SEQUENCE LISTING

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<120> METHODS FOR ENHANCING EFFICACY OF
THERAPEUTIC IMMUNE CELLS

<130> 4459.1116-002

<140> PCT/SG2016/050063
<141> 2016-02-05

<150> 62/112,765
<151> 2015-02-06

<150> 62/130,970
<151> 2015-03-10

<160> 64

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Myc tag

<400> 1
Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1 5 10

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

<220>
<223> Sense primer

<400> 2
atatatgaat tcggcttcca ccatggcctt accagtgacc 40

<210> 3
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Reverse primer

<400> 3
cagatcttct tcagaaataa gtttttgttc ggctgaggag actgtgagag 50

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

<220>
<223> KDEL coding sequence

<400> 4
Lys Asp Glu Leu
 1

<210> 5
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Sense primer

<400> 5
atatatgaat tcggcttcca ccatggcctt accagtgacc 40

<210> 6
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Reverse primer

<400> 6
tatatactcg agttacaact cgtccttcag atcttcttca gaaataag 48

<210> 7
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> PEST motif

<400> 7
Ser His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Asp Gly Thr Leu
 1   5   10   15
Pro Met Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His Pro Ala Ala
            20   25   30
Cys Ala Ser Ala Arg Ile Asn Val
        35   40

<210> 8
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Hydrophilic peptide

<400> 8
Gly Gly Gly Gly Ser
 1   5

<210> 9
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> ER or Golgi retention sequence

<220>
<221> VARIANT
<222> 3, 4

<223> Xaa = Any Amino Acid

<400> 9
Lys Lys Xaa Xaa
 1

<210> 10
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> ER or Golgi retention sequence

<220>
<221> VARIANT
<222> 2
<223> Xaa = Any Amino Acid

<220>
<221> VARIANT
<222> 3
<223> Xaa = ASP or GLU

<400> 10
Lys Xaa Xaa
 1

<210> 11
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> ER or Golgi retention sequence

<400> 11
Tyr Gln Arg Leu
 1

<210> 12
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD3

<400> 12
Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
            20   25   30
Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr Asn Tyr Asn Gln Lys Phe
    50   55   60
Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys Ser Ser Ser Thr Ala Tyr
65   70   75   80
Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85   90   95
Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly
            100   105   110
Thr Thr Leu Thr Val Ser Ser Ala
        115   120

<210> 13
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD3

<400> 13
Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
 1   5   10   15
Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
            20   25   30
Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr
        35   40   45
Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala His Phe Arg Gly Ser
    50   55   60
Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Gly Met Glu Ala Glu
65   70   75   80
Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Phe Thr
                85   90   95
Phe Gly Ser Gly Thr Lys Leu Glu Ile Asn Arg
            100   105

<210> 14
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD3

<400> 14
gaggtccagc tgcagcagtc tggggctgaa ctggcaagac ctggggcctc agtgaagatg 60
tcctgcaagg cttctggcta cacctttact aggtacacga tgcactgggt aaaacagagg 120
cctggacagg gtctggaatg gattggatac attaatccta gccgtggtta tactaattac 180
aatcagaagt tcaaggacaa ggccacattg actacagaca aatcctccag cacagcctac 240
atgcaactga gcagcctgac atctgaggac tctgcagtct attactgtgc aagatattat 300
gatgatcatt actgccttga ctactggggc caaggcacca ctctcacagt ctcctcagcc 360

<210> 15
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD3

<400> 15
caaattgttc tcacccagtc tccagcaatc atgtctgcat ctccagggga gaaggtcacc 60
atgacctgca gtgccagctc aagtgtaagt tacatgaact ggtaccagca gaagtcaggc 120
acctccccca aaagatggat ttatgacaca tccaaactgg cttctggagt ccctgctcac 180
ttcaggggca gtgggtctgg gacctcttac tctctcacaa tcagcggcat ggaggctgaa 240
gatgctgcca cttattactg ccagcagtgg agtagtaacc cattcacgtt cggctcgggg 300
acaaagttgg aaataaaccg g   321

<210> 16
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
      (TH69)

<400> 16
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Leu Thr Phe Ser Ser Tyr
20 25 30
Ala Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
35 40 45
Ala Ser Ile Ser Ser Gly Gly Phe Thr Tyr Tyr Pro Asp Ser Val Lys
50 55 60
Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Arg Asn Ile Leu Tyr Leu
65 70 75 80
Gln Met Ser Ser Leu Arg Ser Glu Asp Thr Ala Met Tyr Tyr Cys Ala
85 90 95
Arg Asp Glu Val Arg Gly Tyr Leu Asp Val Trp Gly Ala Gly Thr Thr
100 105 110
Val Thr Val Ser Ser
115

<210> 17
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
(TH69)

<400> 17
Ala Ala Tyr Lys Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser
1 5 10 15
Ala Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Ser Ala Ser Gln Gly
20 25 30
Ile Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val
35 40 45
Lys Leu Leu Ile Tyr Tyr Thr Ser Ser Leu His Ser Gly Val Pro Ser
50 55 60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser
65 70 75 80
Asn Leu Glu Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser
85 90 95
Lys Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100 105 110

<210> 18
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
(TH69)

