

Figure 1

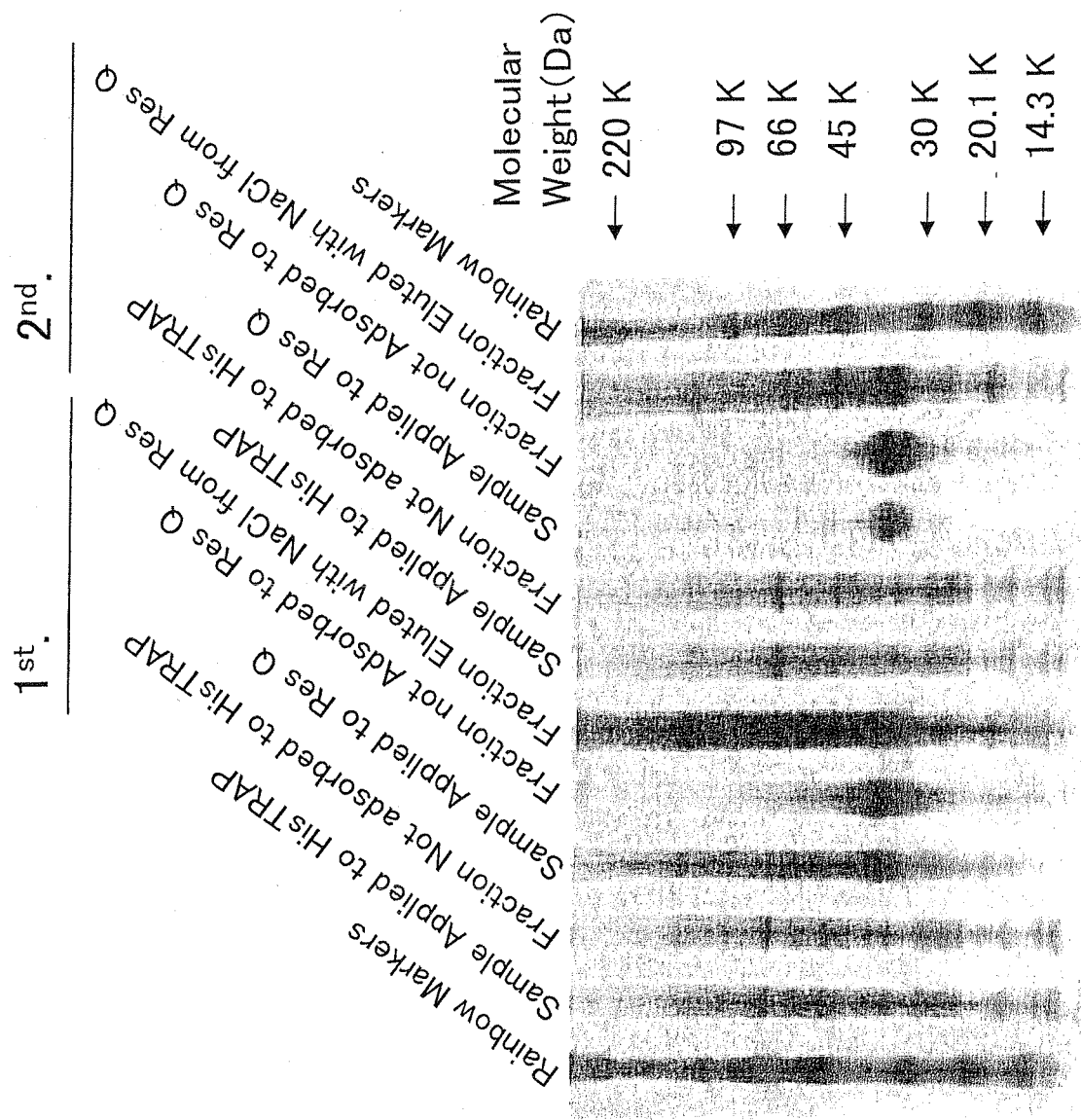


Figure 2

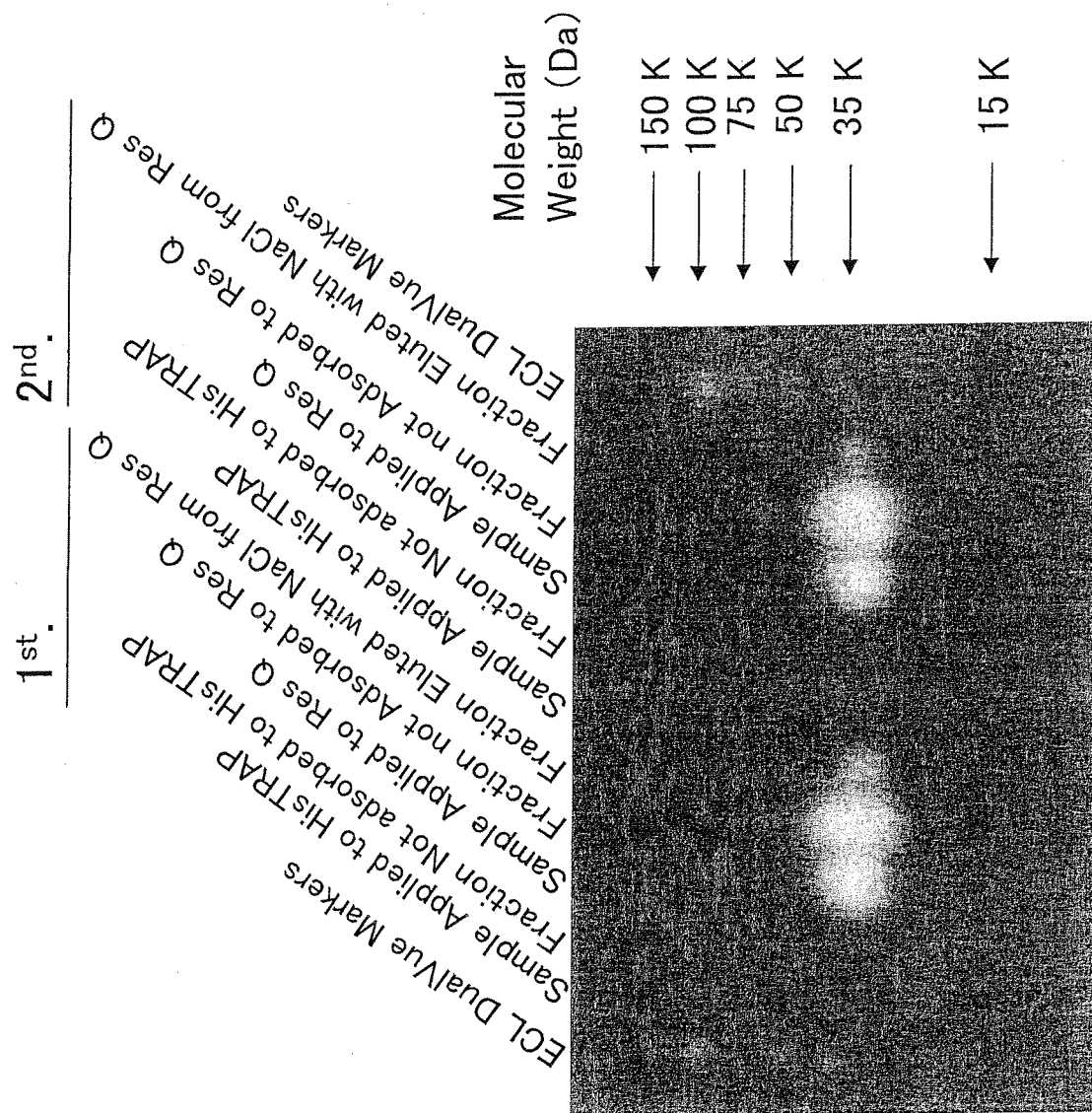


Figure 3

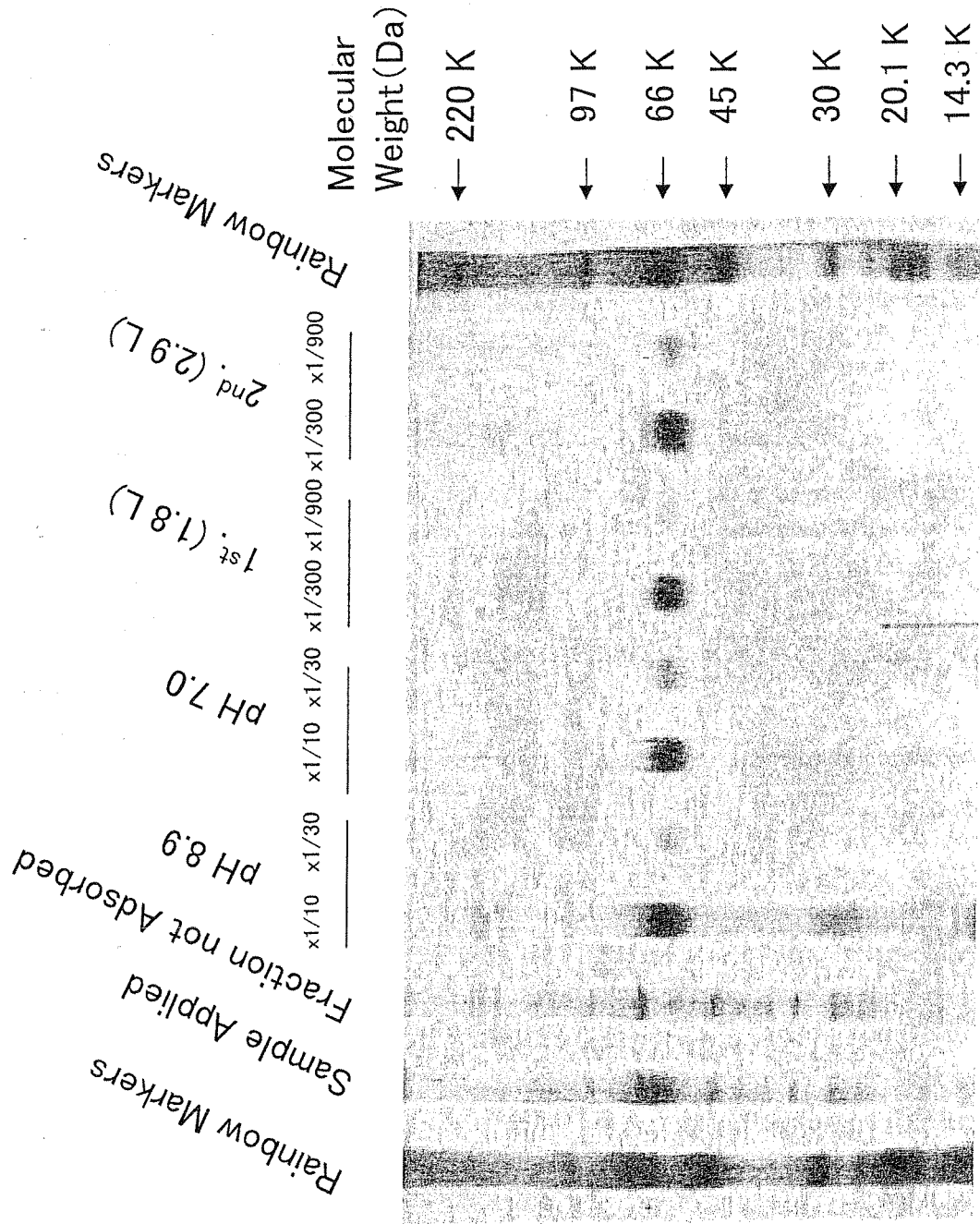


Figure 4

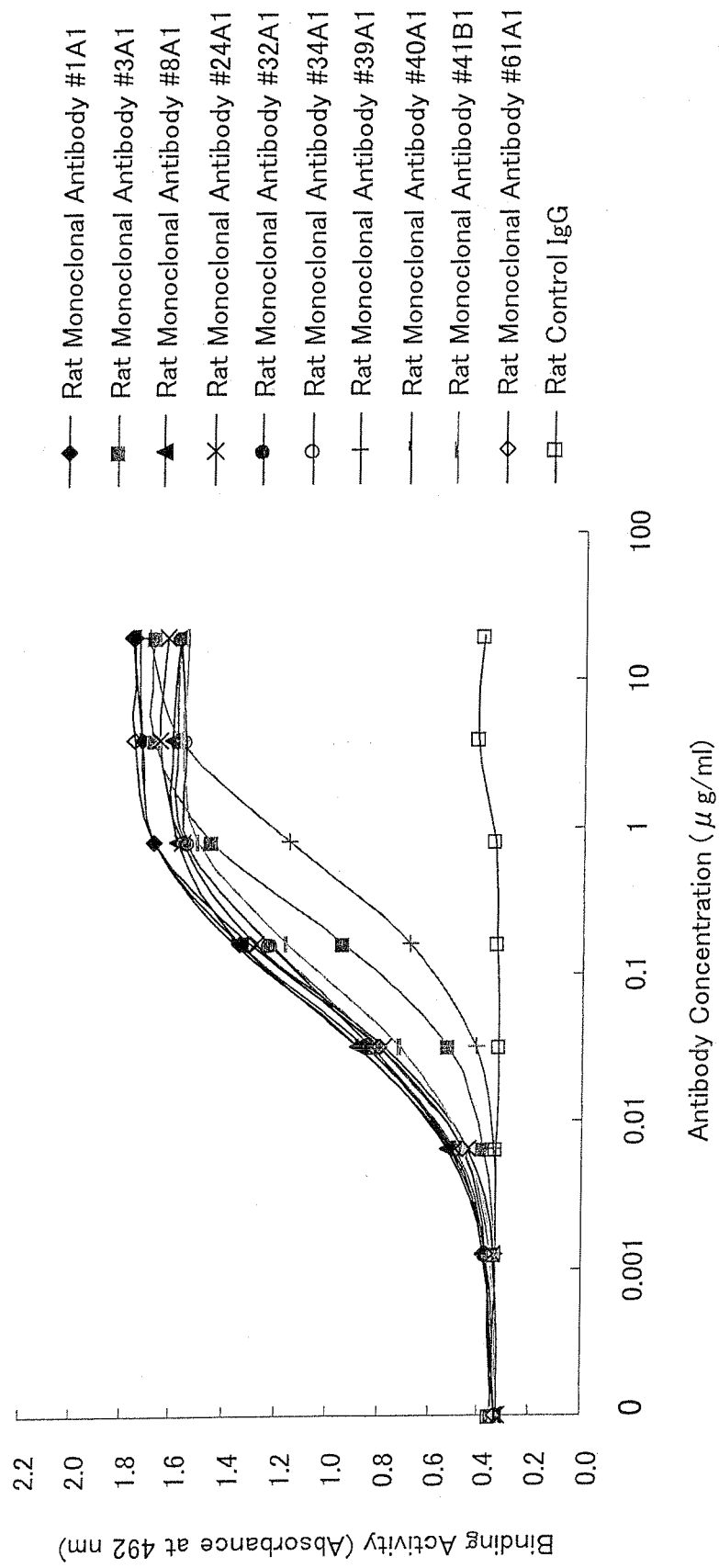


Figure 5

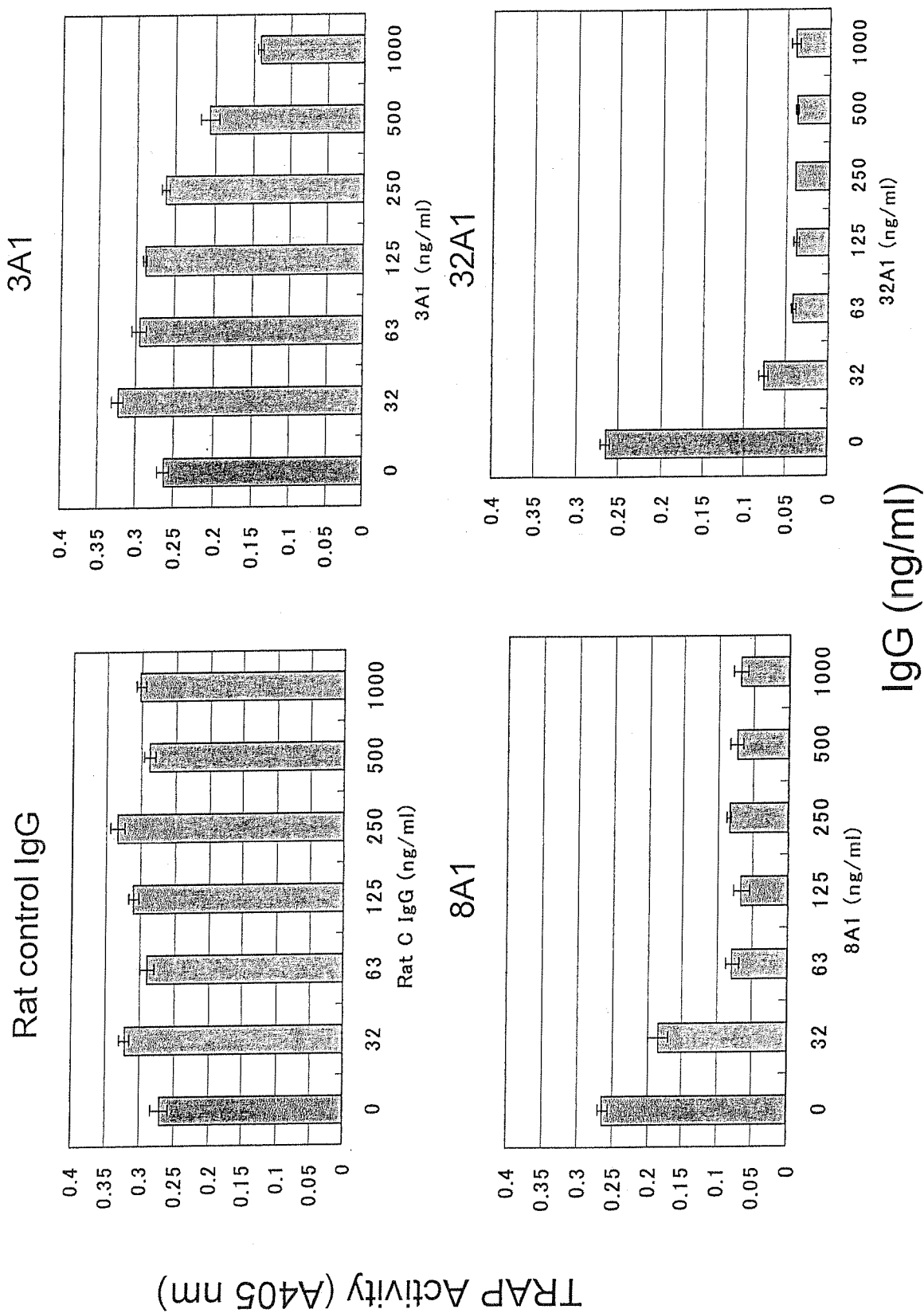


