Figure 1

Figure 1A

4.1.1 Heavy Chain DNA

```
ATGGAGTTTG GGCTGAGCTG GGTTTTCCTC GTTGCTCTTT TAAGAGGTGT      50
CCAGTGTCAG GTGCAGCTGG TGGAGTCTGG GGGAGGCGTG GTCCAGCCTG     100
GGAGGTCCCT GAGACTCTCC TGTGTAGCGT CTGGATTCAC CTTCAGTAGC     150
CATGGCATGC ACTGGGTCCG CCAGGCTCCA GGCAAGGGGC TGGAGTGGGT     200
GGCAGTTATA TGGTATGATG GAAGAAATAA ATACTATGCA GACTCCGTGA     250
AGGGCCGATT CACCATCTCC AGAGACAATT CCAAGAACAC GCTGTTTCTG     300
CAAATGAACA GCCTGAGAGC CGAGGACACG GCTGTGTATT ACTGTGCGAG     350
AGGAGGTCAC TTCGGTCCTT TGACTACTGG GGGCCAGGGA ACCCTGGTCA     400
CCGTCTCCTC AGCCTCCACC AAGGGCCCAT CGGTCTTCCC CCTGGCGCCC     450
TGCTCCAGGA GCACCTCCGA GAGCACAGCG GCCCTGGGCT GCCTGGTCAA     500
GGACTACTTC CCCGAACCGG TGACGGTGTC GTGGAACTCA GGCGCTCTGA     550
CCAGCGGCGT GCACACCTTC CCAGCTGTCC TACAGTCCTC AGGACTCTAC     600
TCCCTCAGCA GCGTGGTGAC CGTGCCCTCC AGCAACTTCG GCACCCAGAC     650
CTACACCTGC AACGTAGATC ACAAGCCCAG CAACACCAAG GTGGACAAGA     700
CAGTTGAGCG CAAATGTTGT GTCGAGTGCC CACCGTGCCC AGCACCACCT     750
GTGGCAGGAC CGTCAGTCTT CCTCTTCCCC CCAAAACCCA AGGACACCCT     800
CATGATCTCC CGGACCCCTG AGGTCACGTG CGTGGTGGTG GACGTGAGCC     850
ACGAAGACCC CGAGGTCCAG TTCAACTGGT ACGTGGACGG CGTGGAGGTG     900
CATAATGCCA AGACAAAGCC ACGGGAGGAG CAGTTCAACA GCACGTTCCG     950
TGTGGTCAGC GTCCTCACCG TTGTGCACCA GGACTGGCTG AACGGCAAGG    1000
AGTACAAGTG CAAGGTCTCC AACAAAGGCC TCCCAGCCCC CATCGAGAAA    1050
ACCATCTCCA AAACCAAAGG GCAGCCCCGA GAACCACAGG TGTACACCCT    1100
GCCCCCATCC CGGGAGGAGA TGACCAAGAA CCAGGTCAGC CTGACCTGCC    1150
TGGTCAAAGG CTTCTACCCC AGCGACATCG CCGTGGAGTG GGAGAGCAAT    1200
GGGCAGCCGG AGAACAACTA CAAGACCACA CCTCCCATGC TGGACTCCGA    1250
CGGCTCCTTC TTCCTCTACA GCAAGCTCAC CGTGGACAAG AGCAGGTGGC    1300
AGCAGGGGAA CGTCTTCTCA TGCTCCGTGA TGCATGAGGC TCTGCACAAC    1350
CACTACACGC AGAAGAGCCT CTCCCTGTCT CCGGGTAAAT GA           1392
```

(SEQ ID NO:27)

4.1.1 Heavy Chain Protein

```
MEFGLSWVFL VALLRGVQCQ VQLVESGGGV VQPGRSLRLS CVASGFTFSS      50
HGMHWVRQAP GKGLEWVAVI WYDGRNKYYA DSVKGRFTIS RDNSKNTLFL     100
QMNSLRAEDT AVYYCARGGH FGPFDYWGQG TLVTVSSAST KGPSVFPLAP     150
CSRSTSESTA ALGCLVKDYF PEPVTVSWNS GALTSGVHTF PAVLQSSGLY     200
SLSSVVTVPS SNFGTQTYTC NVDHKPSNTK VDKTVERKCC VECPPCPAPP     250
VAGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVQ FNWYVDGVEV     300
HNAKTKPREE QFNSTFRVVS VLTVVHQDWL NGKEYKCKVS NKGLPAPIEK     350
TISKTKGQPR EPQVYTLPPS REEMTKNQVS LTCLVKGFYP SDIAVEWESN     400
GQPENNYKTT PPMLDSDGSF FLYSKLTVDK SRWQQGNVFS CSVMHEALHN     450
HYTQKSLSLS PGK                                             463
```

(SEQ ID NO:1)

Figure 1

Figure 1A (continued)

4.1.1 Kappa Chain DNA

```
ATGGAAACCC CAGCGCAGCT TCTCTTCCTC CTGCTACTCT GGCTCCCAGA      50
TACCACCGGA GAAATTGTGT TGACGCAGTC TCCAGGCACC CTGTCTTTGT     100
CTCCAGGGGA AAGAGCCACC CTCTCCTGCA GGGCCAGTCA GAGTATTAGC     150
AGCAGCTTCT TAGCCTGGTA CCAGCAGAGA CCTGGCCAGG CTCCCAGGCT     200
CCTCATCTAT GGTGCATCCA GCAGGGCCAC TGGCATCCCA GACAGGTTCA     250
GTGGCAGTGG GTCTGGGACA GACTTCACTC TCACCATCAG CAGACTGGAG     300
CCTGAAGATT TTGCAGTGTA TTACTGTCAG CAGTATGGTA CCTCACCCTG     350
GACGTTCGGC CAAGGGACCA AGGTGGAAAT CAAACGAACT GTGGCTGCAC     400
CATCTGTCTT CATCTTCCCG CCATCTGATG AGCAGTTGAA ATCTGGAACT     450
GCCTCTGTTG TGTGCCTGCT GAATAACTTC TATCCCAGAG AGGCCAAAGT     500
ACAGTGGAAG GTGGATAACG CCCTCCAATC GGGTAACTCC CAGGAGAGTG     550
TCACAGAGCA GGACAGCAAG GACAGCACCT ACAGCCTCAG CAGCACCCTG     600
ACGCTGAGCA AAGCAGACTA CGAGAAACAC AAAGTCTACG CCTGCGAAGT     650
CACCCATCAG GGCCTGAGCT CGCCCGTCAC AAAGAGCTTC AACAGGGGAG     700
AGTGTTAG                                                  708
```

(SEQ ID NO:40)

4.1.1 Kappa Chain Protein

```
MRTPAQLLFL LLLWLPDTTG EIVLTQSPGT LSLSPGERAT LSCRASQSIS      50
SSFLAWYQQR PGQAPRLLIY GASSRATGIP DRFSGSGSGT DFTLTISRLE     100
PEDFAVYYCQ QYGTSPWTFG QGTKVEIKRT VAAPSVFIFP PSDEQLKSGT     150
ASVVCLLNNF YPREAKVQWK VDNALQSGNS QESVTEQDSK DSTYSLSSTL     200
TLSKADYEKH KVYACEVTHQ GLSSPVTKSF NRGEC                     235
```

(SEQ ID NO:14)

Figure 1

Figure 1B

4.8.1 Heavy Chain DNA

```
ATGGAGTTTG GGCTGAGCTG GGTTTTCCTC GTTGCTCTTT TAAGAGGTGT    50
CCAGTGTCAG GTGCAGCTGG TGGAGTCTGG GGGAGGCGTG GTCCAGCCTG   100
GGAGGTCCCT GAGACTCTCC TGTACAGCGT CTGGATTCAC CTTCAGTAAC   150
TATGGCATGC ACTGGGTCCG CCAGGCTCCA GGCAAGGGGC TGGAGTGGGT   200
GGCAGTTATA TGGTATGATG GAAGTAATAA ACACTATGGA GACTCCGTGA   250
AGGGCCGATT CACCATCTCC AGTGACAATT CCAAGAACAC GCTGTATCTG   300
CAAATGAACA GCCTGAGAGC CGAGGACACG GCTGTGTATT ACTGTGCGAG   350
AGGAGAGAGA CTGGGGTCCT ACTTTGACTA CTGGGGCCAG GGAACCCTGG   400
TCACCGTCTC CTCAGCCTCC ACCAAGGGCC CATCGGTCTT CCCCCTGGCG   450
CCCTGCTCCA GGAGCACCTC CGAGAGCACA GCGGCCCTGG GCTGCCTGGT   500
CAAGGACTAC TTCCCCGAAC CGGTGACGGT GTCGTGGAAC TCAGGCGCTC   550
TGACCAGCGG CGTGCACACC TTCCCAGCTG TCCTACAGTC CTCAGGACTC   600
TACTCCCTCA GCAGCGTGGT GACCGTGCCC TCCAGCAACT TCGGCACCCA   650
GACCTACACC TGCAACGTAG ATCACAAGCC CAGCAACACC AAGGTGGACA   700
AGACAGTTGA GCGCAAATGT TGTGTCGAGT GCCCACCGTG CCCAGCACCA   750
CCTGTGGCAG GACCGTCAGT CTTCCTCTTC CCCCCAAAAC CCAAGGACAC   800
CCTCATGATC TCCCGGACCC CTGAGGTCAC GTGCGTGGTG GTGGACGTGA   850
GCCACGAAGA CCCCGAGGTC CAGTTCAACT GGTACGTGGA CGGCGTGGAG   900
GTGCATAATG CCAAGACAAA GCCACGGGAG GAGCAGTTCA ACAGCACGTT   950
CCGTGTGGTC AGCGTCCTCA CCGTTGTGCA CCAGGACTGG CTGAACGGCA  1000
AGGAGTACAA GTGCAAGGTC TCCAACAAAG GCCTCCCAGC CCCCATCGAG  1050
AAAACCATCT CCAAAACCAA AGGGCAGCCC CGAGAACCAC AGGTGTACAC  1100
CCTGCCCCCA TCCCGGGAGG AGATGACCAA GAACCAGGTC AGCCTGACCT  1150
GCCTGGTCAA AGGCTTCTAC CCCAGCGACA TCGCCGTGGA GTGGGAGAGC  1200
AATGGGCAGC CGGAGAACAA CTACAAGACC ACACCTCCCA TGCTGGACTC  1250
CGACGGCTCC TTCTTCCTCT ACAGCAAGCT CACCGTGGAC AAGAGCAGGT  1300
GGCAGCAGGG GAACGTCTTC TCATGCTCCG TGATGCATGA GGCTCTGCAC  1350
AACCACTACA CGCAGAAGAG CCTCTCCCTG TCTCCGGGTA AATGA       1395
```

(SEQ ID NO:28)

4.8.1 Heavy Chain Protein

```
METGLSWVFL VALLRGVQCQ VQLVESGGGV VQPGRSLRLS CTASGFTFSN    50
YGMHWVRQAP GKGLEWVAVI WYDGSNKHYG DSVKGRFTIS SDNSKNTLYL   100
QMNSLRAEDT AVYYCARGER LGSYFDYWGQ GTLVTVSSAS TKGPSVFPLA   150
PCSRSTSEST AALGCLVKDY FPEPVTVSWN SGALTSGVHT FPAVLQSSGL   200
YSLSSVVTVP SSNFGTQTYT CNVDHKPSNT KVDKTVERKC CVECPPCPAP   250
PVAGPSVFLF PPKPKDTLMI SRTPEVTCVV VDVSHEDPEV QFNWYVDGVE   300
VHNAKTKPRE EQFNSTFRVV SVLTVVHQDW LNGKEYKCKV SNKGLPAPIE   350
KTISKTKGQP REPQVYTLPP SREEMTKNQV SLTCLVKGFY PSDIAVEWES   400
NGQPENNYKT TPPMLDSDGS FFLYSKLTVD KSRWQQGNVF SCSVMHEALH   450
NHYTQKSLSL SPGK                                          464
```

(SEQ ID NO:2)

Figure 1

Figure 1B (continued)

4.8.1 Kappa Chain DNA

```
ATGGAAACCC CAGCGCAGCT TCTCTTCCTC CTGCTACTCT GGCTCCCAGA      50
TACCACCGGA GAAATTGTGT TGACGCAGTC TCCAGGCACC CTGTCTTTGT     100
CTCCAGGGGA AAGAGCCACC CTCTCCTGCA GGACCAGTGT TAGCAGCAGT     150
TACTTAGCCT GGTACCAGCA GAAACCTGGC CAGGCTCCCA GGCTCCTCAT     200
CTATGGTGCA TCCAGCAGGG CCACTGGCAT CCCAGACAGG TTCAGTGGCA     250
GTGGGTCTGG GACAGACTTC ACTCTCACCA TCAGCAGACT GGAGCCTGAA     300
GATTTTGCAG TCTATTACTG TCAGCAGTAT GGCATCTCAC CCTTCACTTT     350
CGGCGGAGGG ACCAAGGTGG AGATCAAGCG AACTGTGGCT GCACCATCTG     400
TCTTCATCTT CCCGCCATCT GATGAGCAGT TGAAATCTGG AACTGCCTCT     450
GTTGTGTGCC TGCTGAATAA CTTCTATCCC AGAGAGGCCA AAGTACAGTG     500
GAAGGTGGAT AACGCCCTCC AATCGGGTAA CTCCCAGGAG AGTGTCACAG     550
AGCAGGACAG CAAGGACAGC ACCTACAGCC TCAGCAGCAC CCTGACGCTG     600
AGCAAAGCAG ACTACGAGAA ACACAAAGTC TACGCCTGCG AAGTCACCCA     650
TCAGGGCCTG AGCTCGCCCG TCACAAAGAG CTTCAACAGG GGAGAGTGTT     700
AG                                                        702
```

(SEQ ID NO:41)

4.8.1 Kappa Chain Protein

```
METPAQLLFL LLLWLPDTTG EIVLTQSPGT LSLSPGERAT LSCRTSVSSS     50
YLAWYQQKPG QAPRLLIYGA SSRATGIPDR FSGSGSGTDF TLTISRLEPE    100
DFAVYYCQQY GISPFTFGGG TKVEIKRTVA APSVFIFPPS DEQLKSGTAS    150
VVCLLNNFYP REAKVQWKVD NALQSGNSQE SVTEQDSKDS TYSLSSTLTL    200
SKADYEKHKV YACEVTHQGL SSPVTKSFNR GEC                      233
```

(SEQ ID NO:15)

Figure 1

Figure 1C

4.14.3 Heavy Chain DNA

```
CCTGGGAGGT CCCTGAGACT CTCCTGTGCA GCGTCTGGAT TCACCTTCAG      50
TAGTCATGGC ATCCACTGGG TCCGCCAGGC TCCAGGCAAG GGGCTGGAGT     100
GGGTGGCAGT TATATGGTAT GATGGAAGAA ATAAAGACTA TGCAGACTCC     150
GTGAAGGGCC GATTCACCAT CTCCAGAGAC AATTCCAAGA AGACGCTGTA     200
TTTGCAAATG AACAGCCTGA GAGCCGAGGA CACGGCTGTG TATTACTGTG     250
CGAGAGTGGC CCCACTGGGG CCACTTGACT ACTGGGGCCA GGGAACCCTG     300
GTCACCGTCT CCTCAGCCTC CACCAAGGGC CCATCGGTCT TCCCCCTGGC     350
GCCCTGCTCC AGGAGCACCT CCGAGAGCAC AGCGGCCCTG GGCTGCCTGG     400
TCAAGGACTA CTTCCCCGAA CCGGTGACGG TGTCGTGGAA CTCAGGCGCT     450
CTGACCAGCG GCGTGCACAC CTTCCCAGCT GTCCTACAG                 489
```

(SEQ ID NO:29)

4.14.3 Heavy Chain Protein

```
PGRSLRLSCA ASGFTFSSHG IHWVRQAPGK GLEWVAVIWY DGRNKDYADS      50
VKGRFTISRD NSKKTLYLQM NSLRAEDTAV YYCARVAPLG PLDYWGQGTL     100
VTVSSASTKG PSVFPLAPCS RSTSESTAAL GCLVKDYFPE PVTVSWNSGA     150
LTSGVHTFPA VLQ                                             163
```

(SEQ ID NO:3)

4.14.3 Kappa Chain DNA

```
GGCACCCTGT CTTTGTCTCC AGGGGAAAGA GCCACCCTCT CCTGCAGGGC      50
CAGTCAGAGT GTCAGCAGCT ACTTAGCCTG GTACCAGCAG AAACCTGGCC     100
AGGCTCCCAG ACTCCTCATC TATGGTGCAT CCAGCAGGGC CACTGGCATC     150
CCAGACAGGT TCAGTGGCAG TGGGTCTGGG ACAGACTTCA CTCTCACCAT     200
CAGCAGACTG GAGCCTGAGG ATTTTGCAGT GTATTACTGT CAGCAGTATG     250
GTAGGTCACC ATTCACTTTC GGCCCTGGGA CCAAAGTGGA TATCAAGCGA     300
ACTGTGGCTG CACCATCTGT CTTCATCTTC CCGCCATCTG ATGAGCAGTT     350
GAAATCTGGA ACTGCCTCTG TTGTGTGCCT GCTGAATAAC TTCTATCCCA     400
GAGAGGCCAA AGTACAG                                         417
```

