

31623SG2-seq1-000001.txt
SEQUENCE LISTING

<110> Asia Biotech

<120> PD-1 ANTIBODIES AND USES THEREOF

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<160> 28

<170> PatentIn version 3.5

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<223> Nucleotide sequence of hu67D9 heavy chain variable region

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<223> Amino acid sequence of hu67D9 heavy chain variable region

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```

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

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

```
Ala Thr Ile Ser Gly Gly Gly Arg Asp Thr Tyr Tyr Pro Asp Thr Val
50              55              60
```

```
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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
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Ala Arg Gln Asp Tyr Gly Asn Tyr Val Trp Phe Ala Tyr Trp Gly Gln
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Gly Thr Leu Val Thr Val Ser Ser
 115 120

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 <223> Amino acid sequence of hu67D9 light chain variable region

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

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

Gly Ile Ser Phe Met His Trp Phe Gln Gln Lys Pro Gly Gln Pro Pro
 35 40 45

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

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

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

Glu Val Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105 110

<210> 11
<211> 1173
<212> DNA
<213> Artificial Sequence

<220>
<223> Nucleotide sequence of the DNA containing cDNA encoding the extracellular region of human PD-1 fused to human Fc

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aagaaccagg tcagcctgac ctgcctggtc aaaggcttct atcccagcga catcgccgtg	960
gagtgggaga gcaatgggca gccggagaac aactacaaga ccacgcctcc cgtgctggac	1020
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<210> 12

<211> 1443

<212> DNA

<213> Artificial Sequence

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<223> Nucleotide sequence of the DNA containing cDNA encoding the extracellular region of human PD-L1 fused to human Fc

<400> 12

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agtggtaaga ccaccaccac caattccaag agagaggaga aacttttcaa tgtgaccagc	600
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 <212> DNA
 <213> Homo sapiens

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accttctccc cagccctgct cgtggtgacc gaaggggaca acgccacctt cacctgcagc	180
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ccactgaggc ctgaggatgg acactgctct tggcccctct gagaattc 888

<210> 14
<211> 268
<212> PRT
<213> Homo sapiens

<400> 14

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

Thr Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr
35 40 45

Arg Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu
50 55 60

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

Pro Asn Gly Arg Asp Phe His Met Ser Val Val Arg Ala Arg Arg Asn
85 90 95

Asp Ser Gly Thr Tyr Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala
100 105 110

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

Ala Glu Val Pro Thr Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly
130 135 140

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Gln Phe Gln Thr Leu Val Val Gly Val Val Gly Gly Leu Leu Gly Ser
145 150 155 160

Leu Val Leu Leu Val Trp Val Leu Ala Val Ile Cys Ser Arg Ala Ala
165 170 175

Arg Gly Thr Ile Gly Ala Arg Arg Thr Gly Gln Pro Leu Lys Glu Asp
180 185 190

Pro Ser Ala Val Pro Val Phe Ser Val Asp Tyr Gly Glu Leu Asp Phe
195 200 205

Gln Trp Arg Glu Lys Thr Pro Glu Pro Pro Val Pro Cys Val Pro Glu
210 215 220

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

Ser Pro Ala Arg Arg Gly Ser Ala Asp Gly Pro Arg Ser Ala Gln Pro
245 250 255

Leu Arg Pro Glu Asp Gly His Cys Ser Trp Pro Leu
260 265

<210> 15
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Nucleotide sequence of the heavy chain variable region of 67D9

<400> 15
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ccagacactg tgaaggggcg attcaccatc tccagagaca atgccaaaaa taccctgtat 240
ctacaaatga gcagtctgag gtctgaggac acggccttgt attattgtgc aagacaggac 300
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<210> 16
 <211> 120
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<220>
 <223> Amino acid sequence of the heavy chain variable region of 67D9

<400> 16

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 1 5 10 15

Ser Leu Lys Val Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr
 20 25 30