Figure 6

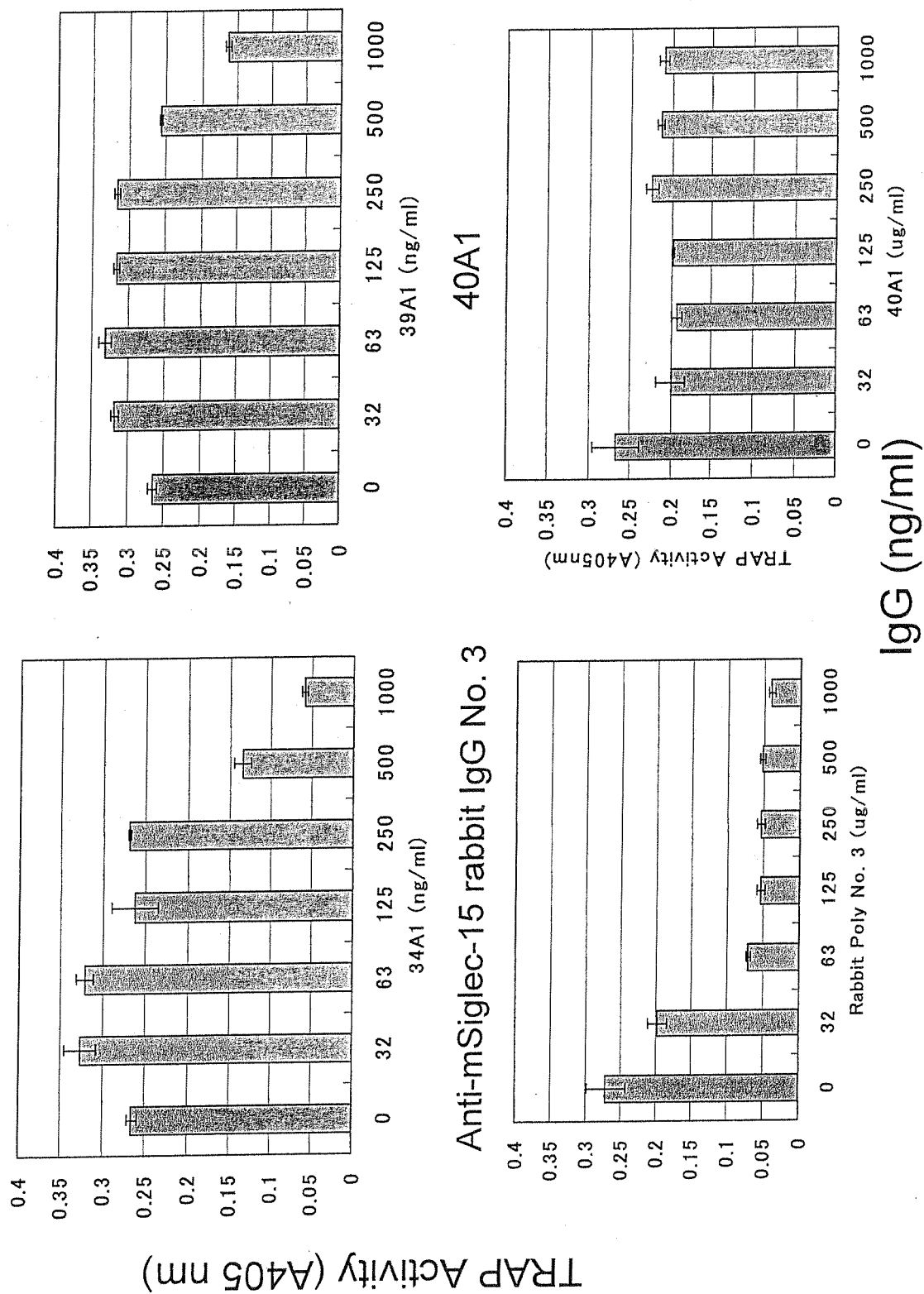


Figure 7

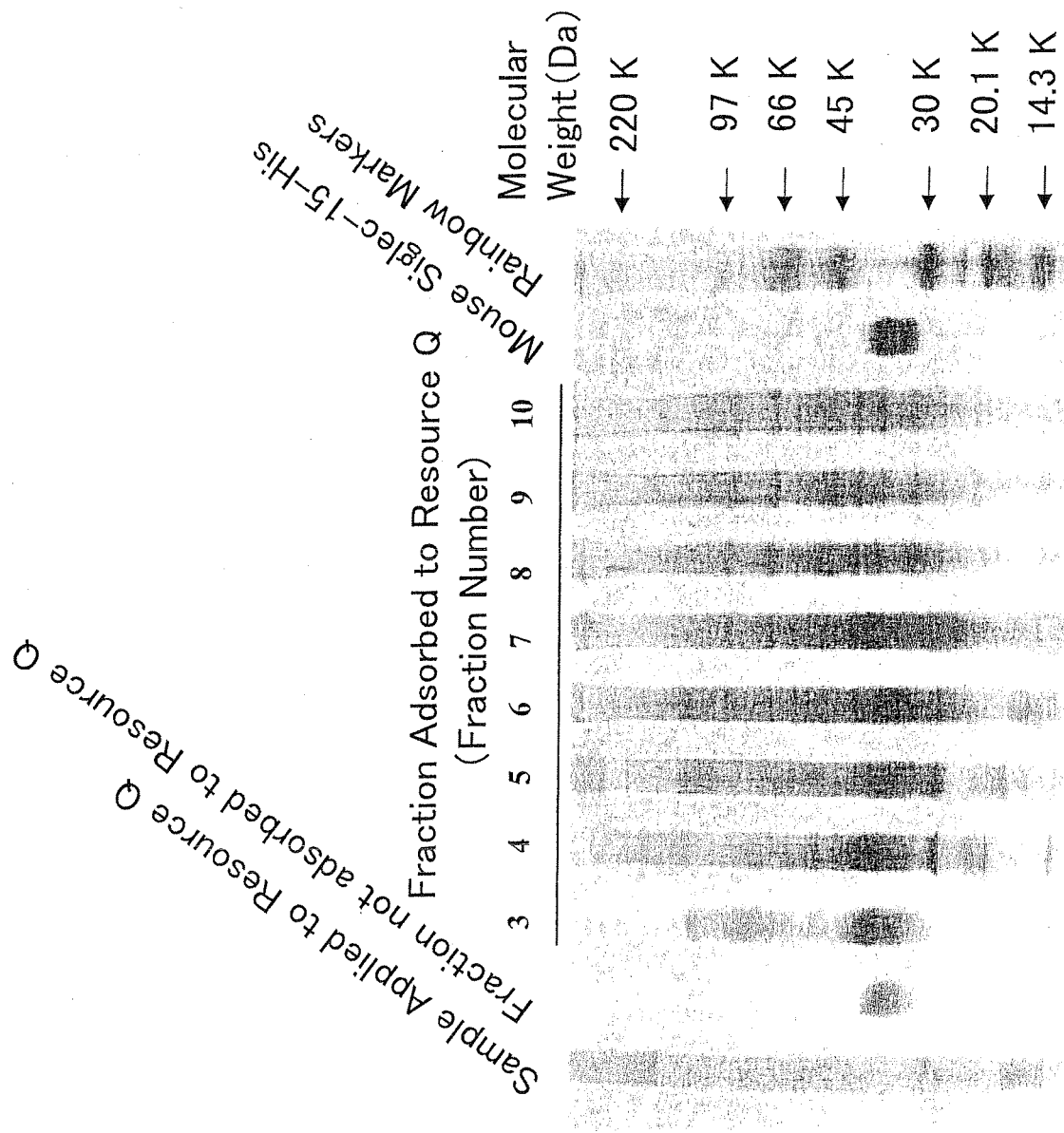


Figure 8

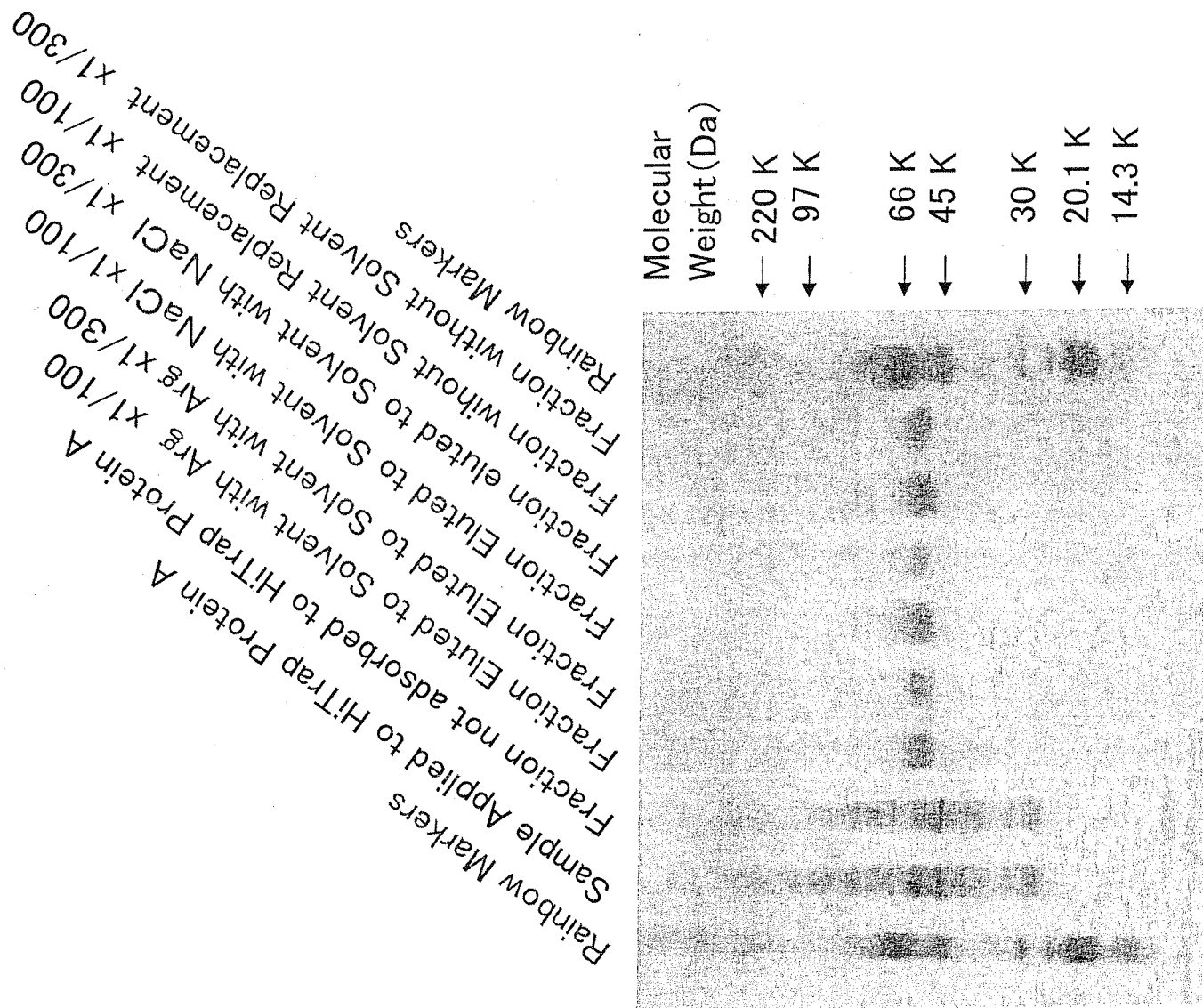


Figure 9

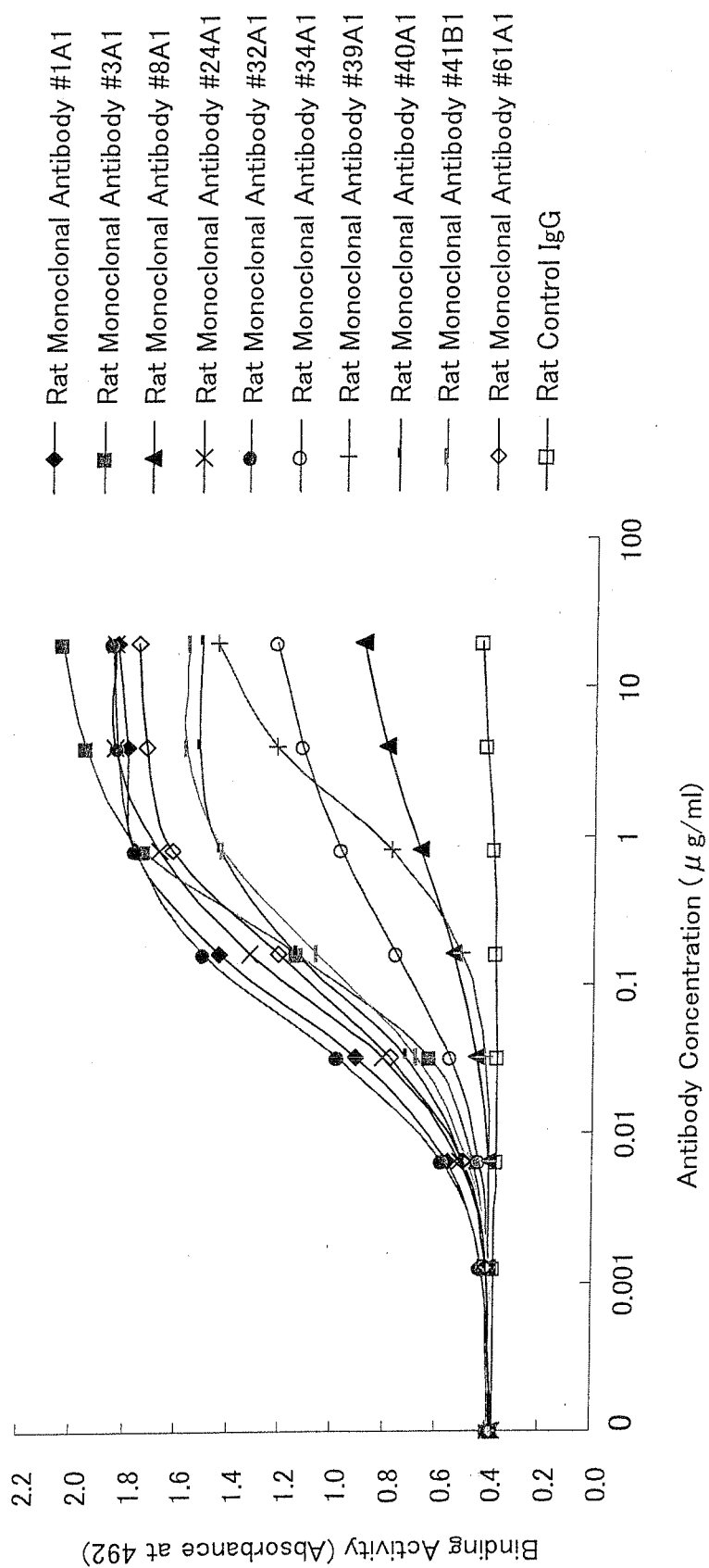
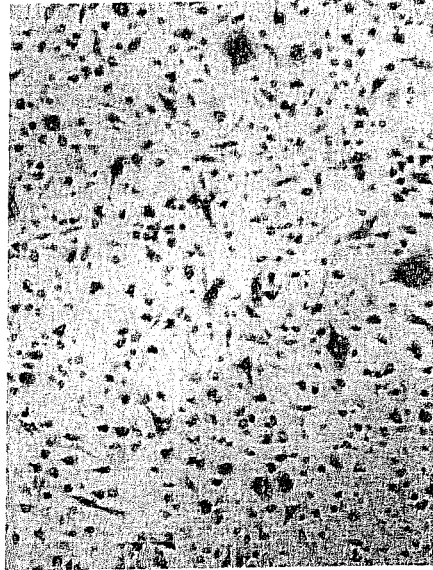