(SEQ ID NO:42)

4.14.3 Kappa Chain Protein

```
GTLSLSPGER ATLSCRASQS VSSYLAWYQQ KPGQAPRLLI YGASSRATGI      50
PDRFSGSGSG TDFTLTISRL EPEDFAVYYC QQYGRSPFTF GPGTKVDIKR     100
TVAAPSVFIF PPSDEQLKSG TASVVCLLNN FYPREAKVQ                 139
```

(SEQ ID NO:16)

Figure 1

Figure 1D

6.1.1 Heavy Chain DNA

```
ATGGAGTTTG GGCTGAGCTG GGTTTTCCTC GTTGCTCTTT TAAGAGGTGT      50
CCAGTGTCAG GTGCAGCTGG TGGAGTCTGG GGGAGGCGTG GTCGAGCCTG     100
GGAGGTCCCT GAGACTCTCC TGTACAGCGT CTGGATTCAC CTTCAGTAGT     150
TATGGCATGC ACTGGGTCCG CCAGGCTCCA GGCAAGGGGC TGGAGTGGGT     200
GGCAGTTATA TGGTATGATG GAAGCAATAA ACACTATGCA GACTCCGCGA     250
AGGGCCGATT CACCATCTCC AGAGACAATT CCAAGAACAC GCTGTATCTG     300
CAAATGAACA GCCTGAGAGC CGAGGACACG GCTGTGTATT ACTGTGCGAG     350
AGCCGGACTG CTGGGTTACT TTGACTACTG GGGCCAGGGA ACCCTGGTCA     400
CCGTCTCCTC AGCCTCCACC AAGGGCCCAT CGGTCTTCCC CCTGGCGCCC     450
TGCTCCAGGA GCACCTCCGA GAGCACAGCG GCCCTGGGCT GCCTGGTCAA     500
GGACTACTTC CCCGAACCGG TGACGGTGTC GTGGAACTCA GGCGCTCTGA     550
CCAGCGGCGT GCACACCTTC CCAGCTGTCC TACAGTCCTC AGGACTCTAC     600
TCCCTCAGCA GCGTGGTGAC CGTGCCCTCC AGCAACTTCG GCACCCAGAC     650
CTACACCTGC AACGTAGATC ACAAGCCCAG CAACACCAAG GTGGACAAGA     700
CAGTTGAGCG CAAATGTTGT GTCGAGTGCC CACCGTGCCC AGCACCACCT     750
GTGGCAGGAC CGTCAGTCTT CCTCTTCCCC CCAAAACCCA AGGACACCCT     800
CATGATCTCC CGGACCCCTG AGGTCACGTG CGTGGTGGTG GACGTGAGCC     850
ACGAAGACCC CGAGGTCCAG TTCAACTGGT ACGTGGACGG CGTGGAGGTG     900
CATAATGCCA AGACAAAGCC ACGGGAGGAG CAGTTCAACA GCACGTTCCG     950
TGTGGTCAGC GTCCTCACCG TTGTGCACCA GGACTGGCTG AACGGCAAGG    1000
AGTACAAGTG CAAGGTCTCC AACAAAGGCC TCCCAGCCCC CATCGAGAAA    1050
ACCATCTCCA AAACCAAAGG GCAGCCCCGA GAACCACAGG TGTACACCCT    1100
GCCCCCATCC CGGGAGGAGA TGACCAAGAA CCAGGTCAGC CTGACCTGCC    1150
TGGTCAAAGG CTTCTACCCC AGCGACATCG CCGTGGAGTG GGAGAGCAAT    1200
GGGCAGCCGG AGAACAACTA CAAGACCACA CCTCCCATGC TGGACTCCGA    1250
CGGCTCCTTC TTCCTCTACA GCAAGCTCAC CGTGGACAAG AGCAGGTGGC    1300
AGCAGGGGAA CGTCTTCTCA TGCTCCGTGA TGCATGAGGC TCTGCACAAC    1350
CACTACACGC AGAAGAGCCT CTCCCTGTCT CCGGGTAAAT GA           1392
```

(SEQ ID NO:30)

6.1.1 Heavy Chain Protein

```
MEFGLSWVFL VALLRGVQCQ VQLVESGGGV VEPGRSLRLS CTASGFTFSS      50
YGMHWVRQAP GKGLEWVAVI WYDGSNKHYA DSAKGRFTIS RDNSKNTLYL     100
QMNSLRAEDT AVYYCARAGL LGYFDYWGQG TLVTVSSAST KGPSVFPLAP     150
CSRSTSESTA ALGCLVKDYF PEPVTVSWNS GALTSGVHTF PAVLQSSGLY     200
SLSSVVTVPS SNFGTQTYTC NVDHKPSNTK VDKTVERKCC VECPPCPAPP     250
VAGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVQ FNWYVDGVEV     300
HNAKTKPREE QFNSTFRVVS VLTVVHQDWL NGKEYKCKVS NKGLPAPIEK     350
TISKTKGQPR EPQVYTLPPS REEMTKNQVS LTCLVKGFYP SDIAVEWESN     400
GQPENNYKTT PPMLDSDGSF FLYSKLTVDK SRWQQGNVFS CSVMHEALHN     450
HYTQKSLSLS PGK                                             463
```

(SEQ ID NO:4)

Figure 1

Figure 1D (continued)

6.1.1 Kappa Chain DNA

```
ATGGAAACCC CAGCGCAGCT TCTCTTCCTC CTGCTACTCT GGCTCCCAGA      50
TACCACCGGA GAAATTGTGT TGACGCAGTC TCCAGGCACC CTGTCTTTGT     100
CTCCAGGGGA AAGAGCCACC CTCTCCTGTA GGGCCAGTCA AAGTGTTAGC     150
AGCTACTTAG CCTGGTACCA ACAGAAACCT GGCCAGGCTC CCAGGCCCCT     200
CATCTATGGT GTATCCAGCA GGGCCACTGG CATCCCAGAC AGGTTCAGTG     250
GCAGTGGGTC TGGGACAGAC TTCACTCTCA CCATCAGCAG ACTGGAGCCT     300
GAAGATTTTG CAGTGTATTA CTGTCAGCAG TATGGTATCT CACCATTCAC     350
TTTCGGCCCT GGGACCAAAG TGGATATCAA ACGAACTGTG GCTGCACCAT     400
CTGTCTTCAT CTTCCCGCCA TCTGATGAGC AGTTGAAATC TGGAACTGCC     450
TCTGTTGTGT GCCTGCTGAA TAACTTCTAT CCCAGAGAGG CCAAAGTACA     500
GTGGAAGGTG GATAACGCCC TCCAATCGGG TAACTCCCAG GAGAGTGTCA     550
CAGAGCAGGA CAGCAAGGAC AGCACCTACA GCCTCAGCAG CACCCTGACG     600
CTGAGCAAAG CAGACTACGA GAAACACAAA GTCTACGCCT GCGAAGTCAC     650
CCATCAGGGC CTGAGCTCGC CCGTCACAAA GAGCTTCAAC AGGGGAGAGT     700
GTTAG                                                     705
```

(SEQ ID NO:43)

6.1.1 Kappa Chain Protein

```
METPAQLLFL LLLWLPDTTG EIVLTQSPGT LSLSPGERAT LSCRASQSVS      50
SYLAWYQQKP GQAPRPLIYG VSSRATGIPD RFSGSGSGTD FTLTISRLEP     100
EDFAVYYCQQ YGISPFTFGP GTKVDIKRTV AAPSVFIFPP SDEQLKSGTA     150
SVVCLLNNFY PREAKVQWKV DNALQSGNSQ ESVTEQDSKD STYSLSSTLT     200
LSKADYEKHK VYACEVTHQG LSSPVTKSFN RGEC                      234
```

(SEQ ID NO:17)

Figure 1

Figure 1E

3.1.1 Heavy Chain DNA

```
GGCGTGGTCC AGCCTGGGAG GTCCCTGAGA CTCTCCTGTG CAGCGTCTGG      50
ATTCACCTTC AGTAGCTATG GCATGCACTG GGTCCGCCAG GCTCCAGGCA     100
AGGGGCTGGA GTGGGTGGCA GTTATATGGT ATGATGGAAG TAATAAATAC     150
TATGCAGACT CCGTGAAGGG CCGATTCACC ATCTCCAGAG ACAATTCCAA     200
GAACACGCTG TATCTGCAAA TGAACAGCCT GAGAGCCGAG GACACGGCTG     250
TGTATTACTG TGCGAGAGGG GCCCGTATAA TAACCCCTTG TATGGACGTC     300
TGGGGCCAAG GGACCACGGT CACCGTCTCC TCAGCCTCCA CCAAGGGCCC     350
ATCGGTCTTC CCCCTGGCGC CCTGCTCCAG GAGCACCTCC GAGAGCACAG     400
CGGCCCTGGG CTGCCTGGTC AAGGACTACT TCCCCGAACC GGTGACGGTG     450
TCGTGGAACT CAGGCGCTCT GACCAGCGGC GTGCACACCT TCCCAGCTGT     500
CCTACAG                                                   507
```

(SEQ ID NO:31)

3.1.1 Heavy Chain Protein

```
GVVQPGRSLR LSCAASGFTF SSYGMHWVRQ APGKGLEWVA VIWYDGSNKY      50
YADSVKGRFT ISRDNSKNTL YLQMNSLRAE DTAVYYCARG ARIITPCMDV     100
WGQGTTVTVS SASTKGPSVF PLAPCSRSTS ESTAALGCLV KDYFPEPVTV     150
SWNSGALTSG VHTFPAVLQ                                       169
```

(SEQ ID NO:5)

3.1.1 Kappa Chain DNA

```
CAGTCTCCAT CCTCCCTGTC TGCATCTGTA GGAGACAGAG TCACCATCAC      50
TTGCCGGGCA AGTCAGAGCA TTAACACCTA TTTAATTTGG TATCAGCAGA     100
AACCAGGGAA AGCCCCTAAC TTCCTGATCT CTGCTACATC CATTTTGCAA     150
AGTGGGGTCC CATCAAGGTT CCGTGGCAGT GGCTCTGGGA CAAATTTCAC     200
TCTCACCATC AACAGTCTTC ATCCTGAAGA TTTTGCAACT TACTACTGTC     250
AACAGAGTTA CAGTACCCCA TTCACTTTCG GCCCTGGGAC CAAAGTGGAT     300
ATCAAACGAA CTGTGGCTGC ACCATCTGTC TTCATCTTCC CGCCATCTGA     350
TGAGCAGTTG AAATCTGGAA CTGCCTCTGT TGTGTGCCTG CTGAATAACT     400
TCTATCCCAG AGAGGCCAAA GTACAGTGGA AGGTGGATAA CGCCCTCCAA     450
TCGGGTAA                                                  458
```

(SEQ ID NO:44)

3.1.1 Kappa Chain Protein

```
QSPSSLSASV GDRVTITCRA SQSINTYLIW YQQKPGKAPN FLISATSILQ      50
SGVPSRFRGS GSGTNFTLTI NSLHPEDFAT YYCQQSYSTP FTFGPGTKVD     100
IKRTVAAPSV FIFPPSDEQL KSGTASVVCL LNNFYPREAK VQWKVDNALQ     150
SG                                                         152
```

(SEQ ID NO:18)

Figure 1

Figure 1F

4.10.2 Heavy Chain DNA

```
GGCGTGGTCC AGCCTGGGAG GTCCCTGAGA CTCTCCTGTG TAGCGTCTGG        50
ATTCATCTTC AGTAGTCATG GCATCCACTG GGTCCGCCAG GCTCCAGGCA       100
AGGGGCTGGA GTGGGTGGCA GTTATATGGT ATGATGGAAG AAATAAAGAC       150
TATGCAGACT CCGTGAAGGG CCGATTCACC ATCTCCAGAG ACAATTCCAA       200
GAACACGCTG TATTTGCAAA TGAACAGCCT GAGAGCCGAG GACACGGCTG       250
TGTATTACTG TGCGAGAGTG GCCCCACTGG GGCCACTTGA CTACTGGGGC       300
CAGGGAACCC TGGTCACCGT CTCCTCAGCC TCCACCAAGG GCCCATCGGT       350
CTTCCCCCTG GCGCCCTGCT CCAGGAGCAC CTCCGAGAGC ACAGCGGCCC       400
TGGGCTGCCT GGTCAAGGAC TACTTCCCCG AACCGGTGAC GGTGTCGTGG       450
AACTCAGGCG CTCTGACCAG CGGCGTGCAC ACCTTCCCAG CTGTCCTACA       500
G                                                           501
```

(SEQ ID NO:32)

4.10.2 Heavy Chain Protein

```
GVVQPGRSLR LSCVASGFIF SSHGIHWVRQ APGKGLEWVA VIWYDGRNKD        50
YADSVKGRFT ISRDNSKNTL YLQMNSLRAE DTAVYYCARV APLGPLDYWG       100
QGTLVTVSSA STKGPSVFPL APCSRSTSES TAALGCLVKD YFPEPVTVSW       150
NSGALTSGVH TFPAVLQ                                           167
```

(SEQ ID NO:6)

4.10.2 Kappa Chain DNA

```
TCTCCAGGCA CCCTGTCTTT GTCTCCAGGG GAAAGAGCCA CCCTCTCCTG        50
CAGGGCCAGT CAGAGTATTA GCAGCAATTT CTTAGCCTGG TACCAGCAGA       100
AACCTGGCCA GGCTCCCAGG CTCCTCATCT ATCGTCCATC CAGCAGGGCC       150
ACTGGCATCC CAGACAGTTT CAGTGGCAGT GGGTCTGGGA CAGACTTCAC       200
TCTCACCATC AGCAGACTGG AGCCTGAGGA TTTTGCATTA TATTACTGTC       250
AGCAGTATGG TACGTCACCA TTCACTTTCG GCCCTGGGAC CAAAGTGGAT       300
ATCAAGCGAA CTGTGGCTGC ACCATCTGTC TTCATCTTCC CGCCATCTGA       350
TGAGCAGTTG AAATCTGGAA CTGCCTCTGT TGTGTGCCTG CTGAATAACT       400
TCTATCCCAG AGAGGCCAAA GTACAG                                 426
```

(SEQ ID NO:45)

4.10.2 Kappa Chain Protein

```
SPGTLSLSPG ERATLSCRAS QSISSNFLAW YQQKPGQAPR LLIYRPSSRA        50
TGIPDSFSGS GSGTDFTLTI SRLEPEDFAL YYCQQYGTSP FTFGPGTKVD       100
IKRTVAAPSV FIFPPSDEQL KSGTASVVCL LNNFYPREAK VQ                142
```

(SEQ ID NO:19)

Figure 1

Figure 1G

2.1.3 Heavy Chain DNA

```
TCGGGCCCAG GACTGGTGAA GCCTTCACAG ATCCTGTCCC TCACCTGCAC      50
TGTCTCTGGT GGCTCCATCA GCAGTGGTGG TCACTACTGG AGCTGGATCC     100
GCCAGCACCC AGGGAAGGGC CTGGAGTGGA TTGGGTACAT CTATTACATT     150
GGGAACACCT ACTACAACCC GTCCCTCAAG AGTCGAGTTA CCATATCAGT     200
AGACACGTCT AAGAACCAGT TCTCCCTGAA GCTGAGCTCT GTGACTGCCG     250
CGGACACGGC CGTGTATTAT TGTGCGAGAG ATAGTGGGGA CTACTACGGT     300
ATAGACGTCT GGGGCCAAGG GACCACGGTC ACCGTCTCCT CAGCTTCCAC     350
CAAGGGCCCA TCCGTCTTCC CCCTGGCGCC CTGCTCCAGG AGCACCTCCG     400
AGAGCACAGC CGCCCTGGGC TGCCTGGTCA AGGACTACTT CCCCGAACCG     450
GTGACGGTGT CGTGGAACTC AGGCGCCCTG ACCAGCGGCG TGCACACCTT     500
CCCGGCTGTC CTACAA                                         516
```

(SEQ ID NO:33)

2.1.3 Heavy Chain Protein

```
SGPGLVKPSQ ILSLTCTVSG GSISSGGHYW SWIRQHPGKG LEWIGYIYYI      50
GNTYYNPSLK SRVTISVDTS KNQPSLKLSS VTAADTAVYY CARDSGDYYG     100
IDVWGQGTTV TVSSASTKGP SVFPLAPCSR STSESTAALG CLVKDYFPEP     150
VTVSWNSGAL TSGVHTFPAV LQ                                   172
```