<400> 18
gaggtgcagc tggtcgaatc tggaggagga ctggtgaagc caggaggatc tctgaaactg 60
agttgtgccg cttcaggcct gaccttctca agctacgcca tgagctgggt gcgacagaca 120
cctgagaagc ggctggaatg ggtcgctagc atctcctctg gcgggttcac atactatcca 180
gactccgtga aaggcagatt tactatctct cgggataacg caagaaatat tctgtacctg 240
cagatgagtt cactgaggag cgaggacacc gcaatgtact attgtgccag ggacgaagtg 300
cgcggctatc tggatgtctg gggagctggc actaccgtca ccgtctccag c 351

<210> 19
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
(TH69)

<400> 19
gccgcataca aggatattca gatgactcag accacaagct ccctgagcgc ctccctggga 60
gaccgagtga caatctcttg cagtgcatca cagggaatta gcaactacct gaattggtat 120
cagcagaagc cagatggcac tgtgaaactg ctgatctact atacctctag tctgcacagt 180
ggggtcccct cacgattcag cggatccggc tctgggacag actacagcct gactatctcc 240
aacctggagc ccgaagatat tgccacctac tattgccagc agtactccaa gctgccttat 300
acctttggcg ggggaacaaa gctggagatt aaaagg 336

<210> 20
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
(3a1f)

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

<210> 21
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
(3a1f)

<400> 21
Asp Ile Glu Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
1 5 10 15
Asp Ser Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
35 40 45
Lys Ser Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Thr
65 70 75 80
Glu Asp Phe Gly Met Tyr Phe Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100 105

<210> 22
<211> 369

<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
(3a1f)

<400> 22
caggtccagc tgcaggagtc aggggcagag ctggtgaaac ccggagccag tgtcaaactg 60
tcctgtaagg ccagcggcta tactttcacc agctactgga tgcactgggt gaaacagagg 120
ccaggacagg gcctggagtg gatcggcaag attaacccca gcaatgggcg caccaactac 180
aacgaaaagt ttaaatccaa ggctacactg actgtggaca agagctcctc taccgcatac 240
atgcagctga gttcactgac atctgaagat agtgccgtgt actattgcgc cagaggcggg 300
gtctactatg acctgtacta ttacgcactg gattattggg ggcagggaac cacagtgact 360
gtcagctcc 369

<210> 23
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
(3a1f)

<400> 23
gacatcgagc tgacacagtc tccagccact ctgagcgtga cccctggcga ttctgtcagt 60
ctgtcatgta gagctagcca gtccatctct aacaatctgc actggtacca gcagaaatca 120
catgaaagcc ctcggctgct gattaagagt gcttcacaga gcatctccgg gattccaagc 180
agattctctg gcagtgggtc aggaaccgac tttacactgt ccattaactc tgtggagacc 240
gaagatttcg gcatgtattt ttgccagcag agcaattcct ggccttacac attcggaggc 300
gggactaaac tggagattaa gagg 324

<210> 24
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD45

<400> 24
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr
20 25 30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45
Gly Glu Ile Asn Pro Thr Ser Ser Thr Ile Asn Phe Thr Pro Ser Leu
50 55 60
Lys Asp Lys Val Phe Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg Gly Asn Tyr Tyr Arg Tyr Gly Asp Ala Met Asp Tyr Trp Gly
100 105 110
Gln Gly Thr Ser Val Thr Val Ser
115 120

<210> 25
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD45

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

<210> 26
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD45

<400> 26
caggtgcagc tggtcgagtc tggaggagga ctggtgcagc ctggaggaag tctgaagctg 60
tcatgtgcag ccagcgggtt cgacttttct cgatactgga tgagttgggt gcggcaggca 120
ccaggaaaag gactggaatg gatcggcgag attaacccaa ctagctccac catcaatttc 180
acacccagcc tgaaggacaa agtgtttatt tccagagata acgccaagaa tactctgtat 240
ctgcagatgt ccaaagtcag gtctgaagat accgccctgt actattgtgc tcggggcaac 300
tactatagat acggggacgc tatggattat tgggggcagg gaactagcgt gaccgtgagt 360

<210> 27
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD45

<400> 27
gacattgtgc tgacccagtc ccctgcttca ctggcagtga gcctgggaca gagggcaacc 60
atcagctgcc gagcctctaa gagtgtctca acaagcggat actcctatct gcactggtac 120
cagcagaagc caggacagcc acctaaactg ctgatctatc tggcttccaa cctggaatct 180
ggagtgcctg cacgcttctc cggatctgga agtggaaccg actttacact gaatattcac 240
ccagtcgagg aagaggatgc cgctacctac tattgccagc acagccggga gctgcccttc 300
acatttggca gcgggactaa gctggagatc aag   333

<210> 28
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting B2MG

<400> 28
Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Leu Ser Cys Thr Pro Ser Gly Phe Asn Val Lys Asp Thr
            20   25   30
Tyr Ile His Trp Val Lys Gln Arg Pro Lys Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Arg Ile Asp Pro Ser Asp Gly Asp Ile Lys Tyr Asp Pro Lys Phe
    50   55   60
Gln Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Val Ser

65 70 75 80
Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Trp Phe Gly Asp Tyr Gly Ala Met Asn Tyr Trp Gly Gln Gly
100 105 110
Thr Ser Val Thr Val Ser Ser
115