Figure 10

(A) Control



(B) #32A1 Antibody 30 μ g/ml



(C) #41B1 Antibody 30 μ g/ml



(D) #1A1 Antibody 30 μ g/ml



(E) Control IgG 30 μ g/ml



Figure 11

(A) Control



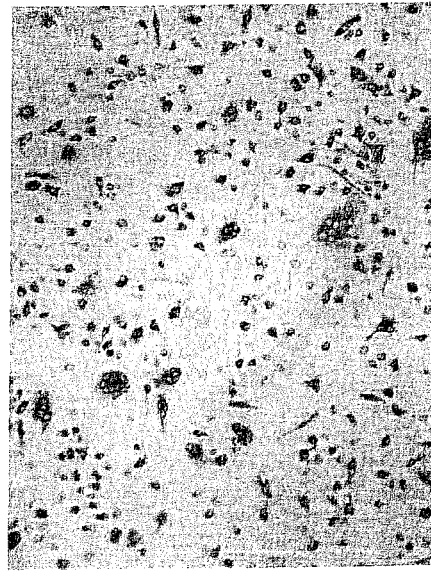
(B) #32A1 Antibody 0.1 μ g/ml



(C) #32A1 Antibody 0.3 μ g/ml



(D) #32A1 Antibody 1 μ g/ml



(E) #32A1 Antibody 3 μ g/ml

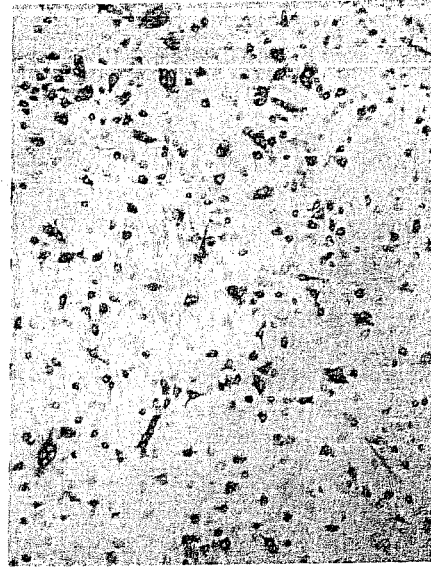


Figure 12

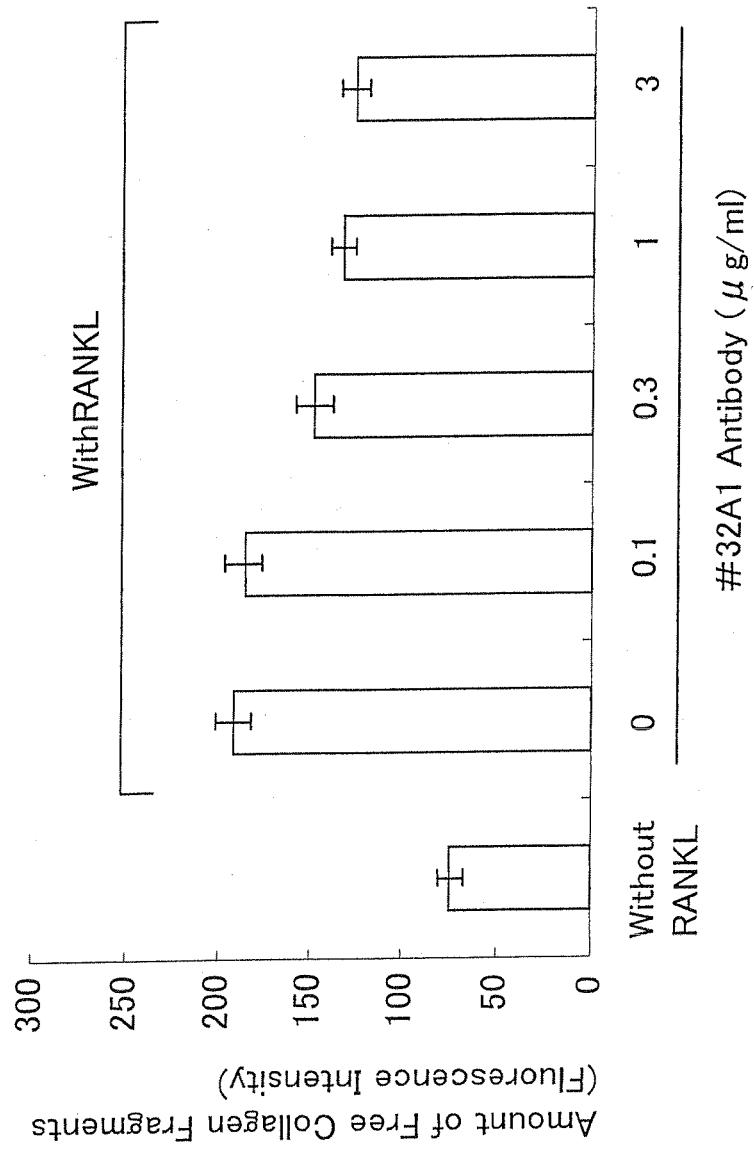
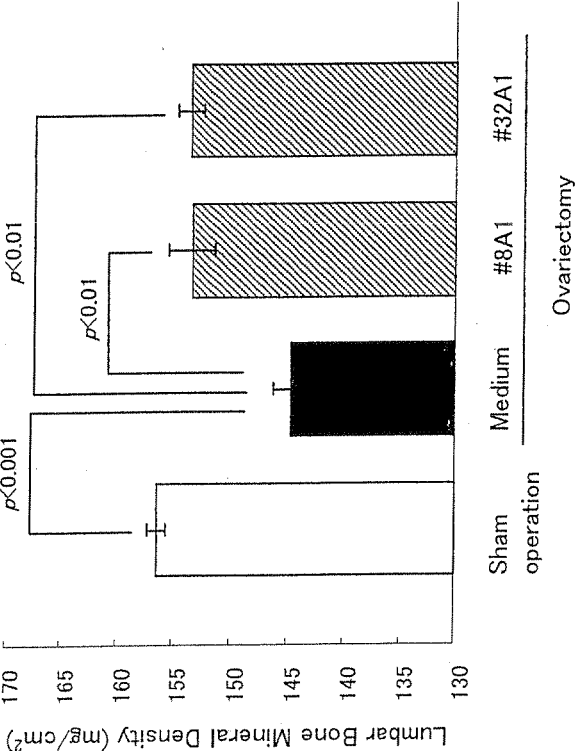