(SEQ ID NO:7)

2.1.3 Kappa Chain DNA

```
TCTCCAGACT TTCAGTCTGT GACTCCAAAG GAGAAAGTCA CCATCACCTG      50
CCGGGCCAGT CAGAGCATTG GTAGTAGCTT ACATTGGTAT CAGCAGAAAC     100
CAGATCAGTC TCCAAAGCTC CTCATCAAGT ATGCTTCCCA GTCCTTCTCT     150
GGGGTCCCCT CGAGGTTCAG TGGCAGTGGA TCTGGGACAG ATTTCACCCT     200
CACCATCAAT AGCCTGGAAG CTGAAGATGC TGCAACGTAT TACTGTCATC     250
AGAGTAGTAG TTTACCGCTC ACTTTCGGCG GAGGGACCAA GGTGGAGATC     300
AAACGAACTG TGGCTGCACC ATCTGTCTTC ATCTTCCCGC CATCTGATGA     350
GCAGTTGAAA TCTGGAACTG CCTCTGTTGT GTGCCTGCTG AATAACTTCT     400
ATCCCAGAGA GGCCAAAGTA CAGTGGAAGG TGGATAACGC CCTCCAATCG     450
GGTAACTCCC AGGAG                                          465
```

(SEQ ID NO:46)

2.1.3 Kappa Chain Protein

```
SPDFQSVTPK EKVTITCRAS QSIGSSLHWY QQKPDQSPKL LIKYASQSFS      50
GVPSRFSGSG SGTDFTLTIN SLEAEDAATY YCHQSSSLPL TFGGGTKVEI     100
KRTVAAPSVF IFPPSDEQLK SGTASVVCLL NNFYPREAKV QWKVDNALQS     150
GNSQE                                                      155
```

(SEQ ID NO:20)

Figure 1

Figure 1H

4.13.1 Heavy Chain DNA

```
CCTGGGAGGT CCCTGAGACT CTCCTGTGCA GCGTCTGGAT TCACCTTCAG      50
TAGTCATGGC ATCCACTGGG TCCGCCAGGC TCCAGGCAAG GGGCTGGAGT     100
GGGTGGCAGT TATATGGTAT GATGGAAGAA ATAAAGACTA TGCAGACTCC     150
GTGAAGGGCC GATTCACCAT CTCCAGAGAC AATTCCAAGA ACACGCTGTA     200
TTTGCAAATG AACAGCCTGA GAGCCGAGGA CACGGCTGTG TATTACTGTG     250
CGAGAGTGGC CCCACTGGGG CCACTTGACT ACTGGGGCCA GGGAACCCTG     300
GTCACCGTCT CCTCAGCCTC CACCAAGGGC CCATCGGTCT TCCCCCTGGC     350
GCCCTGCTCC AGGAGCACCT CCGAGAGCAC AGCGGCCCTG GGCTGCCTGG     400
TCAAGGACTA CTTCCCCGAA CCGGTGACGG TGTCGTGGAA CTCAGGCGCT     450
CTGACCAGC                                                 459
```

(SEQ ID NO:34)

4.13.1 Heavy Chain Protein

```
PGRSLRLSCA ASGFTFSSHG IHWVRQAPGK GLEWVAVIWY DGRNKDYADS      50
VKGRFTISRD NSKNTLYLQM NSLRAEDTAV YYCARVAPLG PLDYWGQGTL     100
VTVSSASTKG PSVFPLAPCS RSTSESTAAL GCLVKDYFPE PVTVSWNSGA     150
LTS                                                       153
```

(SEQ ID NO:8)

4.13.1 Kappa Chain DNA

```
CAGTCTCCAG GCACCCTGTC TTTGTCTCCA GGGGAAAGAG CCACCCTCTC      50
CTGCAGGGCC AGTCAGAGTG TCAGCAGCTA CTTAGCCTGG TACCAGCAGA     100
AACCTGGCCA GGCTCCCAGG CTCCTCATCT ATGGTGCATC CAGCAGGGCC     150
ACTGGCATCC CAGACAGGTT CAGTGGCAGT GGGTCTGGGA CAGACTTCAC     200
TCTCACCATC AGCAGACTGG AGCCTGAGGA TTTTGCAGTG TATTACTGTC     250
AACAGTATGG TAGGTCACCA TTCACTTTCG GCCCTGGGAC CAAAGTAGAT     300
ATCAAGCGAA CTGTGGCTGC ACCATCTGTC TTCATCTTCC CGCCATCTGA     350
TGAGCAGTTG AAATCTGGAA CTGCCTCTGT TGTGTGCCTG CTGAATAACT     400
TCTATCCCAG AGAGGCCAAA GTACAGTGGA AAGGTGGATA               440
```

(SEQ ID NO:47)

4.13.1 Kappa Chain Protein

```
QSPGTLSLSP GERATLSCRA SQSVSSYLAW YQQKPGQAPR LLIYGASSRA      50
TGIPDRFSGS GSGTDFTLTI SRLEPEDFAV YYCQQYGRSP FTFGPGTKVD     100
IKRTVAAPSV FIFPPSDEQL KSGTASVVCL LNNFYPREAK VQWKGG         146
```

(SEQ ID NO:21)

Figure 1

Figure 1I

11.2.1 Heavy Chain DNA

```
GGCGTGGTCC AGCCTGGGAG GTCCCTGAGA CTCTCCTGTG CAGCGTCTGG        50
ATTCACCTTC AGTAGCTATG GCATGCACTG GGTCCGCCAG GCTCCAGGCA       100
AGGGGCTGGA GTGGGTGGCA GTTATATGGT ATGATGGAAG TAATAAATAC       150
TATGCAGACT CCGTGAAGGG CCGATTCACC ATCTCCAGAG ACAATTCCAA       200
GAACACGCTG TATCTGCAAA TGAACAGCCT GAGAGCCGAG GACACGGCTG       250
TGTATTACTG TGCGAGAGAT CCGAGGGGAG CTACCCTTTA CTACTACTAC       300
TACCGGTKGG ACGTCTGGGG CCAAGGGACC ACGGTCACCG TCTCCTCAGC       350
CTCCACCAAG GGCCCATCGG TCTTCCCCCT GGCGCCCTGC TCCAGGAGCA       400
CCTCCGAGAG CACAGCGGCC CTGGGCTGCC TGGTCAAGGA CTACTTCCCC       450
GAACCGGTGA CGGTGTCGTG GAACTCAGGC GCTCTGACCA GCGGCGTGCA       500
CAC                                                         503
```

(SEQ ID NO:35)

11.2.1 Heavy Chain Protein

```
GVVQPGRSLR LSCAASGFTF SSYGMHWVRQ APGKGLEWVA VIWYDGSNKY        50
YADSVKGRFT ISRDNSKNTL YLQMNSLRAE DTAVYYCARD PRGATLYYYY       100
YRXDVWGQGT TVTVSSASTK GPSVFPLAPC SRSTSESTAA LGCLVKDYFP       150
EPVTVSWNSG ALTSGVH                                           167
```

(SEQ ID NO:9)

11.2.1 Kappa Chain DNA

```
CCATCCTCCC TGTCTGCATC TGTAGGAGAC AGAGTCACCA TCACTTGCCG        50
GGCAAGTCAG AGCATTAACA GCTATTTAGA TTGGTATCAG CAGAAACCAG       100
GGAAAGCCCC TAAACTCCTG ATCTATGCTG CATCCAGTTT GCAAAGTGGG       150
GTCCCATCAA GGTTCAGTGG CAGTGGATCT GGGACAGATT TCACTCTCAC       200
CATCAGCAGT CTGCAACCTG AAGATTTTGC AACTTACTAC TGTCAACAGT       250
ATTACAGTAC TCCATTCACT TTCGGCCCTG GGACCAAAGT GGAAATCAAA       300
CGAACTGTGG CTGCACCATC TGTCTTCATC TTCCCGCCAT CTGATGAGCA       350
GTTGAAATCT GGAACTGCCT CTGTTGTGTG CCTGCTGAAT AACTTCTATC       400
CCAGAGAGGC CAAAGTA                                          417
```

(SEQ ID NO:48)

11.2.1 Kappa Chain Protein

```
PSSLSASVGD RVTITCRASQ SINSYLDWYQ QKPGKAPKLL IYAASSLQSG        50
VPSRFSGSGS GTDFTLTISS LQPEDFATYY CQQYYSTPFT FGPGTKVEIK       100
RTVAAPSVFI FPPSDEQLKS GTASVVCLLN NFYPREAKV                   139
```

(SEQ ID NO:22)

Figure 1

Figure 1J

11.6.1 Heavy Chain DNA

```
GGCGTGGTCC AGCCTGGGAG GTCCCTGAGA CTCTCCTGTG CAGCGTCTGG      50
ATTCACCTTC AGTAGCTATG GCATGCACTG GGTCCGCCAG GCTCCAGGCA     100
AGGGGCTGGA GTGGGTGGCA GTTATATGGT ATGATGGAAG TCATAAATAC     150
TATGCAGACT CCGTGAAGGG CCGATTCACC ATCTCCAGAG ACAATTCCAA     200
GAACACGCTG TATCTGCAAA TGAACAGCCT GAGAGCCGAG GACACGGCTG     250
TGTATTACTG TGCGAGAGGC GCTGTAGTAG TACCAGCTGC TATGGACGTC     300
TGGGGCCAAG GGACCACGGT CACCGTCTCC TCAGCCTCCA CCAAGGGCCC     350
ATCGGTCTTC CCCCTGGCGC CCTGCTCCAG GAGCACCTCC GAGAGCACAG     400
CGGCCCTGGG CTGCCTGGTC AAGGACTACT TCCCCGAACC GGTGACGGTG     450
T                                                         451
```

(SEQ ID NO:36)

11.6.1 Heavy Chain Protein

```
GVVQPGRSLR LSCAASGFTF SSYGMHWVRQ APGKGLEWVA VIWYDGSHKY      50
YADSVKGRFT ISRDNSKNTL YLQMNSLRAE DTAVYYCARG AVVVPAAMDV     100
WGQGTTVTVS SASTKGPSVF PLAPCSRSTS ESTAALGCLV KDYFPEPVTV     150
S                                                         151
```

(SEQ ID NO:10)

11.6.1 Kappa Chain DNA

```
ACCCAGTCTC CATCCTCCCT GTCTGCATCT GTAGGAGACA GAGTCACCAT      50
CACTTGCCGG GCAAGTCAGA ACATTAGCAG GTATTTAAAT TGGTATCAAC     100
AGAAACCAGG GAAAGCCCCT AAGTTCCTGA TCTATGTTGC ATCTATTTTG     150
CAAAGTGGGG TCCCATCAGG GTTCAGTGCC AGTGGATCTG GGCCAGATTT     200
CACTCTNACC ATCAGCAGTC TGCAACCTGA AGATTTTGCA ACTTACTACT     250
GTCAACAGAG TTACAGTACC CCATTCACTT TCGGCCCTGG GACCAAAGTG     300
GATATCAAAC GAACTGTGGC TGCACCATCT GTCTTCATCT TCCCGCCATC     350
TGATGAGCAG TTGAAATCTG GAACTGCCTC TGTTGTGTGC CTGCTGAATA     400
AC                                                        402
```

(SEQ ID NO:49)

11.6.1 Kappa Chain Protein

```
TQSPSSLSAS VGDRVTITCR ASQNISRYLN WYQQKPGKAP KFLIYVASIL      50
QSGVPSGFSA SGSGPDFTLT ISSLQPEDFA TYYCQQSYST PFTFGPGTKV     100
DIKRTVAAPS VFIFPPSDEQ LKSGTASVVC LLNN                      134
```

(SEQ ID NO:23)

Figure 1

Figure 1K

11.7.1 Heavy Chain DNA

```
GTGGTCCAGC CTGGGAGGTC CCTGAGACTC TCCTGTGCAG CGTCTGGATT      50
CACCTTCAGT AGCNGTGGCA TGCACTGGGT CCGCCAGGCT CCAGGCAAGG     100
GGCTGGAGTG GGTGGCAGTT ATATGGTCTG ATGGAAGTCA TAAATACTAT     150
GCAGACTCCG TGAAGGGCCG ATTCACCATC TCCAGAGACA ATTCCAAGAA     200
CACGCTGTAT CTGCAAATGA ACAGCCTGAG AGCCGAGGAC ACGGCTGTGT     250
ATTACTGTGC GAGAGGAACT ATGATAGTAG TGGGTACCCT TGACTACTGG     300
GGCCAGGGAA CCCTGGTCAC CGTCTCCTCA GCCTCCACCA AGGGCCCATC     350
GGTCTTCCCC CTGGCGCCCT GCTCCAGGAG CACCTCCGAG AGCACAGCGG     400
CCCTGGGCTG CCTGGTCAAG GACTACTTCC CCGAACCG                  438
```

(SEQ ID NO:37)

11.7.1 Heavy Chain Protein

```
VVQPGRSLRL SCAASGFTFS SXGMHWVRQA PGKGLEWVAV IWSDGSHKYY      50
ADSVKGRFTI SRDNSKNTLY LQMNSLRAED TAVYYCARGT MIVVGTLDYW     100
GQGTLVTVSS ASTKGPSVFP LAPCSRSTSE STAALGCLVK DYFPEP         146
```

(SEQ ID NO:11)

11.7.1 Kappa Chain DNA

```
ACCCAGTCTC CATCCTCCCT GTCTGCATCT GTAGGAGACA GAGTCACCAT      50
CACTTGCCGG GCAAGTCAGA GCATTTGCAA CTATTTAAAT TGGTATCAGC     100
AGAAACCAGG AAAAGCCCCT AGGGTCCTGA TCTATGCTGC ATCCAGTTTG     150
CAAGGTGGGG TCCCGTCAAG GTTCAGTGGC AGTGGATCTG GGACAGATTG     200
CACTCTCACC ATCAGCAGTC TGCAACCTGA AGATTTTGCA ACTTACTACT     250
GTCAACAGAG TTACACTACC CCATTCACTT TCGGCCCTGG GACCAGAGTG     300
GATATCGAAC GAACTGTGGC TGCACCATCT GTCTTCATCT TCCCGCCATC     350
TGATGAGCAG TTGAAATCTG GAACTGCCTC TGTTGTGTGC CTGCTGAATA     400
ACTTCTATCC CAGAGAGGCC AAAGTACAGT GGAAGGTGGA TAACGCCTAT     450
T                                                         451
```

(SEQ ID NO:50)

11.7.1 Kappa Chain Protein

```
TQSPSSLSAS VGDRVTITCR ASQSICNYLN WYQQKPGKAP RVLIYAASSL      50
QGGVPSRFSG SGSGIDCTLT ISSLQPEDFA TYYCQQSYIT PFTFGPGTRV     100
DIERTVAAPS VFIFPPSDEQ LKSGTASVVC LLNNFYPREA KVQWKVDNAY     150
```

(SEQ ID NO:24)

Figure 1

Figure 1L

12.3.1.1 Heavy Chain DNA

```
TCCTGTGCAG CGTCTGGATT CACCTTCAGT TACTATGGCG TCTGGGGGAG     50
GCGTGGTCCA GCCTGGGAGG TCCCTGAGAC TCTCCTGTGC AGCGTCTGGA    100
TTCACCTTCA GTAGCTATGG CGTGCACTGG GTCCGCCAGG CTCCAGGCAA    150
GGGGCTGGAG TGGGTGGCAG TTATATGGTA TGATGGAAGT AATAAATACT    200
ATGCAGACTC CGTGAAGGGC CGATTCACCA TCTCCAGAGA CAATTCCAAG    250
AGCACGCTGT ATCTGCAAAT GAACAGCCTG AGAGCCGAGG ACACGGCTGT    300
GTATTATTGT GCGAGAGACT CGTATTACGA TTTTTGGAGT GGTCGGGGCG    350
GTATGGACGT CTGGGGCCAA GGGACCACGG TCACCGTCTC CTCAGCCTCC    400
ACCAAGGGCC CATCGGTCTT CCCCCTGGCG CCCTGCTCCA GGAGCACCTC    450
CGAGAGCACA GCGGCCCTGG GCTGCCTGGT CAAGGACTAC TTCCCCGAAC    500
CGGTGACGGT GTCGTGGAAC TCAGGCGCTC TGACCAGCGG CGTGCACACC    550
TTCCCAGCTG TC                                            562
```

(SEQ ID NO:38)

12.3.1.1 Heavy Chain Protein

```
SGGGVVQPGR SLRLSCAASG FTFSSYGVHW VRQAPGKGLE WVAVIWYDGS     50
NKYYADSVKG RFTISRDNSK STLYLQMNSL RAEDTAVYYC ARDSYYDFWS    100
GRGGMDVWGQ GTTVTVSSAS TKGPSVFPLA PCSRSTSEST AALGCLVKDY    150
FPEPVTVSWN SGALTSGVHT FPAV                                174
```

