

SEQUENCE LISTING

<110> BRISTOL-MYERS SQUIBB COMPANY

<120> FUSION PROTEINS FOR THE TREATMENT OF DISEASE

<130> 3338.234PC02

<150> US 63/123,991

<151> 2020-12-10

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<151> 2020-10-29

<160> 46

<170> PatentIn version 3.5

<210> 1

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> IL2Ralpha (human, mature form of IL2Ralpha extracellular domain)

<400> 1

Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe Lys
1 5 10 15

Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys Arg
20 25 30

Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr Gly
35 40 45

Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser Ser
50 55 60

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

Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro Met Gln Pro Val Asp
85 90 95

Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu Asn
100 105 110

Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val Tyr
115 120 125

Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala Glu
130 135 140

Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro Gln
145 150 155 160

Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln Phe Pro Gly Glu Glu
165 170 175

Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu Ser Glu Thr Ser Cys
180 185 190

Leu Val Thr Thr Thr Asp Phe Gln Ile Gln Thr Glu Met Ala Ala Thr
195 200 205

Met Glu Thr Ser Ile Phe Thr Thr Glu Tyr Gln
210 215

<210> 2

<211> 133

<212> PRT

<213> Artificial Sequence

<220>

<223> IL2 (human, mature form)

<400> 2

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

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

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

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr
130

<210> 3
<211> 191
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2Ralpha (human, mature form of IL2Ralpha extracellular domain)
- half-truncated

<400> 3

Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe Lys
1 5 10 15

Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys Arg
20 25 30

Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr Gly
35 40 45

Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser Ser
50 55 60

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

Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro Met Gln Pro Val Asp

85

90

95

Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu Asn
 100 105 110

Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val Tyr
 115 120 125

Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala Glu
 130 135 140

Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro Gln
 145 150 155 160

Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln Phe Pro Gly Glu Glu
 165 170 175

Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu Ser Glu Thr Ser
 180 185 190

<210> 4

<211> 166

<212> PRT

<213> Artificial Sequence

<220>

<223> IL2Ralpha (human, mature form of IL2Ralpha extracellular domain)
 - full-truncated

<400> 4

Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe Lys
 1 5 10 15

Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys Arg
 20 25 30

Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr Gly
 35 40 45

Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser Ser
 50 55 60

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

Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro Met Gln Pro Val Asp
85 90 95

Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu Asn
100 105 110

Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val Tyr
115 120 125

Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala Glu
130 135 140

Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro Gln
145 150 155 160

Leu Ile Cys Thr Gly Glu
165

<210> 5
<211> 336
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2-CD25(22-212)

<400> 5

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

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

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

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
130 135 140

Ser Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe
145 150 155 160

Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys
165 170 175

Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr
180 185 190

Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser
195 200 205

Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro Gln Pro Glu Glu
210 215 220

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

Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu
245 250 255

Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val
260 265 270

Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala
275 280 285

Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro
290 295 300

Gln Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln Phe Pro Gly Glu
305 310 315 320

Glu Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu Ser Glu Thr Ser
325 330 335

<210> 6
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> glycine linker

<400> 6

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

<210> 7
<211> 153
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2 (human, unprocessed)

<400> 7

Met Tyr Arg Met Gln Leu Leu Ser Cys Ile Ala Leu Ser Leu Ala Leu
1 5 10 15

Val Thr Asn Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
20 25 30

Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile
35 40 45

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
50 55 60

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
65 70 75 80

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
85 90 95

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
100 105 110

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
115 120 125

Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe
130 135 140

Cys Gln Ser Ile Ile Ser Thr Leu Thr
145 150

<210> 8

<211> 149

<212> PRT

<213> Artificial Sequence

<220>

<223> IL2 (mouse, mature form)

<400> 8

Ala Pro Thr Ser Ser Ser Thr Ser Ser Ser Thr Ala Glu Ala Gln Gln
1 5 10 15

Gln Gln Gln Gln Gln Gln Gln Gln Gln His Leu Glu Gln Leu Leu
20 25 30

Met Asp Leu Gln Glu Leu Leu Ser Arg Met Glu Asn Tyr Arg Asn Leu
35 40 45

Lys Leu Pro Arg Met Leu Thr Phe Lys Phe Tyr Leu Pro Lys Gln Ala
50 55 60

Thr Glu Leu Lys Asp Leu Gln Cys Leu Glu Asp Glu Leu Gly Pro Leu
65 70 75 80

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

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

Gly Ser Asp Asn Thr Phe Glu Cys Gln Phe Asp Asp Glu Ser Ala Thr
115 120 125

Val Val Asp Phe Leu Arg Arg Trp Ile Ala Phe Cys Gln Ser Ile Ile
130 135 140

Ser Thr Ser Pro Gln
145

<210> 9
<211> 169
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2 (mouse, unprocessed)