Figure 13

(A)



(B)

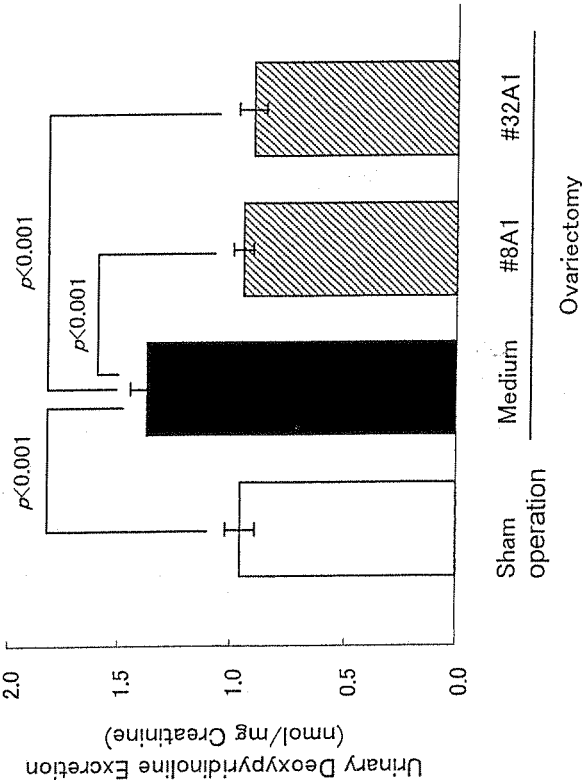


Figure 14

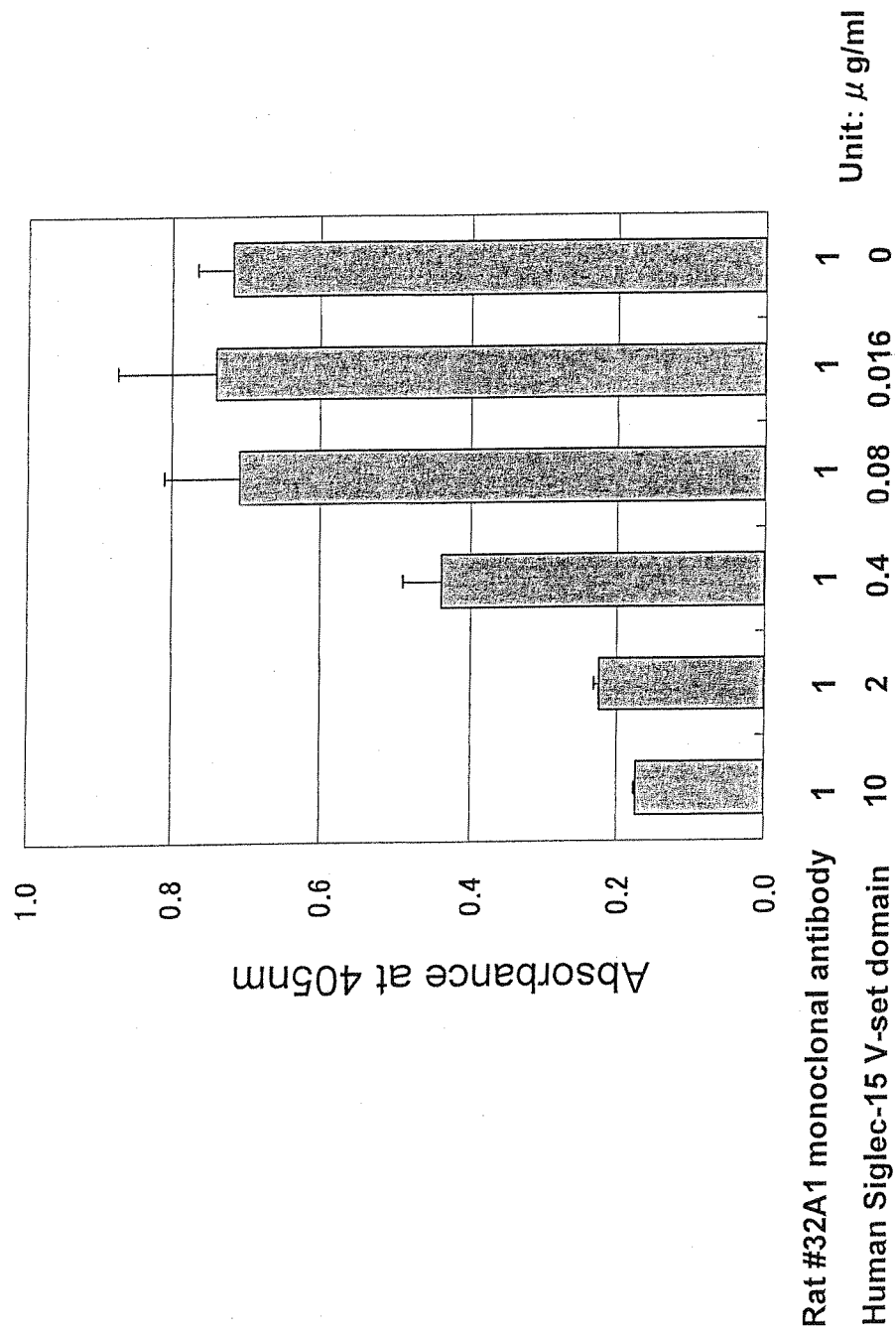


Figure 15

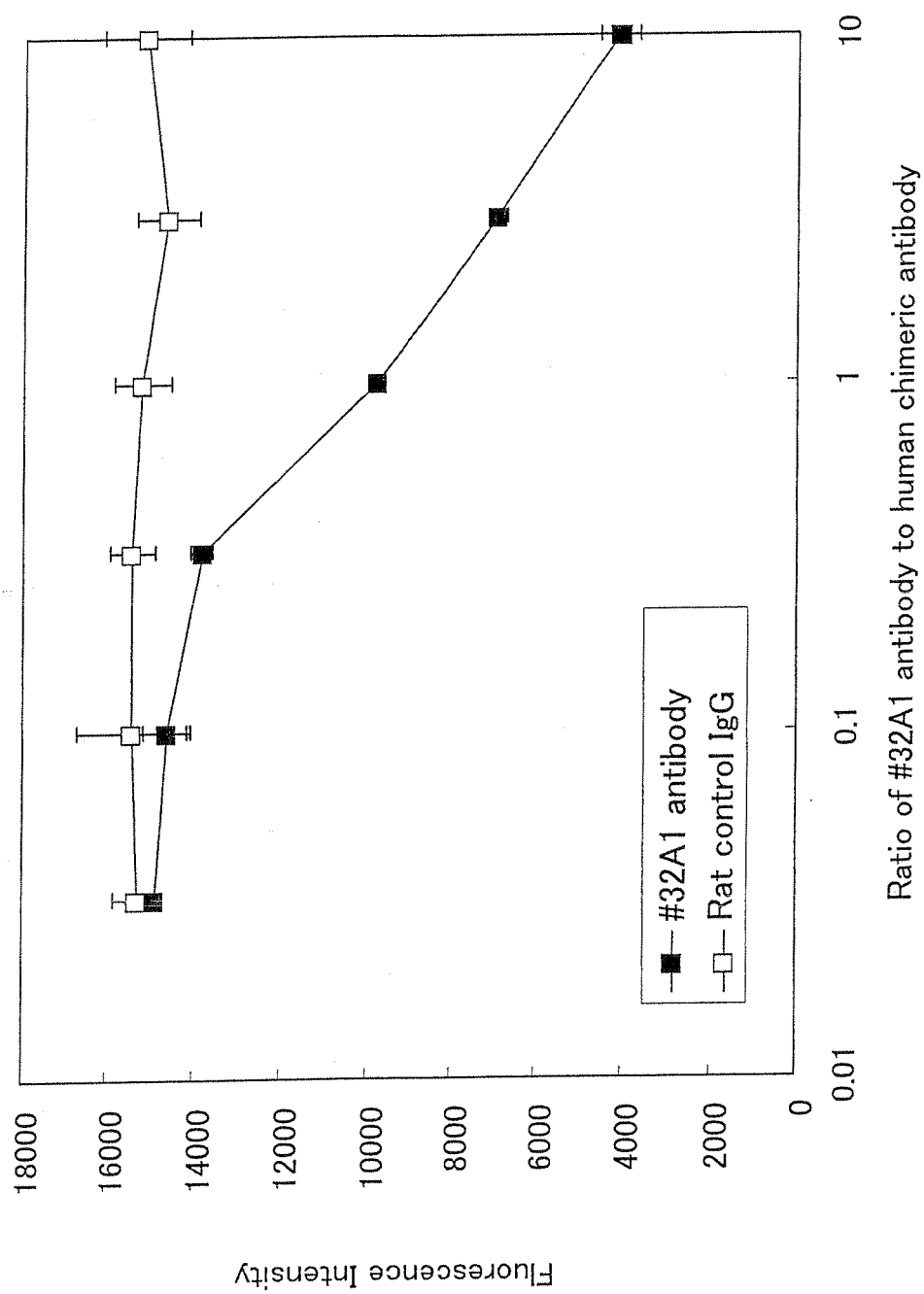


Figure 16

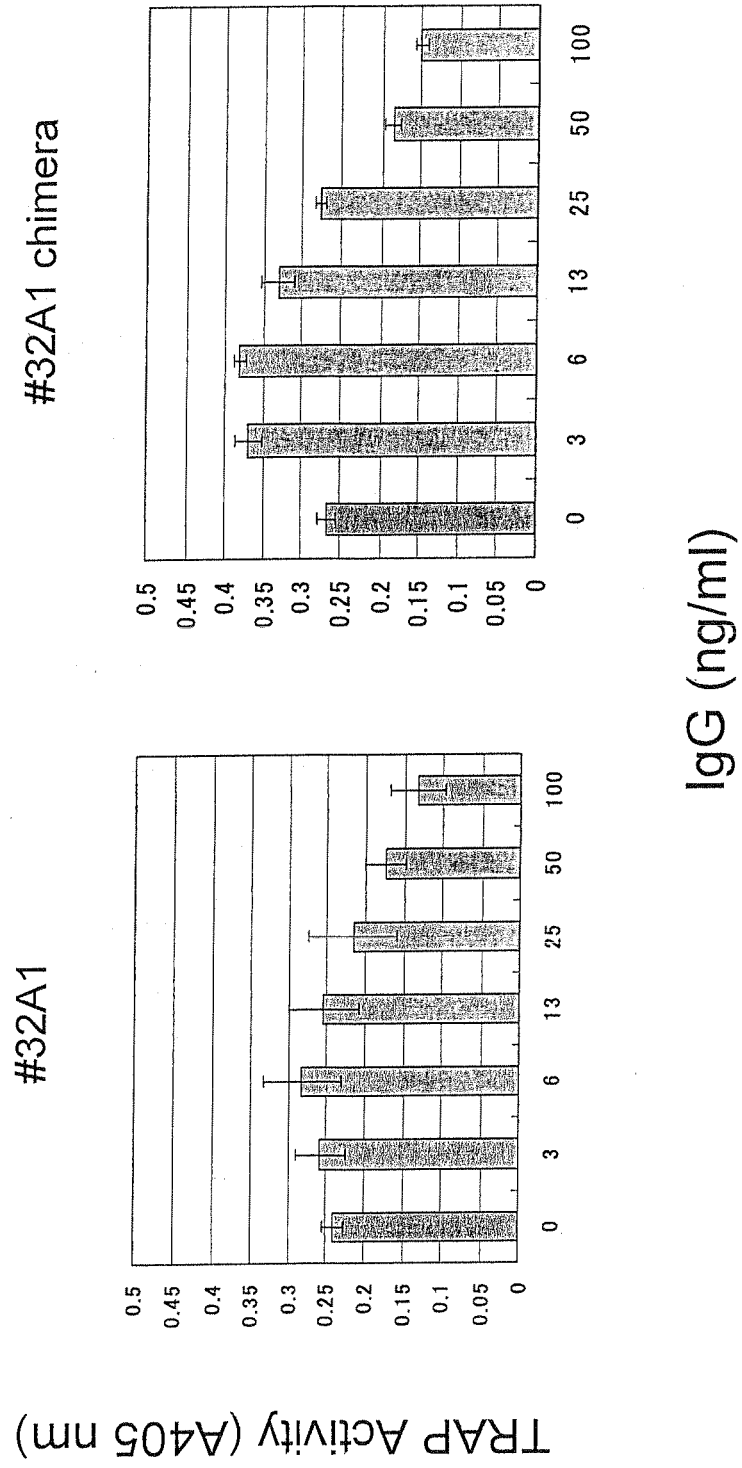


Figure 17

(A) Control



(B) Human chimeric antibody
 $0.3 \mu\text{g/ml}$