(SEQ ID NO:12)

12.3.1.1 Kappa Chain DNA

```
CCACTCTCCC TGCCCGTCAC CCTTGGACAG CCGGCCTCCA TCTCCTGCAG     50
GTCTAGTCAA AGCCTCGTAT ACAGTGATGG AAACACCTAC TTGAATTGGT    100
TTCAGCAGAG GCCAGGCCAA TCTCCAAGGC GCCTAATTTA TAAGGTTTCT    150
AACTGGGACT CTGGGGTCCC AGACAGATTC AGCGGCAGTG GGTCAGGCAC    200
TGATTTCACA CTGAAAATCA GCAGGGTGGA GGCTGAGGAT GTTGGGGTTT    250
ATTACTGCAT GCAAGGTTCA CACTGGCCTC CGACGTTCGG CCAAGGGACC    300
AAGGTGGAAA TCAAACGAAC TGTGGCTGCA CCATCTGTCT TCATCTTCCC    350
GCCATCTGAT GAGCAGTTGA AATCTGGAAC TGCCTCTTGT GTGTGCCTGC    400
TGAATAACTT CTATCCCAC                                      419
```

(SEQ ID NO:51)

12.3.1.1 Kappa Chain Protein

```
PLSLPVTLGQ PASISCRSSQ SLVYSDGNTY LNWFQQRPGQ SPRRLIYKVS     50
NWDSGVPDRF SGSGSGTDFT LKISRVEAED VGVYYCMQGS HWPPTFGQGT    100
KVEIKRTVAA PSVFIFPPSD EQLKSGTASV VCLLNNFYP                139
```

(SEQ ID NO:25)

Figure 1

Figure 1M

12.9.1.1 Heavy Chain DNA

```
GTCCAGCCTG GGAGGTCCCT GAGACTCTCC TGTGCAGCGT CTGGATTCAC      50
CTTCAGTAAC TATGCCATGC ACTGGGTCCG CCAGGCTCCA GGCAAGGGGC     100
TGGAGTGGGT GGTAGTTATT TGGCATGATG GAAATAATAA ATACTATGCA     150
GAGTCCGTGA AGGGCCGATT CACCATCTCC AGAGACAATT CCAAGAACAC     200
GCTGTATCTG CAAATGAACA GCCTGAGAGC CGAGGACACG GCTGTATATT     250
ACTGTGCGAG AGATCAGGGC ACTGGCTGGT ACGGAGGCTT TGACTTCTGG     300
GGCCAGGGAA CCCTGGTCAC CGTCTCCTCA GCCTCCACCA AGGGCCCATC     350
GGTCTTCCCC CTGGCGCCCT GCTCCAGGAG CACCTCCGAG AGCACAGCGG     400
CCCTGGGCTG CCTGGTCAAG GACTACTTCC CCGAACCGGT GACGGTGTCG     450
TGGAACTCAG GCGCTCTGAC CAGCGGCGTG CACACCTTCC               490
```

(SEQ ID NO:39)

12.9.1.1 Heavy Chain Protein

```
VQPGRSLRLS CAASGFTFSN YAMHWVRQAP GKGLEWVVVI WHDGNNKYYA      50
ESVKGRFTIS RDNSKNTLYL QMNSLRAEDT AVYYCARDQG TGWYGGFDFW     100
GQGTLVTVSS ASTKGPSVFP LAPCSRSTSE STAALGCLVK DYFPEPVTVS     150
WNSGALTSGV HTF                                             163
```

(SEQ ID NO:13)

12.9.1.1 Kappa Chain DNA

```
CCTGGAGAGC CGGCTTCCAT CTCTTGCAGG TCTAGTCAGA GCCTCCTGCA      50
TAGTAATGGA TACAACTATT TGGATTGGTA CCTGCAGAAG CCAGGACAGT     100
CTCCACAGCT CCTGATCTAT TTGGGTTCTA ATCGGGCCTC CGGGGTCCCT     150
GACAGGTTCA GTGGCAGTGG ATCAGGCACA GATTTTACAC TGAAACTCAG     200
CAGAGTGGAG GCTGAGGATG TTGGGGTTTA TTACTGCATG CAAGCTCTAC     250
AAACTCCTCT CACTTTCGGC GGAGGGACCA AGGTGGAGAT CAAACGAACT     300
GTGGCTGCAC CATCTGTCTT CATCTTCCCG CCATCTGATG AGCAGTTGAA     350
ATCTGGAACT GCCTCTGTTG TGTGCCTGCT GAATAACTTC TATCCCAGAR     400
AGGCCAAAGT ACATTCCAT                                       419
```

(SEQ ID NO:52)

12.9.1.1 Kappa Chain Protein

```
PGEPASISCR SSQSLLHSNG YNYLDWYLQK PGQSPQLLIY LGSNRASGVP      50
DRFSGSGSGT DFTLKLSRVE AEDVGVYYCM QALQTPLTFG GGTKVEIKRT     100
VAAPSVFIFP PSDEQLKSGT ASVVCLLNNF YPR                       133
```

(SEQ ID NO:26)

Figure 2

CDR	DP50	3.1.1	4.1.1	4.8.1	4.10.2	4.13.1	4.14.3	6.1.1	11.2.1	11.6.1	11.7.1	12.3.1.1	12.9.1.1
								G					
	G	G	G	G	G			G	G	G		G	
	V	V	V	V	V			V	V	V	V	V	
	V	V	V	V	V			V	V	V	V	V	V
	Q	Q	Q	Q	Q			E	Q	Q	Q	Q	Q
	P	P	P	P	P	P	P	P	P	P	P	P	P
	G	G	G	G	G	G	G	G	G	G	G	G	G
	R	R	R	R	R	R	R	R	R	R	R	R	R
	S	S	S	S	S	S	S	S	S	S	S	S	S
	L	L	L	L	L	L	L	L	L	L	L	L	L
	R	R	R	R	R	R	R	R	R	R	R	R	R
	L	L	L	L	L	L	L	L	L	L	L	L	L
	S	S	S	S	S	S	S	S	S	S	S	S	S
	C	C	C	C	C	C	C	C	C	C	C	C	C
	A	A	V	T	V	A	A	T	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A	A	A	A
	S	S	S	S	S	S	S	S	S	S	S	S	S
	G	G	G	G	G	G	G	G	G	G	G	G	G
	F	F	F	F	F	S	F	F	F	F	F	F	F
	T	T	T	T	I	T	T	T	T	T	T	T	T
	F	F	F	F	F	F	F	F	F	F	F	F	F
CDR1	S	S	S	S	S	S	S	S	S	S	S	S	S
	S	S	S	N	S	S	S	S	S	S	S	S	S
	Y	Y	H	Y	H	H	H	Y	Y	Y	C	Y	N
	G	G	G	G	G	G	G	G	G	G	G	G	A
	M	M	M	M	I	I	I	M	M	M	M	V	M
	H	H	H	H	H	H	H	H	H	H	H	H	H
	W	W	W	W	W	W	W	W	W	W	W	W	W
	V	V	V	V	V	V	V	V	V	V	V	V	V
	R	R	R	R	R	R	R	R	R	R	R	R	R
	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
	A	A	A	A	A	A	A	A	A	A	A	A	A
	P	P	P	P	P	P	P	P	P	P	P	P	P
	G	G	G	G	G	G	G	G	G	G	G	G	G
	K	K	K	K	K	K	K	K	K	K	K	K	K
	G	G	G	G	G	G	G	G	G	G	G	G	K
	L	L	L	L	L	L	L	L	L	L	L	L	G
	E	E	E	E	E	E	E	E	E	E	E	E	L
	W	W	W	W	W	W	W	W	W	W	W	W	E
	V	V	V	V	V	V	V	V	V	V	V	V	W
	A	A	A	A	A	A	A	A	A	A	A	A	V
	V	V	V	V	V	V	V	V	V	V	V	V	A
	I	I	I	I	I	I	I	I	I	I	I	I	V
	W	W	W	W	W	W	W	W	W	W	W	W	I
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	S	V	W
	D	D	D	D	D	D	D	D	D	D	D	D	H
	G	G	G	G	G	G	G	G	G	G	G	G	D
CDR2	S	S	R	S	R	R	R	S	S	S	S	S	G
	N	N	N	N	N	N	N	N	N	H	H	N	N
	K	K	K	K	K	K	K	K	K	K	K	K	K
	Y	Y	Y	H	D	D	D	H	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	A	A	A	G	A	A	A	A	A	A	A	A	A
	D	D	D	D	D	D	D	D	D	D	D	D	E
	S	S	S	S	S	S	S	S	S	S	S	S	S
	V	V	V	V	V	V	V	A	V	V	V	V	V
	K	K	K	K	K	K	K	K	K	K	K	K	K
	G	G	G	G	G	G	G	G	G	G	G	G	G
	R	R	R	R	R	R	R	R	R	R	R	R	R
	F	F	F	F	F	F	F	F	F	F	F	F	F
	T	T	T	T	T	T	T	T	T	T	T	T	T
	I	I	I	I	I	I	I	I	I	I	I	I	I
	S	S	S	S	S	S	S	S	S	S	S	S	S
	R	R	R	S	R	R	R	R	R	R	R	R	R

Figure 2

CDR	DP50	3.1.1	4.1.1	4.8.1	4.10.2	4.13.1	4.14.3	6.1.1	11.2.1	11.6.1	11.7.1	12.3.1.1	12.9.1.1
	D	D	D	D	D	D	D	D	D	D	D	D	D
	N	N	N	N	N	N	N	N	N	N	N	N	N
	S	S	S	S	S	S	S	S	S	S	S	S	S
	K	K	K	K	K	K	K	K	K	K	K	K	K
	N	N	N	N	N	N	K	N	N	N	N	S	N
	T	T	T	T	T	T	T	T	T	T	T	T	T
	L	L	L	L	L	L	L	L	L	L	L	L	L
	Y	Y	F	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	L	L	L	L	L	L	L	L	L	L	L	L	L
	O	O	O	O	O	O	O	O	O	O	O	O	O
	M	M	M	M	M	M	M	M	M	M	M	M	M
	N	N	N	N	N	N	N	N	N	N	N	N	N
	S	S	S	S	S	S	S	S	S	S	S	S	S
	L	L	L	L	L	L	L	L	L	L	L	L	L
	R	R	R	R	R	R	R	R	R	R	R	R	R
	A	A	A	A	A	A	A	A	A	A	A	A	A
	E	E	E	E	E	E	E	E	E	E	E	E	E
	D	D	D	D	D	D	D	D	D	D	D	D	D
	T	T	T	T	T	T	T	T	T	T	T	T	T
	A	A	A	A	A	A	A	A	A	A	A	A	A
	V	V	V	V	V	V	V	V	V	V	V	V	V
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	C	C	C	C	C	C	C	C	C	C	C	C	C
	A	A	A	A	A	A	A	A	A	A	A	A	A
	R	R	R	R	R	R	R	R	R	R	R	R	R
		G	G	G	V	V	V	A	D	G	G	D	D
		A	G	E	A	A	A	G	R	A	T	S	G
		R	H	R	P	P	P	L	R	V	M	Y	G
			F	L	L	L	L	L	G	V	I	Y	T
CDR3			G	G	G	G	G	G	A	V	V	D	G
		T	P	S	P	P	P	Y	T	P	V	F	W
		P	F	Y	L	L	L	P	L	A	G	W	Y
		G	D	F	D	D	D	D	Y	A	T	S	G
		M	Y	D	Y	Y	Y	Y	Y	M		G	G
		D	W	Y	W	W	W	W	Y	D	D	R	P
		V	G	W	G	G	G	G	V	V	Y	G	D
		W	O	G	O	O	O	O	S	W	W	G	T
		G	G	O	G	G	G	G	G	G	G	M	W
		O	T	G	T	T	T	T	M	O	O	D	G
		G	L	T	L	L	L	L	D	G	G	V	O
		T	V	L	V	V	V	V	V	T	T	W	G
		T	T	V	T	T	T	T	W	T	L	G	T
		V	V	T	V	V	V	V	G	V	V	O	L
		T	S	V	S	S	S	S	O	T	T	G	V
		V	S	S	S	S	S	S	G	V	V	T	T
		S	A	S	A	A	A	A	T	S	S	T	V
		S	S	A	S	S	S	S	T	S	S	V	S
		A	T	S	T	T	T	T	V	A	A	T	S
		S	K	T	K	K	K	K	T	S	S	V	A
		T	G	K	G	G	G	G	V	T	T	S	S
		K	P	G	P	P	P	P	S	K	K	S	T
		G	S	P	S	S	S	S	S	G	G	A	K
		P	V	S	V	V	V	V	A	P	P	S	G
		S	P	V	P	P	P	P	S	S	S	T	P
		V	P	P	P	P	P	P	T	V	V	K	S
		P	L	P	L	L	L	L	K	P	P	G	V
		P	A	L	A	A	A	A	G	P	P	P	P
		L	P	A	P	P	P	P	P	L	L	S	P
		A	C	P	C	C	C	C	S	A	A	V	L
		P	S	C	S	S	S	S	V	P	P	P	A
		C	R	S	R	R	R	R	P	C	C	P	P
		S	S	R	S	S	S	S	P	S	S	L	C
		R	T	S	T	T	T	T	L	R	R	A	S
		S	S	T	S	S	S	S	A	S	S	P	R
		T	E	S	E	E	E	E	P	T	T	C	S
		S	S	E	S	S	S	S	C	S	S	S	T
		E	T	S	T	T	T	T	S	E	E	R	S

Figure 2

CDR	DP50	3.1.1	4.1.1	4.8.1	4.10.2	4.13.1	4.14.3	6.1.1	11.2.1	11.6.1	11.7.1	12.3.1.1	12.9.1.1
		S	A	T	A	A	A	A	R	S	S	S	E
		T	A	A	A	A	A	A	S	T	T	T	S
		A	L	A	L	L	L	L	T	A	A	S	T
		A	G	L	G	G	G	G	S	A	A	E	A
		L	C	G	C	C	C	C	E	L	L	S	A
		G	L	C	L	L	L	L	S	G	G	T	L
		C	V	L	V	V	V		T	C	C	A	G
		L	K	V	K	K	K		A	L	L	A	C
		V	D	K	D	D	D		A	V	V	L	L
		K	Y	D	Y	Y	Y		L	K	K	G	V
		D	F	Y	F	F	F		G	D	D	C	K
		Y	P	F	P	P	P		C	Y	Y	L	D
		F	E	P	E	E	E		L	F	F	V	Y
		P	P	E	P	P	P		V	P	P	K	F
		E	V	P	V	V	V		K	E	E	D	P
		P	T	V	T	T	T		D	P	P	Y	E
		V	V	T	V	V	V		Y	V		F	P
		T	S	V	S	S	S		F	T		P	V
		V	W	S	W	W	W		P	V		E	T
		S	N	W	N	N	N		E			P	V
		W	S	N	S	S	S		P			V	S
		N	G	S	G	G	G		V			T	W
		S	A	G	A	A	A		T			V	N
		G	L	A	L	L	L		V			S	S
		A	T	L	T	T	T		S			W	G
		L	S	T	S	S	S		W			N	A
		T	G	S	G		G		N			S	L
		S	V	G	V		V		S			G	T
		G	H	V	H		H		G			A	S
		V	T	H	T		T		A			L	G
		H	F	T	F		F		L			T	V
		T	P	F	P		P		T			S	H
		F	A	P	A		A		S			G	T
		P	V	A	V		V		G			V	F
		A	L	V	L		L		V			H	
		V	Q		Q		Q		H			T	
		L										F	
		Q										P	
												A	
												V	

FIGURE 3

DP-65 or 4-31 gene product

VSGGSISSGGYYWSWIRQHPGKGLEWIGYIYYSGSTYYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCAR
CDR1 CDR2

2.1.3 Heavy Chain Protein

SGPGLVKPSQILSLTCTVSGGSISSGGHYWSWIRQHPGKGLEWIGYIYYIGNTYYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCAR
CDR1 CDR2
DSGDYYGIDVWGQGTTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQ
CDR3

FIGURE 4

A27 Gene Product

EIVLTQSPGTLSLSPGERATLSCRASQSVSSSYLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGSSP
CDR1 CDR2 CDR3

4.1.1 Kappa Chain Protein

QSPGTLSLSPGERATLSCRASQSISSSFLAWYQQRPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGTSPWT
CDR1 CDR2 CDR3
FGQGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAK

4.8.1 Kappa Chain Protein

QSPGTLSLSPGERATLSCRTS00VSSSYLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGISPFT
CDR1 CDR2 CDR3
FGGGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

4.14.3 Kappa Chain Protein

GTLSLSPGERATLSCRASQSV0SSYLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGRSPFT
CDR1 CDR2 CDR3
FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

6.1.1 Kappa Chain Protein

QSPGTLSLSPGERATLSCRASQSV0SSYLAWYQQKPGQAPRPLIYGVSSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGISPFT
CDR1 CDR2 CDR3
FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

