

SEQUENCE LISTING

<110> Universitt Stuttgart

<120> Recombinant TNF ligand family member polypeptides with antibody binding domain and uses thereof

<130> PF01P005EP

<160> 138

<170> PatentIn version 3.5

<210> 1

<211> 162

<212> PRT

<213> Homo sapiens

<400> 1

Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr
1 5 10 15

Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile
20 25 30

Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu
35 40 45

His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr
50 55 60

Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn
65 70 75 80

Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser
85 90 95

Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp
100 105 110

Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile
115 120 125

Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu
130 135 140

His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu
145 150 155 160

Val Gly

<210> 2

<211> 164

<212> PRT

<213> Homo sapiens

<400> 2

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

<210> 3

<211> 166

<212> PRT

<213> Homo sapiens

<400> 3

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

Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu
65 70 75 80

Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr
85 90 95

Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg
100 105 110

Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr
115 120 125

Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser
130 135 140

Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe
145 150 155 160

Gly Ala Phe Leu Val Gly
165

<210> 4
<211> 168
<212> PRT
<213> Homo sapiens

<400> 4

Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr
1 5 10 15

Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys
20 25 30

Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His
35 40 45

Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His
50 55 60

Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln
65 70 75 80

Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr
85 90 95

Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser
100 105 110

Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser
115 120 125

Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe
130 135 140

Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser
 145 150 155 160

Phe Phe Gly Ala Phe Leu Val Gly
 165

<210> 5
 <211> 187
 <212> PRT
 <213> Homo sapiens
 <400> 5

Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile
 1 5 10 15

Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile
 20 25 30

Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys
 35 40 45

Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg
 50 55 60

Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu
 65 70 75 80

Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe
 85 90 95

Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met
 100 105 110

Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu
 115 120 125

Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly
 130 135 140

Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp
 145 150 155 160

Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His
 165 170 175

Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly
 180 185

<210> 6
 <211> 193
 <212> PRT
 <213> Mus musculus

<400> 6

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

Pro Pro Leu Pro Arg Gly Gly Arg Pro Gln Lys Val Ala Ala His Ile
20 25 30

Thr Gly Ile Thr Arg Arg Ser Asn Ser Ala Leu Ile Pro Ile Ser Lys
35 40 45

Asp Gly Lys Thr Leu Gly Gln Lys Ile Glu Ser Trp Glu Ser Ser Arg
50 55 60

Lys Gly His Ser Phe Leu Asn His Val Leu Phe Arg Asn Gly Glu Leu
65 70 75 80

Val Ile Glu Gln Glu Gly Leu Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe
85 90 95

Arg Phe Gln Glu Ala Glu Asp Ala Ser Lys Met Val Ser Lys Asp Lys
100 105 110

Val Arg Thr Lys Gln Leu Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr
115 120 125

Pro Asp Pro Ile Val Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser
130 135 140

Arg Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Leu Phe
145 150 155 160

Glu Leu Lys Lys Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His
165 170 175

Leu Met Asp Leu Asp Gln Glu Ala Ser Phe Phe Gly Ala Phe Leu Ile
180 185 190

Asn

<210> 7

<211> 138

<212> PRT

<213> Homo sapiens

<400> 7

Arg Lys Val Ala His Leu Thr Gly Lys Ser Asn Ser Arg Ser Met Pro
1 5 10 15

Leu Glu Trp Glu Asp Thr Tyr Gly Ile Val Leu Leu Ser Gly Val Lys
20 25 30

Tyr Lys Lys Gly Gly Leu Val Ile Asn Glu Thr Gly Leu Tyr Phe Val
35 40 45

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

Ser His Lys Val Tyr Met Arg Asn Ser Lys Tyr Pro Gln Asp Leu Val
65 70 75 80

Met Met Glu Gly Lys Met Met Ser Tyr Cys Thr Thr Gly Gln Met Trp
85 90 95

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

His Leu Tyr Val Asn Val Ser Glu Leu Ser Leu Val Asn Phe Glu Glu
115 120 125

Ser Gln Thr Phe Phe Gly Leu Tyr Lys Leu
130 135

<210> 8
<211> 140
<212> PRT
<213> Homo sapiens

<400> 8

Glu Leu Arg Lys Val Ala His Leu Thr Gly Lys Ser Asn Ser Arg Ser
1 5 10 15

Met Pro Leu Glu Trp Glu Asp Thr Tyr Gly Ile Val Leu Leu Ser Gly
20 25 30

Val Lys Tyr Lys Lys Gly Gly Leu Val Ile Asn Glu Thr Gly Leu Tyr
35 40 45

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

Pro Leu Ser His Lys Val Tyr Met Arg Asn Ser Lys Tyr Pro Gln Asp
65 70 75 80

Leu Val Met Met Glu Gly Lys Met Met Ser Tyr Cys Thr Thr Gly Gln
85 90 95

Met Trp Ala Arg Ser Ser Tyr Leu Gly Ala Val Phe Asn Leu Thr Ser
100 105 110

Ala Asp His Leu Tyr Val Asn Val Ser Glu Leu Ser Leu Val Asn Phe
115 120 125

Glu Glu Ser Gln Thr Phe Phe Gly Leu Tyr Lys Leu

130

135

140

<210> 9
 <211> 145
 <212> PRT
 <213> Homo sapiens

<400> 9

Pro Pro Glu Lys Lys Glu Leu Arg Lys Val Ala His Leu Thr Gly Lys
 1 5 10 15

Ser Asn Ser Arg Ser Met Pro Leu Glu Trp Glu Asp Thr Tyr Gly Ile
 20 25 30

Val Leu Leu Ser Gly Val Lys Tyr Lys Lys Gly Gly Leu Val Ile Asn
 35 40 45

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

Ser Cys Asn Asn Leu Pro Leu Ser His Lys Val Tyr Met Arg Asn Ser
 65 70 75 80

Lys Tyr Pro Gln Asp Leu Val Met Met Glu Gly Lys Met Met Ser Tyr
 85 90 95

Cys Thr Thr Gly Gln Met Trp Ala Arg Ser Ser Tyr Leu Gly Ala Val
 100 105 110

Phe Asn Leu Thr Ser Ala Asp His Leu Tyr Val Asn Val Ser Glu Leu
 115 120 125

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

Leu
 145

<210> 10
 <211> 152
 <212> PRT
 <213> Homo sapiens

<400> 10

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

Val Ala His Leu Thr Gly Lys Ser Asn Ser Arg Ser Met Pro Leu Glu
 20 25 30

Trp Glu Asp Thr Tyr Gly Ile Val Leu Leu Ser Gly Val Lys Tyr Lys
 35 40 45

Lys Gly Gly Leu Val Ile Asn Glu Thr Gly Leu Tyr Phe Val Tyr Ser
50 55 60

Lys Val Tyr Phe Arg Gly Gln Ser Cys Asn Asn Leu Pro Leu Ser His
65 70 75 80

Lys Val Tyr Met Arg Asn Ser Lys Tyr Pro Gln Asp Leu Val Met Met
85 90 95

Glu Gly Lys Met Met Ser Tyr Cys Thr Thr Gly Gln Met Trp Ala Arg
100 105 110

Ser Ser Tyr Leu Gly Ala Val Phe Asn Leu Thr Ser Ala Asp His Leu
115 120 125

Tyr Val Asn Val Ser Glu Leu Ser Leu Val Asn Phe Glu Glu Ser Gln
130 135 140

Thr Phe Phe Gly Leu Tyr Lys Leu
145 150

<210> 11
<211> 162
<212> PRT
<213> Homo sapiens

<400> 11

Gln Met His Thr Ala Ser Ser Leu Glu Lys Gln Ile Gly His Pro Ser
1 5 10 15

Pro Pro Pro Glu Lys Lys Glu Leu Arg Lys Val Ala His Leu Thr Gly
20 25 30

Lys Ser Asn Ser Arg Ser Met Pro Leu Glu Trp Glu Asp Thr Tyr Gly
35 40 45

Ile Val Leu Leu Ser Gly Val Lys Tyr Lys Lys Gly Gly Leu Val Ile
50 55 60

Asn Glu Thr Gly Leu Tyr Phe Val Tyr Ser Lys Val Tyr Phe Arg Gly
65 70 75 80

Gln Ser Cys Asn Asn Leu Pro Leu Ser His Lys Val Tyr Met Arg Asn
85 90 95

Ser Lys Tyr Pro Gln Asp Leu Val Met Met Glu Gly Lys Met Met Ser
100 105 110

Tyr Cys Thr Thr Gly Gln Met Trp Ala Arg Ser Ser Tyr Leu Gly Ala
115 120 125

Val Phe Asn Leu Thr Ser Ala Asp His Leu Tyr Val Asn Val Ser Glu
130 135 140

Leu Ser Leu Val Asn Phe Glu Glu Ser Gln Thr Phe Phe Gly Leu Tyr
 145 150 155 160

Lys Leu

<210> 12
 <211> 143
 <212> PRT
 <213> Mus musculus

<400> 12

Glu Lys Lys Glu Pro Arg Ser Val Ala His Leu Thr Gly Asn Pro His
 1 5 10 15

Ser Arg Ser Ile Pro Leu Glu Trp Glu Asp Thr Tyr Gly Thr Ala Leu
 20 25 30

Ile Ser Gly Val Lys Tyr Lys Lys Gly Gly Leu Val Ile Asn Glu Thr
 35 40 45

Gly Leu Tyr Phe Val Tyr Ser Lys Val Tyr Phe Arg Gly Gln Ser Cys
 50 55 60

Asn Asn Gln Pro Leu Asn His Lys Val Tyr Met Arg Asn Ser Lys Tyr
 65 70 75 80

Pro Glu Asp Leu Val Leu Met Glu Glu Lys Arg Leu Asn Tyr Cys Thr
 85 90 95

Thr Gly Gln Ile Trp Ala His Ser Ser Tyr Leu Gly Ala Val Phe Asn
 100 105 110

Leu Thr Ser Ala Asp His Leu Tyr Val Asn Ile Ser Gln Leu Ser Leu
 115 120 125

Ile Asn Phe Glu Glu Ser Lys Thr Phe Phe Gly Leu Tyr Lys Leu
 130 135 140

<210> 13
 <211> 145
 <212> PRT
 <213> Homo sapiens

<400> 13

Val Ala His Val Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp
 1 5 10 15

Leu Asn Arg Arg Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg
 20 25 30

Asp Asn Gln Leu Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser

35 40 45
 Gln Val Leu Phe Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu
 50 55 60
 Thr His Thr Ile Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn
 65 70 75 80
 Leu Leu Ser Ala Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly
 85 90 95
 Ala Glu Ala Lys Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe
 100 105 110
 Gln Leu Glu Lys Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp
 115 120 125
 Tyr Leu Asp Phe Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala
 130 135 140

