

SEQUENCE LISTING

<110> INHIBRX, INC.

<120> OX40-BINDING POLYPEPTIDES AND USES THEREOF

<130> 01202-0014-00PCT

<150> US 62/718,106

<151> 2018-08-13

<160> 34

<170> PatentIn version 3.5

<210> 1

<211> 277

<212> PRT

<213> Homo sapiens

<400> 1

Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
1 5 10 15

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

Gly Asp Thr Tyr Pro Ser Asn Asp Arg Cys Cys His Glu Cys Arg Pro
35 40 45

Gly Asn Gly Met Val Ser Arg Cys Ser Arg Ser Gln Asn Thr Val Cys
50 55 60

Arg Pro Cys Gly Pro Gly Phe Tyr Asn Asp Val Val Ser Ser Lys Pro
65 70 75 80

Cys Lys Pro Cys Thr Trp Cys Asn Leu Arg Ser Gly Ser Glu Arg Lys
85 90 95

Gln Leu Cys Thr Ala Thr Gln Asp Thr Val Cys Arg Cys Arg Ala Gly
100 105 110

Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val Asp Cys Ala Pro Cys
115 120 125

Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro Trp

130 135 140

Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn
145 150 155 160

Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro
165 170 175

Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Ile Thr Val Gln Pro Thr
180 185 190

Glu Ala Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu
195 200 205

Val Pro Gly Gly Arg Ala Val Ala Ala Ile Leu Gly Leu Gly Leu Val
210 215 220

Leu Gly Leu Leu Gly Pro Leu Ala Ile Leu Leu Ala Leu Tyr Leu Leu
225 230 235 240

Arg Arg Asp Gln Arg Leu Pro Pro Asp Ala His Lys Pro Pro Gly Gly
245 250 255

Gly Ser Phe Arg Thr Pro Ile Gln Glu Glu Gln Ala Asp Ala His Ser
260 265 270

Thr Leu Ala Lys Ile
275

<210> 2

<211> 277

<212> PRT

<213> Macaca fascicularis

<400> 2

Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
1 5 10 15

Leu Leu Leu Gly Leu Gly Leu Ser Thr Thr Ala Lys Leu His Cys Val
20 25 30

Gly Asp Thr Tyr Pro Ser Asn Asp Arg Cys Cys Gln Glu Cys Arg Pro

35

40

45

Gly Asn Gly Met Val Ser Arg Cys Asn Arg Ser Gln Asn Thr Val Cys
50 55 60

Arg Pro Cys Gly Pro Gly Phe Tyr Asn Asp Val Val Ser Ala Lys Pro
65 70 75 80

Cys Lys Ala Cys Thr Trp Cys Asn Leu Arg Ser Gly Ser Glu Arg Lys
85 90 95

Gln Pro Cys Thr Ala Thr Gln Asp Thr Val Cys Arg Cys Arg Ala Gly
100 105 110

Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val Asp Cys Ala Pro Cys
115 120 125

Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro Trp
130 135 140

Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn
145 150 155 160

Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Pro Thr Gln Pro
165 170 175

Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Thr Thr Val Gln Pro Thr
180 185 190

Glu Ala Trp Pro Arg Thr Ser Gln Arg Pro Ser Thr Arg Pro Val Glu
195 200 205

Val Pro Arg Gly Pro Ala Val Ala Ala Ile Leu Gly Leu Gly Leu Ala
210 215 220

Leu Gly Leu Leu Gly Pro Leu Ala Met Leu Leu Ala Leu Leu Leu Leu
225 230 235 240

Arg Arg Asp Gln Arg Leu Pro Pro Asp Ala Pro Lys Ala Pro Gly Gly
245 250 255

Gly Ser Phe Arg Thr Pro Ile Gln Glu Glu Gln Ala Asp Ala His Ser
260 265 270

Ala Leu Ala Lys Ile
275

<210> 3

<211> 115

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1

<400> 3

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

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

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

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

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

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

Val Lys Pro
115

<210> 4

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1 CDR1

<400> 4

Gly Phe Thr Phe Ser Asp Ala Phe

1 5

<210> 5

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1 CDR2

<400> 5

Ile Ser Asn Arg Gly Leu Lys Thr

1 5

<210> 6

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1 CDR3

<400> 6

Ser Arg Asp Val Asp Gly Asp Phe

1 5

<210> 7

<211> 346

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1-Fc (bivalent)

<400> 7

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Glu Val Gln Pro Gly Gly

1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala

20 25 30

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

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

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

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

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

Val Lys Pro Gly Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys
115 120 125