<400> 9

Met Tyr Ser Met Gln Leu Ala Ser Cys Val Thr Leu Thr Leu Val Leu
1 5 10 15

Leu Val Asn Ser Ala Pro Thr Ser Ser Ser Thr Ser Ser Ser Thr Ala
20 25 30

Glu Ala Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln His Leu
35 40 45

Glu Gln Leu Leu Met Asp Leu Gln Glu Leu Leu Ser Arg Met Glu Asn
50 55 60

Tyr Arg Asn Leu Lys Leu Pro Arg Met Leu Thr Phe Lys Phe Tyr Leu
65 70 75 80

Pro Lys Gln Ala Thr Glu Leu Lys Asp Leu Gln Cys Leu Glu Asp Glu
85 90 95

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

Gln Leu Glu Asp Ala Glu Asn Phe Ile Ser Asn Ile Arg Val Thr Val
115 120 125

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

Glu Ser Ala Thr Val Val Asp Phe Leu Arg Arg Trp Ile Ala Phe Cys
145 150 155 160

Gln Ser Ile Ile Ser Thr Ser Pro Gln
165

<210> 10
<211> 251
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2Ralpha (human, mature form)

<400> 10

Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe Lys
1 5 10 15

Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys Arg
20 25 30

Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr Gly
35 40 45

Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser Ser
50 55 60

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

Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro Met Gln Pro Val Asp
85 90 95

Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu Asn
100 105 110

Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val Tyr
115 120 125

Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala Glu
130 135 140

Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro Gln
145 150 155 160

Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln Phe Pro Gly Glu Glu
165 170 175

Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu Ser Glu Thr Ser Cys
180 185 190

Leu Val Thr Thr Thr Asp Phe Gln Ile Gln Thr Glu Met Ala Ala Thr
195 200 205

Met Glu Thr Ser Ile Phe Thr Thr Glu Tyr Gln Val Ala Val Ala Gly
210 215 220

Cys Val Phe Leu Leu Ile Ser Val Leu Leu Leu Ser Gly Leu Thr Trp
225 230 235 240

Gln Arg Arg Gln Arg Lys Ser Arg Arg Thr Ile
245 250

<210> 11

<211> 272

<212> PRT

<213> Artificial Sequence

<220>

<223> IL2Ralpha (human, unprocessed form)

<400> 11

Met Asp Ser Tyr Leu Leu Met Trp Gly Leu Leu Thr Phe Ile Met Val
1 5 10 15

Pro Gly Cys Gln Ala Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro
20 25 30

His Ala Thr Phe Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn
35 40 45

Cys Glu Cys Lys Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr
50 55 60

Met Leu Cys Thr Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys
65 70 75 80

Gln Cys Thr Ser Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro
85 90 95

Gln Pro Glu Glu Gln Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro
100 105 110

Met Gln Pro Val Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro
115 120 125

Pro Pro Trp Glu Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val
130 135 140

Gly Gln Met Val Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His
145 150 155 160

Arg Gly Pro Ala Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg
165 170 175

Trp Thr Gln Pro Gln Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln
180 185 190

Phe Pro Gly Glu Glu Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu
195 200 205

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

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

Val Ala Val Ala Gly Cys Val Phe Leu Leu Ile Ser Val Leu Leu Leu
245 250 255

Ser Gly Leu Thr Trp Gln Arg Arg Gln Arg Lys Ser Arg Arg Thr Ile
260 265 270

<210> 12

<211> 247

<212> PRT

<213> Artificial Sequence

<220>

<223> IL2Ralpha (mouse, mature form)