Leu
145

<210> 14
 <211> 157
 <212> PRT
 <213> Homo sapiens
 <400> 14

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

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
130 135 140

Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145 150 155

<210> 15
<211> 147
<212> PRT
<213> homo sapiens

<400> 15

Ser Asn Leu Lys Pro Ala Ala His Leu Ile Gly Asp Pro Ser Lys Gln
1 5 10 15

Asn Ser Leu Leu Trp Arg Ala Asn Thr Asp Arg Ala Phe Leu Gln Asp
20 25 30

Gly Phe Ser Leu Ser Asn Asn Ser Leu Leu Val Pro Thr Ser Gly Ile
35 40 45

Tyr Phe Val Tyr Ser Gln Val Val Phe Ser Gly Lys Ala Tyr Ser Pro
50 55 60

Lys Ala Thr Ser Ser Pro Leu Tyr Leu Ala His Glu Val Gln Leu Phe
65 70 75 80

Ser Ser Gln Tyr Pro Phe His Val Pro Leu Leu Ser Ser Gln Lys Met
85 90 95

Val Tyr Pro Gly Leu Gln Glu Pro Trp Leu His Ser Met Tyr His Gly
100 105 110

Ala Ala Phe Gln Leu Thr Gln Gly Asp Gln Leu Ser Thr His Thr Asp
115 120 125

Gly Ile Pro His Leu Val Leu Ser Pro Ser Thr Val Phe Phe Gly Ala
130 135 140

Phe Ala Leu
145

<210> 16
<211> 163
<212> PRT
<213> Homo sapiens

<400> 16

Asp Leu Ser Pro Gly Leu Pro Ala Ala His Leu Ile Gly Ala Pro Leu
1 5 10 15

Lys Gly Gln Gly Leu Gly Trp Glu Thr Thr Lys Glu Gln Ala Phe Leu
20 25 30

Thr Ser Gly Thr Gln Phe Ser Asp Ala Glu Gly Leu Ala Leu Pro Gln
35 40 45

Asp Gly Leu Tyr Tyr Leu Tyr Cys Leu Val Gly Tyr Arg Gly Arg Ala
50 55 60

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

Ser Leu Tyr Arg Ala Gly Gly Ala Tyr Gly Pro Gly Thr Pro Glu Leu
85 90 95

Leu Leu Glu Gly Ala Glu Thr Val Thr Pro Val Leu Asp Pro Ala Arg
100 105 110

Arg Gln Gly Tyr Gly Pro Leu Trp Tyr Thr Ser Val Gly Phe Gly Gly
115 120 125

Leu Val Gln Leu Arg Arg Gly Glu Arg Val Tyr Val Asn Ile Ser His
130 135 140

Pro Asp Met Val Asp Phe Ala Arg Gly Lys Thr Phe Phe Gly Ala Val
145 150 155 160

Met Val Gly

<210> 17
<211> 159
<212> PRT
<213> Homo sapiens

<400> 17

Gly Leu Pro Ala Ala His Leu Ile Gly Ala Pro Leu Lys Gly Gln Gly
1 5 10 15

Leu Gly Trp Glu Thr Thr Lys Glu Gln Ala Phe Leu Thr Ser Gly Thr
20 25 30

Gln Phe Ser Asp Ala Glu Gly Leu Ala Leu Pro Gln Asp Gly Leu Tyr
35 40 45

Tyr Leu Tyr Cys Leu Val Gly Tyr Arg Gly Arg Ala Pro Pro Gly Gly
50 55 60

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

Ala Gly Gly Ala Tyr Gly Pro Gly Thr Pro Glu Leu Leu Leu Glu Gly
85 90 95

Ala Glu Thr Val Thr Pro Val Leu Asp Pro Ala Arg Arg Gln Gly Tyr
100 105 110

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

Arg Arg Gly Glu Arg Val Tyr Val Asn Ile Ser His Pro Asp Met Val
130 135 140

Asp Phe Ala Arg Gly Lys Thr Phe Phe Gly Ala Val Met Val Gly
145 150 155

<210> 18
<211> 138
<212> PRT
<213> Homo sapiens

<400> 18

Lys Ser Trp Ala Tyr Leu Gln Val Ala Lys His Leu Asn Lys Thr Lys
1 5 10 15

Leu Ser Trp Asn Lys Asp Gly Ile Leu His Gly Val Arg Tyr Gln Asp
20 25 30

Gly Asn Leu Val Ile Gln Phe Pro Gly Leu Tyr Phe Ile Ile Cys Gln
35 40 45

Leu Gln Phe Leu Val Gln Cys Pro Asn Asn Ser Val Asp Leu Lys Leu
50 55 60

Glu Leu Leu Ile Asn Lys His Ile Lys Lys Gln Ala Leu Val Thr Val
65 70 75 80

Cys Glu Ser Gly Met Gln Thr Lys His Val Tyr Gln Asn Leu Ser Gln
85 90 95

Phe Leu Leu Asp Tyr Leu Gln Val Asn Thr Thr Ile Ser Val Asn Val
100 105 110

Asp Thr Phe Gln Tyr Ile Asp Thr Ser Thr Phe Pro Leu Glu Asn Val
115 120 125

Leu Ser Ile Phe Leu Tyr Ser Asn Ser Asp
130 135

<210> 19
<211> 133
<212> PRT
<213> Homo sapiens

<400> 19

Leu Gln Val Ala Lys His Leu Asn Lys Thr Lys Leu Ser Trp Asn Lys
1 5 10 15

Asp Gly Ile Leu His Gly Val Arg Tyr Gln Asp Gly Asn Leu Val Ile
20 25 30

Gln Phe Pro Gly Leu Tyr Phe Ile Ile Cys Gln Leu Gln Phe Leu Val
35 40 45

Gln Cys Pro Asn Asn Ser Val Asp Leu Lys Leu Glu Leu Leu Ile Asn
50 55 60

Lys His Ile Lys Lys Gln Ala Leu Val Thr Val Cys Glu Ser Gly Met
65 70 75 80

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

Leu Gln Val Asn Thr Thr Ile Ser Val Asn Val Asp Thr Phe Gln Tyr
100 105 110

Ile Asp Thr Ser Thr Phe Pro Leu Glu Asn Val Leu Ser Ile Phe Leu
115 120 125

Tyr Ser Asn Ser Asp
130

<210> 20
<211> 146
<212> PRT
<213> Homo sapiens
<400> 20

Gly Asp Gln Asn Pro Gln Ile Ala Ala His Val Ile Ser Glu Ala Ser
1 5 10 15

Ser Lys Thr Thr Ser Val Leu Gln Trp Ala Glu Lys Gly Tyr Tyr Thr
20 25 30

Met Ser Asn Asn Leu Val Thr Leu Glu Asn Gly Lys Gln Leu Thr Val
35 40 45

Lys Arg Gln Gly Leu Tyr Tyr Ile Tyr Ala Gln Val Thr Phe Cys Ser
50 55 60

Asn Arg Glu Ala Ser Ser Gln Ala Pro Phe Ile Ala Ser Leu Cys Leu
65 70 75 80

Lys Ser Pro Gly Arg Phe Glu Arg Ile Leu Leu Arg Ala Ala Asn Thr
85 90 95

His Ser Ser Ala Lys Pro Cys Gly Gln Gln Ser Ile His Leu Gly Gly
100 105 110

Val Phe Glu Leu Gln Pro Gly Ala Ser Val Phe Val Asn Val Thr Asp
page 14

115

120

125

Pro Ser Gln Val Ser His Gly Thr Gly Phe Thr Ser Phe Gly Leu Leu
 130 135 140

Lys Leu
 145

<210> 21
 <211> 149
 <212> PRT
 <213> Homo sapiens

<400> 21

Met Gln Lys Gly Asp Gln Asn Pro Gln Ile Ala Ala His Val Ile Ser
 1 5 10 15

Glu Ala Ser Ser Lys Thr Thr Ser Val Leu Gln Trp Ala Glu Lys Gly
 20 25 30

Tyr Tyr Thr Met Ser Asn Asn Leu Val Thr Leu Glu Asn Gly Lys Gln
 35 40 45

Leu Thr Val Lys Arg Gln Gly Leu Tyr Tyr Ile Tyr Ala Gln Val Thr
 50 55 60

Phe Cys Ser Asn Arg Glu Ala Ser Ser Gln Ala Pro Phe Ile Ala Ser
 65 70 75 80

Leu Cys Leu Lys Ser Pro Gly Arg Phe Glu Arg Ile Leu Leu Arg Ala
 85 90 95

Ala Asn Thr His Ser Ser Ala Lys Pro Cys Gly Gln Gln Ser Ile His
 100 105 110

Leu Gly Gly Val Phe Glu Leu Gln Pro Gly Ala Ser Val Phe Val Asn
 115 120 125

Val Thr Asp Pro Ser Gln Val Ser His Gly Thr Gly Phe Thr Ser Phe
 130 135 140

Gly Leu Leu Lys Leu
 145

<210> 22
 <211> 132
 <212> PRT
 <213> Homo sapiens

<400> 22

Val Ser His Arg Tyr Pro Arg Ile Gln Ser Ile Lys Val Gln Phe Thr
 1 5 10 15

Glu Tyr Lys Lys Glu Lys Gly Phe Ile Leu Thr Ser Gln Lys Glu Asp
20 25 30

Glu Ile Met Lys Val Gln Asn Asn Ser Val Ile Ile Asn Cys Asp Gly
35 40 45

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

Ser Leu His Tyr Gln Lys Asp Glu Glu Pro Leu Phe Gln Leu Lys Lys
65 70 75 80

Val Arg Ser Val Asn Ser Leu Met Val Ala Ser Leu Thr Tyr Lys Asp
85 90 95

Lys Val Tyr Leu Asn Val Thr Thr Asp Asn Thr Ser Leu Asp Asp Phe
100 105 110

His Val Asn Gly Gly Glu Leu Ile Leu Ile His Gln Asn Pro Gly Glu
115 120 125

Phe Cys Val Leu
130

<210> 23
<211> 129
<212> PRT
<213> Homo sapiens

<400> 23

Arg Tyr Pro Arg Ile Gln Ser Ile Lys Val Gln Phe Thr Glu Tyr Lys
1 5 10 15

Lys Glu Lys Gly Phe Ile Leu Thr Ser Gln Lys Glu Asp Glu Ile Met
20 25 30

Lys Val Gln Asn Asn Ser Val Ile Ile Asn Cys Asp Gly Phe Tyr Leu
35 40 45

Ile Ser Leu Lys Gly Tyr Phe Ser Gln Glu Val Asn Ile Ser Leu His
50 55 60

Tyr Gln Lys Asp Glu Glu Pro Leu Phe Gln Leu Lys Lys Val Arg Ser
65 70 75 80

Val Asn Ser Leu Met Val Ala Ser Leu Thr Tyr Lys Asp Lys Val Tyr
85 90 95

Leu Asn Val Thr Thr Asp Asn Thr Ser Leu Asp Asp Phe His Val Asn
100 105 110

Gly Gly Glu Leu Ile Leu Ile His Gln Asn Pro Gly Glu Phe Cys Val
115 120 125

Leu

<210> 24
<211> 157
<212> PRT
<213> Homo sapiens

<400> 24

Glu Ala Gln Pro Phe Ala His Leu Thr Ile Asn Ala Thr Asp Ile Pro
1 5 10 15

Ser Gly Ser His Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly
20 25 30

Trp Ala Lys Ile Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val
35 40 45

Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His
50 55 60

His Glu Thr Ser Gly Asp Leu Ala Thr Glu Tyr Leu Gln Leu Met Val
65 70 75 80

Tyr Val Thr Lys Thr Ser Ile Lys Ile Pro Ser Ser His Thr Leu Met
85 90 95

Lys Gly Gly Ser Thr Lys Tyr Trp Ser Gly Asn Ser Glu Phe His Phe
100 105 110

Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys Leu Arg Ser Gly Glu Glu
115 120 125