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

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

Ala Arg Gln Asp Tyr Gly Asn Tyr Val Trp Phe Ala Tyr Trp Gly Gln
 100 105 110

Gly Thr Leu Val Thr Val Ser Ala
 115 120

<210> 17
 <211> 336
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Nucleotide sequence of the light chain variable region of 67D9

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caacagaaac caggacagcc accccaactc ctcatctatt ctacatcaa ccgaggatcc      180
ggggtccctg ccaggttttag tggcagtggg tctgggacag acttcagcct caccatccat      240
cctatggagg aggatgatac tgcaatgtat ttctgtcagc aaagtcagga ggttccgtgg      300
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<210> 18
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<223> Amino acid sequence of the light chain variable region of 67D9
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Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser Glu Ser Val Asp Ser Tyr
          20           25           30

Gly Ile Ser Phe Met His Trp Phe Gln Gln Lys Pro Gly Gln Pro Pro
          35           40           45

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

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

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

Glu Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100          105          110
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<210> 19
 <211> 1422
 <212> DNA
 <213> Homo sapiens

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 gtgacggtgt cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc 600
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 <212> DNA
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<220>
 <223> Nucleotide sequence of the DNA containing the cDNA encoding the
 c67D9 light chain

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 ccaggttcca caggtgacat tgtgctgacc caatctccag cttctttggc tgtgtctcta 120
 gggcagaggg ccaccatctc ctgcagagcc agcgaaagtg ttgatagtta tggcattagt 180
 tttatgcact ggttccaaca gaaaccagga cagccacccc aactcctcat ctattctaca 240
 tccaaccgag gatccgggggt ccctgccagg tttagtggca gtgggtcttg gacagacttc 300
 agcctcacca tccatcctat ggaggaggat gatactgcaa tgtatttctg tcagcaaagt 360
 caggagggtc cgtggacgtt cgggtggaggc accaagctgg aaatcaaacg gactgtggct 420
 gcaccatctg tcttcatctt cccgccatct gatgagcagt tgaaatcttg aactgcctct 480
 gttgtgtgcc tgctgaataa cttctatccc agagaggcca aagtacagtg gaaggtggat 540
 aacgccctcc aatcgggtaa ctcccaggag agtgtcacag agcaggacag caaggacagc 600
 acctacagcc tcagcagcac cctgacgctg agcaaagcag actacgagaa acacaaagtc 660
 tacgcctgcg aagtcacca tcagggcctg agctcgcccg tcacaaagag cttcaacagg 720
 ggagagtgtt aggaattc 738

<210> 21
 <211> 447
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Amino acid sequence of c67D9 heavy chain

<400> 21

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

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Ser Leu Lys Val Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr
20 25 30

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

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

Ala Arg Gln Asp Tyr Gly Asn Tyr Val Trp Phe Ala Tyr Trp Gly Gln
100 105 110

Gly Thr Leu Val Thr Val Ser Ala Ala Ser Thr Lys Gly Pro Ser Val
115 120 125

Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala
130 135 140

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

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190

Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys
195 200 205

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro
210 215 220

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Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
260 265 270

Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
 435 440 445

<210> 22
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 <213> Artificial Sequence

<220>
 <223> Amino acid sequence of c67D9 light chain

<400> 22

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 Glu Ser Val Asp Ser Tyr
 20 25 30

Gly Ile Ser Phe Met His Trp Phe Gln Gln Lys Pro Gly Gln Pro Pro
 35 40 45

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

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

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

Glu Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
 100 105 110

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
 115 120 125

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
 130 135 140

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Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
145 150 155 160

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
165 170 175