<210> 29
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting B2MG

<400> 29
Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Gln Ser Ala Ser Leu Gly
1 5 10 15
Glu Ser Val Thr Ile Thr Cys Leu Ala Ser Gln Thr Ile Gly Thr Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ser Pro Gln Leu Leu Ile
35 40 45
Tyr Ala Ala Thr Ser Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Lys Phe Ser Leu Lys Ile Arg Thr Leu Gln Ala
65 70 75 80
Glu Asp Phe Val Ser Tyr Tyr Cys Gln Gln Leu Tyr Ser Lys Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Asp
100 105 110

<210> 30
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting B2MG

<400> 30
gaggtgcagc tgcagcagag cggagcagaa ctggtgaaac ctggagccag cgtcaagctg 60
tcctgtactc catctggctt caacgtgaag gacacataca ttcactgggt caagcagcgg 120
cccaaacagg gactggagtg gatcggcaga attgacccat ccgacggcga tatcaagtat 180
gatcccaaat tccaggggaa ggctactatt accgcagata ccagctccaa cacagtgagt 240
ctgcagctgt ctagtctgac tagcgaagac accgccgtct actattgtgc tagatggttt 300
ggcgattacg gggccatgaa ttattggggg cagggaacca gcgtcaccgt gtccagc 357

<210> 31
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting B2MG

<400> 31
gatattcaga tgacccagtc ccctgcatca cagagcgcct ccctgggcga gtcagtgacc 60
atcacatgcc tggctagcca gacaattggc acttggctgg catggtacca gcagaagccc 120
ggcaaatccc ctcagctgct gatctatgca gctacctctc tggcagacgg agtgcccagt 180
aggttctctg ggagtggatc aggcaccaag ttttctctga aaattcgcac actgcaggct 240
gaggatttcg tctcctacta ttgccagcag ctgtactcta aaccttatac atttggcggg 300
ggaactaagc tggaaatcaa acgagcagac 330

<210> 32
<211> 119

<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting NKG2A

<400> 32
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1   5   10   15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
            20   25   30
Ala Met Ser Trp Val Arg Gln Ser Pro Glu Lys Arg Leu Glu Trp Val
        35   40   45
Ala Glu Ile Ser Ser Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Thr Val
    50   55   60
Thr Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65   70   75   80
Leu Glu Ile Ser Ser Leu Arg Ser Glu Asp Thr Ala Met Tyr Tyr Cys
                85   90   95
Thr Arg His Gly Asp Tyr Pro Arg Phe Phe Asp Val Trp Gly Ala Gly
            100   105   110
Thr Thr Val Thr Val Ser Ser
        115

<210> 33
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting NKG2A

<400> 33
Gln Ile Val Leu Thr Gln Ser Pro Ala Leu Met Ser Ala Ser Pro Gly
 1   5   10   15
Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Ile
            20   25   30
Tyr Trp Tyr Gln Gln Lys Pro Arg Ser Ser Pro Lys Pro Trp Ile Tyr
        35   40   45
Leu Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
    50   55   60
Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu
65   70   75   80
Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Gly Asn Pro Tyr Thr
                85   90   95
Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
            100   105

<210> 34
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting NKG2A

<400> 34
gaggtgcagc tggtggagag cggaggagga ctggtgaagc caggaggaag cctgaagctg 60
tcctgtgccg cctctggctt cacattttcc tcttatgcaa tgagctgggt gcggcagtcc 120
ccagagaaga gactggagtg ggtggcagag atcagctccg gaggatccta cacctactat 180
cctgacacag tgaccggccg gttcacaatc tctagagata acgccaagaa taccctgtat 240
ctggagatct ctagcctgag atccgaggat acagccatgt actattgcac caggcacggc 300
gactacccac gcttctttga cgtgtgggga gcaggaacca cagtgaccgt gtcctct   357

<210> 35
<211> 321

<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting NKG2A

<400> 35
cagattgtcc tgacccagtc tccagccctg atgagcgcct cccctggcga gaaggtgaca 60
atgacctgct ctgccagctc ctctgtgagc tacatctatt ggtaccagca gaagcctcgg 120
agctccccaa agccctggat ctatctgaca tccaacctgg cctctggcgt gccagccaga 180
ttctctggca gcggctccgg cacatcttac agcctgacca tctctagcat ggaggccgag 240
gacgccgcca cctactattg ccagcagtgg tccggcaatc catatacatt tggcggcggc 300
accaagctgg agatcaagag g 321

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

<220>
<223> Variable heavy region for scFv targeting KIR2DL1
and 2/3

<400> 36
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Phe Tyr
20 25 30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Gly Phe Ile Pro Ile Phe Gly Ala Ala Asn Tyr Ala Gln Lys Phe
50 55 60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Pro Ser Gly Ser Tyr Tyr Tyr Asp Tyr Asp Met Asp Val Trp
100 105 110
Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 37
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting KIR2DL1
and 2/3

<400> 37
Glu Ile Val Leu Thr Gln Ser Pro Val Thr Leu Ser Leu Ser Pro Gly
1 5 10 15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45
Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80
Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Arg Ser Asn Trp Met Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr
100 105

<210> 38
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting KIR2DL1
and 2/3