4.10.2 Kappa Chain Protein

SPGTLSLSPGERATLSCRASQSISSNFLAWYQQKPGQAPRLLIYRPSSRATGIPDSFSGSGSGTDFTLTISRLEPEDFALYYCQQYGTSPFT
CDR1 CDR2 CDR3
FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

4.13.1 Kappa Chain Protein

QSPGTLSLSPGERATLSCRASQSVSSYLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGRSPFT
CDR1 CDR2 CDR3
FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKGG

Figure 5

012 Gene Product

DIQMTQSPSSLSASVGDRVTITCRASQSISSYLNWYQQKPGKAPKLLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQSYSTP
CDR1 CDR2 CDR3

3.1.1 Kappa Chain Protein

QSPSSLSASVGDRVTITCRASQSINTYLIWYQQKPGKAPNFLISATSILQSGVPSRFRGSGSGTNFTLTINSLHPEDFATYYCQQSYSTPFT
CDR1 CDR2 CDR3
FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSG

11.2.1 Kappa Chain Protein

PSSLSASVGDRVTITCRASQSINSYLDWYQQKPGKAPKLLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYYSTPFT
CDR1 CDR2 CDR3
FGPGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKV

11.6.1 Kappa Chain Protein

TQSPSSLSASVGDRVTITCRASQNISRYLNWYQQKPGKAPKFLIYVASILQSGVPSGFSASGSGPDFTLTISSLQPEDFATYYCQQSYSTPFT
CDR1 CDR2 CDR3
FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNN

11.7.1 Kappa Chain Protein

TQSPSSLSASVGDRVTITCRASQSICNYLNWYQQKPGKAPRVLIYAASSLQGGVPSRFSGSGSGIDCTLTISSLQPEDFATYYCQQSYITPFT
CDR1 CDR2 CDR3
FGPGTRVDIERTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNAY

Figure 6

A10/A26 Gene Product

EIVLTQSPDFQSVTPKEKVTITCRASQSIGSSLHWYQQKPDQSPKLLIKYASQSFSGVPSRFSGSGSGTDFTLTINSLEAEDAATYYCHQSSSLPQ
CDR1 CDR2 CDR3

2.1.3 Kappa Chain Protein

SPDFQSVTPKEKVTITCRASQSIGSSLHWYQQKPDQSPKLLIKYASQSFSGVPSRFSGSGSGTDFTLTINSLEAEDAATYYCHQSSSLPLT
CDR1 CDR2 CDR3
FGGGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQE

Figure 7

A17 Gene Product

DVVMTQSPLSLPVTLGQPASISCRSSQSLVYSDGNTYLNWFQQRPGQSPRRLIYKVSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWP

CDR1 CDR2 CDR3

12.3.1 Kappa Chain Protein

PLSLPVTLGQPASISCRSSQSLVYSDGNTYLNWFQQRPGQSPRRLIYKVSNWDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGSHWPPT

CDR1 CDR2 CDR3

FGQGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYP

Figure 8

A3/A19 Gene Product

DIVMTQSPLSLPVTPGEPASISCRSSQSLLHSNGYNYLDWYLQKPGQSPQLLIYLGSNRASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQALQTP
CDR1 CDR2 CDR3

12.9.1 Kappa Chain Protein

PGEPASISCRSSQSLLHSNGYNYLDWYLQKPGQSPQLLIYLGSNRASGVPDRFSGSGSGTDFTLKLSRVEAEDVGVYYCMQALQTPLT
CDR1 CDR2 CDR3
FGGGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPR

Amino-terminal amino acid sequence analysis

Hybridoma	Light chain	MW
CT2.1.3	ND	ND
CT3.1.1	NH2-DIQMTQSPSSLSASVGDRVT	26,119
CT4.1.1	NH2-EIVLTQSPGTLSLSPGERAT	23,917
CT4.8.1	NH2-EIVLTQSPGTLSLSPGERAT	23,617
CT4.9.1	NH2-DIQMTQSPSSVSASVGDRVT	23,702
CT4.10.2	NH2-TGEFVLTQSPGTLSLSPGER (60 %) NH2-EFVLTQSPGTLSLSPGERAT (40 %)	24,101
CT4.14.3	NH2-EIVLTQSPGTLSLSPGERAT	23,770
CT4.13.1	NH_2-EIVLTQSPGTLSLSPGERAT	23,802
CT6.1.1	NH2-EIVLTQSPGTLSLSPGERAT	23,747

Hybridoma	Heavy chain	MW
CT2.1.3	ND	ND
CT3.1.1	NH_2-Blocked. Following treatment with Pyroglutmate Aminopeptidase: NH_2-pQ-VQLVESGGGVVQPGRSLRLS (major sequence~80%) NH_2-PEVQF... (minor sequence~20%)	51,813
CT4.1.1	NH_2-Blocked. Following treatment with Pyroglutmate Aminopeptidase: NH_2-pQ-VQLVESGGGVVQPGRSLRLS (major sequence~65%) NH_2-PEVQFNWYVD... (minor sequence~35%)	51,502
CT4.8.1	NH_2-Blocked. Following treatment with Pyroglutmate Aminopeptidase: NH_2-pQ-VQLVESGGGVVQPG(R)SL... (major sequence~60%) NH_2-PEVQFNWY... (minor sequence~40%)	51,597
CT4.9.1	NH2-EVQLLESGGGLVQPGGSLRL (free amino terminus)	51,437
CT4.10.2	NH_2-Blocked. Following treatment with Pyroglutmate Aminopeptidase: NH_2-pQ-VQLVESGGGVVQPGRSLRLS (major sequence~60%) NH_2-PEVQFNWYVD... (minor sequence~40%)	51,502
CT4.14.3	NH_2-Blocked. Following treatment with Pyroglutmate Aminopeptidase: NH_2-pQ-VQLVESGGGVVQPGRSL(R)(L)(S) (major sequence~65%) NH_2-PEVQFNWYV... (minor sequence~35%)	51,293
CT4.13.1	NH_2-Blocked.Following treatment with Pyroglutmate Aminopeptidase: NH_2-pQ-VQLVESGGGVVQPGRSLRLS (major sequence~75%) NH_2-PEVQFN... (minor sequence~25%)	51,305
CT6.1.1	NH_2-Blocked. Following treatment with Pyroglutmate Aminopeptidase: NH_2-pQ-VQLVESGGGVVEPGRSLRLS * (major sequence~65%) NH_2-PEVQFNWYVD... (minor sequence~35%)	51,476

* This heavy chain sequence is similar to the other blocked heavy chain sequences except for a unique Gln->Glu change at position 13.

Figure 10

Figure 10A

	Conc. (mg/ml)	(Ec1.58)	IEF	SDS-PAGE		SEC	reported MALDI		n-term. seq. (lc)*	
antibody	reported	observed	observed	(+) b-me	(-) b-me	observed	Hc	Lc	reported	observed
CT 3.1.1	1.1	1.57	smear	50 & 28 kDa	6 bands	139,400	51,813	26,119	DIQMTQSP	DIQMTQSP
CT 4.1.1	1.54	1.65	smear	50 & 24 kDa	6 bands	79,900	51,502	23,917	EIVLTQSP	EIVLTQSP
CT 4.8.1	1.52	1.54	4 bands	50 & 24 kDa	6 bands	110,300	51,597	23,617	EIVLTQSP	EIVLTQSP
CT 4.10.2	1.29	1.77	4 bands	50 & 25 kDa	6 bands	107,200	51,502	24,101	**	***
CT 4.14.3	1.75	1.65	smear	50 & 24 kDa	6 bands	82,800	51,293	23,770	EIVLTQSP	EIVLTQSP
CT 6.1.1	1.36	1.3	4 bands	50 & 24 kDa	6 bands	101,100	51,476	23,747	EIVLTQSP	EIVLTQSP
* all heavy chains n-terminally blocked (not sequenced in-house)										
** mixed sequence reported: TGEFVLTQSP (60) & EFVLTQSP (40)										
*** mixed sequence observed TGEFVLTQSP (60) & EFVLTQSP (40)										

$1OD_{280nm}$ = 0.633 mg/ml
Ec=1.58

Figure 10B

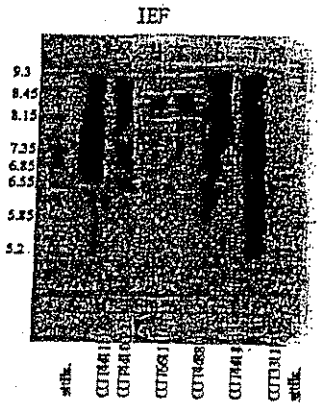


Figure 10C

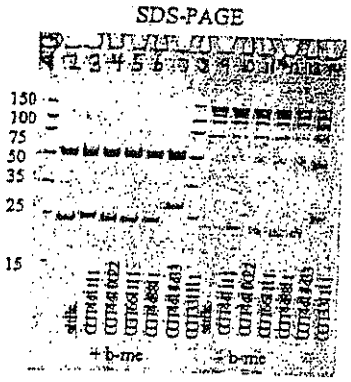


Figure 10D

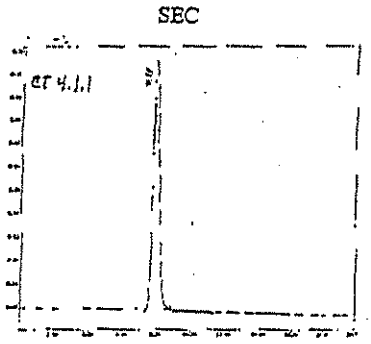


Figure 11

Expression of B7.1 and B7.2 on Raji Cells

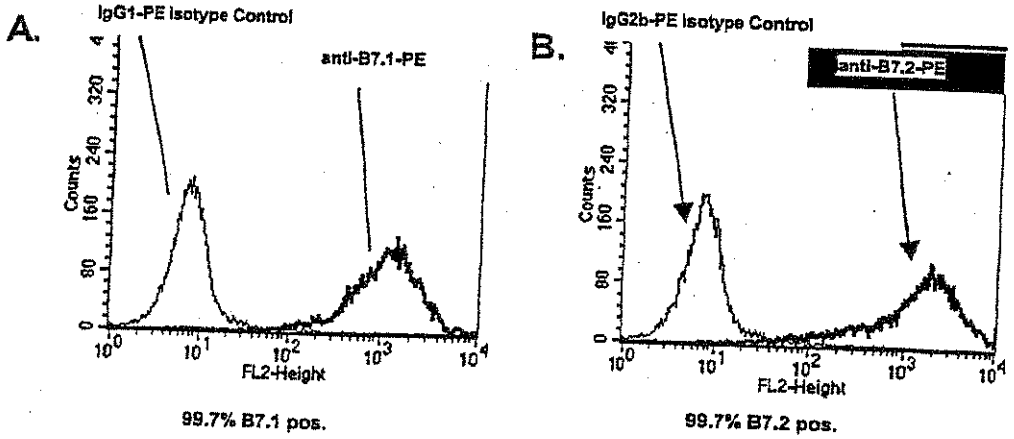


Figure 12

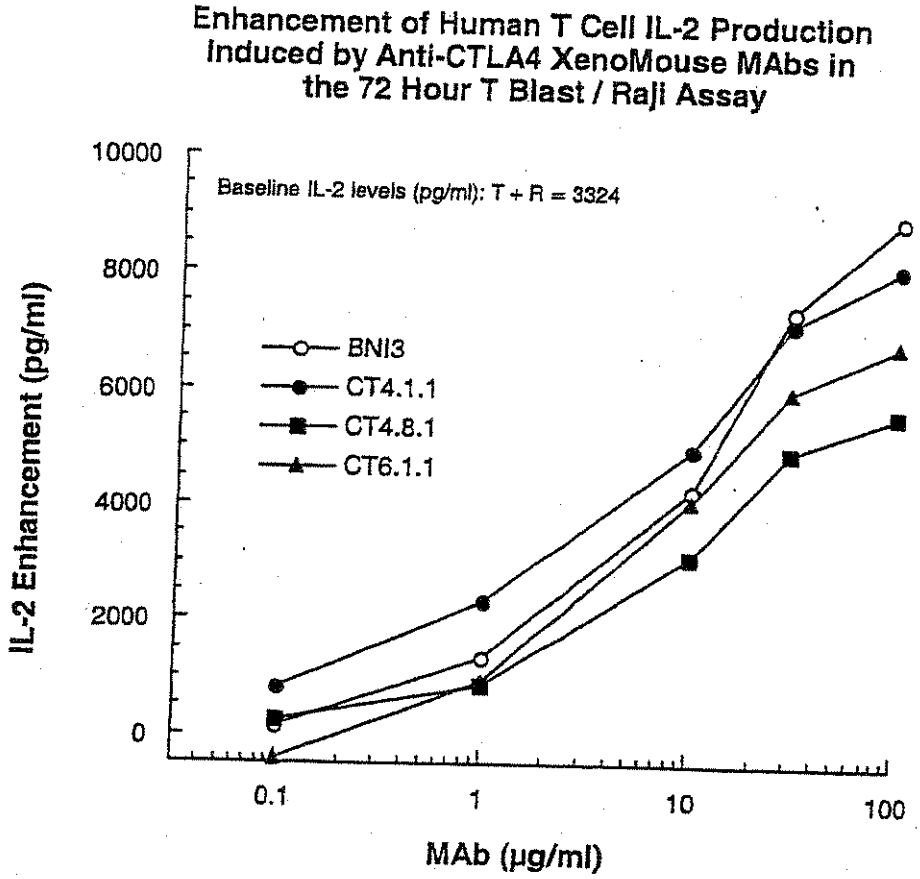

Enhancement of Human T Cell IL-2 Production Induced by Anti-CTLA4 XenoMouse MAbs in the 72 Hour T Blast / Raji Assay
Baseline IL-2 levels (pg/ml): T + R = 3324
IL-2 Enhancement (pg/ml)
10000
8000
6000
4000
2000
0
BNI3
CT4.1.1
CT4.8.1
CT6.1.1
0.1
1
10
100
MAb (µg/ml)

Figure 13

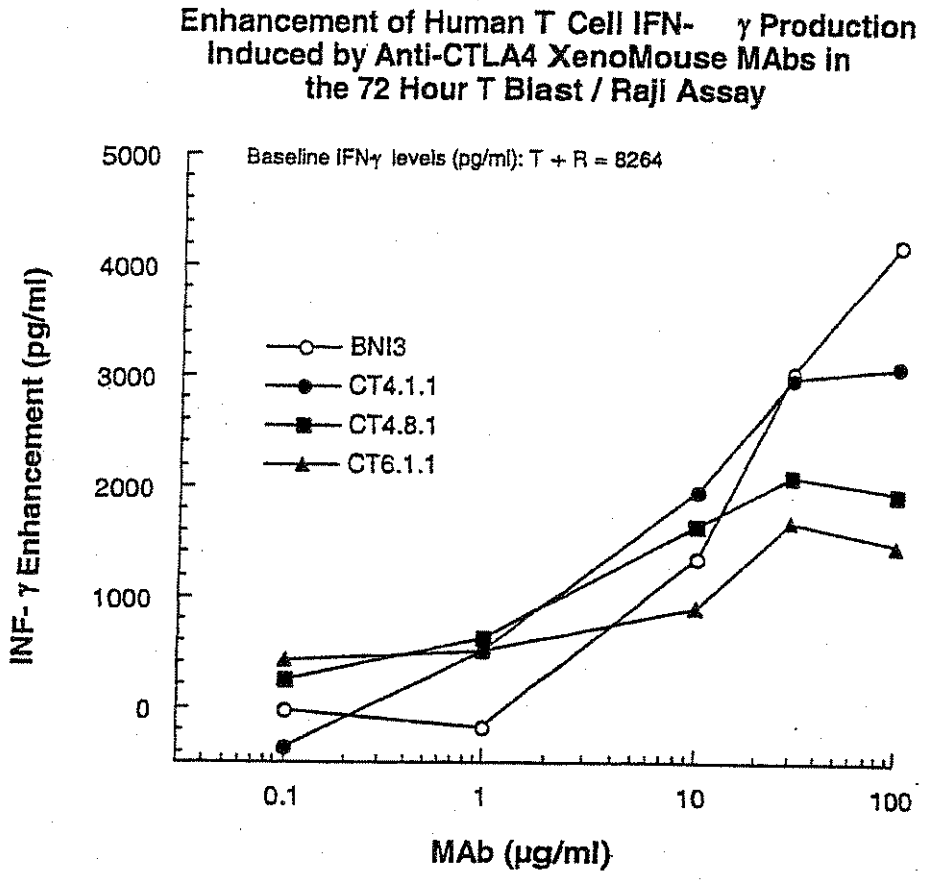

Enhancement of Human T Cell IFN- γ Production Induced by Anti-CTLA4 XenoMouse MAbs in the 72 Hour T Blast / Raji Assay
Baseline IFNγ levels (pg/ml): T + R = 8264
INF- γ Enhancement (pg/ml)
5000
4000
3000
2000
1000
0
BNI3
CT4.1.1
CT4.8.1
CT6.1.1
0.1
1
10
100
MAb (µg/ml)