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
130 135 140

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
145 150 155 160

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
165 170 175

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
180 185 190

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
195 200 205

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
210 215 220

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
225 230 235 240

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

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
260 265 270

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
275 280 285

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
290 295 300

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
305 310 315 320

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
325 330 335

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
340 345

<210> 8

<211> 588

<212> PRT

<213> Artificial sequence

<220>

<223> 3x1D10v1-Fc (hexavalent; also referred to as Hex-1D10v1)

<400> 8

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

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

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

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

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

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

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

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

Ala Ser Gly Phe Thr Phe Ser Asp Ala Phe Met Tyr Trp Val Arg Gln
145 150 155 160

Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Ile Ser Asn Arg Gly
165 170 175

Leu Lys Thr Ala Tyr Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser
180 185 190

Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg
195 200 205

Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ser Arg Asp Val Asp Gly Asp
210 215 220

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

Gly Ser Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Glu Val Gln Pro
245 250 255

Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser
260 265 270

Asp Ala Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu
275 280 285

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

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr
305 310 315 320

Leu Tyr Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
325 330 335

Tyr Cys Ser Arg Asp Val Asp Gly Asp Phe Arg Gly Gln Gly Thr Leu
340 345 350

Val Thr Val Lys Pro Gly Gly Gly Gly Asp Lys Thr His Thr Cys Pro
355 360 365

Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe
370 375 380

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
385 390 395 400

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
405 410 415

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
420 425 430

Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
435 440 445

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
450 455 460

Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
465 470 475 480

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
485 490 495

Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
500 505 510

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
515 520 525

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
530 535 540

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
545 550 555 560

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
565 570 575

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
580 585

<210> 9

<211> 115

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v6

<400> 9

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Trp Val
35 40 45

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

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

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

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

Val Lys Pro
115

<210> 10
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6 CDR1

<400> 10

Gly Phe Thr Phe Ser Asp Ala Phe
1 5

<210> 11
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6 CDR2

<400> 11

Ile Ser Asn Arg Gly Leu Lys Thr
1 5

<210> 12
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6 CDR3

<400> 12

Ser Arg Asp Val Asp Ala Asp Phe
1 5

<210> 13
<211> 346
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6-Fc (bivalent)

<400> 13

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Trp Val
35 40 45

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

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

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

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

Val Lys Pro Gly Gly Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys
115 120 125

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
130 135 140

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
145 150 155 160

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
165 170 175

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
180 185 190

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
195 200 205

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn

210 215 220

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
225 230 235 240

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

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
 260 265 270

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
 275 280 285

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
 290 295 300

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
305 310 315 320

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
 325 330 335

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 340 345

<210> 14
<211> 357
<212> PRT
<213> Artificial sequence

<220>
<223> 3x1D10v6

<400> 14

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30

Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Trp Val
 35 40 45

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

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

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

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

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

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

Ala Ser Gly Phe Thr Phe Ser Asp Ala Phe Met Tyr Trp Val Arg Gln
145 150 155 160

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

Leu Lys Thr Ala Tyr Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser
180 185 190

Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg
195 200 205

Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ser Arg Asp Val Asp Ala Asp
210 215 220

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

Gly Ser Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Glu Val Gln Pro
245 250 255

Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser

260 265 270

Asp Ala Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu
275 280 285

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

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr
305 310 315 320

Leu Tyr Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
325 330 335

Tyr Cys Ser Arg Asp Val Asp Ala Asp Phe Arg Gly Gln Gly Thr Leu
340 345 350

Val Thr Val Lys Pro
355

<210> 15

<211> 588

<212> PRT

<213> Artificial sequence

<220>

<223> 3x1D10v6-Fc (hexavalent; also referred to as Hex-1D10v6)

<400> 15

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Trp Val
35 40 45

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

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

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

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

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

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

Ala Ser Gly Phe Thr Phe Ser Asp Ala Phe Met Tyr Trp Val Arg Gln
145 150 155 160

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

Leu Lys Thr Ala Tyr Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser
180 185 190

Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg
195 200 205

Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ser Arg Asp Val Asp Ala Asp
210 215 220

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

Gly Ser Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Glu Val Gln Pro
245 250 255

Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser
260 265 270

Asp Ala Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu
275 280 285

Trp Val Ser Ser Ile Ser Asn Arg Gly Leu Lys Thr Ala Tyr Ala Glu

290 295 300

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr
305 310 315 320

Leu Tyr Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
325 330 335

Tyr Cys Ser Arg Asp Val Asp Ala Asp Phe Arg Gly Gln Gly Thr Leu
340 345 350

Val Thr Val Lys Pro Gly Gly Gly Gly Asp Lys Thr His Thr Cys Pro
355 360 365

Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe
370 375 380

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
385 390 395 400

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
405 410 415

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
420 425 430

Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
435 440 445

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
450 455 460

Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
465 470 475 480

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
485 490 495

Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
500 505 510

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
515 520 525

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
530 535 540

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
545 550 555 560

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
565 570 575

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
580 585

<210> 16

<211> 467

<212> PRT

<213> Artificial sequence

<220>

<223> 2x1D10v6-Fc (tetravalent)