<400> 12

Glu Leu Cys Leu Tyr Asp Pro Pro Glu Val Pro Asn Ala Thr Phe Lys
1 5 10 15

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

Gly Phe Arg Arg Leu Lys Glu Leu Val Tyr Met Arg Cys Leu Gly Asn
35 40 45

Ser Trp Ser Ser Asn Cys Gln Cys Thr Ser Asn Ser His Asp Lys Ser
50 55 60

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

Thr Thr Asp Met Gln Lys Pro Thr Gln Ser Met His Gln Glu Asn Leu
85 90 95

Thr Gly His Cys Arg Glu Pro Pro Pro Trp Lys His Glu Asp Ser Lys
100 105 110

Arg Ile Tyr His Phe Val Glu Gly Gln Ser Val His Tyr Glu Cys Ile
115 120 125

Pro Gly Tyr Lys Ala Leu Gln Arg Gly Pro Ala Ile Ser Ile Cys Lys
130 135 140

Met Lys Cys Gly Lys Thr Gly Trp Thr Gln Pro Gln Leu Thr Cys Val
145 150 155 160

Asp Glu Arg Glu His His Arg Phe Leu Ala Ser Glu Glu Ser Gln Gly
165 170 175

Ser Arg Asn Ser Ser Pro Glu Ser Glu Thr Ser Cys Pro Ile Thr Thr
180 185 190

Thr Asp Phe Pro Gln Pro Thr Glu Thr Thr Ala Met Thr Glu Thr Phe
195 200 205

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

Leu Ile Ser Ile Leu Leu Leu Ser Gly Leu Thr Trp Gln His Arg Trp
225 230 235 240

Arg Lys Ser Arg Arg Thr Ile
245

<210> 13
<211> 268
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2Ralpha (mouse, unprocessed form)

<400> 13

Met Glu Pro Arg Leu Leu Met Leu Gly Phe Leu Ser Leu Thr Ile Val
1 5 10 15

Pro Ser Cys Arg Ala Glu Leu Cys Leu Tyr Asp Pro Pro Glu Val Pro
20 25 30

Asn Ala Thr Phe Lys Ala Leu Ser Tyr Lys Asn Gly Thr Ile Leu Asn
35 40 45

Cys Glu Cys Lys Arg Gly Phe Arg Arg Leu Lys Glu Leu Val Tyr Met
50 55 60

Arg Cys Leu Gly Asn Ser Trp Ser Ser Asn Cys Gln Cys Thr Ser Asn
65 70 75 80

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

Lys Glu Gln Gln Thr Thr Thr Asp Met Gln Lys Pro Thr Gln Ser Met
100 105 110

His Gln Glu Asn Leu Thr Gly His Cys Arg Glu Pro Pro Pro Trp Lys
115 120 125

His Glu Asp Ser Lys Arg Ile Tyr His Phe Val Glu Gly Gln Ser Val
130 135 140

His Tyr Glu Cys Ile Pro Gly Tyr Lys Ala Leu Gln Arg Gly Pro Ala
145 150 155 160

Ile Ser Ile Cys Lys Met Lys Cys Gly Lys Thr Gly Trp Thr Gln Pro
165 170 175

Gln Leu Thr Cys Val Asp Glu Arg Glu His His Arg Phe Leu Ala Ser
180 185 190

Glu Glu Ser Gln Gly Ser Arg Asn Ser Ser Pro Glu Ser Glu Thr Ser
195 200 205

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

Met Thr Glu Thr Phe Val Leu Thr Met Glu Tyr Lys Val Ala Val Ala
225 230 235 240

Ser Cys Leu Phe Leu Leu Ile Ser Ile Leu Leu Leu Ser Gly Leu Thr
245 250 255

Trp Gln His Arg Trp Arg Lys Ser Arg Arg Thr Ile
260 265

<210> 14
<211> 219
<212> PRT
<213> Artificial Sequence

<220>

<223> IL2Ralpha (mouse, mature form of IL2Ralpha extracellular domain)