<400> 38
caggtccagc tggtgcagtc tggagctgaa gtgaagaaac cagggagctc cgtcaaggtg 60
tcatgcaaag caagcggcgg gactttctcc ttttatgcaa tctcttgggt gagacaggca 120
cctggacagg gactggagtg gatgggaggc ttcatcccaa tttttggagc cgctaactat 180
gcccagaagt tccagggcag ggtgaccatc acagctgatg agtctactag taccgcatac 240
atggaactgt ctagtctgag gagcgacgat accgccgtgt actattgtgc tcgcattcca 300
tcaggcagct actattacga ctatgatatg gacgtgtggg gccaggggac cacagtcacc 360
gtgagcagc 369

<210> 39
<211> 327
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting KIR2DL1
and 2/3

<400> 39
gagatcgtgc tgacccagtc tcctgtcaca ctgagtctgt caccagggga acgggctaca 60
ctgtcttgca gagcaagcca gtccgtgagc tcctacctgg cctggtatca gcagaagcca 120
ggccaggctc ccaggctgct gatctacgat gcaagcaaca gggccactgg gattcccgcc 180
cgcttctctg gcagtgggtc aggaaccgac tttactctga ccatttctag tctggagcct 240
gaagatttcg ccgtgtacta ttgccagcag cgatccaatt ggatgtatac ttttggccag 300
gggaccaagc tggagatcaa acggaca 327

<210> 40
<211> 21
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<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 40
Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
1 5 10 15
His Ala Ala Arg Pro
20

<210> 41
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 41
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> 42
<211> 70
<212> PRT

<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 42
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 Cys Arg Pro Ala
            20   25   30
Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys 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
65   70

<210> 43
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<220>
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<400> 43
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 1   5   10   15

<210> 44
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<400> 44
atggccttac cagtgaccgc cttgctcctg ccgctggcct tgctgctcca cgccgccagg 60
ccg   63

<210> 45
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<212> DNA
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<400> 45
atggctctgc ctgtgaccgc actgctgctg cccctggctc tgctgctgca cgccgcaaga 60
cct   63

<210> 46
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<400> 46
atggctctgc ccgtcaccgc tctgctgctg cctctggctc tgctgctgca cgctgctcga 60
cca   63

<210> 47

<211> 63
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<400> 47
atggctctgc ccgtgaccgc tctgctgctg cctctggctc tgctgctgca tgctgctcga 60
cct 63

<210> 48
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<400> 48
atggccctgc ccgtcaccgc cctgctgctg cccctggctc tgctgctgca cgccgcaaga 60
ccc 63

<210> 49
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 49
atggctctgc ccgtgaccgc cctgctgctg cctctggctc tgctgctgca cgctgcccgc 60
cca 63

<210> 50
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

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

<210> 51
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 51
ggtggtggtg gttctggtgg tggtggttct ggcggcggcg gctccggtgg tggtggatcc 60

<210> 52
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 52
ggaggaggag gaagcggagg aggaggatcc ggaggcgggg gatctggagg aggaggaagt 60

<210> 53
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 53
ggaggaggag gatccggcgg aggaggctct gggggaggcg ggagt 45

<210> 54
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 54
ggaggaggag gaagtggagg aggaggatca ggaggcgggg gaagcggcgg gggaggctcc 60

<210> 55
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 55
ggaggaggag gaagtggagg aggagggtca ggaggcgggg gaagcggcgg gggaggatcc 60

<210> 56
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<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 56
ggaggaggag gatctggagg aggaggcagc ggcggcggcg gctccggcgg cggcggctct 60

<210> 57
<211> 210
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 57

aagcccacca cgacgccagc gccgcgacca ccaacaccgg cgcccaccat cgcgtcgcag 60
cccctgtccc tgcgcccaga ggcgtgccgg ccagcggcgg ggggcgcagt gcacacgagg 120
gggctggact tcgcctgtga tatctacatc tgggcgccct tggccgggac ttgtggggtc 180
cttctcctgt cactggttat caccctttac 210

<210> 58
<211> 204
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 58
accactacac ctgcaccaag gcctcccaca cccgctccca ctatcgcttc ccagccactg 60
tccctgaggc ccgaggcctg caggccagca gctggcggag ccgtgcatac taggggctg 120
gacttcgctt gcgacatcta catctgggcc ccactggcag ggacatgcgg agtcctgctg 180
ctgtccctgg tcatcacact ttac 204

<210> 59
<211> 204
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 59
actaccacac cagctccaag accacctacc cctgcaccaa caattgctag tcagccactg 60
tcactgagac cagaagcatg taggcctgca gctggaggag ctgtgcacac cagaggcctg 120
gactttgcct gcgatatcta catttgggct cctctggcag gaacctgtgg cgtgctgctg 180
ctgtctctgg tcatcacact ttac 204

<210> 60
<211> 210
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 60
aagccaacca caacccctgc accaaggcca cctacaccag cacctaccat cgcaagccag 60
ccactgtccc tgaggccaga ggcatgtagg cctgcagcag gaggcgccgt gcacacacgc 120
ggcctggact ttgcctgcga tatctacatc tgggcaccac tggcaggaac ctgtggcgtg 180
ctgctgctga gcctggtgat taccctgtat 210

<210> 61
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 61
ggtggtggcg gcagtggtgg cggtggctca 30

<210> 62
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 62
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser

1 5 10

<210> 63
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 63
ggtggtggcg gcagtggtgg cggtggctca ggcggtggtg gctccggtgg cggtggctct 60