(C) Human chimeric antibody
 $1 \mu\text{g/ml}$



(D) Human chimeric antibody
 $3 \mu\text{g/ml}$



(E) Human chimeric antibody
 $10 \mu\text{g/ml}$



Figure 18

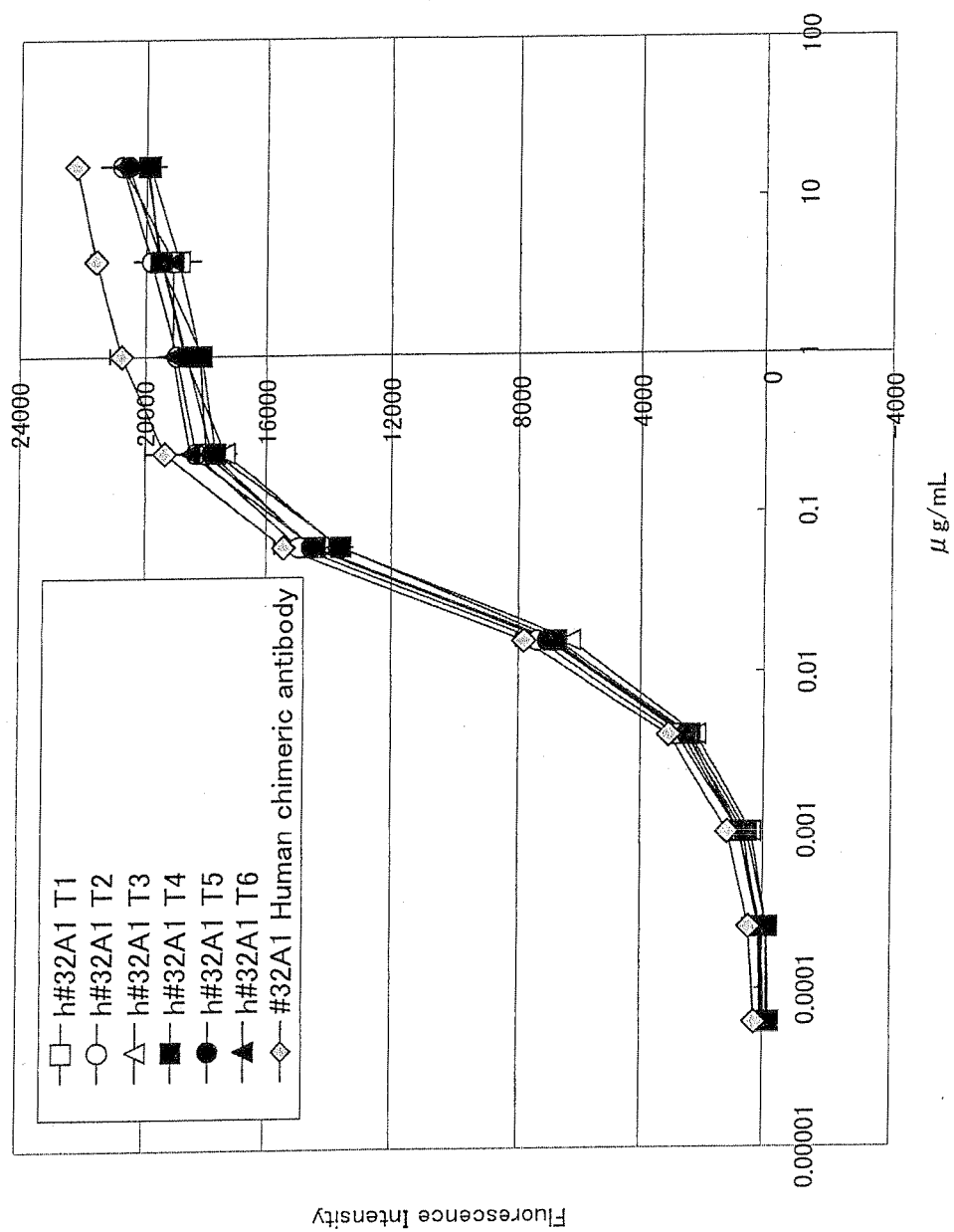


Figure 19

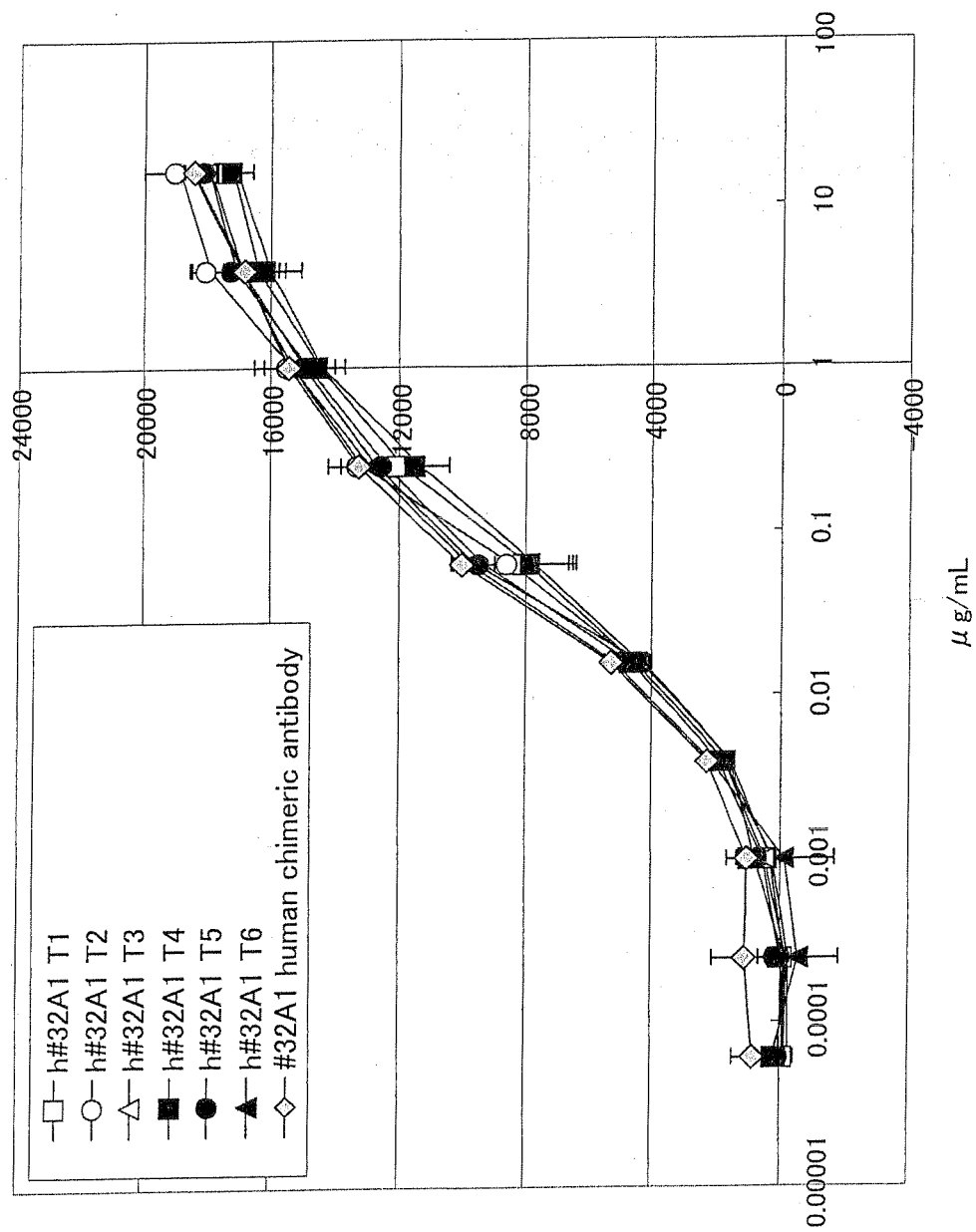
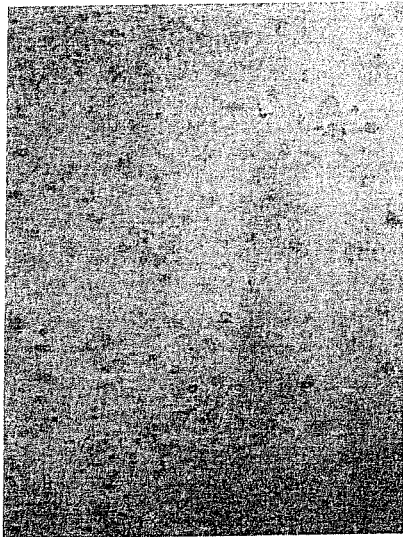