<400> 14

Glu Leu Cys Leu Tyr Asp Pro Pro Glu Val Pro Asn Ala Thr Phe Lys
1 5 10 15

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

Gly Phe Arg Arg Leu Lys Glu Leu Val Tyr Met Arg Cys Leu Gly Asn
35 40 45

Ser Trp Ser Ser Asn Cys Gln Cys Thr Ser Asn Ile Leu Arg Ala Ser
50 55 60

His Asp Lys Ser Arg Lys Gln Val Thr Ala Gln Leu Glu His Gln Lys
65 70 75 80

Glu Gln Gln Thr Thr Thr Asp Met Gln Lys Pro Thr Gln Ser Met His
85 90 95

Gln Glu Asn Leu Thr Gly His Cys Arg Glu Pro Pro Pro Trp Lys His
100 105 110

Glu Asp Ser Lys Arg Ile Tyr His Phe Val Glu Gly Gln Ser Val His
115 120 125

Tyr Glu Cys Ile Pro Gly Tyr Lys Ala Leu Gln Arg Gly Pro Ala Ile
130 135 140

Ser Ile Cys Lys Met Lys Cys Gly Lys Thr Gly Trp Thr Gln Pro Gln
145 150 155 160

Leu Thr Cys Val Asp Glu Arg Glu His His Arg Phe Leu Ala Ser Glu
165 170 175

Glu Ser Gln Gly Ser Arg Asn Ser Ser Pro Glu Ser Glu Thr Ser Cys
180 185 190

Pro Ile Thr Thr Thr Asp Phe Pro Gln Pro Thr Glu Thr Thr Ala Met
195 200 205

Thr Glu Thr Phe Val Leu Thr Met Glu Tyr Lys
210 215

<210> 15
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker sequence

<400> 15

Gly Gly Gly Ser
1

<210> 16
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> glycine linker

<400> 16

Gly Gly Gly Gly Ser
1 5

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

<220>
<223> glycine linker

<400> 17

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

<210> 18
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Glycine Linker

<400> 18

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

Gly Gly Gly Ser
20

<210> 19
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Glycine Linker

<400> 19

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

Gly Gly Gly Ser Gly Gly Gly Ser
20

<210> 20
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Glycine Linker

<400> 20

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

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

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

<220>
<223> Glycine Linker

<400> 21

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

<210> 22
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Glycine Linker

<400> 22

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

Gly Gly Gly Ser
20

<210> 23
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Glycine Linker

<400> 23

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

Gly Gly Gly Ser Gly Gly Gly Gly Ser
20 25

<210> 24
<211> 10
<212> PRT
<213> Artificial Sequence

<220>

<223> Glycine Linker

<400> 24

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

<210> 25

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Glycine Linker

<400> 25

Gly Gly Gly Gly Ser
1 5

<210> 26

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Glycine Linker

<400> 26

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

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

<210> 27

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Glycine Linker

<400> 27

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

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

Gly Gly Ser
35

<210> 28
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Glycine Linker

<400> 28

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

Gly Gly Gly Ser Gly Gly Gly Gly Ser
20 25

<210> 29
<211> 364
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2(21-153)-(G3S)3-CD25(22-240)

<400> 29

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

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

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

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
130 135 140

Ser Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe
145 150 155 160

Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys
165 170 175

Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr
180 185 190

Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser
195 200 205

Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro Gln Pro Glu Glu
210 215 220

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

Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu
245 250 255

Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val
260 265 270

Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala
275 280 285

Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro
290 295 300

Gln Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln Phe Pro Gly Glu
305 310 315 320

Glu Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu Ser Glu Thr Ser
325 330 335

Cys Leu Val Thr Thr Thr Asp Phe Gln Ile Gln Thr Glu Met Ala Ala
340 345 350

Thr Met Glu Thr Ser Ile Phe Thr Thr Glu Tyr Gln
355 360

<210> 30
<211> 311
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2-CD25(22-187)

<400> 30

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

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

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

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
130 135 140

Ser Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe
145 150 155 160

Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys
165 170 175

Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr
180 185 190

Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser
195 200 205

Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro Gln Pro Glu Glu
210 215 220

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

Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu
245 250 255

Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val
260 265 270

Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala
275 280 285

Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro
290 295 300

Gln Leu Ile Cys Thr Gly Glu
305 310

<210> 31
<211> 331
<212> PRT
<213> Artificial Sequence

<220>
<223> NativeSigPep-IL2-CD25(22-187)

<400> 31

Met Tyr Arg Met Gln Leu Leu Ser Cys Ile Ala Leu Ser Leu Ala Leu
1 5 10 15

Val Thr Asn Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
20 25 30

Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile
35 40 45

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
50 55 60

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
65 70 75 80

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
85 90 95

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
100 105 110

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
115 120 125

Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe
130 135 140

Cys Gln Ser Ile Ile Ser Thr Leu Thr Gly Gly Gly Ser Gly Gly Gly
145 150 155 160

Ser Gly Gly Gly Ser Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro
165 170 175

His Ala Thr Phe Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn
180 185 190

Cys Glu Cys Lys Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr
195 200 205

Met Leu Cys Thr Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys
210 215 220

Gln Cys Thr Ser Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro
225 230 235 240

Gln Pro Glu Glu Gln Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro
245 250 255

Met Gln Pro Val Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro
260 265 270

Pro Pro Trp Glu Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val
275 280 285

Gly Gln Met Val Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His
290 295 300

Arg Gly Pro Ala Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg
305 310 315 320