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

<220>
<223> Variable heavy-variable light linker

<400> 64
Glu Glu Lys Lys Met Pro
1 5

SEQUENCE LISTING

<110> National University of Singapore
CAMPANA, Dario
KAMIYA, Takahiro

<120> METHODS FOR ENHANCING EFFICACY OF
THERAPEUTIC IMMUNE CELLS

<130> 4459.1116-002

<140> PCT/SG2016/050063
<141> 2016-02-05

<150> 62/112,765
<151> 2015-02-06

<150> 62/130,970
<151> 2015-03-10

<160> 64

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<400> 3
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<400> 6
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<213> Artificial Sequence

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<400> 7
Ser His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Asp Gly Thr Leu
 1   5   10   15
Pro Met Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His Pro Ala Ala
            20   25   30
Cys Ala Ser Ala Arg Ile Asn Val
        35   40

<210> 8
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Hydrophilic peptide

<400> 8
Gly Gly Gly Gly Ser
 1   5

<210> 9
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> ER or Golgi retention sequence

<220>
<221> VARIANT
<222> 3, 4

<223> Xaa = Any Amino Acid

<400> 9
Lys Lys Xaa Xaa
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<210> 10
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> ER or Golgi retention sequence

<220>
<221> VARIANT
<222> 2
<223> Xaa = Any Amino Acid

<220>
<221> VARIANT
<222> 3
<223> Xaa = ASP or GLU

<400> 10
Lys Xaa Xaa
 1

<210> 11
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> ER or Golgi retention sequence

<400> 11
Tyr Gln Arg Leu
 1

<210> 12
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD3

<400> 12
Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
            20   25   30
Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr Asn Tyr Asn Gln Lys Phe
    50   55   60
Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys Ser Ser Ser Thr Ala Tyr
65   70   75   80
Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85   90   95
Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly
            100   105   110
Thr Thr Leu Thr Val Ser Ser Ala
        115   120

<210> 13
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD3

<400> 13
Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
 1   5   10   15
Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
            20   25   30
Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr
        35   40   45
Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala His Phe Arg Gly Ser
    50   55   60
Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Gly Met Glu Ala Glu
65   70   75   80
Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Phe Thr
                85   90   95
Phe Gly Ser Gly Thr Lys Leu Glu Ile Asn Arg
            100   105

<210> 14
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD3

<400> 14
gaggtccagc tgcagcagtc tggggctgaa ctggcaagac ctggggcctc agtgaagatg 60
tcctgcaagg cttctggcta caccttttact aggtacacga tgcactgggt aaaacagagg 120
cctggacagg gtctggaatg gattggatac attaatccta gccgtggtta tactaattac 180
aatcagaagt tcaaggacaa ggccacattg actacagaca aatcctccag cacagcctac 240
atgcaactga gcagcctgac atctgaggac tctgcagtct attactgtgc aagatattat 300
gatgatcatt actgccttga ctactggggc caaggcacca ctctcacagt ctcctcagcc 360

<210> 15
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD3

<400> 15
caaattgttc tcacccagtc tccagcaatc atgtctgcat ctccagggga gaaggtcacc 60
atgacctgca gtgccagctc aagtgtaagt tacatgaact ggtaccagca gaagtcaggc 120
acctccccca aaagatggat ttatgacaca tccaaactgg cttctggagt ccctgctcac 180
ttcaggggca gtgggtctgg gacctcttac tctctcacaa tcagcggcat ggaggctgaa 240
gatgctgcca cttattactg ccagcagtgg agtagtaacc cattcacgtt cggctcgggg 300
acaaagttgg aaataaaccg g   321

<210> 16
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
      (TH69)

<400> 16
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1   5   10   15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Leu Thr Phe Ser Ser Tyr
            20   25   30
Ala Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
        35   40   45
Ala Ser Ile Ser Ser Gly Gly Phe Thr Tyr Tyr Pro Asp Ser Val Lys
    50   55   60
Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Arg Asn Ile Leu Tyr Leu
65   70   75   80
Gln Met Ser Ser Leu Arg Ser Glu Asp Thr Ala Met Tyr Tyr Cys Ala
                85   90   95
Arg Asp Glu Val Arg Gly Tyr Leu Asp Val Trp Gly Ala Gly Thr Thr
            100   105   110
Val Thr Val Ser Ser
        115

<210> 17
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
      (TH69)

<400> 17
Ala Ala Tyr Lys Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser
 1   5   10   15
Ala Ser Leu Gly Asp Arg Val Thr Ile Ser Cys Ser Ala Ser Gln Gly
            20   25   30
Ile Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val
        35   40   45
Lys Leu Leu Ile Tyr Tyr Thr Ser Ser Leu His Ser Gly Val Pro Ser
    50   55   60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser
65   70   75   80
Asn Leu Glu Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser
                85   90   95
Lys Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
            100   105   110

<210> 18
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
      (TH69)

<400> 18
gaggtgcagc tggtcgaatc tggaggagga ctggtgaagc caggaggatc tctgaaactg 60
agttgtgccg cttcaggcct gaccttctca agctacgcca tgagctgggt gcgacagaca 120
cctgagaagc ggctggaatg ggtcgctagc atctcctctg gcgggttcac atactatcca 180
gactccgtga aaggcagatt tactatctct cgggataacg caagaaatat tctgtacctg 240
cagatgagtt cactgaggag cgaggacacc gcaatgtact attgtgccag ggacgaagtg 300
cgcggctatc tggatgtctg gggagctggc actaccgtca ccgtctccag c   351

