Gly Thr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu  
 225 230 235 240

Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys  
 245 250 255

Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg  
 260 265 270

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser Lys  
 275 280 285

Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe  
 290 295 300

Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
 305 310 315 320

Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly  
 325 330 335

Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly  
 340 345 350

Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
 355 360 365

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val Thr  
370 375 380

Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr  
385 390 395 400

Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp  
405 410 415

Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr  
420 425 430

Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu  
435 440 445

Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu  
450 455 460

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly  
465 470 475 480

Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly Gly  
485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr

565

570

575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
 580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
 595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
 610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
 625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
 645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
 660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
 675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
 690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
 705 710 715 720

Pro Gly Lys

<210> 562

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

# polypeptide

<220>

<223> XENP25967 Chain 3 - [alphaFAP]\_L1

<400> 562

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr  
20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
35 40 45

Tyr Ala Ala Ser Ser 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 Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Ser Pro Tyr  
85 90 95

Thr Phe Gly Gln Gly Thr Lys Leu 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> 563

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28925 Chain 1 - [alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 563

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His  
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg  
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr  
340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 564

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28925 Chain 2 - [alphaCD3]\_H1.30\_L1.47\_scFv(GKPGS)4\_Fc(216)  
\_IgG1\_C220S/PVA\_/S267K/S364K/E357Q

<400> 564

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 Thr Tyr  
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Gly Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp  
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr  
65 70 75 80

Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr  
85 90 95

Tyr Cys Val Arg His Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe  
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Lys Pro  
115 120 125

Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly  
130 135 140

Ser Gln Ala Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly  
145 150 155 160

Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr  
165 170 175



Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg  
180 185 190

Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg  
195 200 205

Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly  
210 215 220

Ala Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser  
225 230 235 240

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Glu Pro  
245 250 255

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro  
260 265 270

Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
275 280 285

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
290 295 300

Lys His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val  
305 310 315 320

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser  
325 330 335

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
340 345 350

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala  
355 360 365

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
370 375 380

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln  
385 390 395 400

Val Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
405 410 415

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
420 425 430

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu  
435 440 445

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser  
450 455 460

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
465 470 475 480

Leu Ser Pro Gly Lys  
485

<210> 565

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP28925 Chain 3 - [alphaENPP3]\_L1

<400> 565

Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Ser  
20 25 30

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu 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> 566

<211> 451  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>  
<223> XENP30458 Chain 1 - [alphaSSTR2]\_H1.24\_IgG1\_pI(-)\_Isosteric\_A\_PVA\_/S267K/L368D/K370S/M428L/N434S

<400> 566  
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 Asp Tyr  
20 25 30

Gly Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Phe Ile Ser Asn Leu Ala Tyr Ser Ile Tyr Tyr Ala Asp 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Ala Pro Tyr Asp Tyr Asp Ser Phe Tyr Pro Met Asp Tyr 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 Asp 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 Pro Val Ala |  |     |  |     |  |     |
|                                                                 |  | 225 |  | 230 |  | 235 |
| 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 Lys 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 Glu 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 |
| Lys Glu 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 Glu Glu Met Thr Lys Asn Gln Val Ser  
355 360 365

Leu Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
370 375 380

Trp Glu Ser Asp 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 Glu Gln Gly Asp Val Phe Ser Cys Ser Val Leu  
420 425 430

His Glu Ala Leu His Ser His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
435 440 445

Pro Gly Lys  
450

<210> 567

<211> 724

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP30458 Chain 2 - [alphaSSTR2]\_H1.24\_[alphaCD3]\_H1.32\_L1.47  
\_scFv(GKPGS)4\_Fc(222)\_IgG1\_PVA\_/S267K/S364K/E357Q/M428L/N434S