<400> 16

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

Phe Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Trp Val
35 40 45

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

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

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

Ser Arg Asp Val Asp Ala Asp Phe Arg Gly Gln Gly Thr Leu Val Thr

100 105 110

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

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

Ala Ser Gly Phe Thr Phe Ser Asp Ala Phe Met Tyr Trp Val Arg Gln
145 150 155 160

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

Leu Lys Thr Ala Tyr Ala Glu Ser Val Lys Gly Arg Phe Thr Ile Ser
180 185 190

Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg
195 200 205

Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ser Arg Asp Val Asp Ala Asp
210 215 220

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

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
245 250 255

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
260 265 270

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
275 280 285

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
290 295 300

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
305 310 315 320

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
325 330 335

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
340 345 350

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
355 360 365

Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
370 375 380

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
385 390 395 400

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
405 410 415

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
420 425 430

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
435 440 445

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
450 455 460

Pro Gly Lys
465

<210> 17
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v1 FR1

<400> 17

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser

20

25

<210> 18

<211> 17

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1 FR2

<400> 18

Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser
1 5 10 15

Ser

<210> 19

<211> 38

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1 FR3

<400> 19

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

Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg Ala Glu Asp
20 25 30

Thr Ala Val Tyr Tyr Cys
35

<210> 20

<211> 11

<212> PRT

<213> Artificial sequence

<220>

<223> 1D10v1 FR4

<400> 20

Arg Gly Gln Gly Thr Leu Val Thr Val Lys Pro
1 5 10

<210> 21
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6 FR1

<400> 21

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser
20 25

<210> 22
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6 FR2

<400> 22

Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Trp Val Ser
1 5 10 15

Ser

<210> 23
<211> 38
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6 FR3

<400> 23

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

Ala Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Arg Ala Glu Asp
20 25 30

Thr Ala Val Tyr Tyr Cys
35

<210> 24
<211> 11
<212> PRT
<213> Artificial sequence

<220>
<223> 1D10v6 FR4

<400> 24

Arg Gly Gln Gly Thr Leu Val Thr Val Lys Pro
1 5 10

<210> 25
<211> 227
<212> PRT
<213> Homo sapiens

<400> 25

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

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

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

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

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

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

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

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val

115 120 125

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

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

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

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

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

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

Pro Gly Lys
225

<210> 26
<211> 224
<212> PRT
<213> Homo sapiens

<400> 26

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

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

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
35 40 45

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

Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val

65 70 75 80

Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 85 90 95

Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
 100 105 110

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

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

Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 145 150 155 160

Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 165 170 175

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

Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
 195 200 205

Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215 220

<210> 27

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic: CD3-zeta signaling domain

<400> 27

Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly
1 5 10 15

Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr
 20 25 30

Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys
35 40 45

Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys
50 55 60

Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg
65 70 75 80

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

Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
100 105 110

<210> 28

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic: signaling domain is a derived from CD28 or 4-1BB

<400> 28

Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe Lys Gln Pro Phe Met
1 5 10 15

Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly Cys Ser Cys Arg Phe
20 25 30

Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu
35 40

<210> 29

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic: signaling domain is a derived from CD28 or 4-1BB

<400> 29

Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro

1 5 10 15

Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro
 20 25 30

Arg Asp Phe Ala Ala Tyr Arg Ser
 35 40

<210> 30

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic: signaling domain is a derived from CD28 or 4-1BB

<400> 30

Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr
1 5 10 15

Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro
 20 25 30

Pro Arg Asp Phe Ala Ala Tyr Arg Ser
 35 40

<210> 31

<211> 44

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic: signaling domain is a derived from CD28 or 4-1BB

<400> 31

Phe Trp Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met
1 5 10 15

Asn Met Thr Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro
 20 25 30

Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser
 35 40

<210> 32
<211> 71
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic: hinge or transmembrane domain derived from CD8
<400> 32

Lys Pro Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr
1 5 10 15

Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Ser Arg Pro Ala
20 25 30

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

Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser
50 55 60

Leu Val Ile Thr Leu Tyr Cys
65 70

<210> 33
<211> 60
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic: hinge or transmembrane domain derived from CD8
<400> 33

Ala Lys Pro Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro
1 5 10 15

Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro
20 25 30

Ala Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp
35 40 45

Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly
50 55 60

<210> 34

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic: hinge or transmembrane domain derived from CD8

<400> 34

Val Leu Leu Leu Ser Leu Val Ile Thr

1 5