<210> 19
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
(TH69)

<400> 19
gccgcataca aggatattca gatgactcag accacaagct ccctgagcgc ctccctggga 60
gaccgagtga caatctcttg cagtgcatca cagggaatta gcaactacct gaattggtat 120
cagcagaagc cagatggcac tgtgaaactg ctgatctact atacctctag tctgcacagt 180
ggggtcccct cacgattcag cggatccggc tctgggacag actacagcct gactatctcc 240
aacctggagc ccgaagatat tgccacctac tattgccagc agtactccaa gctgccttat 300
acctttggcg ggggaacaaa gctggagatt aaaagg 336

<210> 20
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
(3a1f)

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

<210> 21
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
(3a1f)

<400> 21
Asp Ile Glu Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
1 5 10 15
Asp Ser Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
35 40 45
Lys Ser Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Thr
65 70 75 80
Glu Asp Phe Gly Met Tyr Phe Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100 105

<210> 22
<211> 369

<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD7
(3a1f)

<400> 22
caggtccagc tgcaggagtc aggggcagag ctggtgaaac ccggagccag tgtcaaactg 60
tcctgtaagg ccagcggcta tactttcacc agctactgga tgcactgggt gaaacagagg 120
ccaggacagg gcctggagtg gatcggcaag attaacccca gcaatgggcg caccaactac 180
aacgaaaagt ttaaatccaa ggctacactg actgtggaca agagctcctc taccgcatac 240
atgcagctga gttcactgac atctgaagat agtgccgtgt actattgcgc cagaggcggg 300
gtctactatg acctgtacta ttacgcactg gattattggg ggcagggaac cacagtgact 360
gtcagctcc 369

<210> 23
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD7
(3a1f)

<400> 23
gacatcgagc tgacacagtc tccagccact ctgagcgtga cccctggcga ttctgtcagt 60
ctgtcatgta gagctagcca gtccatctct aacaatctgc actggtacca gcagaaatca 120
catgaaagcc ctcggctgct gattaagagt gcttcacaga gcatctccgg gattccaagc 180
agattctctg gcagtgggtc aggaaccgac tttacactgt ccattaactc tgtggagacc 240
gaagatttcg gcatgtattt ttgccagcag agcaattcct ggccttacac attcggaggc 300
gggactaaac tggagattaa gagg 324

<210> 24
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD45

<400> 24
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr
20 25 30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45
Gly Glu Ile Asn Pro Thr Ser Ser Thr Ile Asn Phe Thr Pro Ser Leu
50 55 60
Lys Asp Lys Val Phe Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg Gly Asn Tyr Tyr Arg Tyr Gly Asp Ala Met Asp Tyr Trp Gly
100 105 110
Gln Gly Thr Ser Val Thr Val Ser
115 120

<210> 25
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD45

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

<210> 26
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting CD45

<400> 26
caggtgcagc tggtcgagtc tggaggagga ctggtgcagc ctggaggaag tctgaagctg 60
tcatgtgcag ccagcgggtt cgacttttct cgatactgga tgagttgggt gcggcaggca 120
ccaggaaaag gactggaatg gatcggcgag attaacccaa ctagctccac catcaatttc 180
acacccagcc tgaaggacaa agtgtttatt tccagagata acgccaagaa tactctgtat 240
ctgcagatgt ccaaagtcag gtctgaagat accgccctgt actattgtgc tcggggcaac 300
tactatagat acggggacgc tatggattat tgggggcagg gaactagcgt gaccgtgagt 360

<210> 27
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting CD45

<400> 27
gacattgtgc tgacccagtc ccctgcttca ctggcagtga gcctgggaca gagggcaacc 60
atcagctgcc gagcctctaa gagtgtctca acaagcggat actcctatct gcactggtac 120
cagcagaagc caggacagcc acctaaactg ctgatctatc tggcttccaa cctggaatct 180
ggagtgcctg cacgcttctc cggatctgga agtggaaccg actttacact gaatattcac 240
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<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting B2MG

<400> 28
Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Thr Pro Ser Gly Phe Asn Val Lys Asp Thr
20 25 30
Tyr Ile His Trp Val Lys Gln Arg Pro Lys Gln Gly Leu Glu Trp Ile
35 40 45
Gly Arg Ile Asp Pro Ser Asp Gly Asp Ile Lys Tyr Asp Pro Lys Phe
50 55 60
Gln Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Val Ser

65 70 75 80
Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Trp Phe Gly Asp Tyr Gly Ala Met Asn Tyr Trp Gly Gln Gly
100 105 110
Thr Ser Val Thr Val Ser Ser
115

<210> 29
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting B2MG

<400> 29
Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Gln Ser Ala Ser Leu Gly
1 5 10 15
Glu Ser Val Thr Ile Thr Cys Leu Ala Ser Gln Thr Ile Gly Thr Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ser Pro Gln Leu Leu Ile
35 40 45
Tyr Ala Ala Thr Ser Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Lys Phe Ser Leu Lys Ile Arg Thr Leu Gln Ala
65 70 75 80
Glu Asp Phe Val Ser Tyr Tyr Cys Gln Gln Leu Tyr Ser Lys Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Asp
100 105 110