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
180 185 190

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
195 200 205

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 23
<211> 362
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequences of PD-1-Fc fusion protein

<400> 23

Pro Gly Trp Phe Leu Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr
1 5 10 15

Phe Ser Pro Ala Leu Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe
20 25 30

Thr Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr
35 40 45

Arg Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu
50 55 60

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

Pro Asn Gly Arg Asp Phe His Met Ser Val Val Arg Ala Arg Arg Asn
85 90 95

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Asp Ser Gly Thr Tyr Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala
100 105 110

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

Ala Ser Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
130 135 140

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
145 150 155 160

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
165 170 175

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
180 185 190

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
195 200 205

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
210 215 220

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
225 230 235 240

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
245 250 255

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
260 265 270

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
275 280 285

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
290 295 300

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Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
305 310 315 320

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

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
340 345 350

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
355 360

<210> 24

<211> 455

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequences of PD-L1-Fc fusion protein

<400> 24

Phe Thr Val Thr Val Pro Lys Asp Leu Tyr Val Val Glu Tyr Gly Ser
1 5 10 15

Asn Met Thr Ile Glu Cys Lys Phe Pro Val Glu Lys Gln Leu Asp Leu
20 25 30

Ala Ala Leu Ile Val Tyr Trp Glu Met Glu Asp Lys Asn Ile Ile Gln
35 40 45

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

Gln Arg Ala Arg Leu Leu Lys Asp Gln Leu Ser Leu Gly Asn Ala Ala
65 70 75 80

Leu Gln Ile Thr Asp Val Lys Leu Gln Asp Ala Gly Val Tyr Arg Cys
85 90 95

31623SG2-seq1-000001.txt

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

Asn Ala Pro Tyr Asn Lys Ile Asn Gln Arg Ile Leu Val Val Asp Pro
115 120 125

Val Thr Ser Glu His Glu Leu Thr Cys Gln Ala Glu Gly Tyr Pro Lys
130 135 140

Ala Glu Val Ile Trp Thr Ser Ser Asp His Gln Val Leu Ser Gly Lys
145 150 155 160

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

Ser Thr Leu Arg Ile Asn Thr Thr Thr Asn Glu Ile Phe Tyr Cys Thr
180 185 190

Phe Arg Arg Leu Asp Pro Glu Glu Asn His Thr Ala Glu Leu Val Ile
195 200 205

Pro Glu Leu Pro Leu Ala His Pro Pro Asn Glu Arg Thr Ala Ser Glu
210 215 220

Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
225 230 235 240

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
245 250 255

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
260 265 270

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
275 280 285

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
290 295 300

31623SG2-seql-000001.txt

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
305 310 315 320

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
325 330 335

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
340 345 350

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys
355 360 365

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
370 375 380

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
385 390 395 400

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
405 410 415

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
420 425 430

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
435 440 445

Leu Ser Leu Ser Pro Gly Lys
450 455

<210> 25

<211> 1431

<212> DNA

<213> Artificial Sequence

<220>

<223> Nucleotide sequence of the DNA containing the cDNA encoding the
hu67D9 heavy chain

<400> 25

aagcttgccg ccaccatgga ttttcaggtg cagattttca gcttcctgct aatcagtgcc

60

31623SG2-seql-000001.txt

tcagtcataa tatccagagg agaggtgcag ctctgtggaat ctgggggagg actggtgcag	120
cccgggtggaa gtctccggct gagctgcgcc gctagtgggt tcactttttc tactttacggg	180
atgtcttggg tccgacaggc accaggcaag gggctggagt ggggtggctac tattttctgga	240