Ile Ser Ile Glu Val Ser Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp
130 135 140

Ala Thr Tyr Phe Gly Ala Phe Lys Val Arg Asp Ile Asp
145 150 155

<210> 25
<211> 178
<212> PRT
<213> Homo sapiens

<400> 25

Ile Arg Ala Glu Lys Ala Met Val Asp Gly Ser Trp Leu Asp Leu Ala
1 5 10 15

Lys Arg Ser Lys Leu Glu Ala Gln Pro Phe Ala His Leu Thr Ile Asn
20 25 30

Ala Thr Asp Ile Pro Ser Gly Ser His Lys Val Ser Leu Ser Ser Trp
page 17

35

40

45

Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn Met Thr Phe Ser Asn
50 55 60

Gly Lys Leu Ile Val Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala Asn
65 70 75 80

Ile Cys Phe Arg His His Glu Thr Ser Gly Asp Leu Ala Thr Glu Tyr
85 90 95

Leu Gln Leu Met Val Tyr Val Thr Lys Thr Ser Ile Lys Ile Pro Ser
100 105 110

Ser His Thr Leu Met Lys Gly Gly Ser Thr Lys Tyr Trp Ser Gly Asn
115 120 125

Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys Leu
130 135 140

Arg Ser Gly Glu Glu Ile Ser Ile Glu Val Ser Asn Pro Ser Leu Leu
145 150 155 160

Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys Val Arg Asp
165 170 175

Ile Asp

<210> 26
<211> 156
<212> PRT
<213> Homo sapiens

<400> 26

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

His Tyr Glu Val His Pro Arg Pro Gly Gln Asp Gly Ala Gln Ala Gly
20 25 30

Val Asp Gly Thr Val Ser Gly Trp Glu Glu Ala Arg Ile Asn Ser Ser
35 40 45

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

Ala Gly Leu Tyr Tyr Leu Tyr Cys Gln Val His Phe Asp Glu Gly Lys
65 70 75 80

Ala Val Tyr Leu Lys Leu Asp Leu Leu Val Asp Gly Val Leu Ala Leu
85 90 95

Arg Cys Leu Glu Glu Phe Ser Ala Thr Ala Ala Ser Ser Leu Gly Pro
100 105 110

Gln Leu Arg Leu Cys Gln Val Ser Gly Leu Leu Ala Leu Arg Pro Gly
115 120 125

Ser Ser Leu Arg Ile Arg Thr Leu Pro Trp Ala His Leu Lys Ala Ala
130 135 140

Pro Phe Leu Thr Tyr Phe Gly Leu Phe Gln Val His
145 150 155

<210> 27
<211> 145
<212> PRT
<213> Homo sapiens

<400> 27

Arg Ala Ile Ala Ala His Tyr Glu Val His Pro Arg Pro Gly Gln Asp
1 5 10 15

Gly Ala Gln Ala Gly Val Asp Gly Thr Val Ser Gly Trp Glu Glu Ala
20 25 30

Arg Ile Asn Ser Ser Ser Pro Leu Arg Tyr Asn Arg Gln Ile Gly Glu
35 40 45

Phe Ile Val Thr Arg Ala Gly Leu Tyr Tyr Leu Tyr Cys Gln Val His
50 55 60

Phe Asp Glu Gly Lys Ala Val Tyr Leu Lys Leu Asp Leu Leu Val Asp
65 70 75 80

Gly Val Leu Ala Leu Arg Cys Leu Glu Glu Phe Ser Ala Thr Ala Ala
85 90 95

Ser Ser Leu Gly Pro Gln Leu Arg Leu Cys Gln Val Ser Gly Leu Leu
100 105 110

Ala Leu Arg Pro Gly Ser Ser Leu Arg Ile Arg Thr Leu Pro Trp Ala
115 120 125

His Leu Lys Ala Ala Pro Phe Leu Thr Tyr Phe Gly Leu Phe Gln Val
130 135 140

His
145

<210> 28
<211> 158
<212> PRT
<213> Homo sapiens

<400> 28

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

<210> 29

<211> 143

<212> PRT

<213> Homo sapiens

<400> 29

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

Gly Ile Cys Ser Pro Ala Ser Arg Ser Ile Ser Leu Leu Arg Leu Ser
85 90 95

Phe His Gln Gly Cys Thr Ile Ala Ser Gln Arg Leu Thr Pro Leu Ala
100 105 110

Arg Gly Asp Thr Leu Cys Thr Asn Leu Thr Gly Thr Leu Leu Pro Ser
115 120 125

Arg Asn Thr Asp Glu Thr Phe Phe Gly Val Gln Trp Val Arg Pro
130 135 140

<210> 30
<211> 138
<212> PRT
<213> Homo sapiens

<400> 30

Asp Val Ala Glu Leu Gln Leu Asn His Thr Gly Pro Gln Gln Asp Pro
1 5 10 15

Arg Leu Tyr Trp Gln Gly Gly Pro Ala Leu Gly Arg Ser Phe Leu His
20 25 30

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

Tyr Met Val His Ile Gln Val Thr Leu Ala Ile Cys Ser Ser Thr Thr
50 55 60

Ala Ser Arg His His Pro Thr Thr Leu Ala Val Gly Ile Cys Ser Pro
65 70 75 80

Ala Ser Arg Ser Ile Ser Leu Leu Arg Leu Ser Phe His Gln Gly Cys
85 90 95

Thr Ile Ala Ser Gln Arg Leu Thr Pro Leu Ala Arg Gly Asp Thr Leu
100 105 110

Cys Thr Asn Leu Thr Gly Thr Leu Leu Pro Ser Arg Asn Thr Asp Glu
115 120 125

Thr Phe Phe Gly Val Gln Trp Val Arg Pro
130 135

<210> 31
<211> 170
<212> PRT
<213> Homo sapiens

<400> 31

Leu Asp Leu Arg Gln Gly Met Phe Ala Gln Leu Val Ala Gln Asn Val
1 5 10 15

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

<210> 32
 <211> 128
 <212> PRT
 <213> Homo sapiens

<400> 32

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

85

90

95

Asp Thr Ile Asp₁₀₀ Leu Ile Phe Asn Ser₁₀₅ Glu His Gln Val Leu₁₁₀ Lys Asn

Asn Thr Tyr₁₁₅ Trp Gly Ile Ile Leu₁₂₀ Leu Ala Asn Pro Gln₁₂₅ Phe Ile Ser

<210> 33
 <211> 139
 <212> PRT
 <213> Homo sapiens

<400> 33

Lys Lys Gln His Ser₅ Val Leu His Leu Val₁₀ Pro Ile Asn Ala Thr₁₅ Ser

Lys Asp Asp Ser₂₀ Asp Val Thr Glu Val₂₅ Met Trp Gln Pro Ala₃₀ Leu Arg

Arg Gly Arg Gly Leu Gln Ala Gln₄₀ Gly Tyr Gly Val Arg₄₅ Ile Gln Asp

Ala Gly Val Tyr Leu Leu Tyr₅₅ Ser Gln Val Leu Phe₆₀ Gln Asp Val Thr

Phe Thr Met Gly Gln Val₇₀ Val Ser Arg Glu Gly₇₅ Gln Gly Arg Gln Glu₈₀

Thr Leu Phe Arg Cys₈₅ Ile Arg Ser Met Pro₉₀ Ser His Pro Asp Arg₉₅ Ala

Tyr Asn Ser Cys₁₀₀ Tyr Ser Ala Gly Val₁₀₅ Phe His Leu His Gln₁₁₀ Gly Asp

Ile Leu Ser Val Ile Ile Pro Arg₁₂₀ Ala Arg Ala Lys Leu₁₂₅ Asn Leu Ser

Pro His Gly Thr Phe Leu Gly₁₃₅ Phe Val Lys Leu

<210> 34
 <211> 147
 <212> PRT
 <213> Homo sapiens

<400> 34

Glu Asn Gln Pro Ala Val Val His Leu Gln Gly Gln Gly Ser Ala Ile

Gln Val Lys Asn Asp Leu Ser Gly Gly₂₅ Val Leu Asn Asp Trp₃₀ Ser Arg

Ile Thr Met Asn Pro Lys Val Phe Lys Leu His Pro Arg Ser Gly Glu
35 40 45

Leu Glu Val Leu Val Asp Gly Thr Tyr Phe Ile Tyr Ser Gln Val Glu
50 55 60

Val Tyr Tyr Ile Asn Phe Thr Asp Phe Ala Ser Tyr Glu Val Val Val
65 70 75 80

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

Thr Asn Tyr Asn Thr Cys Tyr Thr Ala Gly Val Cys Leu Leu Lys Ala
100 105 110

Arg Gln Lys Ile Ala Val Lys Met Val His Ala Asp Ile Ser Ile Asn
115 120 125

Met Ser Lys His Thr Thr Phe Phe Gly Ala Ile Arg Leu Gly Glu Ala
130 135 140

Pro Ala Ser
145

<210> 35
<211> 145
<212> PRT
<213> Homo sapiens

<400> 35

Glu Asn Gln Pro Ala Val Val His Leu Gln Gly Gln Gly Ser Ala Ile
1 5 10 15

Gln Val Lys Asn Asp Leu Ser Gly Gly Val Leu Asn Asp Trp Ser Arg
20 25 30

Ile Thr Met Asn Pro Lys Val Phe Lys Leu His Pro Arg Ser Gly Glu
35 40 45

Leu Glu Val Leu Val Asp Gly Thr Tyr Phe Ile Tyr Ser Gln Val Tyr
50 55 60

Tyr Ile Asn Phe Thr Asp Phe Ala Ser Tyr Glu Val Val Val Asp Glu
65 70 75 80

Lys Pro Phe Leu Gln Cys Thr Arg Ser Ile Glu Thr Gly Lys Thr Asn
85 90 95

Tyr Asn Thr Cys Tyr Thr Ala Gly Val Cys Leu Leu Lys Ala Arg Gln
100 105 110

Lys Ile Ala Val Lys Met Val His Ala Asp Ile Ser Ile Asn Met Ser
115 120 125

Lys His Thr Thr Phe Phe Gly Ala Ile Arg Leu Gly Glu Ala Pro Ala
130 135 140

Ser
145

<210> 36
<211> 180
<212> PRT
<213> Homo sapiens

<400> 36

Leu Lys Gly Gln Glu Phe Ala Pro Ser His Gln Gln Val Tyr Ala Pro
1 5 10 15

Leu Arg Ala Asp Gly Asp Lys Pro Arg Ala His Leu Thr Val Val Arg
20 25 30

Gln Thr Pro Thr Gln His Phe Lys Asn Gln Phe Pro Ala Leu His Trp
35 40 45

Glu His Glu Leu Gly Leu Ala Phe Thr Lys Asn Arg Met Asn Tyr Thr
50 55 60

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

Gln Val Thr Phe Arg Gly Met Thr Ser Glu Cys Ser Glu Ile Arg Gln
85 90 95

Ala Gly Arg Pro Asn Lys Pro Asp Ser Ile Thr Val Val Ile Thr Lys
100 105 110

Val Thr Asp Ser Tyr Pro Glu Pro Thr Gln Leu Leu Met Gly Thr Lys
115 120 125

Ser Val Cys Glu Val Gly Ser Asn Trp Phe Gln Pro Ile Tyr Leu Gly
130 135 140

Ala Met Phe Ser Leu Gln Glu Gly Asp Lys Leu Met Val Asn Val Ser
145 150 155 160

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

Ala Phe Leu Leu
180

<210> 37
<211> 159
<212> PRT
<213> Homo sapiens

<400> 37

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

<210> 38

<211> 152

<212> PRT

<213> Homo sapiens

<400> 38

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

Arg Lys Lys Val His Val Phe Gly Asp Glu Leu Ser Leu Val Thr Leu
85 90 95

Phe Arg Cys Ile Gln Asn Met Pro Glu Thr Leu Pro Asn Asn Ser Cys
100 105 110

Tyr Ser Ala Gly Ile Ala Lys Leu Glu Glu Gly Asp Glu Leu Gln Leu
115 120 125

Ala Ile Pro Arg Glu Asn Ala Gln Ile Ser Leu Asp Gly Asp Val Thr
130 135 140

Phe Phe Gly Ala Leu Lys Leu Leu
145 150

<210> 39
<211> 1
<212> PRT
<213> Artificial sequence

<220>
<223> Linker

<400> 39

Gly
1

<210> 40
<211> 2
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 40

Gly Gly
1

<210> 41
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 41

Gly Gly Gly
1

<210> 42
<211> 4
<212> PRT
<213> Artificial Sequence

<220>

<223> Linker

<400> 42

Gly Gly Gly Gly
1

<210> 43

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 43

Gly Gly Gly Gly Gly
1 5

<210> 44

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 44

Gly Gly Gly Gly Gly Gly
1 5

<210> 45

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 45

Gly Gly Gly Gly Gly Gly Gly
1 5

<210> 46

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 46

Gly Gly Gly Gly Gly Gly Gly Gly
1 5

<210> 47

<211> 4

<212> PRT

<213> Artificial Sequence

<220>
<223> LInker

<400> 47

Gly Gly Gly Ser
1

<210> 48
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 48

Gly Gly Gly Ser Gly Gly Gly Ser
1 5

<210> 49
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 49

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

<210> 50
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 50

Gly Gly Gly Gly Ser
1 5

<210> 51
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 51

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

<210> 52
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker
<400> 52
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 53
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker
<400> 53

Ser Gly Gly
1

<210> 54
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker
<400> 54

Gly Ser Gly
1

<210> 55
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker
<400> 55

Gly Gly Ser
1

<210> 56
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker
<400> 56

Ser Gly Gly Gly
1

<210> 57
<211> 4
<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 57

Gly Ser Gly Gly
1

<210> 58

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 58

Gly Gly Ser Gly
1

<210> 59

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 59

Ser Gly Gly Gly Gly
1 5

<210> 60

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 60

Gly Ser Gly Gly Gly
1 5

<210> 61

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Linker

<400> 61

Gly Gly Ser Gly Gly
1 5

<210> 62

<211> 5

<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 62

Gly Gly Gly Ser Gly
1 5

<210> 63
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 63