<400> 567

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 Asp Tyr  
20 25 30

Gly Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Phe Ile Ser Asn Leu Ala Tyr Ser Ile Tyr Tyr Ala Asp 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Ala Pro Tyr Asp Tyr Asp Ser Phe Tyr Pro Met Asp Tyr 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 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val

|                                                                 |  |     |  |     |  |     |
|-----------------------------------------------------------------|--|-----|--|-----|--|-----|
| 225                                                             |  | 230 |  | 235 |  | 240 |
| Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser |  |     |  |     |  |     |
|                                                                 |  | 245 |  | 250 |  | 255 |
| Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val |  |     |  |     |  |     |
|                                                                 |  | 260 |  | 265 |  | 270 |
| Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser |  |     |  |     |  |     |
|                                                                 |  | 275 |  | 280 |  | 285 |
| Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg |  |     |  |     |  |     |
|                                                                 |  | 290 |  | 295 |  | 300 |
| Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met |  |     |  |     |  |     |
| 305                                                             |  | 310 |  | 315 |  | 320 |
| Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His |  |     |  |     |  |     |
|                                                                 |  | 325 |  | 330 |  | 335 |
| Gly Asn Phe Gly Asp Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln |  |     |  |     |  |     |
|                                                                 |  | 340 |  | 345 |  | 350 |
| Gly Thr Leu Val Thr Val Ser Ser Gly Lys Pro Gly Ser Gly Lys Pro |  |     |  |     |  |     |
|                                                                 |  | 355 |  | 360 |  | 365 |
| Gly Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Gln Ala Val Val |  |     |  |     |  |     |
|                                                                 |  | 370 |  | 375 |  | 380 |
| Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu |  |     |  |     |  |     |
| 385                                                             |  | 390 |  | 395 |  | 400 |
| Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn |  |     |  |     |  |     |
|                                                                 |  | 405 |  | 410 |  | 415 |
| Trp Val Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly |  |     |  |     |  |     |
|                                                                 |  | 420 |  | 425 |  | 430 |



Thr Asn Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu  
435 440 445

Leu Gly Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp  
450 455 460

Glu Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe  
465 470 475 480

Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gly Gly Gly Ser Gly Gly  
485 490 495

Gly Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val  
500 505 510

Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu  
515 520 525

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys  
530 535 540

His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu  
545 550 555 560

Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr  
565 570 575

Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn  
580 585 590

Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro  
595 600 605

Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln  
610 615 620

Val Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val

625                                      630                                      635                                      640

Lys Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val  
                                    645                                      650                                      655

Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro  
                                    660                                      665                                      670

Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr  
                                    675                                      680                                      685

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val  
                                    690                                      695                                      700

Leu His Glu Ala Leu His Ser His Tyr Thr Gln Lys Ser Leu Ser Leu  
705                                      710                                      715                                      720

Ser Pro Gly Lys

<210> 568

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP30458 Chain 3 - [alphaSSTR2]\_L1.30

<400> 568

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
1                                      5                                      10                                      15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser  
                                    20                                      25                                      30

Arg Asn Arg Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Asp Gln  
                                    35                                      40                                      45

Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val  
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr  
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Lys Gln  
85 90 95

Ser Tyr Tyr Leu Trp Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys  
100 105 110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe  
130 135 140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu  
180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
210 215

<210> 569

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP31149 Chain 1 - [alphaENPP3]\_H1.8\_IgG1\_pI(-)\_Isosteric\_A  
\_/PVA\_/S267K/L368D/K370S

<400> 569

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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 Asp 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 Pro Val Ala Gly  
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile  
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His Glu  
260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His  
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Glu Tyr Asn Ser Thr Tyr Arg  
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr  
340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu  
355 360 365

Thr Cys Asp Val Ser Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
370 375 380

Glu Ser Asp Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
405 410 415

Lys Ser Arg Trp Glu Gln Gly Asp Val Phe Ser Cys Ser Val Met His  
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
435 440 445

Gly Lys  
450

<210> 570

<211> 723

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<220>

<223> XENP31149 Chain 2 - [alphaENPP3]\_H1.8\_CH1\_(G4S)2\_[alphaCD3]  
\_L1.47\_H1.89\_scFv(GKPGS)4\_Fc(222)\_IgG1\_C220S/PVA\_/S267K/S364K/  
E357Q

<400> 570

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 Ala Phe Ser Asn Tyr  
20 25 30

Gly Met Ser Trp Val Arg Gln Ala Pro Gly Gln Arg Leu Glu Trp Val

35

40

45

Ser Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Leu Asp Ser Val  
 50 55 60

Thr 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 Arg His Arg Arg Val Tyr Tyr Gly Tyr Tyr Phe 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