<210> 30
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting B2MG

<400> 30
gaggtgcagc tgcagcagag cggagcagaa ctggtgaaac ctggagccag cgtcaagctg 60
tcctgtactc catctggctt caacgtgaag gacacataca ttcactgggt caagcagcgg 120
cccaaacagg gactggagtg gatcggcaga attgacccat ccgacggcga tatcaagtat 180
gatcccaaat tccaggggaa ggctactatt accgcagata ccagctccaa cacagtgagt 240
ctgcagctgt ctagtctgac tagcgaagac accgccgtct actattgtgc tagatggttt 300
ggcgattacg gggccatgaa ttattggggg cagggaacca gcgtcaccgt gtccagc 357

<210> 31
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting B2MG

<400> 31
gatattcaga tgacccagtc ccctgcatca cagagcgcct ccctgggcga gtcagtgacc 60
atcacatgcc tggctagcca gacaattggc acttggctgg catggtacca gcagaagccc 120
ggcaaatccc ctcagctgct gatctatgca gctacctctc tggcagacgg agtgcccagt 180
aggttctctg ggagtggatc aggcaccaag ttttctctga aaattcgcac actgcaggct 240
gaggatttcg tctcctacta ttgccagcag ctgtactcta aaccttatac atttggcggg 300
ggaactaagc tggaaatcaa acgagcagac 330

<210> 32
<211> 119

<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting NKG2A

<400> 32
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1   5   10   15
Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
            20   25   30
Ala Met Ser Trp Val Arg Gln Ser Pro Glu Lys Arg Leu Glu Trp Val
        35   40   45
Ala Glu Ile Ser Ser Gly Gly Ser Tyr Thr Tyr Tyr Pro Asp Thr Val
    50   55   60
Thr Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65   70   75   80
Leu Glu Ile Ser Ser Leu Arg Ser Glu Asp Thr Ala Met Tyr Tyr Cys
                85   90   95
Thr Arg His Gly Asp Tyr Pro Arg Phe Phe Asp Val Trp Gly Ala Gly
            100   105   110
Thr Thr Val Thr Val Ser Ser
        115

<210> 33
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting NKG2A

<400> 33
Gln Ile Val Leu Thr Gln Ser Pro Ala Leu Met Ser Ala Ser Pro Gly
 1   5   10   15
Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Ile
            20   25   30
Tyr Trp Tyr Gln Gln Lys Pro Arg Ser Ser Pro Lys Pro Trp Ile Tyr
        35   40   45
Leu Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
    50   55   60
Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu
65   70   75   80
Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Gly Asn Pro Tyr Thr
                85   90   95
Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
            100   105

<210> 34
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting NKG2A

<400> 34
gaggtgcagc tggtggagag cggaggagga ctggtgaagc caggaggaag cctgaagctg 60
tcctgtgccg cctctggctt cacattttcc tcttatgcaa tgagctgggt gcggcagtcc 120
ccagagaaga gactggagtg ggtggcagag atcagctccg gaggatccta cacctactat 180
cctgacacag tgaccggccg gttcacaatc tctagagata acgccaagaa taccctgtat 240
ctggagatct ctagcctgag atccgaggat acagccatgt actattgcac caggcacggc 300
gactacccac gcttctttga cgtgtgggga gcaggaacca cagtgaccgt gtcctct   357

<210> 35
<211> 321

<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting NKG2A

<400> 35
cagattgtcc tgacccagtc tccagccctg atgagcgcct cccctggcga gaaggtgaca 60
atgacctgct ctgccagctc ctctgtgagc tacatctatt ggtaccagca gaagcctcgg 120
agctccccaa agccctggat ctatctgaca tccaacctgg cctctggcgt gccagccaga 180
ttctctggca gcggctccgg cacatcttac agcctgacca tctctagcat ggaggccgag 240
gacgccgcca cctactattg ccagcagtgg tccggcaatc catatacatt tggcggcggc 300
accaagctgg agatcaagag g 321

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

<220>
<223> Variable heavy region for scFv targeting KIR2DL1
and 2/3

<400> 36
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Phe Tyr
20 25 30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Gly Phe Ile Pro Ile Phe Gly Ala Ala Asn Tyr Ala Gln Lys Phe
50 55 60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Pro Ser Gly Ser Tyr Tyr Tyr Asp Tyr Asp Met Asp Val Trp
100 105 110
Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 37
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting KIR2DL1
and 2/3

<400> 37
Glu Ile Val Leu Thr Gln Ser Pro Val Thr Leu Ser Leu Ser Pro Gly
1 5 10 15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45
Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80
Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Arg Ser Asn Trp Met Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr
100 105

<210> 38
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy region for scFv targeting KIR2DL1
and 2/3

<400> 38
caggtccagc tggtgcagtc tggagctgaa gtgaagaaac cagggagctc cgtcaaggtg 60
tcatgcaaag caagcggcgg gactttctcc ttttatgcaa tctcttgggt gagacaggca 120
cctggacagg gactggagtg gatgggaggc ttcatcccaa ttttttggagc cgctaactat 180
gcccagaagt tccagggcag ggtgaccatc acagctgatg agtctactag taccgcatac 240
atggaactgt ctagtctgag gagcgacgat accgccgtgt actattgtgc tcgcattcca 300
tcaggcagct actattacga ctatgatatg gacgtgtggg gccaggggac cacagtcacc 360
gtgagcagc 369