Ser Gly Gly Ser Gly Gly
1 5

<210> 64
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 64

Gly Ser Gly Gly Ser Gly
1 5

<210> 65
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 65

Gly Gly Ser Gly Gly Ser
1 5

<210> 66
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 66

Ser Gly Gly Gly Ser Gly Gly Gly
1 5

<210> 67

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

<220>
<223> Linker

<400> 67

Gly Ser Gly Gly Gly Ser Gly Gly
1 5

<210> 68
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 68

Gly Gly Ser Gly Gly Gly Ser Gly
1 5

<210> 69
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 69

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

<210> 70
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 70

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

<210> 71
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 71

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

<210> 72
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 72

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

<210> 73
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 73

Ser Gly Gly Ser Gly Gly Ser Gly Gly
1 5

<210> 74
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 74

Gly Ser Gly Gly Ser Gly Gly Ser Gly
1 5

<210> 75
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 75

Gly Gly Ser Gly Gly Ser Gly Gly Ser
1 5

<210> 76
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 76

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

<210> 77
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 77

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

<210> 78
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 78

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

<210> 79
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 79

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

<210> 80
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 80

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

<210> 81
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 81

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

<210> 82
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 82

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

<210> 83
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 83

Gly Asn Gly Thr Ser Asn Gly Thr Ser
1 5

<210> 84
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 84

Gly Asn Gly Thr Ser Asn Gly Thr Gly
1 5

<210> 85
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 85

Gly Asn Gly Thr Ser Asn Gly Thr Ser Gly
1 5 10

<210> 86
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 86

Gly Asn Gly Thr Ser Asn Gly Thr Gly Ser

1 5 10

<210> 87
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 87

Gly Asn Gly Thr Ser Asn Gly Thr Ser Asn Gly Thr Ser
1 5 10

<210> 88
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 88

Gly Gly Gly Ser Gly Asn Gly Thr Ser Asn Gly Thr Gly Ser
1 5 10

<210> 89
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 89

Gly Asn Gly Thr Ser Asn Gly Thr Gly Ser Gly Gly Gly Ser
1 5 10

<210> 90
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 90

Gly Gly Gly Ser Gly Asn Gly Thr Ser Asn Gly Thr Ser Gly
1 5 10

<210> 91
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 91

Gly Asn Gly Thr Ser Asn Gly Thr Ser Gly Gly Gly Gly Ser
1 5 10

<210> 92
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> VL sequence EGFR

<400> 92

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

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

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

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

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

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

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

<210> 93
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> VH sequence EGFR

<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 Ser Leu Thr Asn Tyr
20 25 30

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

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

Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu
page 38

Glu Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly
180 185 190

Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala
195 200 205

Thr Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly Ala
210 215 220

Gly Thr Lys Leu Glu Ile Lys Arg
225 230

<210> 95
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> Linker

<400> 95

Ala Ala Ala Glu Phe Thr Arg Gly
1 5

<210> 96
<211> 860
<212> PRT
<213> Artificial sequence

<220>
<223> VH-VL(EGFR)-sCTRAIL fusion protein

<400> 96

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
20 25 30

Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
35 40 45

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn
50 55 60

Tyr Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
65 70 75 80

Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe
85 90 95

Thr Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
100 105 110

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
page 40

115					120					125					
Ala	Arg	Ala	Leu	Thr	Tyr	Tyr	Asp	Tyr	Glu	Phe	Ala	Tyr	Trp	Gly	Gln
	130					135					140				
Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly
145					150					155					160
Gly	Ser	Gly	Gly	Gly	Gly	Ser	Asp	Ile	Gln	Leu	Thr	Gln	Ser	Pro	Ser
				165					170					175	
Phe	Leu	Ser	Ala	Ser	Val	Gly	Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala
			180					185					190		
Ser	Gln	Ser	Ile	Gly	Thr	Asn	Ile	His	Trp	Tyr	Gln	Gln	Lys	Pro	Gly
		195					200					205			
Lys	Ala	Pro	Lys	Leu	Leu	Ile	Lys	Tyr	Ala	Ser	Glu	Ser	Ile	Ser	Gly
	210					215					220				
Val	Pro	Ser	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu
225					230					235					240
Thr	Ile	Ser	Ser	Leu	Gln	Pro	Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln
				245					250					255	
Gln	Asn	Asn	Asn	Trp	Pro	Thr	Thr	Phe	Gly	Ala	Gly	Thr	Lys	Leu	Glu
			260					265					270		
Ile	Lys	Arg	Ala	Ala	Ala	Glu	Phe	Thr	Arg	Gly	Thr	Ser	Glu	Glu	Thr
		275					280					285			
Ile	Ser	Thr	Val	Gln	Glu	Lys	Gln	Gln	Asn	Ile	Ser	Pro	Leu	Val	Arg
	290					295					300				
Glu	Arg	Gly	Pro	Gln	Arg	Val	Ala	Ala	His	Ile	Thr	Gly	Thr	Arg	Gly
305					310					315					320
Arg	Ser	Asn	Thr	Leu	Ser	Ser	Pro	Asn	Ser	Lys	Asn	Glu	Lys	Ala	Leu
				325					330					335	
Gly	Arg	Lys	Ile	Asn	Ser	Trp	Glu	Ser	Ser	Arg	Ser	Gly	His	Ser	Phe
			340					345					350		
Leu	Ser	Asn	Leu	His	Leu	Arg	Asn	Gly	Glu	Leu	Val	Ile	His	Glu	Lys
		355					360					365			
Gly	Phe	Tyr	Tyr	Ile	Tyr	Ser	Gln	Thr	Tyr	Phe	Arg	Phe	Gln	Glu	Glu
	370					375					380				
Ile	Lys	Glu	Asn	Thr	Lys	Asn	Asp	Lys	Gln	Met	Val	Gln	Tyr	Ile	Tyr
385					390					395					400

Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg
 405 410 415
 Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr
 420 425 430
 Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser
 435 440 445
 Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe
 450 455 460
 Gly Ala Phe Leu Val Gly Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser
 465 470 475 480
 Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro
 485 490 495
 Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly
 500 505 510
 Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu
 515 520 525
 Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly
 530 535 540
 His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile
 545 550 555 560
 His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe
 565 570 575
 Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln
 580 585 590
 Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys
 595 600 605
 Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr
 610 615 620
 Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile
 625 630 635 640
 Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala
 645 650 655
 Ser Phe Phe Gly Ala Phe Leu Val Gly Gly Gly Gly Ser Gly Gly Gly
 660 665 670

Ser Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn
675 680 685

Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His
690 695 700

Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser
705 710 715 720

Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser
725 730 735

Arg Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu
740 745 750

Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr
755 760 765

Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln
770 775 780

Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu
785 790 795 800

Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr
805 810 815

Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn
820 825 830

Asp Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp
835 840 845

His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly
850 855 860

<210> 97

<211> 869

<212> PRT

<213> Artificial sequence

<220>

<223> VH-VL(EGFR)-scTRAIL fusion protein with glycosylation motif

<400> 97

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
20 25 30

Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
35 40 45

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn
 50 55 60
 Tyr Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
 65 70 75 80
 Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe
 85 90 95
 Thr Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 100 105 110
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 115 120 125
 Ala Arg Ala Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln
 130 135 140
 Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
 145 150 155 160
 Gly Ser Gly Gly Gly Gly Ser Asp Ile Gln Leu Thr Gln Ser Pro Ser
 165 170 175
 Phe Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala
 180 185 190
 Ser Gln Ser Ile Gly Thr Asn Ile His Trp Tyr Gln Gln Lys Pro Gly
 195 200 205
 Lys Ala Pro Lys Leu Leu Ile Lys Tyr Ala Ser Glu Ser Ile Ser Gly
 210 215 220
 Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu
 225 230 235 240
 Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln
 245 250 255
 Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly Ala Gly Thr Lys Leu Glu
 260 265 270
 Ile Lys Arg Ala Ala Ala Gly Asn Gly Thr Ser Asn Gly Thr Ser Glu
 275 280 285
 Phe Thr Arg Gly Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys
 290 295 300
 Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val
 305 310 315 320