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln  
 225 230 235 240

Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys  
245 250 255

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val  
260 265 270

Gln Gln Lys Pro Gly Lys Ser Pro Arg Gly Leu Ile Gly Gly Thr Asn  
275 280 285

Lys Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly  
290 295 300

Gly Lys Ala Ala Leu Thr Ile Ser Gly Ala Gln Pro Glu Asp Glu Ala  
305 310 315 320

Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly  
325 330 335

Gly Thr Lys Leu Thr Val Leu Gly Lys Pro Gly Ser Gly Lys Pro Gly  
340 345 350

Ser Gly Lys Pro Gly Ser Gly Lys Pro Gly Ser Glu Val Gln Leu Val  
355 360 365

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser  
370 375 380

Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val  
385 390 395 400

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Arg Ile Arg Ser  
405 410 415

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg  
420 425 430

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met



435

440

445

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His  
 450 455 460

Gly Asn Phe Gly Asp Glu Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln  
 465 470 475 480

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
 485 490 495

Gly Ser Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Pro Val Ala  
 500 505 510

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met  
 515 520 525

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Lys His  
 530 535 540

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
 545 550 555 560

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
 565 570 575

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
 580 585 590

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile  
 595 600 605

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val  
 610 615 620

Tyr Thr Leu Pro Pro Ser Arg Glu Gln Met Thr Lys Asn Gln Val Lys  
 625 630 635 640

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu  
645 650 655

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro  
660 665 670

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val  
675 680 685

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met  
690 695 700

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser  
705 710 715 720

Pro Gly Lys

<210> 571

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> XENP31149 Chain 3 - [alphaENPP3]\_L1.33

<400> 571

Asp Ile Leu Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Ser  
20 25 30

Ile His Trp Tyr Gln Gln Lys Pro Asp Gln Ser Pro Lys Leu Leu Ile  
35 40 45

Glu 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 Thr Ile Asn Ser Leu Glu Ala  
65 70 75 80

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu 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> 572

<211> 122

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> [alphaSSTR2]\_H1.24\_L1.30 Variable heavy (vh) domain

<400> 572

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 Asp Tyr  
20 25 30

Gly Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Phe Ile Ser Asn Leu Ala Tyr Ser Ile Tyr Tyr Ala Asp 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Ala Pro Tyr Asp Tyr Asp Ser Phe Tyr Pro Met Asp Tyr Trp  
100 105 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
115 120

<210> 573

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> [alphaSSTR2]\_H1.24\_L1.30 vHCDR1

<400> 573  
Asp Tyr Gly Met Ala  
1 5

<210> 574  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> [alphaSSTR2]\_H1.24\_L1.30 vHCDR2

<400> 574  
Phe Ile Ser Asn Leu Ala Tyr Ser Ile Tyr Tyr Ala Asp Ser Val Lys  
1 5 10 15

Gly

<210> 575  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<223> [alphaSSTR2]\_H1.24\_L1.30 vHCDR3

<400> 575  
Ala Pro Tyr Asp Tyr Asp Ser Phe Tyr Pro Met Asp Tyr  
1 5 10

<210> 576  
<211> 112  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<220>

<223> [alphaSSTR2]\_H1.24\_L1.30 Variable light (v1) domain

<400> 576

Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser  
20 25 30

Arg Asn Arg Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Asp Gln  
35 40 45

Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val  
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr  
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Lys Gln  
85 90 95

Ser Tyr Tyr Leu Trp Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys  
100 105 110

<210> 577

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> [alphaSSTR2]\_H1.24\_L1.30 v1CDR1

<400> 577

Lys Ser Ser Gln Ser Leu Leu Asn Ser Arg Asn Arg Lys Asn Tyr Leu  
1 5 10 15

Ala

<210> 578

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> [alphaSSTR2]\_H1.24\_L1.30 v1CDR2

<400> 578

Trp Ala Ser Thr Arg Glu Ser

1 5

<210> 579

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<223> [alphaSSTR2]\_H1.24\_L1.30 v1CDR3

<400> 579

Lys Gln Ser Tyr Tyr Leu Trp Thr

1 5