Figure 14

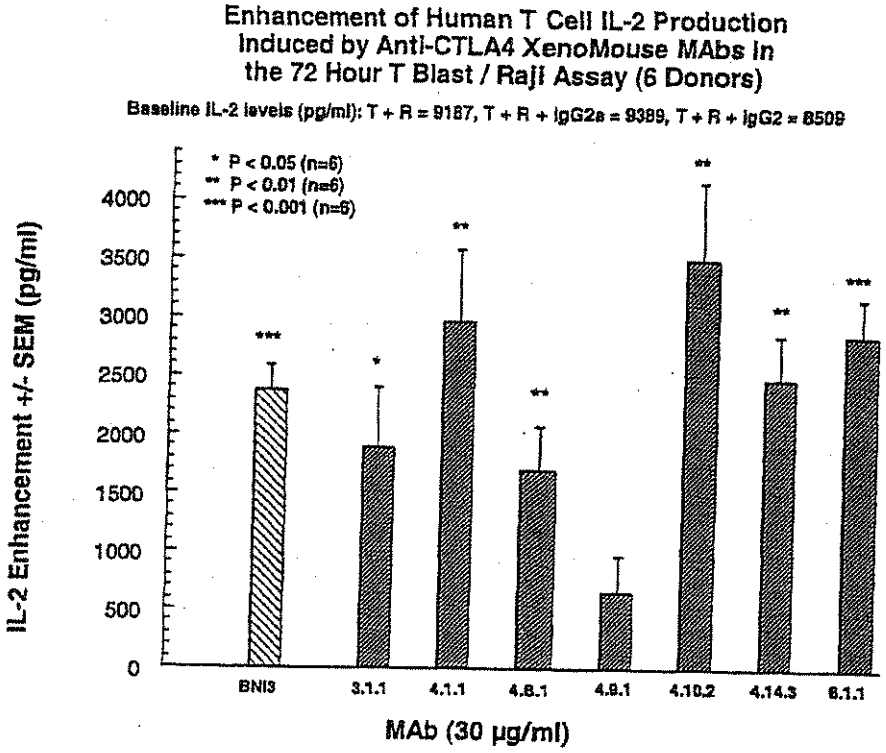

Enhancement of Human T Cell IL-2 Production
Induced by Anti-CTLA4 XenoMouse MAbs in
the 72 Hour T Blast / Raji Assay (6 Donors)
Baseline IL-2 levels (pg/ml): T + R = 9187, T + R + IgG2a = 9399, T + R + IgG2 = 8509
* P < 0.05 (n=6)
** P < 0.01 (n=6)
*** P < 0.001 (n=6)
IL-2 Enhancement +/- SEM (pg/ml)
4000
3500
3000
2500
2000
1500
1000
500
0
BNI3
3.1.1
4.1.1
4.8.1
4.9.1
4.10.2
4.14.3
8.1.1
MAb (30 µg/ml)

Figure 15

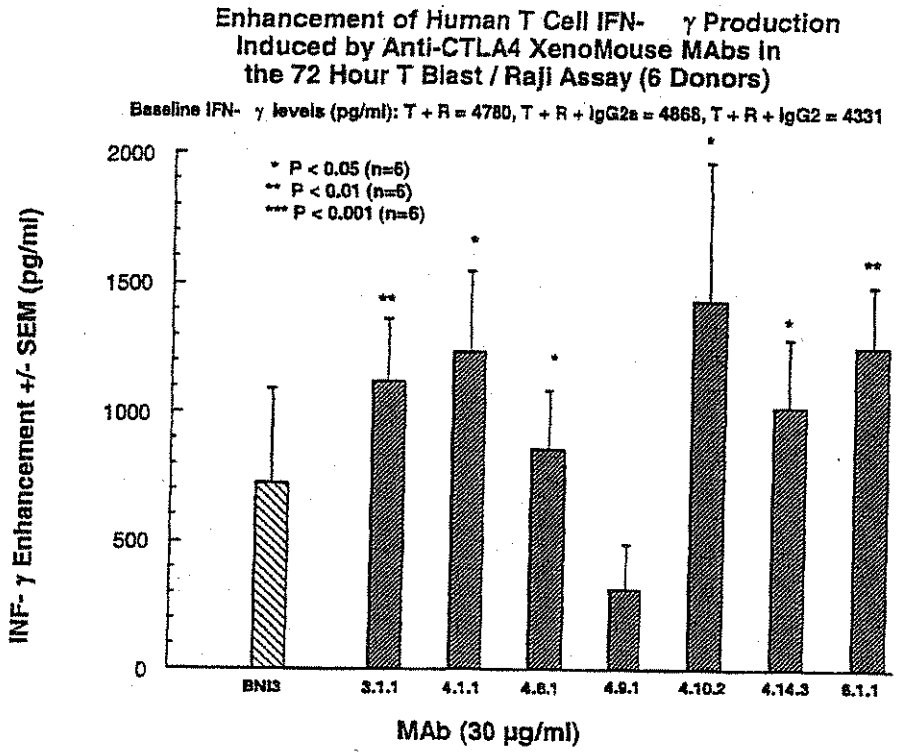

Enhancement of Human T Cell IFN- γ Production
Induced by Anti-CTLA4 XenoMouse MAbs in
the 72 Hour T Blast / Raji Assay (6 Donors)
Baseline IFN- γ levels (pg/ml): T + R = 4780, T + R + IgG2a = 4868, T + R + IgG2 = 4331
* P < 0.05 (n=6)
** P < 0.01 (n=6)
*** P < 0.001 (n=6)
INF- γ Enhancement +/- SEM (pg/ml)
2000
1500
1000
500
0
BNI3
3.1.1
4.1.1
4.6.1
4.9.1
4.10.2
4.14.3
6.1.1
MAb (30 µg/ml)

Figure 16

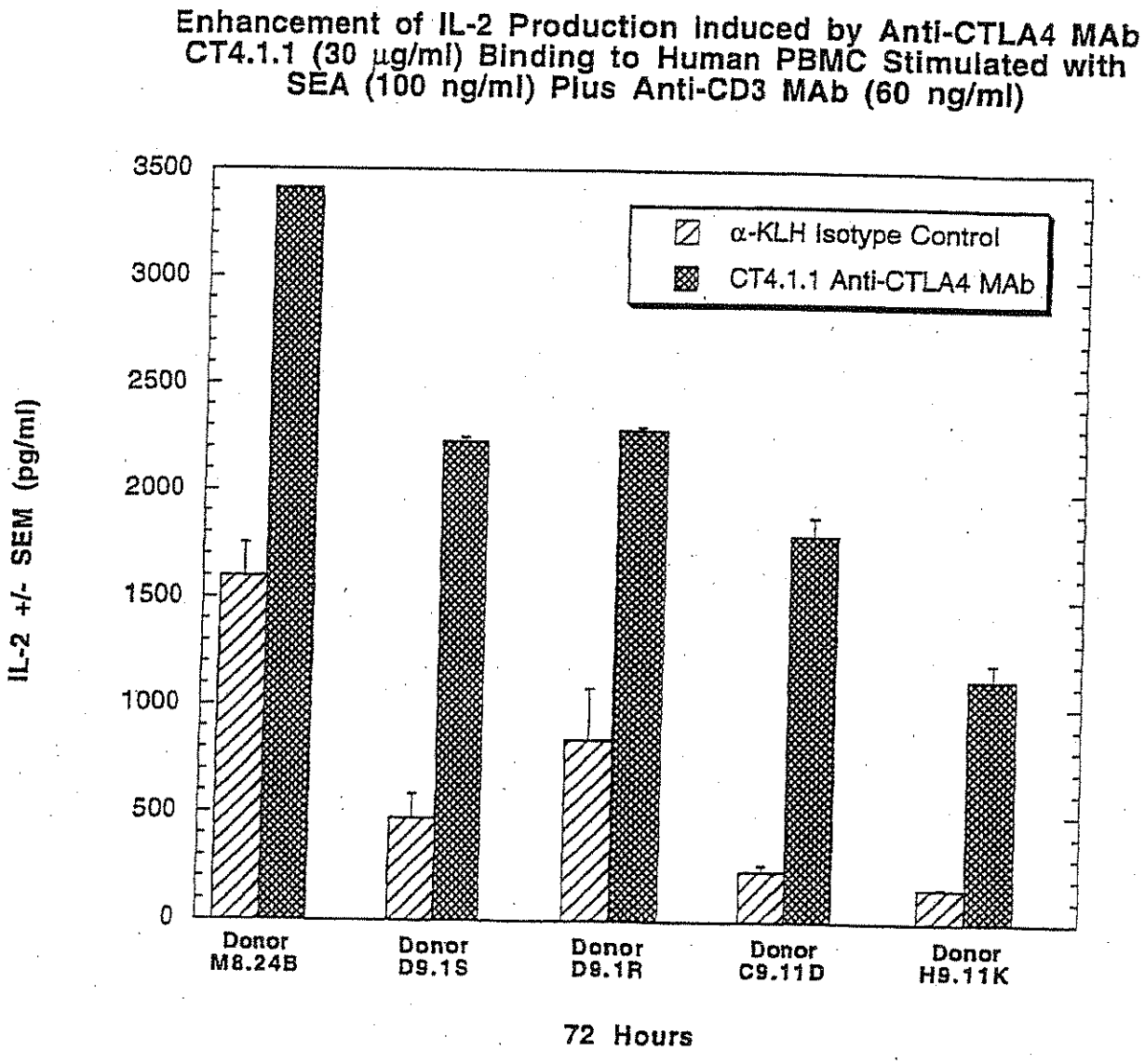

Enhancement of IL-2 Production Induced by Anti-CTLA4 MAb CT4.1.1 (30 μg/ml) Binding to Human PBMC Stimulated with SEA (100 ng/ml) Plus Anti-CD3 MAb (60 ng/ml)
IL-2 +/- SEM (pg/ml)
3500
3000
2500
2000
1500
1000
500
0
α-KLH Isotype Control
CT4.1.1 Anti-CTLA4 MAb
Donor M8.24B
Donor D9.1S
Donor D9.1R
Donor C9.11D
Donor H9.11K
72 Hours

Figure 17

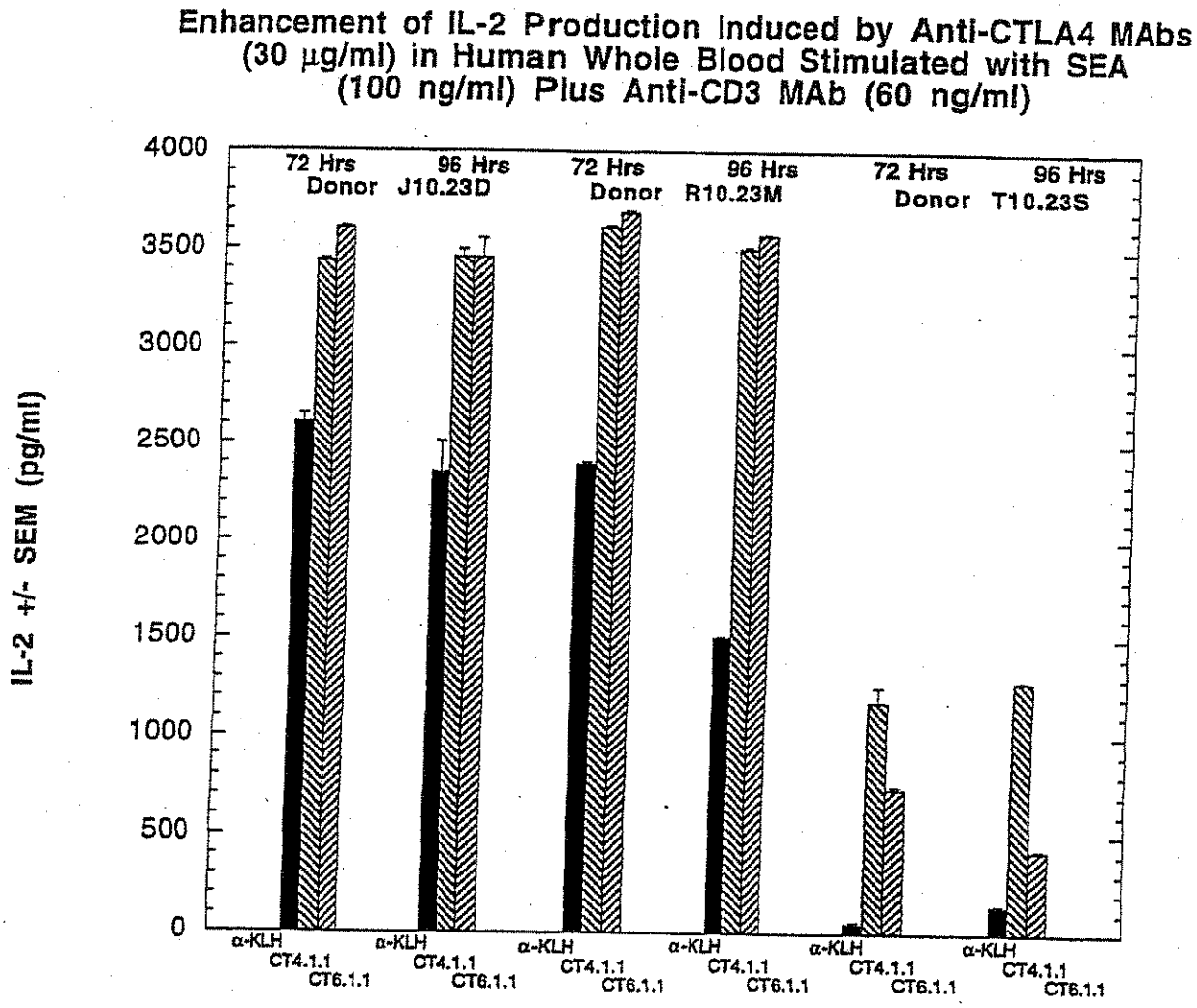

Enhancement of IL-2 Production Induced by Anti-CTLA4 MAbs
(30 μg/ml) in Human Whole Blood Stimulated with SEA
(100 ng/ml) Plus Anti-CD3 MAb (60 ng/ml)
IL-2 +/- SEM (pg/ml)
4000
3500
3000
2500
2000
1500
1000
500
0
72 Hrs
96 Hrs
Donor J10.23D
Donor R10.23M
Donor T10.23S
α-KLH
CT4.1.1
CT6.1.1

Figure 18

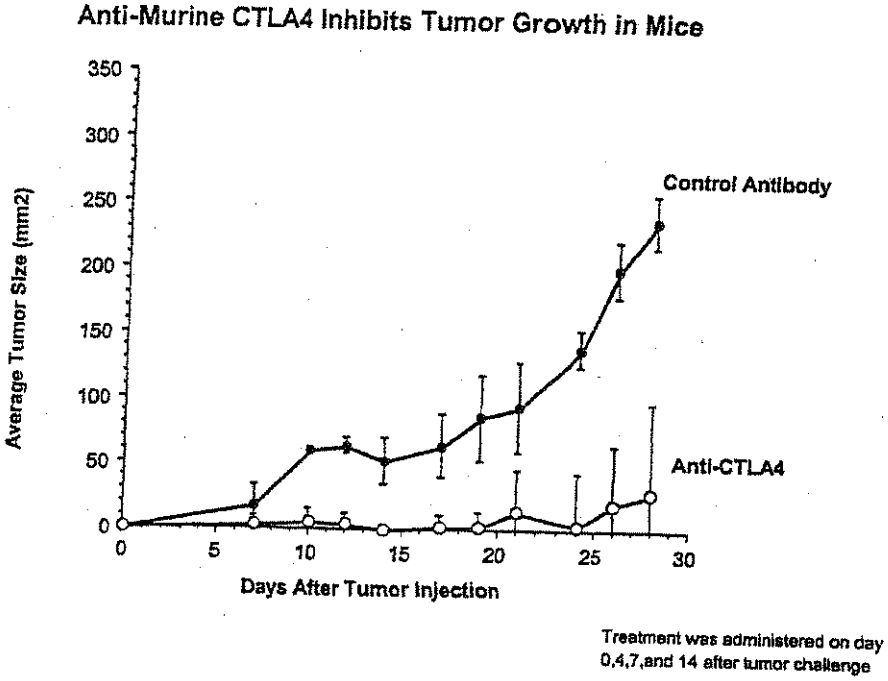

Anti-Murine CTLA4 Inhibits Tumor Growth in Mice
Average Tumor Size (mm2)
350
300
250
200
150
100
50
0
0
5
10
15
20
25
30
Days After Tumor Injection
Control Antibody
Anti-CTLA4
Treatment was administered on day
0,4,7,and 14 after tumor challenge