Ala	Ala	His	Ile	Thr 325	Gly	Thr	Arg	Gly	Arg 330	Ser	Asn	Thr	Leu	Ser 335	Ser
Pro	Asn	Ser	Lys 340	Asn	Glu	Lys	Ala	Leu 345	Gly	Arg	Lys	Ile	Asn 350	Ser	Trp
Glu	Ser	Ser 355	Arg	Ser	Gly	His	Ser 360	Phe	Leu	Ser	Asn	Leu 365	His	Leu	Arg
Asn	Gly 370	Glu	Leu	Val	Ile	His 375	Glu	Lys	Gly	Phe	Tyr 380	Tyr	Ile	Tyr	Ser
Gln 385	Thr	Tyr	Phe	Arg	Phe 390	Gln	Glu	Glu	Ile	Lys 395	Glu	Asn	Thr	Lys	Asn 400
Asp	Lys	Gln	Met	Val 405	Gln	Tyr	Ile	Tyr	Lys 410	Tyr	Thr	Ser	Tyr	Pro 415	Asp
Pro	Ile	Leu	Leu 420	Met	Lys	Ser	Ala	Arg 425	Asn	Ser	Cys	Trp	Ser 430	Lys	Asp
Ala	Glu	Tyr 435	Gly	Leu	Tyr	Ser	Ile 440	Tyr	Gln	Gly	Gly	Ile 445	Phe	Glu	Leu
Lys	Glu 450	Asn	Asp	Arg	Ile	Phe 455	Val	Ser	Val	Thr	Asn 460	Glu	His	Leu	Ile
Asp 465	Met	Asp	His	Glu	Ala 470	Ser	Phe	Phe	Gly	Ala 475	Phe	Leu	Val	Gly	Gly 480
Gly	Gly	Ser	Gly	Gly 485	Gly	Ser	Thr	Ser	Glu 490	Glu	Thr	Ile	Ser	Thr 495	Val
Gln	Glu	Lys	Gln 500	Gln	Asn	Ile	Ser	Pro 505	Leu	Val	Arg	Glu	Arg 510	Gly	Pro
Gln	Arg	Val 515	Ala	Ala	His	Ile	Thr 520	Gly	Thr	Arg	Gly	Arg 525	Ser	Asn	Thr
Leu	Ser 530	Ser	Pro	Asn	Ser	Lys 535	Asn	Glu	Lys	Ala	Leu 540	Gly	Arg	Lys	Ile
Asn 545	Ser	Trp	Glu	Ser	Ser 550	Arg	Ser	Gly	His	Ser 555	Phe	Leu	Ser	Asn	Leu 560
His	Leu	Arg	Asn	Gly 565	Glu	Leu	Val	Ile	His 570	Glu	Lys	Gly	Phe	Tyr 575	Tyr
Ile	Tyr	Ser	Gln 580	Thr	Tyr	Phe	Arg	Phe 585	Gln	Glu	Glu	Ile	Lys 590	Glu	Asn

Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser
 595 600 605
 Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp
 610 615 620
 Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile
 625 630 635 640
 Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu
 645 650 655
 His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu
 660 665 670
 Val Gly Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser Glu Glu Thr Ile
 675 680 685
 Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu
 690 695 700
 Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg
 705 710 715 720
 Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly
 725 730 735
 Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu
 740 745 750
 Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly
 755 760 765
 Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile
 770 775 780
 Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys
 785 790 795 800
 Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn
 805 810 815
 Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln
 820 825 830
 Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val
 835 840 845
 Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly
 850 855 860
 Ala Phe Leu Val Gly

865

<210> 98
<211> 881
<212> PRT
<213> Artificial sequence

<220>
<223> VH-VL(EGFR)-scTRAIL fusion protein with glycosylation motif
<400> 98

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
20 25 30

Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
35 40 45

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn
50 55 60

Tyr Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
65 70 75 80

Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe
85 90 95

Thr Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
100 105 110

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
115 120 125

Ala Arg Ala Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln
130 135 140

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

Gly Ser Gly Gly Gly Gly Ser Asp Ile Gln Leu Thr Gln Ser Pro Ser
165 170 175

Phe Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala
180 185 190

Ser Gln Ser Ile Gly Thr Asn Ile His Trp Tyr Gln Gln Lys Pro Gly
195 200 205

Lys Ala Pro Lys Leu Leu Ile Lys Tyr Ala Ser Glu Ser Ile Ser Gly
210 215 220

Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu
225 230 235 240
Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln
245 250 255
Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly Ala Gly Thr Lys Leu Glu
260 265 270
Ile Lys Arg Ala Ala Ala Gly Asn Gly Thr Ser Asn Gly Thr Ser Glu
275 280 285
Phe Thr Arg Gly Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys
290 295 300
Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val
305 310 315 320
Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser
325 330 335
Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp
340 345 350
Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg
355 360 365
Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser
370 375 380
Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn
385 390 395 400
Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp
405 410 415
Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp
420 425 430
Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu
435 440 445
Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile
450 455 460
Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly Gly
465 470 475 480
Gly Gly Ser Gly Asn Gly Thr Ser Asn Gly Thr Ser Gly Thr Ser Glu
485 490 495
Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu
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500					505					510					
Val	Arg	Glu 515	Arg	Gly	Pro	Gln	Arg 520	Val	Ala	Ala	His	Ile 525	Thr	Gly	Thr
Arg	Gly 530	Arg	Ser	Asn	Thr	Leu 535	Ser	Ser	Pro	Asn	Ser 540	Lys	Asn	Glu	Lys
Ala 545	Leu	Gly	Arg	Lys	Ile 550	Asn	Ser	Trp	Glu	Ser 555	Ser	Arg	Ser	Gly	His 560
Ser	Phe	Leu	Ser	Asn 565	Leu	His	Leu	Arg	Asn 570	Gly	Glu	Leu	Val	Ile 575	His
Glu	Lys	Gly	Phe 580	Tyr	Tyr	Ile	Tyr	Ser 585	Gln	Thr	Tyr	Phe	Arg 590	Phe	Gln
Glu	Glu	Ile 595	Lys	Glu	Asn	Thr	Lys 600	Asn	Asp	Lys	Gln	Met 605	Val	Gln	Tyr
Ile	Tyr 610	Lys	Tyr	Thr	Ser	Tyr 615	Pro	Asp	Pro	Ile	Leu 620	Leu	Met	Lys	Ser
Ala 625	Arg	Asn	Ser	Cys	Trp 630	Ser	Lys	Asp	Ala	Glu 635	Tyr	Gly	Leu	Tyr	Ser 640
Ile	Tyr	Gln	Gly	Gly 645	Ile	Phe	Glu	Leu	Lys 650	Glu	Asn	Asp	Arg	Ile 655	Phe
Val	Ser	Val	Thr 660	Asn	Glu	His	Leu	Ile 665	Asp	Met	Asp	His	Glu 670	Ala	Ser
Phe	Phe	Gly 675	Ala	Phe	Leu	Val	Gly 680	Gly	Gly	Gly	Ser	Gly 685	Asn	Gly	Thr
Ser	Asn 690	Gly	Thr	Gly	Ser	Thr 695	Ser	Glu	Glu	Thr	Ile 700	Ser	Thr	Val	Gln
Glu 705	Lys	Gln	Gln	Asn	Ile 710	Ser	Pro	Leu	Val	Arg 715	Glu	Arg	Gly	Pro	Gln 720
Arg	Val	Ala	Ala	His 725	Ile	Thr	Gly	Thr	Arg 730	Gly	Arg	Ser	Asn	Thr 735	Leu
Ser	Ser	Pro	Asn 740	Ser	Lys	Asn	Glu	Lys 745	Ala	Leu	Gly	Arg	Lys 750	Ile	Asn
Ser	Trp	Glu 755	Ser	Ser	Arg	Ser	Gly 760	His	Ser	Phe	Leu	Ser 765	Asn	Leu	His
Leu	Arg 770	Asn	Gly	Glu	Leu	Val 775	Ile	His	Glu	Lys	Gly 780	Phe	Tyr	Tyr	Ile

Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr
785 790 795 800

Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr
805 810 815

Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser
820 825 830

Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe
835 840 845

Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His
850 855 860

Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val
865 870 875 880

Gly

<210> 99
<211> 56
<212> PRT
<213> Streptococcus sp. G148

<400> 99

Gln His Asp Glu Ala Val Asp Ala Asn Ser Leu Ala Glu Ala Lys Val
1 5 10 15

Leu Ala Asn Arg Glu Leu Asp Lys Tyr Gly Val Ser Asp Tyr Tyr Lys
20 25 30

Asn Leu Ile Asn Asn Ala Lys Thr Val Glu Gly Val Lys Ala Leu Ile
35 40 45

Asp Glu Ile Leu Ala Ala Leu Pro
50 55

<210> 100
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> FLAG-TAG

<400> 100

Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

<210> 101
<211> 19

<212> PRT
<213> Homo sapiens

<400> 101

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser

<210> 102
<211> 850
<212> PRT
<213> Artificial sequence

<220>
<223> VH-VL(EGFR)-sCTRAIL fusion protein

<400> 102

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
20 25 30

Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
35 40 45

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn
50 55 60

Tyr Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
65 70 75 80

Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe
85 90 95

Thr Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
100 105 110

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
115 120 125

Ala Arg Ala Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln
130 135 140

Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Asp Ile Gln
145 150 155 160

Leu Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val Gly Asp Arg Val
165 170 175

Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn Ile His Trp
180 185 190

Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Lys Tyr Ala
 195 200 205
 Ser Glu Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser
 210 215 220
 Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe
 225 230 235 240
 Ala Thr Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly
 245 250 255
 Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala Glu Phe Thr Arg
 260 265 270
 Gly Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn
 275 280 285
 Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His
 290 295 300
 Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser
 305 310 315 320
 Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser
 325 330 335
 Arg Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu
 340 345 350
 Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr
 355 360 365
 Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln
 370 375 380
 Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu
 385 390 395 400
 Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr
 405 410 415
 Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn
 420 425 430
 Asp Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp
 435 440 445
 His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly Gly Gly Gly Ser
 450 455 460