<210> 39
<211> 327
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable light region for scFv targeting KIR2DL1
and 2/3

<400> 39
gagatcgtgc tgacccagtc tcctgtcaca ctgagtctgt caccagggga acgggctaca 60
ctgtcttgca gagcaagcca gtccgtgagc tcctacctgg cctggtatca gcagaagcca 120
ggccaggctc ccaggctgct gatctacgat gcaagcaaca gggccactgg gattcccgcc 180
cgcttctctg gcagtgggtc aggaaccgac tttactctga ccatttctag tctggagcct 240
gaagatttcg ccgtgtacta ttgccagcag cgatccaatt ggatgtatac ttttggccag 300
gggaccaagc tggagatcaa acggaca 327

<210> 40
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 40
Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
1 5 10 15
His Ala Ala Arg Pro
20

<210> 41
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 41
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> 42
<211> 70
<212> PRT

<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 42
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 Cys Arg Pro Ala
            20   25   30
Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys 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
65   70

<210> 43
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 43
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 1   5   10   15

<210> 44
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 44
atggccttac cagtgaccgc cttgctcctg ccgctggcct tgctgctcca cgccgccagg 60
ccg   63

<210> 45
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 45
atggctctgc ctgtgaccgc actgctgctg cccctggctc tgctgctgca cgccgcaaga 60
cct   63

<210> 46
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 46
atggctctgc ccgtcaccgc tctgctgctg cctctggctc tgctgctgca cgctgctcga 60
cca   63

<210> 47

<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 47
atggctctgc ccgtgaccgc tctgctgctg cctctggctc tgctgctgca tgctgctcga 60
cct 63

<210> 48
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 48
atggccctgc ccgtcaccgc cctgctgctg cccctggctc tgctgctgca cgccgcaaga 60
ccc 63

<210> 49
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 signal peptide

<400> 49
atggctctgc ccgtgaccgc cctgctgctg cctctggctc tgctgctgca cgctgcccgc 60
cca 63

<210> 50
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

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

<210> 51
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 51
ggtggtggtg gttctggtgg tggtggttct ggcggcggcg gctccggtgg tggtggatcc 60

<210> 52
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 52
ggaggaggag gaagcggagg aggaggatcc ggaggcgggg gatctggagg aggaggaagt 60

<210> 53
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 53
ggaggaggag gatccggcgg aggaggctct gggggaggcg ggagt 45

<210> 54
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 54
ggaggaggag gaagtggagg aggaggatca ggaggcgggg gaagcggcgg gggaggctcc 60

<210> 55
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 55
ggaggaggag gaagtggagg aggagggtca ggaggcgggg gaagcggcgg gggaggatcc 60

<210> 56
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 56
ggaggaggag gatctggagg aggaggcagc ggcggcggcg gctccggcgg cggcggctct 60

<210> 57
<211> 210
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 57

aagcccacca cgacgccagc gccgcgacca ccaacaccgg cgcccaccat cgcgtcgcag 60
cccctgtccc tgcgcccaga ggcgtgccgg ccagcggcgg ggggcgcagt gcacacgagg 120
gggctggact tcgcctgtga tatctacatc tgggcgccct tggccgggac ttgtggggtc 180
cttctcctgt cactggttat caccctttac 210

<210> 58
<211> 204
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 58
accactacac ctgcaccaag gcctcccaca cccgctccca ctatcgcttc ccagccactg 60
tccctgaggc ccgaggcctg caggccagca gctggcggag ccgtgcatac taggggctg 120
gacttcgctt gcgacatcta catctgggcc ccactggcag ggacatgcgg agtcctgctg 180
ctgtccctgg tcatcacact ttac 204

<210> 59
<211> 204
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 59
actaccacac cagctccaag accacctacc cctgcaccaa caattgctag tcagccactg 60
tcactgagac cagaagcatg taggcctgca gctggaggag ctgtgcacac cagaggcctg 120
gactttgcct gcgatatcta catttgggct cctctggcag gaacctgtgg cgtgctgctg 180
ctgtctctgg tcatcacact ttac 204

<210> 60
<211> 210
<212> DNA
<213> Artificial Sequence

<220>
<223> CD8 hinge and transmembrane

<400> 60
aagccaacca caacccctgc accaaggcca cctacaccag cacctaccat cgcaagccag 60
ccactgtccc tgaggccaga ggcatgtagg cctgcagcag gaggcgccgt gcacacacgc 120
ggcctggact ttgcctgcga tatctacatc tgggcaccac tggcaggaac ctgtggcgtg 180
ctgctgctga gcctggtgat taccctgtat 210

<210> 61
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 61
ggtggtggcg gcagtggtgg cggtggctca 30

<210> 62
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 62
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser

1 5 10

<210> 63
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Variable heavy-variable light linker

<400> 63
ggtggtggcg gcagtggtgg cggtggctca ggcggtggtg gctccggtgg cggtggctct 60

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

<220>
<223> Variable heavy-variable light linker

<400> 64
Glu Glu Lys Lys Met Pro
1 5