Figure 19

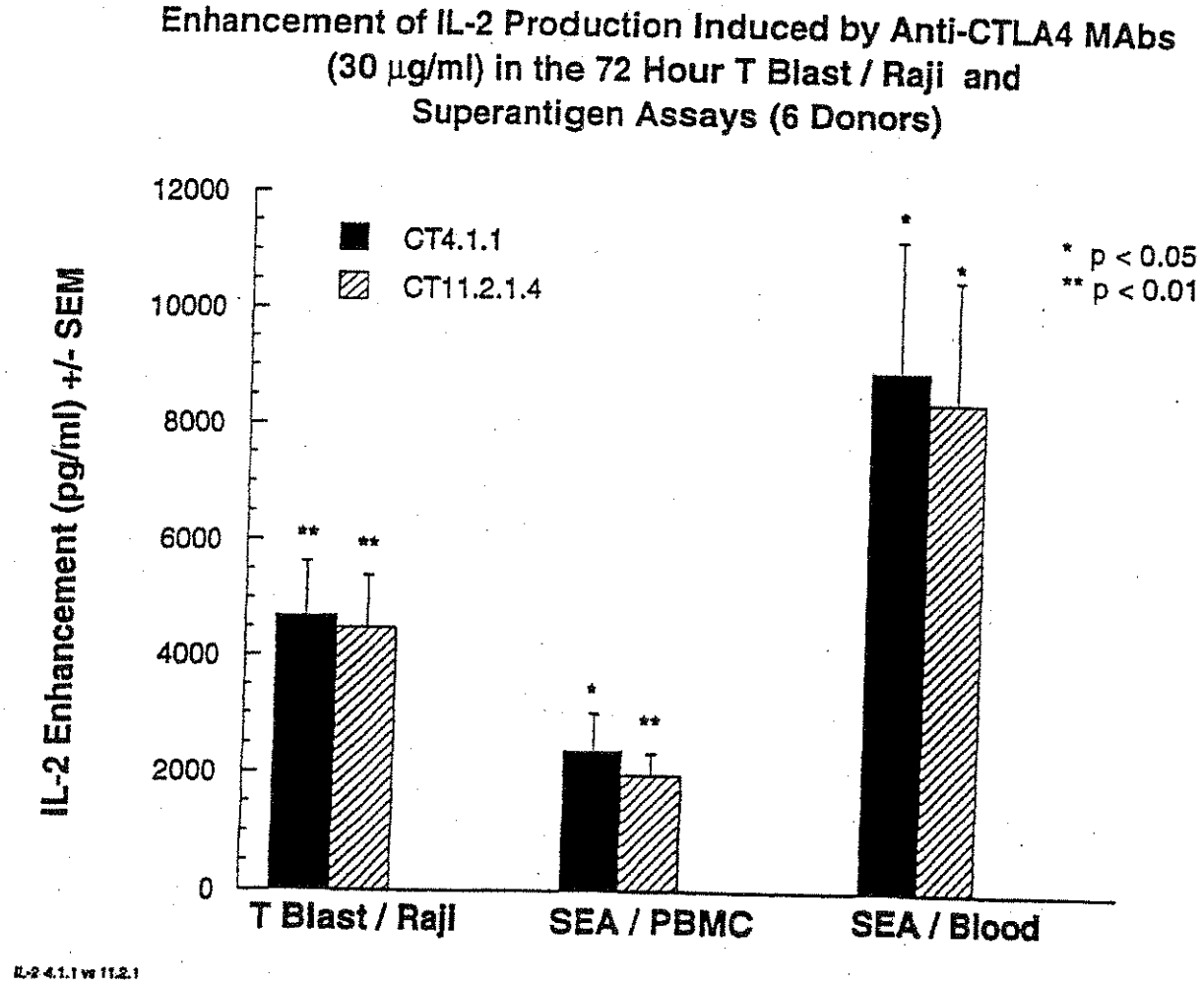

Enhancement of IL-2 Production Induced by Anti-CTLA4 MAbs
(30 µg/ml) in the 72 Hour T Blast / Raji and
Superantigen Assays (6 Donors)
IL-2 Enhancement (pg/ml) +/- SEM
12000
10000
8000
6000
4000
2000
0
CT4.1.1
CT11.2.1.4
* p < 0.05
** p < 0.01
T Blast / Raji
SEA / PBMC
SEA / Blood
IL-2 4.1.1 vs 11.2.1

Figure 20

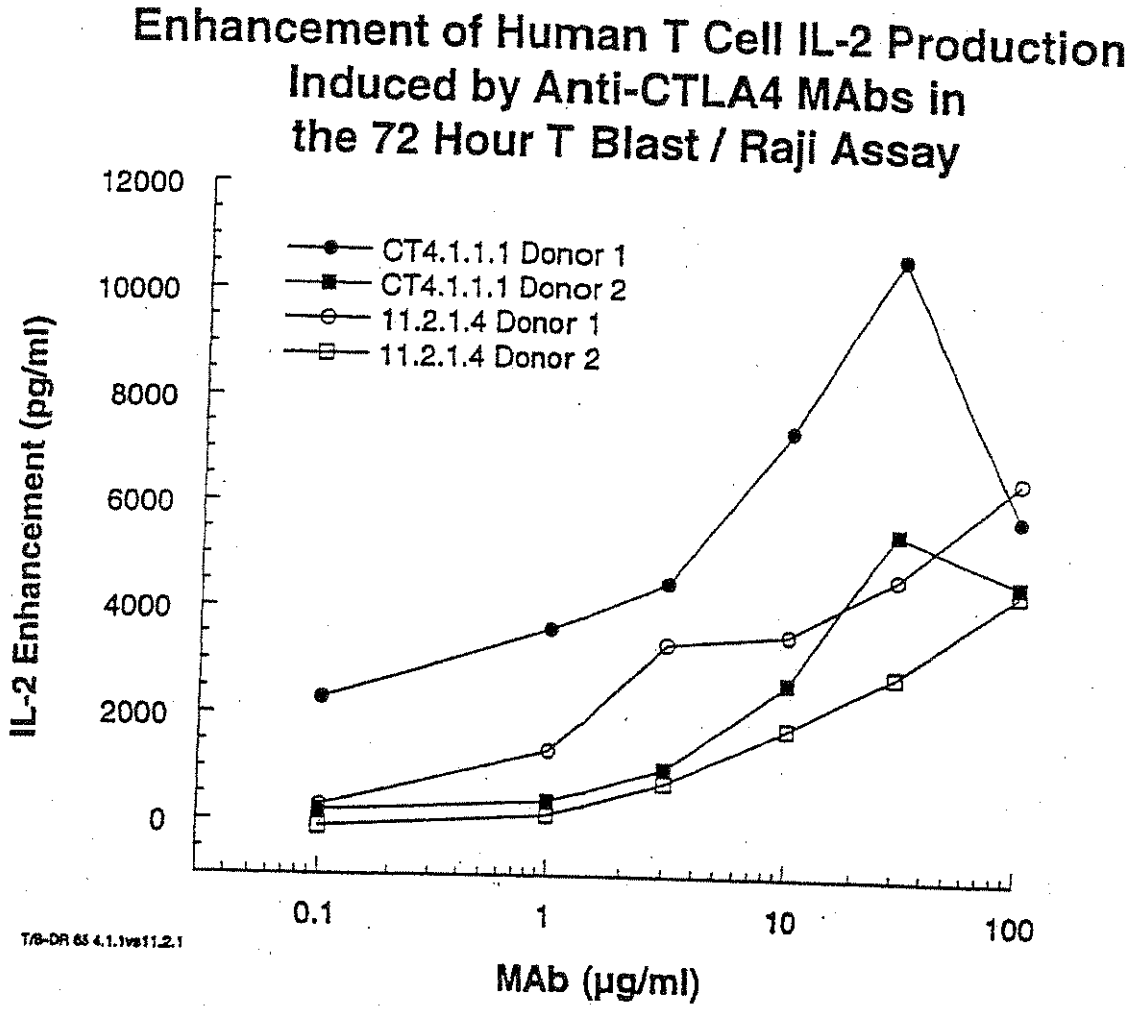

Enhancement of Human T Cell IL-2 Production
Induced by Anti-CTLA4 MAbs in
the 72 Hour T Blast / Raji Assay
IL-2 Enhancement (pg/ml)
12000
10000
8000
6000
4000
2000
0
CT4.1.1.1 Donor 1
CT4.1.1.1 Donor 2
11.2.1.4 Donor 1
11.2.1.4 Donor 2
0.1
1
10
100
MAb (µg/ml)
T/B-DR 65 4.1.1vs11.2.1

Figure 21

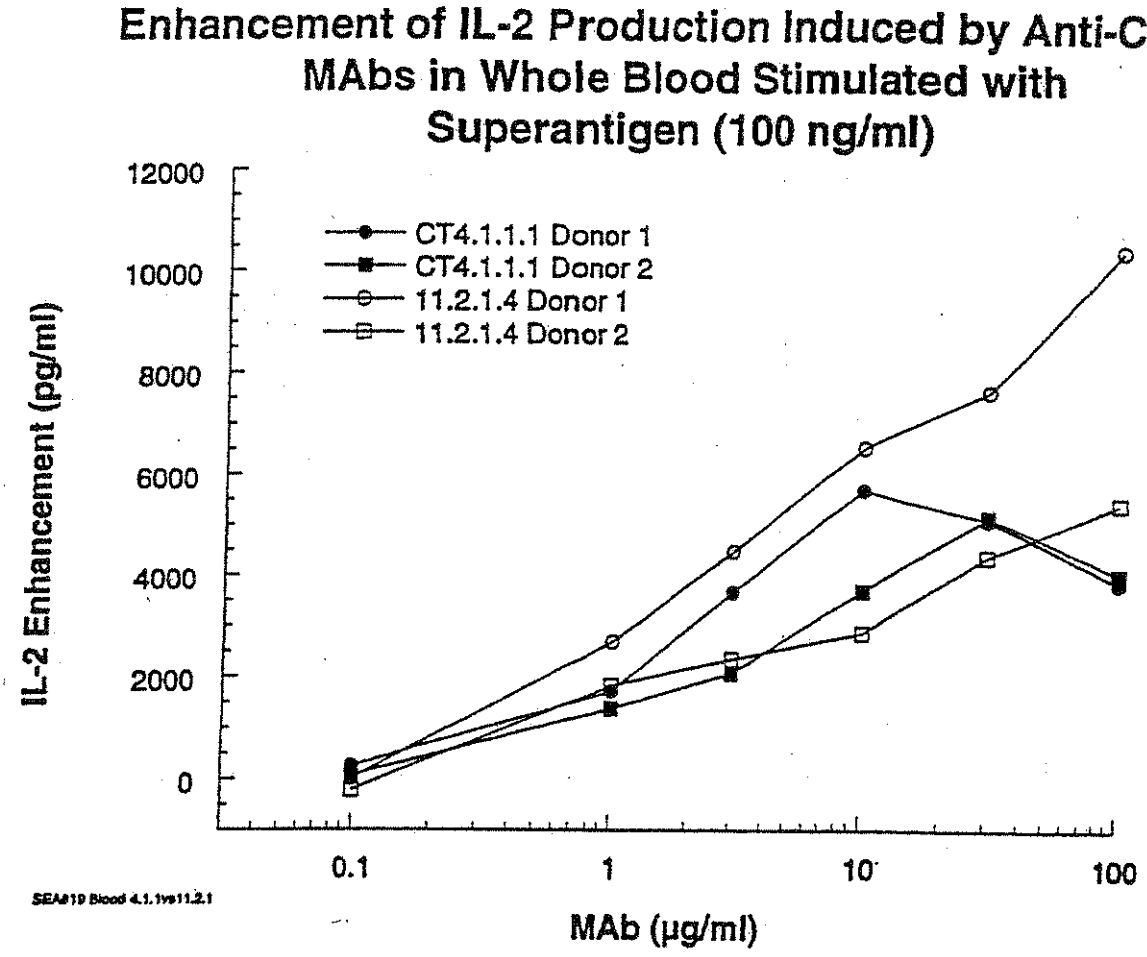

Enhancement of IL-2 Production Induced by Anti-CTLA4 MAbs in Whole Blood Stimulated with Superantigen (100 ng/ml)
IL-2 Enhancement (pg/ml)
12000
10000
8000
6000
4000
2000
0
CT4.1.1.1 Donor 1
CT4.1.1.1 Donor 2
11.2.1.4 Donor 1
11.2.1.4 Donor 2
0.1
1
10
100
MAb (µg/ml)
SEA#19 Blood 4.1.1vs11.2.1

FIGURE 22

- Signal peptides shown in bold and large text
- Open reading frame for genomic clone underlined
- Mutations introduced to make deglycosylated Ab (N294Q) double underlined and large text

Fig 22(a) 4.1.1 IgG2 Heavy Chain cDNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCCTCGTTGCTCTTTTAAGAG
GTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAGC
CTGGGAGGTCCCTGAGACTCTCCTGTGTAGCGTCTGGATTCACCTTCAGTAGC
CATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGGC
AGTTATATGGTATGATGGAAGAAATAAATACTATGCAGACTCCGTGAAGGGCC
GATTCACCATCTCCAGAGACAATTCCAAGAACACGCTGTTTCTGCAAATGAAC
AGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGGTCACTT
CGGTCCTTTTGACTACTGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAGCCT
CCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTCC
GAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGT
GACGGTGTCGTGGAACTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCAG
CTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCC
TCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCCCAG
CAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTCGAGTGCCCAC
CGTGCCCAGCACCACCTGTGGCAGGACCGTCAGTCTTCCTCTTCCCCCCAAAA
CCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGGTGGT
GGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACGGCG
TGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCAACAGCACG
TTCCGTGTGGTCAGCGTCCTCACCGTTGTGCACCAGGACTGGCTGAACGGCAA
GGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCAGCCCCCATCGAGAAAA
CCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCCC
CCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAA
AGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGG
AGAACAACTACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTTCTTC
CTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTT
CTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGCC
TCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:53)

Fig. 22(b) 4.1.1 IgG2 Heavy Chain Genomic DNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCCTCGTTGCTCTTTTAAGAG
GTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAGC
CTGGGAGGTCCCTGAGACTCTCCTGTGTAGCGTCTGGATTCACCTTCAGTAGC
CATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGGC
AGTTATATGGTATGATGGAAGAAATAAATACTATGCAGACTCCGTGAAGGGCC

GATTCACCATCTCCAGAGACAATTCCAAGAACACGCTGTTTCTGCAAATGAAC
AGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGGTCACTT
CGGTCCTTTTGACTACTGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAGCTA
GCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTCC
GAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGT
GACGGTGTCGTGGAACTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCAG
CTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCC
TCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCCCAG
CAACACCAAGGTGGACAAGACAGTTGGTGAGAGGCCAGCTCAGGGAGGGAGGG
TGTCTGCTGGAAGCCAGGCTCAGCCCTCCTGCCTGGACGCACCCCGGCTGTGC
AGCCCCAGCCCAGGGCAGCAAGGCAGGCCCCATCTGTCTCCTCACCCGGAGGC
CTCTGCCCGCCCCACTCATGCTCAGGGAGAGGGTCTTCTGGCTTTTTCCACCA
GGCTCCAGGCAGGCACAGGCTGGGTGCCCCTACCCCAGGCCCTTCACACACAG
GGGCAGGTGCTTGGCTCAGACCTGCCAAAAGCCATATCCGGGAGGACCCTGCC
CCTGACCTAAGCCGACCCCAAAGGCCAAACTGTCCACTCCCTCAGCTCGGACA
CCTTCTCTCCTCCCAGATCCGAGTAACTCCCAATCTTCTCTCTGCAGAGCGCA
AATGTTGTGTCGAGTGCCCACCGTGCCCAGGTAAGCCAGCCCAGGCCTCGCCC
TCCAGCTCAAGGCGGGACAGGTGCCCTAGAGTAGCCTGCATCCAGGGACAGGC
CCCAGCTGGGTGCTGACACGTCCACCTCCATCTCTTCCTCAGCACCACCTGTG
GCAGGACCGTCAGTCTTCCTCTTCCCCCCAAAACCCAAGGACACCCTCATGAT
CTCCCGGACCCCTGAGGTCACGTGCGTGGTGGTGGACGTGAGCCACGAAGACC
CCGAGGTCCAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAG
ACAAAGCCACGGGAGGAGCAGTTCAACAGCACGTTCCGTGTGGTCAGCGTCCT
CACCGTTGTGCACCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTCT
CCAACAAAGGCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAACCAAAGGT
GGGACCCGCGGGGTATGAGGGCCACATGGACAGAGGCCGGCTCGGCCCACCCT
CTGCCCTGGGAGTGACCGCTGTGCCAACCTCTGTCCCTACAGGGCAGCCCCGA
GAACCACAGGTGTACACCCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCA
GGTCAGCCTGACCTGCCTGGTCAAAGGCTTCTACCCCAGCGACATCGCCGTGG
AGTGGGAGAGCAATGGGCAGCCGGAGAACAACTACAAGACCACACCTCCCATG
CTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACCGTGGACAAGAG
CAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGC
ACAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAATGA (SEQ
ID NO:54)