Gly 465 Gly Gly Ser Thr Ser 470 Glu Glu Thr Ile Ser 475 Thr Val Gln Glu Lys 480
 Gln Gln Asn Ile Ser 485 Pro Leu Val Arg Glu 490 Arg Gly Pro Gln Arg Val 495
 Ala Ala His Ile 500 Thr Gly Thr Arg Gly 505 Arg Ser Asn Thr Leu 510 Ser Ser
 Pro Asn Ser 515 Lys Asn Glu Lys Ala 520 Leu Gly Arg Lys Ile 525 Asn Ser Trp
 Glu Ser 530 Ser Arg Ser Gly His 535 Ser Phe Leu Ser Asn 540 Leu His Leu Arg
 Asn 545 Gly Glu Leu Val Ile 550 His Glu Lys Gly Phe 555 Tyr Tyr Ile Tyr Ser 560
 Gln Thr Tyr Phe Arg 565 Phe Gln Glu Glu Ile 570 Lys Glu Asn Thr Lys 575 Asn
 Asp Lys Gln Met 580 Val Gln Tyr Ile Tyr 585 Lys Tyr Thr Ser Tyr 590 Pro Asp
 Pro Ile Leu 595 Leu Met Lys Ser Ala 600 Arg Asn Ser Cys Trp 605 Ser Lys Asp
 Ala Glu Tyr Gly Leu Tyr Ser 615 Ile Tyr Gln Gly Gly 620 Ile Phe Glu Leu
 Lys 625 Glu Asn Asp Arg Ile 630 Phe Val Ser Val Thr 635 Asn Glu His Leu Ile 640
 Asp Met Asp His Glu 645 Ala Ser Phe Phe Gly 650 Ala Phe Leu Val Gly 655 Gly
 Gly Gly Ser Gly 660 Gly Gly Ser Thr Ser 665 Glu Glu Thr Ile Ser 670 Thr Val
 Gln Glu Lys 675 Gln Gln Asn Ile Ser 680 Pro Leu Val Arg Glu 685 Arg Gly Pro
 Gln Arg 690 Val Ala Ala His Ile 695 Thr Gly Thr Arg Gly 700 Arg Ser Asn Thr
 Leu Ser Ser Pro Asn Ser 710 Lys Asn Glu Lys Ala 715 Leu Gly Arg Lys Ile 720
 Asn Ser Trp Glu Ser 725 Ser Arg Ser Gly His 730 Ser Phe Leu Ser Asn 735 Leu

His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr
740 745 750

Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn
755 760 765

Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser
770 775 780

Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp
785 790 795 800

Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile
805 810 815

Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu
820 825 830

His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu
835 840 845

Val Gly
850

<210> 103
<211> 907
<212> PRT
<213> Artificial Sequence

<220>
<223> VH-VL(EGFR)-scTRAIL fusion protein with ABD

<400> 103

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
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Ala His Ser Gln His Asp Glu Ala Val Asp Ala Asn Ser Leu Ala Glu
20 25 30

Ala Lys Val Leu Ala Asn Arg Glu Leu Asp Lys Tyr Gly Val Ser Asp
35 40 45

Tyr Tyr Lys Asn Leu Ile Asn Asn Ala Lys Thr Val Glu Gly Val Lys
50 55 60

Ala Leu Ile Asp Glu Ile Leu Ala Ala Leu Pro Gly Gly Ser Gly Gly
65 70 75 80

Gly Gly Ser Gly Gly Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu
85 90 95

Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe
100 105 110

Ser Leu Thr Asn Tyr Gly Val His Trp Val Arg Gln Ala Pro Gly Lys
 115 120 125
 Gly Leu Glu Trp Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr
 130 135 140
 Asn Thr Pro Phe Thr Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys
 145 150 155 160
 Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala
 165 170 175
 Val Tyr Tyr Cys Ala Arg Ala Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala
 180 185 190
 Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly
 195 200 205
 Ser Asp Ile Gln Leu Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val
 210 215 220
 Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr
 225 230 235 240
 Asn Ile His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu
 245 250 255
 Ile Lys Tyr Ala Ser Glu Ser Ile Ser Gly Val Pro Ser Arg Phe Ser
 260 265 270
 Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln
 275 280 285
 Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro
 290 295 300
 Thr Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Gly Gly Ser
 305 310 315 320
 Gly Asn Gly Thr Ser Asn Gly Thr Ser Gly Thr Ser Glu Glu Thr Ile
 325 330 335
 Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu
 340 345 350
 Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg
 355 360 365
 Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly
 370 375 380

Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu
385 390 395 400

Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly
405 410 415

Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile
420 425 430

Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys
435 440 445

Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn
450 455 460

Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln
465 470 475 480

Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val
485 490 495

Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly
500 505 510

Ala Phe Leu Val Gly Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser Glu
515 520 525

Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu
530 535 540

Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr
545 550 555 560

Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys
565 570 575

Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His
580 585 590

Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His
595 600 605

Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln
610 615 620

Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr
625 630 635 640

Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser
645 650 655

Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser
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660					665					670					
Ile	Tyr	Gln	Gly	Gly	Ile	Phe	Glu	Leu	Lys	Glu	Asn	Asp	Arg	Ile	Phe
		675					680					685			
Val	Ser	Val	Thr	Asn	Glu	His	Leu	Ile	Asp	Met	Asp	His	Glu	Ala	Ser
	690					695					700				
Phe	Phe	Gly	Ala	Phe	Leu	Val	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Ser
705					710					715					720
Thr	Ser	Glu	Glu	Thr	Ile	Ser	Thr	Val	Gln	Glu	Lys	Gln	Gln	Asn	Ile
				725					730					735	
Ser	Pro	Leu	Val	Arg	Glu	Arg	Gly	Pro	Gln	Arg	Val	Ala	Ala	His	Ile
			740					745					750		
Thr	Gly	Thr	Arg	Gly	Arg	Ser	Asn	Thr	Leu	Ser	Ser	Pro	Asn	Ser	Lys
		755					760					765			
Asn	Glu	Lys	Ala	Leu	Gly	Arg	Lys	Ile	Asn	Ser	Trp	Glu	Ser	Ser	Arg
	770					775					780				
Ser	Gly	His	Ser	Phe	Leu	Ser	Asn	Leu	His	Leu	Arg	Asn	Gly	Glu	Leu
785					790					795					800
Val	Ile	His	Glu	Lys	Gly	Phe	Tyr	Tyr	Ile	Tyr	Ser	Gln	Thr	Tyr	Phe
				805					810					815	
Arg	Phe	Gln	Glu	Glu	Ile	Lys	Glu	Asn	Thr	Lys	Asn	Asp	Lys	Gln	Met
			820					825					830		
Val	Gln	Tyr	Ile	Tyr	Lys	Tyr	Thr	Ser	Tyr	Pro	Asp	Pro	Ile	Leu	Leu
		835					840					845			
Met	Lys	Ser	Ala	Arg	Asn	Ser	Cys	Trp	Ser	Lys	Asp	Ala	Glu	Tyr	Gly
	850					855					860				
Leu	Tyr	Ser	Ile	Tyr	Gln	Gly	Gly	Ile	Phe	Glu	Leu	Lys	Glu	Asn	Asp
865					870					875					880
Arg	Ile	Phe	Val	Ser	Val	Thr	Asn	Glu	His	Leu	Ile	Asp	Met	Asp	His
				885					890					895	
Glu	Ala	Ser	Phe	Phe	Gly	Ala	Phe	Leu	Val	Gly					
			900					905							

<210> 104
 <211> 577
 <212> PRT
 <213> Artificial Sequence

<220>

<223> SCTRAIL fusion protein

<400> 104

Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile
1 5 10 15

Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile
20 25 30

Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys
35 40 45

Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg
50 55 60

Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu
65 70 75 80

Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe
85 90 95

Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met
100 105 110

Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu
115 120 125

Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly
130 135 140

Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp
145 150 155 160

Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His
165 170 175

Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly Gly Gly Gly Ser Gly
180 185 190

Gly Gly Ser Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln
195 200 205

Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala
210 215 220

Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro
225 230 235 240

Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu
245 250 255

Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn
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Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His
545 550 555 560

Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val
565 570 575

Gly

<210> 105
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 105

Ala Ala Ala Gly Asn Gly Thr Ser Asn Gly Thr Ser Glu Phe Thr Arg
1 5 10 15

Gly

<210> 106
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 106

Gly Gly Ser Gly Asn Gly Thr Ser Asn Gly Thr Ser Gly
1 5 10

<210> 107
<211> 817
<212> PRT
<213> Artificial Sequence

<220>
<223> VH-VL(EGFR)-scTRAIL fusion protein

<400> 107

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 Ser Leu Thr Asn Tyr
20 25 30

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

Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr
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50

55

60

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

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

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

Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Asp Ile Gln Leu
115 120 125

Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val Gly Asp Arg Val Thr
130 135 140

Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn Ile His Trp Tyr
145 150 155 160

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

Glu Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly
180 185 190

Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala
195 200 205

Thr Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly Ala
210 215 220

Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala Glu Phe Thr Arg Gly
225 230 235 240

Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile
245 250 255

Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile
260 265 270

Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys
275 280 285

Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg
290 295 300

Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu
305 310 315 320

Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe
325 330 335

Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met
 340 345 350
 Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu
 355 360 365
 Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly
 370 375 380
 Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp
 385 390 395 400
 Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His
 405 410 415
 Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly Gly Gly Gly Ser Gly
 420 425 430
 Gly Gly Ser Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln
 435 440 445
 Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala
 450 455 460
 Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro
 465 470 475 480
 Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu
 485 490 495
 Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn
 500 505 510
 Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln
 515 520 525
 Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp
 530 535 540
 Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro
 545 550 555 560
 Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala
 565 570 575
 Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys
 580 585 590
 Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp
 595 600 605

Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly Gly Gly
610 615 620

Gly Ser Gly Gly Gly Ser Thr Ser Glu Glu Thr Ile Ser Thr Val Gln
625 630 635 640

Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln
645 650 655

Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu
660 665 670

Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn
675 680 685

Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu His
690 695 700

Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile
705 710 715 720

Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr
725 730 735

Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr
740 745 750

Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser
755 760 765

Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe
770 775 780

Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His
785 790 795 800

Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val
805 810 815

Gly

<210> 108
<211> 20
<212> PRT
<213> Homo sapiens

<400> 108

Met Glu Thr Asp Thr Leu Leu Leu Trp Val Leu Leu Leu Trp Val Pro
1 5 10 15

Gly Ser Thr Gly

<210> 109
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 109
 cgaggcgcag ctggcgcag 19

<210> 110
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 110
 tgcggccgct ctcttgattt c 21

<210> 111
 <211> 66
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 111
 atatatctcg aggccagcga ctacaaagac gatgacgata aaggagccga ggtgcagctg 60
 gtcgag 66

<210> 112
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 112
 atatatctcg aggccagcga c 21

<210> 113
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 113
 atatgaattc tgcggccgct ctcttgattt c 31

<210> 114
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

 <400> 114
 cccacagcct cgaggccag 19

 <210> 115
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 115
 gagccgccac cgccactag 19

 <210> 116
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 116
 ctagtggcgg tggcggctct gatattcagc tgaccagtc c 41

 <210> 117
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 117
 tgaattctgc ggccgctctc 20

 <210> 118
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 118
 cccacagcct cgaggccag 19

 <210> 119
 <211> 37
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 119
 cccgttgctg gtgccgttgc ctgcggccgc tctcttg 37

 <210> 120

<211> 35
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 120
 atatgaattc ggatgtcccg ttgctggtgc cgttg 35

<210> 121
 <211> 43
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 121
 gcacatccaa tgggaccagc ggaacctccg aagagactat ctc 43

<210> 122
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 122
 cccgttgctg gttccattac cagatccgcc ccctcc 36

<210> 123
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 123
 atatatggat ccggcaacgg cacatccaat gggaccag 38

<210> 124
 <211> 35
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 124
 atatatggat ccggtcccgt tgctggttcc attac 35

<210> 125
 <211> 918
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> VH-VL(EGFR)-ABD-Glyco-scTrail

