

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 gtttttggtc 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								

119419-5001-us-sequence1isting.txt

<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 gccgtgggta tactaattac 180
 aatcagaagt tcaaggacaa ggccacattg actacagaca aatcctccag cacagcctac 240
 atgcaactga gcagcctgac atctgaggac tctgcagtct attactgtgc aagatattat 300
 gatgatcatt actgccttga ctactggggc caaggcacca ctctcacagt ctcttcagcc 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 aagtgtgaagt tacatgaact ggtaccagca gaagtcaggc 120
 acctcccca aaagatggat ttatgacaca tccaaactgg cttctggagt ccctgctcac 180
 ttcaggggca gtgggtcttg gacctttac tctctcaca tcagcggcat ggaggctgaa 240
 gatgctgcc cttattactg ccagcagtg agtagtaacc cattcacgtt cggctcgggg 300
 acaaagttag aaataaacg g 321

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

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

119419-5001-us-sequencelisting.txt

```
<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
agtgtgccg cttcaggcct gaccttctca agctacgcca tgagctgggt gcgacagaca 120
cctgagaagc ggctggaatg ggtcgttagc 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
```

119419-5001-us-sequence1isting.txt

<220>

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

<400> 19

```
gccgcataca aggatattca gatgactcag accacaagct ccctgagcgc ctccctggga 60
gaccgagtga caatctcttg cagtgcacat cagggaatta gcaactacct gaattggtat 120
cagcagaagc cagatggcac tgtgaaactg ctgatctact atacctctag tctgcacagt 180
gggggtcccct 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 Thr Lys Leu Glu Ile Lys Arg
100    105
```

<210> 22

<211> 369

119419-5001-us-sequencelisting.txt

<212> DNA

<213> Artificial Sequence

<220>

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

<400> 22

```
cagggtccagc tgcaggagtc aggggacagag ctggtgaaac ccggagccag tgtcaaactg 60
tcctgtaagg ccagcggcta tacittcacc agctactgga tgcactgggt gaaacagagg 120
ccaggacagg gcctggagtg gatcggcaag attaacccca gcaatgggag caccaactac 180
aacgaaaagt ttaaatccaa ggctacactg actgtggaca agagctcctc taccgcatac 240
atgcagctga gttcactgac atctgaagat agtgccgtgt actattgcgc cagaggcggg 300
gtctactatg acctgtacta ttacgcactg gattattggg ggcaggggaa 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 ctccgctgct gattaagagt gcttcacaga gcatctccgg gattccaagc 180
agattctctg gcagtgggtc aggaaccgac ttacactgt 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

119419-5001-us-sequencelisting.txt

```
<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 tgagtgggtt gcggcaggca 120
ccaggaaaag gactggaatg gatcggcgag attaacccaa ctagctccac catcaatttc 180
acacccagcc tgaaggacaa agtggtttatt 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 cctgtcttca ctggcagtga gcctgggaca gagggcaacc 60
atcagctgcc gagcctctaa gagtgtctca acaagcggat actcctatct gcactgggtac 120
cagcagaagc caggacagcc acctaaactg ctgatctatc tggcttccaa cctggaatct 180
ggagtgcctg cagcgttctc 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
```

119419-5001-us-sequencelisting.txt

```

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
gagggtgcagc 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 tgaccagtc ccctgcatca cagagcgcct ccctgggcga gtcagtgacc 60
atcacatgcc tggctagcca gacaattggc acttggctgg catggtacca gcagaagccc 120
ggcaaatccc ctgagctgct gatctatgca gctacctctc tggcagacgg agtgcccagt 180
aggttctctg ggagtggatc aggcaccaag ttttctctga aaattcgcac actgcaggct 240
gaggatttcg tctcctacta ttgccagcag ctgtactcta aaccttatac atttggcggg 300
ggaactaagc tggaaatcaa acgagcagac

```

<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 tgggtggagag cggaggagga ctggtgaagc caggaggaag cctgaagctg 60
tcctgtgccg cctctggctt cacattttcc tcttatgcaa tgagctgggt gcggcagtc 120
ccagagaaga gactggagtg ggtggcagag atcagctccg gaggatccta cacctactat 180
cctgacacag tgaccggccg gttcacaatc tctagagata acgccaagaa taccctgtat 240
ctggagatct ctagcctgag atccgaggat acagccatgt actattgcac caggcacggc 300
gactaccac gcttctttga cgtgtgggga gcaggaacca cagtgaccgt gtcctct 357

```

<210> 35

<211> 321

119419-5001-us-sequencelisting.txt

<212> DNA

<213> Artificial Sequence

<220>

<223> Variable light region for scFv targeting NKG2A

<400> 35

```
cagattgtcc tgaccagtc tccagccctg atgagcgcct cccctggcga gaagggtgaca 60
atgacctgct ctgccagctc ctctgtgagc tacatctatt ggtaccagca gaagcctcgg 120
agctccccaag agccctggat ctatctgaca tccaacctgg cctctggcgt gccagccaga 180
ttctctggca gcggctccgg cacatcttac agcctgacca tctctagcat ggaggccgag 240
gacgccgcca cctactattg ccagcagtg 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
```

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<210> 38

<211> 369

<212> DNA

<213> Artificial Sequence

<220>

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

<400> 38

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cagggtccagc tgggtgcagtc tggagctgaa gtgaagaaac cagggagctc cgtcaaggtg 60
tcatgcaaag caagcggcgg gactttctcc ttttatgcaa tctcttgggt gagacaggca 120
cctggacagg gactggagtg gatgggagggc ttcattccaa tttttggagc cgctaactat 180
gccagaagt 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 tgaccagtc tcctgtcaca ctgagtctgt caccagggga acgggctaca 60
ctgtcttgca gagcaagcca gtccgtgagc tcctacctgg cctggatatca gcagaagcca 120
ggccaggctc ccaggctgct gatctacgat gcaagcaaca gggccactgg gattcccgcc 180
cgcttctctg gcagtgggtc aggaaccgac ttactctga 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 ctgtctcctg 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
atggcctctgc 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
ggtaggtggtag gttctggtag ttgtaggttct ggcggcggcg gctccggtgg ttgtggatcc 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

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```
aagcccacca cgacgccagc gccgcgacca ccaacaccgg cgcaccacat cgcgtcgcag 60
cccctgtccc tgcgccaga 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 tagggggctg 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 catctgggcc 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 caaccctgc accaaggcca cctacaccag cacctaccat cgcaagccag 60
ccactgtccc tgaggccaga ggcattgtag cctgcagcag gaggcgccgt gcacacacgc 120
ggcctggact ttgcctgcga tatctacatc tgggcaccac tggcaggaac ctgtggcgtg 180
ctgctgctga gcctgggtgat taccctgtat 210
```

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

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

```
<400> 61
ggtggtggcg gcagtgggtg 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

ggtaggtggcg gcagtggtgg cggtaggtca ggcggtggtg gctccggtgg cggtaggtct 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