Fig. 22(c) 4.1.1 IgG2 Heavy Chain Protein

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVQPGRSLRLSCVASGFTFSS
HGMHWVRQAPGKGLEWVAVIWYDGRNKYYADSVKGRFTISRDNSKNTLFLQMN
SLRAEDTAVYYCARGGHFGPFDYWGQGTLVTVSSASTKGPSVFPLAPCSRSTS
ESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP
SSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCPAPPVAGPSVFLFPPK
PKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNST
FRVVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLP
PSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPMLDSDGSFF
LYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK (SEQ ID
NO:63)

Fig. 22(d) 4.1.1 IgG2 Heavy Chain cDNA N294Q

ATGGAGTTTGGGCTGAGCTGGGTTTTCCTCGTTGCTCTTTTAAGAG
GTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAGC
CTGGGAGGTCCCTGAGACTCTCCTGTGTAGCGTCTGGATTCACCTTCAGTAGC
CATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGGC
AGTTATATGGTATGATGGAAGAAATAAATACTATGCAGACTCCGTGAAGGGCC
GATTCACCATCTCCAGAGACAATTCCAAGAACACGCTGTTTCTGCAAATGAAC
AGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGGTCACTT
CGGTCCTTTTGACTACTGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAGCCT
CCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTCC
GAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGT
GACGGTGTCGTGGAACTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCAG
CTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCC
TCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCCCAG
CAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTCGAGTGCCCAC
CGTGCCCAGCACCACCTGTGGCAGGACCGTCAGTCTTCCTCTTCCCCCCAAAA
CCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGGTGGT
GGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACGGCG
TGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCCAAAGCACG
TTCCGTGTGGTCAGCGTCCTCACCGTTGTGCACCAGGACTGGCTGAACGGCAA
GGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCAGCCCCCATCGAGAAAA
CCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCCC
CCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAA
AGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGG
AGAACAACTACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTTCTTC
CTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTT
CTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGCC
TCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:55)

Fig. 22(e) 4.1.1 IgG2 Heavy Chain Protein N294Q

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVQPGRSLRLSCVASGFTFSS
HGMHWVRQAPGKGLEWVAVIWYDGRNKYYADSVKGRFTISRDNSKNTLFLQMN
SLRAEDTAVYYCARGGHFGPFDYWGQGTLVTVSSASTKGPSVFPLAPCSRSTS
ESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP
SSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCPAPPVAGPSVFLFPPK
PKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFQST
FRVVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLP
PSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPMLDSDGSFF
LYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK (SEQ ID
NO:64)

Fig. 22(f) 4.1.1 Kappa Chain DNA

ATGGAAACCCCAGCGCAGCTTCTCTTCCTCCTGCTACTCTGGCTCC
CAGATACCACCGGAGAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTCTT
TGTCTCCAGGGGAAAGAGCCACCCTCTCCTGCAGGGCCAGTCAGAGTATTAGC
AGCAGCTTCTTAGCCTGGTACCAGCAGAGACCTGGCCAGGCTCCCAGGCTCCT
CATCTATGGTGCATCCAGCAGGGCCACTGGCATCCCAGACAGGTTCAGTGGCA
GTGGGTCTGGGACAGACTTCACTCTCACCATCAGCAGACTGGAGCCTGAAGAT
TTTGCAGTGTATTACTGTCAGCAGTATGGTACCTCACCCTGGACGTTCGGCCA
AGGGACCAAGGTGGAAATCAAACGAACTGTGGCTGCACCATCTGTCTTCATCT
TCCCGCCATCTGATGAGCAGTTGAAATCTGGAACTGCCTCTGTTGTGTGCCTG
CTGAATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGATAACGC
CCTCCAATCGGGTAACTCCCAGGAGAGTGTCACAGAGCAGGACAGCAAGGACA
GCACCTACAGCCTCAGCAGCACCCTGACGCTGAGCAAAGCAGACTACGAGAAA
CACAAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCGTCAC
AAAGAGCTTCAACAGGGGAGAGTGTTAG (SEQ ID NO:56)

Fig. 22(g) 4.1.1 Kappa Chain Protein

METPAQLLFLLLLWLPDTTGEIVLTQSPGTLSLSPGERATLSCRASQSIS
SSFLAWYQQRPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPED
FAVYYCQQYGTSPWTFGQGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCL
LNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLTLSKADYEK
HKVYACEVTHQGLSSPVTKSFNRGEC (SEQ ID NO:65)

Fig 22(h) 4.8.1 Heavy Chain DNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCCTCGTTGCTCTTTTAAGAG
GTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAGC
CTGGGAGGTCCCTGAGACTCTCCTGTACAGCGTCTGGATTCACCTTCAGTAAC
TATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGGC
AGTTATATGGTATGATGGAAGTAATAAACACTATGGAGACTCCGTGAAGGGCC
GATTCACCATCTCCAGTGACAATTCCAAGAACACGCTGTATCTGCAAATGAAC
AGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGAGAGACT
GGGGTCCTACTTTGACTACTGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAG
CCTCCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACC
TCCGAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACC
GGTGACGGTGTCGTGGAACTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCC
CAGCTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTG
CCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCC
CAGCAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTCGAGTGCC
CACCGTGCCCAGCACCACCTGTGGCAGGACCGTCAGTCTTCCTCTTCCCCCCA

AAACCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGGT
GGTGGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACG
GCGTGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCAACAGC
ACGTTCCGTGTGGTCAGCGTCCTCACCGTTGTGCACCAGGACTGGCTGAACGG
CAAGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCAGCCCCCATCGAGA
AAACCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTG
CCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGT
CAAAGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGC
CGGAGAACAACTACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTTC
TTCCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGT
CTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGA
GCCTCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:57)

Fig. 22(i) 4.8.1 Heavy Chain Protein

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVQPGRSLRLSCTASGFTFSN
YGMHWVRQAPGKGLEWVAVIWYDGSNKHYGDSVKGRFTISSDNSKNTLYLQMN
SLRAEDTAVYYCARGERLGSYFDYWGQGTLVTVSSASTKGPSVFPLAPCSRST
SESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTV
PSSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCPAPPVAGPSVFLFPP
KPKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNS
TFRVVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTL
PPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPMLDSDGSF
FLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK (SEQ ID
NO:66)

Fig. 22(j) 4.8.1 Kappa Chain DNA

ATGGAAACCCCAGCGCAGCTTCTCTTCCTCCTGCTACTCTGGCTCC
CAGATACCACCGGAGAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTCTT
TGTCTCCAGGGGAAAGAGCCACCCTCTCCTGCAGGACCAGTGTTAGCAGCAGT
TACTTAGCCTGGTACCAGCAGAAACCTGGCCAGGCTCCCAGGCTCCTCATCTA
TGGTGCATCCAGCAGGGCCACTGGCATCCCAGACAGGTTCAGTGGCAGTGGGT
CTGGGACAGACTTCACTCTCACCATCAGCAGACTGGAGCCTGAAGATTTTGCA
GTCTATTACTGTCAGCAGTATGGCATCTCACCCTTCACTTTCGGCGGAGGGAC
CAAGGTGGAGATCAAGCGAACTGTGGCTGCACCATCTGTCTTCATCTTCCCGC
CATCTGATGAGCAGTTGAAATCTGGAACTGCCTCTGTTGTGTGCCTGCTGAAT
AACTTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGATAACGCCCTCCA
ATCGGGTAACTCCCAGGAGAGTGTCACAGAGCAGGACAGCAAGGACAGCACCT
ACAGCCTCAGCAGCACCCTGACGCTGAGCAAAGCAGACTACGAGAAACACAAA
GTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCGTCACAAAGAG
CTTCAACAGGGGAGAGTGTTAG (SEQ ID NO:58)

Fig. 22(k) 4.8.1 Kappa Chain Protein

METPAQLLFLLLLWLPDTTGEIVLTQSPGTLSLSPGERATLSCRTSVSSS
YLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFA
VYYCQQYGISPFTFGGGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLN
NFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLTLSKADYEKHK
VYACEVTHQGLSSPVTKSFNRGEC (SEQ ID NO:67)

Fig. 22(l) 6.1.1 Heavy Chain DNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCCTCGTTGCTCTTTTAAGAG
GTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCGAGC
CTGGGAGGTCCCTGAGACTCTCCTGTACAGCGTCTGGATTCACCTTCAGTAGT
TATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGGC
AGTTATATGGTATGATGGAAGCAATAAACACTATGCAGACTCCGCGAAGGGCC
GATTCACCATCTCCAGAGACAATTCCAAGAACACGCTGTATCTGCAAATGAAC
AGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGCCGGACTGCT
GGGTTACTTTGACTACTGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAGCCT
CCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTCC
GAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGT
GACGGTGTCGTGGAACTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCAG
CTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCC
TCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCCCAG
CAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTCGAGTGCCCAC
CGTGCCCAGCACCACCTGTGGCAGGACCGTCAGTCTTCCTCTTCCCCCCAAAA
CCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGGTGGT
GGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACGGCG
TGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCAACAGCACG
TTCCGTGTGGTCAGCGTCCTCACCGTTGTGCACCAGGACTGGCTGAACGGCAA
GGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCAGCCCCCATCGAGAAAA
CCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCCC
CCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAA
AGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGG
AGAACAACTACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTTCTTC
CTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTT
CTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGCC
TCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:59)

Fig. 22(m) 6.1.1 Heavy Chain Protein

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVEPGRSLRLSCTASGFTFSS
YGMHWVRQAPGKGLEWVAVIWYDGSNKHYADSAKGRFTISRDNSKNTLYLQMN
SLRAEDTAVYYCARAGLLGYFDYWGQGTLVTVSSASTKGPSVFPLAPCSRSTS
ESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP
SSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCPAPPVAGPSVFLFPPK
PKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNST

FRVVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLP
PSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPMLDSDGSFF
LYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK (SEQ ID
NO:68)

Fig. 22(n) 6.1.1 Kappa Chain DNA

ATGGAAACCCCAGCGCAGCTTCTCTTCCTCCTGCTACTCTGGCTCC
CAGATACCACCGGAGAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTCTT
TGTCTCCAGGGGAAAGAGCCACCCTCTCCTGTAGGGCCAGTCAAAGTGTTAGC
AGCTACTTAGCCTGGTACCAACAGAAACCTGGCCAGGCTCCCAGGCCCCTCAT
CTATGGTGTATCCAGCAGGGCCACTGGCATCCCAGACAGGTTCAGTGGCAGTG
GGTCTGGGACAGACTTCACTCTCACCATCAGCAGACTGGAGCCTGAAGATTTT
GCAGTGTATTACTGTCAGCAGTATGGTATCTCACCATTCACTTTCGGCCCTGG
GACCAAAGTGGATATCAAACGAACTGTGGCTGCACCATCTGTCTTCATCTTCC
CGCCATCTGATGAGCAGTTGAAATCTGGAACTGCCTCTGTTGTGTGCCTGCTG
AATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGATAACGCCCT
CCAATCGGGTAACTCCCAGGAGAGTGTCACAGAGCAGGACAGCAAGGACAGCA
CCTACAGCCTCAGCAGCACCCTGACGCTGAGCAAAGCAGACTACGAGAAACAC
AAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCGTCACAAA
GAGCTTCAACAGGGGAGAGTGTTAG (SEQ ID NO:60)

Fig. 22(o) 6.1.1 Kappa Chain Protein

METPAQLLFLLLLWLPDTTGEIVLTQSPGTLSLSPGERATLSCRASQSVS
SYLAWYQQKPGQAPRPLIYGVSSRATGIPDRFSGSGSGTDFTLTISRLEPEDF
AVYYCQQYGISPFTFGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLL
NNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLTLSKADYEKH
KVYACEVTHQGLSSPVTKSFNRGEC (SEQ ID NO:69)

Fig. 22(p) 11.2.1 IgG2 Heavy Chain DNA:

ATGGAGTTTGGGCTGAGCTGGGTTTTCCTCGTTGCTCTTTTAAGAG
GTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAGC
CTGGGAGGTCCCTGAGACTCTCCTGTGCAGCGTCTGGATTCACCTTCAGTAGC
TATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGGC
AGTTATATGGTATGATGGAAGTAATAAATACTATGCAGACTCCGTGAAGGGCC
GATTCACCATCTCCAGAGACAATTCCAAGAACACGCTGTATCTGCAAATGAAC
AGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGATCCGAGGGG
AGCTACCCTTTACTACTACTACTACGGTATGGACGTCTGGGGCCAAGGGACCA
CGGTCACCGTCTCCTCAGCCTCCACCAAGGGCCCATCGGTCTTCCCCCTGGCG
CCCTGCTCCAGGAGCACCTCCGAGAGCACAGCGGCCCTGGGCTGCCTGGTCAA
GGACTACTTCCCCGAACCGGTGACGGTGTCGTGGAACTCAGGCGCTCTGACCA
GCGGCGTGCACACCTTCCCAGCTGTCCTACAGTCCTCAGGACTCTACTCCCTC

AGCAGCGTGGTGACCGTGCCCTCCAGCAACTTCGGCACCCAGACCTACACCTG
CAACGTAGATCACAAGCCCAGCAACACCAAGGTGGACAAGACAGTTGAGCGCA
AATGTTGTGTCGAGTGCCCACCGTGCCCAGCACCACCTGTGGCAGGACCGTCA
GTCTTCCTCTTCCCCCCAAAACCCAAGGACACCCTCATGATCTCCCGGACCCC
TGAGGTCACGTGCGTGGTGGTGGACGTGAGCCACGAAGACCCCGAGGTCCAGT
TCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCACGG
GAGGAGCAGTTCAACAGCACGTTCCGTGTGGTCAGCGTCCTCACCGTTGTGCA
CCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGGCC
TCCCAGCCCCCATCGAGAAAACCATCTCCAAAACCAAAGGGCAGCCCCGAGAA
CCACAGGTGTACACCCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGT
CAGCCTGACCTGCCTGGTCAAAGGCTTCTACCCCAGCGACATCGCCGTGGAGT
GGGAGAGCAATGGGCAGCCGGAGAACAACTACAAGACCACACCTCCCATGCTG
GACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACCGTGGACAAGAGCAG
GTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACA
ACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAATGA (SEQ ID
NO:61)

Fig. 22(q) 11.2.1 IgG2 Heavy Chain Protein:

QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYGMHWVRQAPGKGLEWVAVIWY
DGSNKYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARDPRGATLY
YYYYGMDVWGQGTTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFP
EPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSNFGTQTYTCNVDH
KPSNTKVDKTVERKCCVECPPCPAPPVAGPSVFLFPPKPKDTLMISRTPEVTC
VVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWL
NGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTC
LVKGFYPSDIAVEWESNGQPENNYKTTPPMLDSDGSFFLYSKLTVDKSRWQQG
NVFSCSVMHEALHNHYTQKSLSLSPGK (SEQ ID NO:70)

Fig. 22(r) 11.2.1 IgG2 Kappa Chain DNA:

ATGGACATGAGGGTCCCCGCTCAGCTCCTGGGGCTCCTGCTACTCT
GGCTCCGAGGTGCCAGATGTGACATCCAGATGACCCAGTCTCCATCCTCC
CTGTCTGCATCTGTAGGAGACAGAGTCACCATCACTTGCCGGGCAAGTCAGAG
CATTAACAGCTATTTAGATTGGTATCAGCAGAAACCAGGGAAAGCCCCTAAAC
TCCTGATCTATGCTGCATCCAGTTTGCAAAGTGGGGTCCCATCAAGGTTCAGT
GGCAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAGTCTGCAACCTGA
AGATTTTGCAACTTACTACTGTCAACAGTATTACAGTACTCCATTCACTTTCG
GCCCTGGGACCAAAGTGGAAATCAAACGAACTGTGGCTGCACCATCTGTCTTC
ATCTTCCCGCCATCTGATGAGCAGTTGAAATCTGGAACTGCCTCTGTTGTGTG
CCTGCTGAATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGATA
ACGCCCTCCAATCGGGTAACTCCCAGGAGAGTGTCACAGAGCAGGACAGCAAG
GACAGCACCTACAGCCTCAGCAGCACCCTGACGCTGAGCAAAGCAGACTACGA
GAAACACAAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCG
TCACAAAGAGCTTCAACAGGGGAGAGTGTTAGTGA (SEQ ID NO:62)

Fig. 22(s) 11.2.1 IgG2 Kappa Chain Protein:

DIQMTQSPSSLSASVGDRVTITCRASQSINSYLDWYQQKPGKAPKLLIYAASS
LQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYYSTPFTFGPGTKVEI
KRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNS
QESVTEQDSKDSTYSLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRG
EC (SEQ ID NO:71)