 <400> 125

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
 1 5 10 15
 Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
 20 25 30
 Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
 35 40 45
 Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn
 50 55 60
 Tyr Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
 65 70 75 80
 Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe
 85 90 95
 Thr Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 100 105 110
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 115 120 125
 Ala Arg Ala Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln
 130 135 140
 Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Asp Ile Gln
 145 150 155 160
 Leu Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val Gly Asp Arg Val
 165 170 175
 Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn Ile His Trp
 180 185 190
 Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Lys Tyr Ala
 195 200 205
 Ser Glu Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser
 210 215 220
 Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe
 225 230 235 240
 Ala Thr Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly
 245 250 255
 Ala Gly Thr Lys Leu Glu Ile Lys Arg Gly Gly Ser Gln His Asp Glu
 260 265 270
 Ala Val Asp Ala Asn Ser Leu Ala Glu Ala Lys Val Leu Ala Asn Arg
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275	280	285
Glu Leu Asp Lys Tyr Gly Val	Ser Asp Tyr Tyr Lys	Asn Leu Ile Asn
290	295	300
Asn Ala Lys Thr Val Glu Gly Val Lys Ala Leu	Ile Asp Glu Ile Leu	
305	310	315
Ala Ala Leu Pro Ala Ala Ala Gly Asn Gly Thr Ser Asn Gly Thr Ser		
	325	330
Glu Phe Thr Arg Gly Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu		
	340	345
Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg		
	355	360
Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser		
	370	375
Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser		
	385	390
Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu His Leu		
	405	410
Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr		
	420	425
Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys		
	435	440
Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro		
	450	455
Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys		
	465	470
Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu		
	485	490
Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His Leu		
	500	505
Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly		
	515	520
Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser Glu Glu Thr Ile Ser Thr		
	530	535
Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly		
	545	550
	555	560

Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn
 565 570 575
 Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys
 580 585 590
 Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn
 595 600 605
 Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr
 610 615 620
 Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu
 625 630 635 640
 Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr
 645 650 655
 Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys
 660 665 670
 Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly
 675 680 685
 Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn
 690 695 700
 Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe
 705 710 715 720
 Leu Val Gly Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser Glu Glu Thr
 725 730 735
 Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg
 740 745 750
 Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly
 755 760 765
 Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu
 770 775 780
 Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe
 785 790 795 800
 Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys
 805 810 815
 Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu
 820 825 830

Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr
835 840 845

Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg
850 855 860

Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr
865 870 875 880

Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser
885 890 895

Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe
900 905 910

Gly Ala Phe Leu Val Gly
915

<210> 126
<211> 920
<212> PRT
<213> Artificial Sequence

<220>
<223> VH-VL(EGFR)-Glyco-scTrail-ABD

<400> 126

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
20 25 30

Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
35 40 45

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn
50 55 60

Tyr Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
65 70 75 80

Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe
85 90 95

Thr Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
100 105 110

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
115 120 125

Ala Arg Ala Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln
130 135 140

Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Asp Ile Gln
 145 150 155 160
 Leu Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val Gly Asp Arg Val
 165 170 175
 Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn Ile His Trp
 180 185 190
 Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Lys Tyr Ala
 195 200 205
 Ser Glu Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser
 210 215 220
 Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe
 225 230 235 240
 Ala Thr Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly
 245 250 255
 Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala Gly Asn Gly Thr
 260 265 270
 Ser Asn Gly Thr Ser Glu Phe Thr Arg Gly Thr Ser Glu Glu Thr Ile
 275 280 285
 Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu
 290 295 300
 Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg
 305 310 315 320
 Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly
 325 330 335
 Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu
 340 345 350
 Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly
 355 360 365
 Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile
 370 375 380
 Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys
 385 390 395 400
 Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn
 405 410 415

Ser Cys Trp Ser₄₂₀ Lys Asp Ala Glu Tyr₄₂₅ Gly Leu Tyr Ser Ile₄₃₀ Tyr Gln
 Gly Gly Ile₄₃₅ Phe Glu Leu Lys Glu₄₄₀ Asn Asp Arg Ile Phe₄₄₅ Val Ser Val
 Thr Asn₄₅₀ Glu His Leu Ile Asp₄₅₅ Met Asp His Glu Ala₄₆₀ Ser Phe Phe Gly
 Ala₄₆₅ Phe Leu Val Gly Glu₄₇₀ Gly Gly Ser Gly Glu₄₇₅ Gly Ser Thr Ser Glu₄₈₀
 Glu Thr Ile Ser Thr₄₈₅ Val Gln Glu Lys Gln₄₉₀ Gln Asn Ile Ser Pro₄₉₅ Leu
 Val Arg Glu Arg₅₀₀ Gly Pro Gln Arg Val₅₀₅ Ala Ala His Ile Thr₅₁₀ Gly Thr
 Arg Gly Arg₅₁₅ Ser Asn Thr Leu Ser₅₂₀ Ser Pro Asn Ser Lys₅₂₅ Asn Glu Lys
 Ala Leu₅₃₀ Gly Arg Lys Ile Asn₅₃₅ Ser Trp Glu Ser Ser₅₄₀ Arg Ser Gly His
 Ser₅₄₅ Phe Leu Ser Asn Leu₅₅₀ His Leu Arg Asn Gly₅₅₅ Glu Leu Val Ile His₅₆₀
 Glu Lys Gly Phe Tyr₅₆₅ Tyr Ile Tyr Ser Gln₅₇₀ Thr Tyr Phe Arg Phe₅₇₅ Gln
 Glu Glu Ile Lys₅₈₀ Glu Asn Thr Lys Asn₅₈₅ Asp Lys Gln Met Val₅₉₀ Gln Tyr
 Ile Tyr Lys₅₉₅ Tyr Thr Ser Tyr Pro₆₀₀ Asp Pro Ile Leu Leu₆₀₅ Met Lys Ser
 Ala Arg Asn Ser Cys Trp Ser₆₁₅ Lys Asp Ala Glu Tyr₆₂₀ Gly Leu Tyr Ser
 Ile₆₂₅ Tyr Gln Gly Gly Ile₆₃₀ Phe Glu Leu Lys Glu₆₃₅ Asn Asp Arg Ile Phe₆₄₀
 Val Ser Val Thr Asn₆₄₅ Glu His Leu Ile Asp₆₅₀ Met Asp His Glu Ala₆₅₅ Ser
 Phe Phe Gly Ala₆₆₀ Phe Leu Val Gly Glu₆₆₅ Gly Gly Ser Gly Glu₆₇₀ Gly Ser
 Thr Ser Glu₆₇₅ Glu Thr Ile Ser Thr₆₈₀ Val Gln Glu Lys Gln₆₈₅ Gln Asn Ile

Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile
690 695 700

Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys
705 710 715 720

Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg
725 730 735

Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu
740 745 750

Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe
755 760 765

Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met
770 775 780

Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu
785 790 795 800

Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly
805 810 815

Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp
820 825 830

Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His
835 840 845

Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly Gly Gly Ser Gly Gly
850 855 860

Gln His Asp Glu Ala Val Asp Ala Asn Ser Leu Ala Glu Ala Lys Val
865 870 875 880

Leu Ala Asn Arg Glu Leu Asp Lys Tyr Gly Val Ser Asp Tyr Tyr Lys
885 890 895

Asn Leu Ile Asn Asn Ala Lys Thr Val Glu Gly Val Lys Ala Leu Ile
900 905 910

Asp Glu Ile Leu Ala Ala Leu Pro
915 920

<210> 127
<211> 855
<212> PRT
<213> Artificial Sequence

<220>
<223> [VH-VL(FAP)hu36]-scTrail

<400> 127

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

Ala Glu phe Thr Arg Gly Thr Ser Glu Glu Thr Ile Ser Thr Val Gln
275 280 285

Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln
290 295 300

Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu
305 310 315 320

Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn
325 330 335

Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu His
340 345 350

Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile
355 360 365

Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr
370 375 380

Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr
385 390 395 400

Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser
405 410 415

Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe
420 425 430

Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His
435 440 445

Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val
450 455 460

Gly Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser Glu Glu Thr Ile Ser
465 470 475 480

Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg
485 490 495

Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser
500 505 510

Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg
515 520 525

Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser
530 535 540

Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe
page 75

545					550						555				560
Tyr	Tyr	Ile	Tyr	Ser 565	Gln	Thr	Tyr	Phe	Arg 570	Phe	Gln	Glu	Glu	Ile 575	Lys
Glu	Asn	Thr	Lys 580	Asn	Asp	Lys	Gln	Met 585	Val	Gln	Tyr	Ile	Tyr 590	Lys	Tyr
Thr	Ser	Tyr 595	Pro	Asp	Pro	Ile	Leu 600	Leu	Met	Lys	Ser	Ala 605	Arg	Asn	Ser
Cys	Trp 610	Ser	Lys	Asp	Ala	Glu 615	Tyr	Gly	Leu	Tyr	Ser 620	Ile	Tyr	Gln	Gly
Gly 625	Ile	Phe	Glu	Leu	Lys 630	Glu	Asn	Asp	Arg	Ile 635	Phe	Val	Ser	Val	Thr 640
Asn	Glu	His	Leu	Ile 645	Asp	Met	Asp	His	Glu 650	Ala	Ser	Phe	Phe	Gly 655	Ala
Phe	Leu	Val	Gly 660	Gly	Gly	Gly	Ser	Gly 665	Gly	Gly	Ser	Thr	Ser 670	Glu	Glu
Thr	Ile	Ser 675	Thr	Val	Gln	Glu	Lys 680	Gln	Gln	Asn	Ile	Ser 685	Pro	Leu	Val
Arg	Glu 690	Arg	Gly	Pro	Gln	Arg 695	Val	Ala	Ala	His	Ile 700	Thr	Gly	Thr	Arg
Gly 705	Arg	Ser	Asn	Thr	Leu 710	Ser	Ser	Pro	Asn	Ser 715	Lys	Asn	Glu	Lys	Ala 720
Leu	Gly	Arg	Lys	Ile 725	Asn	Ser	Trp	Glu	Ser 730	Ser	Arg	Ser	Gly	His 735	Ser
Phe	Leu	Ser	Asn 740	Leu	His	Leu	Arg	Asn 745	Gly	Glu	Leu	Val	Ile 750	His	Glu
Lys	Gly	Phe 755	Tyr	Tyr	Ile	Tyr	Ser 760	Gln	Thr	Tyr	Phe	Arg 765	Phe	Gln	Glu
Glu	Ile 770	Lys	Glu	Asn	Thr	Lys 775	Asn	Asp	Lys	Gln	Met 780	Val	Gln	Tyr	Ile
Tyr 785	Lys	Tyr	Thr	Ser	Tyr 790	Pro	Asp	Pro	Ile	Leu 795	Leu	Met	Lys	Ser	Ala 800
Arg	Asn	Ser	Cys	Trp 805	Ser	Lys	Asp	Ala	Glu 810	Tyr	Gly	Leu	Tyr	Ser 815	Ile
Tyr	Gln	Gly	Gly 820	Ile	Phe	Glu	Leu	Lys 825	Glu	Asn	Asp	Arg	Ile 830	Phe	Val

Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe
835 840 845

Phe Gly Ala Phe Leu Val Gly
850 855

<210> 128
<211> 850
<212> PRT
<213> Artificial Sequence

<220>
<223> [VH-VL(FAP)C13]-scTrail

<400> 128

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
20 25 30

Ala Glu Val Gln Leu Val Glu Ser Gly Gly Thr Leu Val Gln Pro Gly
35 40 45

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser
50 55 60

Tyr Ala Met Ser Trp Ile Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
65 70 75 80