Trp Thr Gln Pro Gln Leu Ile Cys Thr Gly Glu
325 330

<210> 32

<211> 358

<212> PRT

<213> Artificial Sequence

<220>

<223> NativeSigPep-HuIL2-CD25(22-212)-PP

<400> 32

Met Tyr Arg Met Gln Leu Leu Ser Cys Ile Ala Leu Ser Leu Ala Leu
1 5 10 15

Val Thr Asn Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
20 25 30

Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile
35 40 45

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
50 55 60

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
65 70 75 80

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
85 90 95

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
100 105 110

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
115 120 125

Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe
130 135 140

Cys Gln Ser Ile Ile Ser Thr Leu Thr Gly Gly Gly Ser Gly Gly Gly
145 150 155 160

Ser Gly Gly Gly Ser Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro
165 170 175

His Ala Thr Phe Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn
180 185 190

Cys Glu Cys Lys Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr
195 200 205

Met Leu Cys Thr Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys
210 215 220

Gln Cys Thr Ser Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro
225 230 235 240

Gln Pro Glu Glu Gln Lys Glu Arg Lys Thr Thr Glu Met Gln Ser Pro
245 250 255

Met Gln Pro Val Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro
260 265 270

Pro Pro Trp Glu Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val
275 280 285

Gly Gln Met Val Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His
290 295 300

Arg Gly Pro Ala Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg
305 310 315 320

Trp Thr Gln Pro Gln Leu Ile Cys Thr Gly Glu Met Glu Thr Ser Gln
325 330 335

Phe Pro Gly Glu Glu Lys Pro Gln Ala Ser Pro Glu Gly Arg Pro Glu
340 345 350

Ser Glu Thr Ser Pro Pro
355

<210> 33
<211> 311
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2-CD25(22-187)

<400> 33

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

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

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

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
130 135 140

Ser Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe
145 150 155 160

Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys
165 170 175

Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr
180 185 190

Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser
195 200 205

Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro Gln Pro Glu Glu
210 215 220

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

Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu
245 250 255

Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val
260 265 270

Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala
275 280 285

Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro
290 295 300

Gln Leu Ile Cys Thr Gly Glu
305 310

<210> 34
<211> 311
<212> PRT
<213> Artificial Sequence

<220>
<223> IL2-T23A-C145S-CD25(22-187)

<400> 34

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

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

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

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Ser Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
130 135 140

Ser Glu Leu Cys Asp Asp Asp Pro Pro Glu Ile Pro His Ala Thr Phe
145 150 155 160

Lys Ala Met Ala Tyr Lys Glu Gly Thr Met Leu Asn Cys Glu Cys Lys
165 170 175

Arg Gly Phe Arg Arg Ile Lys Ser Gly Ser Leu Tyr Met Leu Cys Thr
180 185 190

Gly Asn Ser Ser His Ser Ser Trp Asp Asn Gln Cys Gln Cys Thr Ser
195 200 205

Ser Ala Thr Arg Asn Thr Thr Lys Gln Val Thr Pro Gln Pro Glu Glu
210 215 220

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

Asp Gln Ala Ser Leu Pro Gly His Cys Arg Glu Pro Pro Pro Trp Glu
245 250 255

Asn Glu Ala Thr Glu Arg Ile Tyr His Phe Val Val Gly Gln Met Val
260 265 270

Tyr Tyr Gln Cys Val Gln Gly Tyr Arg Ala Leu His Arg Gly Pro Ala
275 280 285

Glu Ser Val Cys Lys Met Thr His Gly Lys Thr Arg Trp Thr Gln Pro
290 295 300

Gln Leu Ile Cys Thr Gly Glu
305 310

<210> 35
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Ifit1

<400> 35
agagcagaga gtcaaggcag gt 22

<210> 36
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Ifit1

<400> 36
tggtcaccat cagcattctc tccca 25

<210> 37
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Ifit3

<400> 37
gctcagccca caccagctt t 21

<210> 38
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Ifit3

<400> 38
agattcccgg ttgacctcac tcat 24

<210> 39
<211> 22
<212> DNA
<213> Artificial Sequence

<220>		
<223>	Primer Mx1	
<400>	39	
	actaccagga gtgcagacgg aa	22
<210>	40	
<211>	24	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer Mx1	
<400>	40	
	tcctccagga accagctgca ctt	24
<210>	41	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer Irf7	
<400>	41	
	gagtctgggg cagaccccg	20
<210>	42	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer Irf7	
<400>	42	
	ctgctgctcg tgagagctg	20
<210>	43	
<211>	24	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Gbp2	
<400>	43	
	agctgctaaa cttcggaac agga	24

<210> 44
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Gbp2

<400> 44
agaggtttgg gccttgggcc t 21

<210> 45
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Ligp1

<400> 45
ggacacagga gtttctgtgc cttt 24

<210> 46
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Ligp1

<400> 46
aggtgaagag aacagctgac cca 23