ggaggccgag acacctacta ccccgacacc gtcaaggagc gttttactat cagccgtgac	300
aacagcaaga ataccttcta ctttcagatg tcttcactgc gagctgaaga caccgctgtg	360
tactattgtg cccgtcagga ctacggtaac tacgtgtgggt tcgcttactg gggacaggga	420
accctgggtc ccgtctcctc ggctagcacc aaggggccat ccgtcttccc cctggcgccc	480
tgctccagga gcacctccga gagcacagcc gccctgggct gcctggtcaa ggactacttc	540
cccgaaccgg tgacggtgtc gtggaactca ggcgccctga ccagcggcgt gcacaccttc	600
ccggctgtcc tacagtcctc aggactctac tccctcagca gcgtggtgac cgtgccctcc	660
agcagcttgg gcacgaagac ctacacctgc aacgtagatc acaagcccag caacaccaag	720
gtggacaaga gatttgagtc caaatatggc ccccatgcc caccctgccc agcacctgag	780
ttcctggggg gaccatcagt cttcctgttc cccccaaac ccaaggacac tctcatgac	840
tcccggaccc ctgaggtcac gtgcgtgggt gtggacgtga gccaggaaga cccgaggtc	900
cagttcaact ggtacgtgga tggcgtggag gtgcataatg ccaagacaaa gccgcgggag	960
gagcagttca acagcacgta ccgtgtgggt agcgtcctca ccgtcctgca ccaggactgg	1020
ctgaacggca aggagtacaa gtgcaaggct tccaacaaag gcctcccgtc ctccatcgag	1080
aaaaccatct ccaaagccaa agggcagccc cgagagccac aggtgtacac cctgccccca	1140
tcccaggagg agatgaccaa gaaccaggct agcctgacct gcctggtcaa aggtttctac	1200
cccagcgaca tcgccgtgga gtgggagagc aatgggcagc cggagaacaa ctacaagacc	1260
acgcctcccc tgctggactc cgacggctcc ttcttctctt acagcaggct aaccgtggac	1320
aagagcaggt ggcaggagg gaatgtcttc tcatgctccg tgatgcacga ggctctgcac	1380
aaccactaca cacagaagag cctctccctg tctctgggta aatgagaatt c	1431

<210> 26

<211> 447

<212> PRT

<213> Artificial Sequence

31623SG2-seql-000001.txt

<220>

<223> Amino acid sequence of hu67D9 heavy chain

<400> 26

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

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

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

Ala Thr Ile Ser Gly Gly Gly Arg Asp Thr Tyr Tyr Pro Asp Thr Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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

Ala Arg Gln Asp Tyr Gly Asn Tyr Val Trp Phe Ala Tyr Trp Gly Gln
100 105 110

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
115 120 125

Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala
130 135 140

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

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190

31623SG2-seq1-000001.txt

Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys
195 200 205

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro
210 215 220

Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
260 265 270

Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

31623SG2-seql-000001.txt

Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440 445

<210> 27
<211> 742
<212> DNA
<213> Artificial Sequence

<220>
<223> Nucleotide sequence of the DNA containing the cDNA encoding the
hu67D9 light chain

<400> 27
aagcttgccg ccacatgga ttttcaggtg cagattttca gcttcctgct aatcagtgcc 60
tcagtcataa tatccagagg agatattgtt ctgacccagt ccccgcttc actggctgtg 120
agtcctgggc agcgagctac catcagctgc cgggcttcag agtccgtgga tagctacgga 180
atttcattta tgcactgggt ccagcagaag ccaggccaac cacctcagtt gctgatatat 240
tcgacatcta atcggggaag cgggtgtgcca gcccggttta gtggtagcgg ctctggtaca 300
gatttctctc ttacaattaa ccagtgagg gcggatgaca ctgccaatta cttttgtcag 360
cagagccagg aagtgccttg gacttttggg cagggcacga aggtagagat taaacggact 420
gtggctgcac catctgtctt catcttccc ccatctgatg agcagttgaa atctggaact 480
gcctctgttg tgtgcctgct gaataacttc tatcccagag aggcctaaagt acagtggaag 540
gtggataacg ccctccaatc gggttaactc caggagagtg tcacagagca ggacagcaag 600
gacagcacct acagcctcag cagcaccctg acgctgagca aagcagacta cgagaaacac 660
aaagtctacg cctgcgaagt caccatcag ggcctgagct cgcccgtcac aaagagcttc 720
aacaggggag agtgttgaat tc 742

<210> 28
<211> 218

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of hu67D9 light chain

<400> 28

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

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

Gly Ile Ser Phe Met His Trp Phe Gln Gln Lys Pro Gly Gln Pro Pro
 35 40 45

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

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

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

Glu Val Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105 110

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
 115 120 125

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
 130 135 140

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
 145 150 155 160

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
 165 170 175

31623SG2-seq1-000001.txt

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
180 185 190

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
195 200 205

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215