Val Ser Gly Ile Ser Ala Ser Gly Gly Tyr Ile Asp Tyr Ala Asp Ser
85 90 95

Val Lys Gly Arg Val Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Ala
100 105 110

Tyr Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr
115 120 125

Cys Ala Lys Gly Gly Asn Tyr Gln Met Leu Leu Asp His Trp Gly Gln
130 135 140

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

Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Thr Gly Asp Arg Val
165 170 175

Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Tyr Leu Ala Trp
180 185 190

Tyr Gln Gln Ala Pro Gly Lys Ala Pro His Leu Leu Met Ser Gly Ala
page 77

195					200					205					
Thr	Thr	Leu	Gln	Thr	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly	Ser	Gly	Ser
	210					215					220				
Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Thr	Ser	Leu	Gln	Ser	Glu	Asp	Phe
225					230					235					240
Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	Tyr	Ile	Tyr	Pro	Pro	Thr	Phe	Gly
				245					250					255	
Gln	Gly	Thr	Arg	Val	Glu	Ile	Lys	Arg	Ala	Ala	Ala	Glu	Phe	Thr	Arg
			260					265					270		
Gly	Thr	Ser	Glu	Glu	Thr	Ile	Ser	Thr	Val	Gln	Glu	Lys	Gln	Gln	Asn
		275					280					285			
Ile	Ser	Pro	Leu	Val	Arg	Glu	Arg	Gly	Pro	Gln	Arg	Val	Ala	Ala	His
	290					295					300				
Ile	Thr	Gly	Thr	Arg	Gly	Arg	Ser	Asn	Thr	Leu	Ser	Ser	Pro	Asn	Ser
305					310					315					320
Lys	Asn	Glu	Lys	Ala	Leu	Gly	Arg	Lys	Ile	Asn	Ser	Trp	Glu	Ser	Ser
				325					330					335	
Arg	Ser	Gly	His	Ser	Phe	Leu	Ser	Asn	Leu	His	Leu	Arg	Asn	Gly	Glu
			340					345					350		
Leu	Val	Ile	His	Glu	Lys	Gly	Phe	Tyr	Tyr	Ile	Tyr	Ser	Gln	Thr	Tyr
		355					360					365			
Phe	Arg	Phe	Gln	Glu	Glu	Ile	Lys	Glu	Asn	Thr	Lys	Asn	Asp	Lys	Gln
	370					375					380				
Met	Val	Gln	Tyr	Ile	Tyr	Lys	Tyr	Thr	Ser	Tyr	Pro	Asp	Pro	Ile	Leu
385					390					395					400
Leu	Met	Lys	Ser	Ala	Arg	Asn	Ser	Cys	Trp	Ser	Lys	Asp	Ala	Glu	Tyr
				405					410					415	
Gly	Leu	Tyr	Ser	Ile	Tyr	Gln	Gly	Gly	Ile	Phe	Glu	Leu	Lys	Glu	Asn
			420					425					430		
Asp	Arg	Ile	Phe	Val	Ser	Val	Thr	Asn	Glu	His	Leu	Ile	Asp	Met	Asp
		435					440					445			
His	Glu	Ala	Ser	Phe	Phe	Gly	Ala	Phe	Leu	Val	Gly	Gly	Gly	Gly	Ser
	450					455					460				
Gly	Gly	Gly	Ser	Thr	Ser	Glu	Glu	Thr	Ile	Ser	Thr	Val	Gln	Glu	Lys
465					470					475					480

Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln Arg Val
 485 490 495

Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser
 500 505 510

Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp
 515 520 525

Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu His Leu Arg
 530 535 540

Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser
 545 550 555 560

Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn
 565 570 575

Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp
 580 585 590

Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp
 595 600 605

Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu
 610 615 620

Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu His Leu Ile
 625 630 635 640

Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly Gly
 645 650 655

Gly Gly Ser Gly Gly Gly Ser Thr Ser Glu Glu Thr Ile Ser Thr Val
 660 665 670

Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro
 675 680 685

Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr
 690 695 700

Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys Ile
 705 710 715 720

Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn Leu
 725 730 735

His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr Tyr
 740 745 750

Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu Asn
755 760 765

Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr Ser
770 775 780

Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys Trp
785 790 795 800

Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile
805 810 815

Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn Glu
820 825 830

His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe Leu
835 840 845

Val Gly
850

<210> 129
<211> 857
<212> PRT
<213> Artificial Sequence

<220>
<223> [VH-VL(FAP)C50]-scTrail

<400> 129

Met Asp Trp Thr Trp Arg Val Phe Cys Leu Leu Ala Val Ala Pro Gly
1 5 10 15

Ala His Ser Leu Glu Ala Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly
20 25 30

Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
35 40 45

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn
50 55 60

Tyr Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
65 70 75 80

Val Ala Asn Ile Lys Gln Asp Gly Ser Glu Lys Tyr Tyr Val Asp Ser
85 90 95

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

Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr
115 120 125

Cys Ala Arg Gly Ser Leu Cys Thr Asp Gly Ser Cys Pro Thr Ile Gly
 130 135 140
 Pro Gly Pro Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly
 145 150 155 160
 Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser
 165 170 175
 Ala Ser Thr Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp
 180 185 190
 Ile Ser Ser Tyr Leu Ala Trp Tyr Gln Gln Ala Pro Gly Lys Ala Pro
 195 200 205
 His Leu Leu Met Ser Gly Ala Thr Thr Leu Gln Thr Gly Val Pro Ser
 210 215 220
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr
 225 230 235 240
 Ser Leu Gln Ser Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Tyr
 245 250 255
 Ile Tyr Pro Pro Thr Phe Gly Gln Gly Thr Arg Val Glu Ile Lys Arg
 260 265 270
 Ala Ala Ala Glu Phe Thr Arg Gly Thr Ser Glu Glu Thr Ile Ser Thr
 275 280 285
 Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly
 290 295 300
 Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn
 305 310 315 320
 Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys
 325 330 335
 Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser Asn
 340 345 350
 Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly Phe Tyr
 355 360 365
 Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu Ile Lys Glu
 370 375 380
 Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr Lys Tyr Thr
 385 390 395 400

Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn Ser Cys
 405 410 415
 Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln Gly Gly
 420 425 430
 Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val Thr Asn
 435 440 445
 Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe Gly Ala Phe
 450 455 460
 Leu Val Gly Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser Glu Glu Thr
 465 470 475 480
 Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro Leu Val Arg
 485 490 495
 Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly
 500 505 510
 Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu
 515 520 525
 Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe
 530 535 540
 Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys
 545 550 555 560
 Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu
 565 570 575
 Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile Tyr
 580 585 590
 Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg
 595 600 605
 Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr Ser Ile Tyr
 610 615 620
 Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser
 625 630 635 640
 Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala Ser Phe Phe
 645 650 655
 Gly Ala Phe Leu Val Gly Gly Gly Gly Ser Gly Gly Gly Ser Thr Ser
 660 665 670

Glu Glu Thr Ile Ser Thr Val Gln Glu Lys Gln Gln Asn Ile Ser Pro
675 680 685

Leu Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly
690 695 700

Thr Arg Gly Arg Ser Asn Thr Leu Ser Ser Pro Asn Ser Lys Asn Glu
705 710 715 720

Lys Ala Leu Gly Arg Lys Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly
725 730 735

His Ser Phe Leu Ser Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile
740 745 750

His Glu Lys Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe
755 760 765

Gln Glu Glu Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln
770 775 780

Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys
785 790 795 800

Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr
805 810 815

Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile
820 825 830

Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His Glu Ala
835 840 845

Ser Phe Phe Gly Ala Phe Leu Val Gly
850 855

<210> 130

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> VL(FAP)hu36

<400> 130

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 Lys Ser Val Ser Thr Ser
20 25 30

Ala Tyr Ser Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro
35 40 45

Arg Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Ile Pro Ala
50 55 60

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

Ser Leu Glu Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln His Ser Arg
85 90 95

Glu Leu Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg
100 105 110

<210> 131
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> VL(FAP)C13

<400> 131

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

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

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

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

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

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

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

<210> 132
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> VL(FAP)C50

<400> 132

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

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

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

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

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

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

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

<210> 133
<211> 120
<212> PRT
<213> Artificial sequence

<220>
<223> VH(FAP)hu36

<400> 133

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

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

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

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

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

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 134
<211> 119
<212> PRT

<213> Artificial Sequence

<220>

<223> VH(FAP)C13

<400> 134

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

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

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

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

Ala Lys Gly Gly Asn Tyr Gln Met Leu Leu Asp His Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 135

<211> 126

<212> PRT

<213> Artificial Sequence

<220>

<223> VH(FAP)C50

<400> 135

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

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

Ala Asn Ile Lys Gln Asp Gly Ser Glu Lys Tyr Tyr Val 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 Gly Ser Leu Cys Thr Asp Gly Ser Cys Pro Thr Ile Gly Pro
100 105 110

Gly Pro Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

<210> 136
<211> 237
<212> PRT
<213> Artificial sequence

<220>
<223> VH-VL(FAP)hu36

<400> 136

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

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

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

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

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

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

Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly Glu Arg Ala
130 135 140

Thr Leu Ser Cys Arg Ala Ser Lys Ser Val Ser Thr Ser Ala Tyr Ser
145 150 155 160

Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
165 170 175

Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Ile Pro Ala Arg Phe Ser
180 185 190

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu
195 200 205

Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln His Ser Arg Glu Leu Pro
210 215 220

Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg
225 230 235

<210> 137
<211> 232
<212> PRT
<213> Artificial Sequence

<220>
<223> VH-VL(FAP)C13

<400> 137

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

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

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

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

Ala Lys Gly Gly Asn Tyr Gln Met Leu Leu Asp His Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Asp Ile Gln Met
115 120 125

Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Thr Gly Asp Arg Val Thr
130 135 140

Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Tyr Leu Ala Trp Tyr
145 150 155 160

Gln Gln Ala Pro Gly Lys Ala Pro His Leu Leu Met Ser Gly Ala Thr
165 170 175

Thr Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly
180 185 190

Thr Asp Phe Thr Leu Thr Ile Thr Ser Leu Gln Ser Glu Asp Phe Ala
195 200 205

Thr Tyr Tyr Cys Gln Gln Tyr Tyr Ile Tyr Pro Pro Thr Phe Gly Gln
210 215 220

Gly Thr Arg Val Glu Ile Lys Arg
225 230

<210> 138
<211> 239
<212> PRT
<213> Artificial Sequence

<220>
<223> VH-VL(FAP)C50

<400> 138

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

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

Ala Asn Ile Lys Gln Asp Gly Ser Glu Lys Tyr Tyr Val 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 Gly Ser Leu Cys Thr Asp Gly Ser Cys Pro Thr Ile Gly Pro
100 105 110

Gly Pro Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly
115 120 125

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

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

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

Leu Leu Met Ser Gly Ala Thr Thr Leu Gln Thr Gly Val Pro Ser Arg
page 89

				180					185						190
Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Thr	Ser
		195					200					205			
Leu	Gln	Ser	Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	Tyr	Ile
	210					215					220				
Tyr	Pro	Pro	Thr	Phe	Gly	Gln	Gly	Thr	Arg	Val	Glu	Ile	Lys	Arg	
225					230					235					