Figure 20

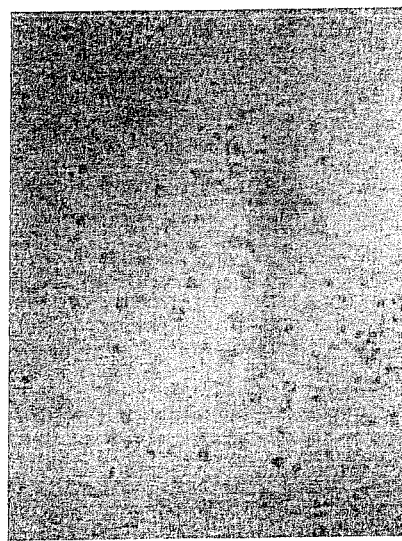
(A) Control: 30 ng/ml TNF α



(B) TNF α + 1 μ g/ml #32A1



(C) TNF α + 1 μ g/ml #32A1 chimera



(D) TNF α + 100 ng/ml OCIF/OPG

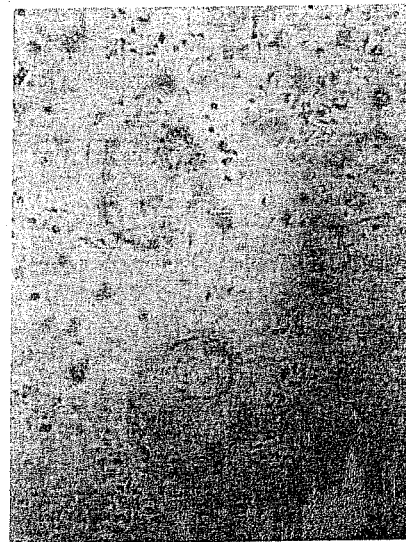


Figure 21

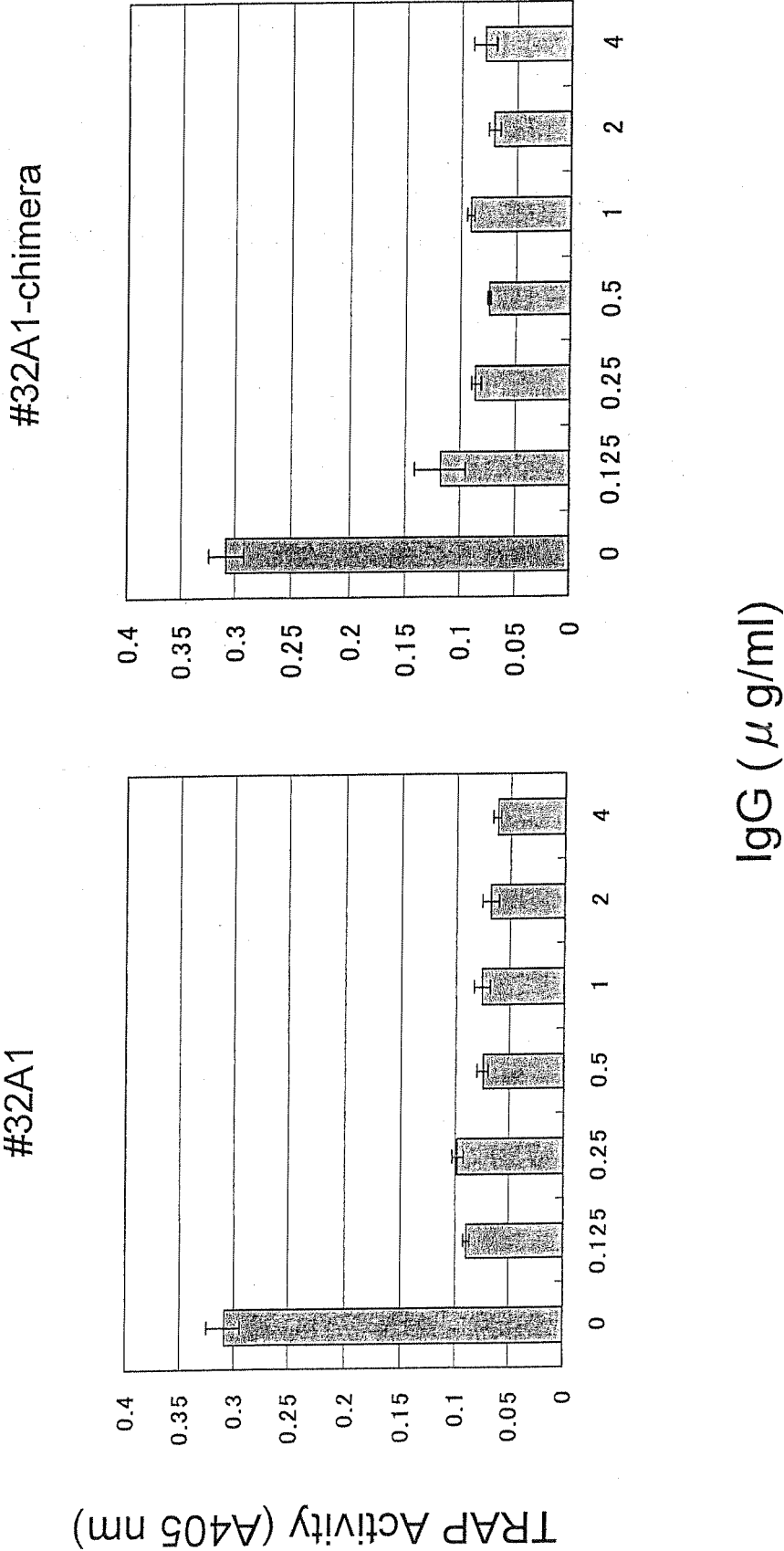


Figure 22

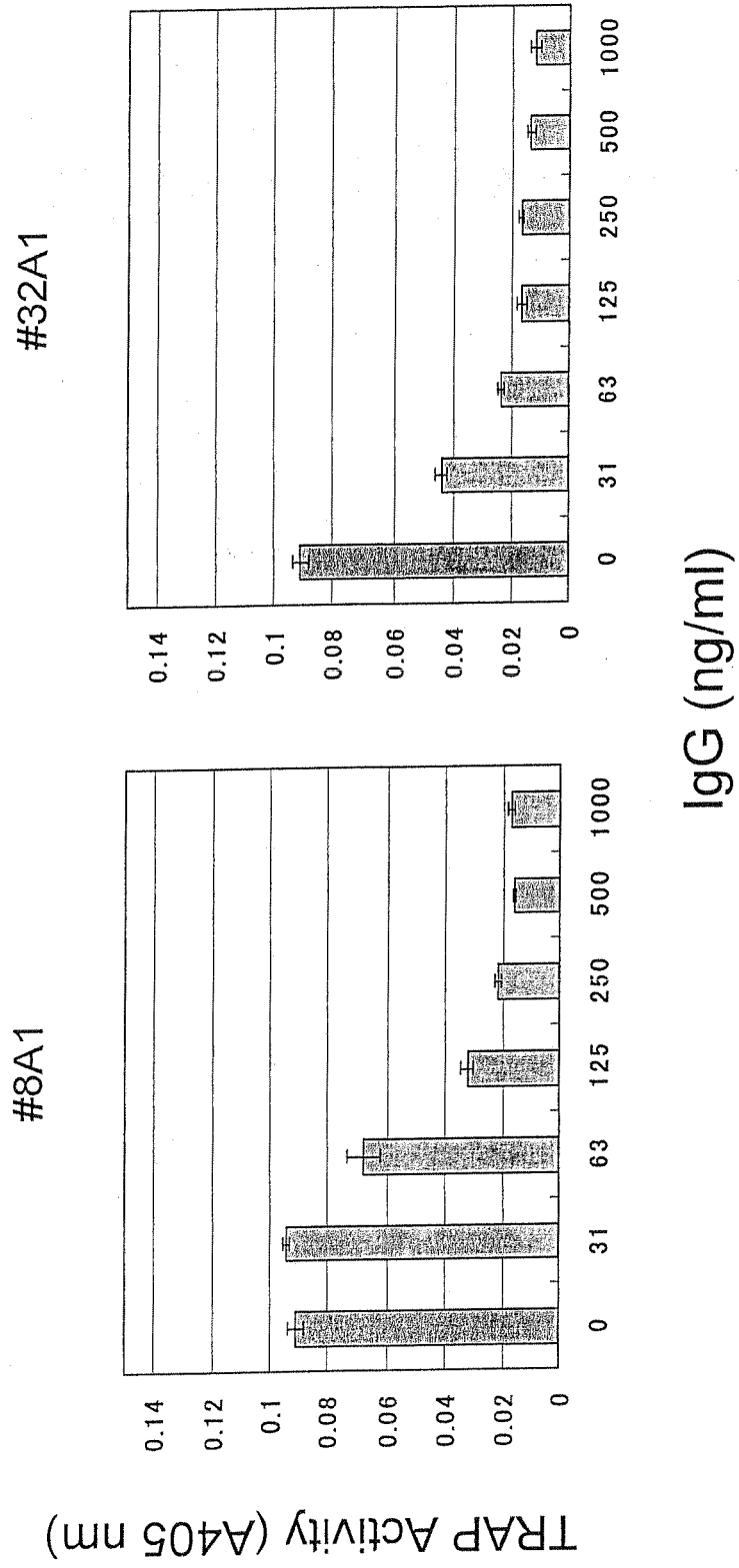


Figure 23

SEQ ID NO:27: Cloned Nucleotide Sequence of Rat #32A1 Heavy Chain (Variable Region + alpha)

ATGAAGTTGTGGTTGAGCTGGATATTCCTTGTTGTTCTTTTCAAAGGTGTGAGGTGTGAGGTGCAAATTTTGGAGACTGG
AGGAGGCTTGGTGAAGCCCGGTGGTTCCTGAGACTGTCTTGTGCAACGTCTGGATTCAATTTCAATGATTATTTATGA
ACTGGGTCCGTCAGGCTCCAGAAAAGGGGCTAGAGTGGGTTGCTCAAATAAGGAACAAAATTTATACTTATGCCACATTT
TATGCGGAGTCTTTGGAAGGCAGAGTCACAATCTCACGAGACGATTCCGAAAGCAGTGTCTACCTGCAAGTGAGCAGTTT
AAGAGCTGAAGACACTGCCATTTATTACTGTACAAGATCCCTAACTGGGGGAGACTACTTTGATTACTGGGGCCAAGGAG
TCATGGTCACAGTCTCCTTAGCTGAAACAACAGCCCCATCTGTCTATCCACTGGCTCCTGGAAGTGTCTCTCAAAGTAAC
TCCATGGTGACCCTGGGATGC

Signal Sequence (1-57), Variable Region (58-420), Partial Sequence of Constant Region (421-501)

SEQ ID NO:28: Amino Acid Sequence Encoded by Cloned rat #32A1 Heavy Chain (Variable Region + alpha)

MKLWLSWIFLVVLFKGVRCVQILETGGLVKPGGSLRLSCATSGFNFNDYFMNWVRQAPEKGLEWVAQIRNKIYTYATF
YAESLEGRVTISRDDSESSVYLQVSSLRAEDTAIYYCTRLTGGDYFDYWGGQVMVTVSLAETTAPSVYPLAPGTALKSN
SMVTLGC

Signal Sequence (1-19), Variable Region (20-140), Partial Sequence of Constant Region (141-167)

Figure 24

SEQ ID NO:29: Cloned Nucleotide Sequence of Rat #32A1 Light Chain (Variable Region + alpha)

ATGGAGACAGACAGACTCCTGCTATGGGCACTGCTGCTCTGGGTTCCAGGCTCCACTGGTGACATTGTCTTGACCCAGTC
TCCTGCTTTGGCTGTGTCTCTAGGGCAGAGGGCCACAATCTCCTGTAGGGCCAGCCAAAGTGTCATTTCTGGATATA
GTTTTATACACTGGTACCAACAGAAACCAGGACAGCAACCCAGACTCCTCATCTATCGTGCATCCAACCTAGCCTCTGGG
ATCCCGGCCAGGTTCACTGGCAGTGGGTCTGGGACAGACTTCACCCCTCACCATCAATCCTGTGCAGGCTGATGATATTGC
AACCTATTCTGTGCAGCAGAGTAGGAAATCTCCGTGGACGTTGCTGGAGGCACCAAGCTGGAATTGAGACGGGCTGATG
CTGCACCAACTGTATCT

Signal Sequence (1-60), Variable Region (61-396), Partial Sequence of Constant Region (397-417)

SEQ ID NO:30: Amino Acid Sequence Encoded by Cloned Rat #32A1 Light Chain (Variable Region + alpha)

METDRLLWALLWVPGSTGDIVLTQSPALAVSLGQRATISCRASQSVTISGYSFIHWYQQKPGQPRLLIYRASNLASG
IPARFSGSGSGTDFTLTINPVQADDIATYFCQQSRKSPWTFAGGTKLELRRADAAPTVS

Signal Sequence (1-20), Variable Region (21-132), Partial Sequence of Constant Region (133-139)

Figure 25

SEQ ID NO: 40: Nucleotide Sequence of #32A1 Human Chimeric Antibody Heavy Chain

ATGAAACACCTGTGGTTCTTCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGTGCAAATTTTGAGACTGG
 AGGAGGCTTGGTGAAGCCCGGTGGTTCCTGAGACTGTCTTGTGCAACGTCTGGATTCAATTTCAATGATTATTTTCATGA
 ACTGGGTCCGTCAGGCTCCAGAAAAGGGGCTAGAGTGGGTGCTCAAATAAGGAACAAAATTTATACTTATGCCACATTT
 TATGCGGAGTCTTTGGAAGGCAGAGTCACAATCTCACGAGACGATTCCGAAAGCAGTGTCTACCTGCAAGTGAGCAGTTT
 AAGAGCTGAAGACACTGCCATTTATTACTGTACAAGATCCCTAACTGGGGGAGACTACTTTGATTACTGGGGCCAAGGAG
 TCATGGTCACAGTCAGCTCAGCCTCCACCAAGGGCCCAAGCGTCTTCCCCCTGGCACCCCTCCTCCAAGAGCACCTCTGGC
 GGCACAGCCGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGAC
 CAGCGGCGTGACACCTTCCCCGTGTCTGTCAGTCTCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCA
 GCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCC
 AAATCTGTGACAAAACCTCACACATGCCACCCCTGCCAGCACCTGAACTCCTGGGGGGACCCCTCAGTCTTCTCTTCCC
 CCCCCAACCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTACATGCGTGGTGGTGGACGTGAGCCACGAAGACC
 CTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCCCGGGAGGAGCAGTACAAC
 AGCACGTACCGGGTGGTCAGCGTCTCACCGTCTGCACCAGGACTGGTGAATGGCAAGGAGTACAAGTGCAAGGTCTC
 CAACAAAGCCCTCCCAGCCCCATCGAGAAAACCATCTCCAAAGCCAAAGGCCAGCCCCGGAACCAAGGTGTACACCC
 TGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTACGCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATC
 GCGCTGGAGTGGGAGAGCAATGGCCAGCCCCGAGAACAACCTACAAGACCAACCCCTCCCGTGCTGGACTCCGACGGCTCCTT
 CTCTCTTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGCTCCGTGATGCATGAGG
 CTCTGCACAACCACTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCAAATGA

Signal Sequence (1-57), Variable Region (58-420), Constant Region (421-1413,
 including stop codon)

SEQ ID NO: 41: Amino Acid Sequence of #32A1 Human Chimeric Antibody Heavy Chain

MKHLWFFLLLVAAPRWLSEVQILETGGGLVKPGGSLRLSCATSGFNFNDYFMNWVRQAPEKGLEWVAQIRNKIYTYATF
 YAESLEGRVTISRDDSESSVYLQVSSLRAEDTAIYYCTRSLTGGDYFDYWGGQVMVTVSSASTKGPSVFPLAPSSKSTSG
 GTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEP
 KSCDKHTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDI
 AVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSQVMHEALHNHYTQKSLSLSPGK

Signal Sequence (1-19), Variable Region (20-140), Constant Region (141-470)

Figure 26

SEQ ID NO: 42: Nucleotide Sequence of #32A1 Human Chimeric Antibody Light Chain

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGACATTGTCTTGACCCAGTC
TCCTGCTTTGGCTGTGTCTCTAGGGCAGAGGGCCACAATCTCCTGTAGGGCCAGCCAAAGTGCTCACTATTTCTGGATATA
GTTTTATACACTGGTACCAACAGAAACCAGGACAGCAACCCAGACTCCTCATCTATCGTGCATCCAACCTAGCCTCTGGG
ATCCCGGCCAGGTTCAGTGGCAGTGGGTCTGGGACAGACTTCACCCTCACCATCAATCCTGTGCAGGCTGATGATATTGC
AACCTATTTCTGTCAGCAGAGTAGGAAATCTCCGTGGACGTTTCGCTGGAGGCACCAAGCTGGAATTGAGACGTACGGTGG
CCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGAAGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAAT
AACTTCTACCCAGAGAGGCCAAGGTGCAGTGAAGGTGGACAACGCCCTGCAGTCCGGGAACCTCCAGGAGAGCGTGAC
CGAGCAGGACAGCAAGGACAGCACCTACAGCCTGAGCAGCACCTGACCCTGAGCAAAGCCGACTACGAGAAGCACAAGG
TGACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAGGGGGGAGTGTTAG

Signal Sequence (1-60), Variable Region (61-396), Constant Region (397-714, including stop codon)

SEQ ID NO: 43: Amino Acid Sequence of #32A1 Human Chimeric Antibody Light Chain

MVLQTQVFISLLLWISGAYDIVLTQSPALAVSLGQRATISCRASQSVTISGYSFIHWYQQKPGQPRLLIYRASNLASG
IPARFSGSGSGTDFTLTINPVQADDIATYFCQQSRKSPWTFAGGTKLELRRTVAAPSVFIFPPSDEQLKSGTASVVCLLN
NFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20), Variable Region (21-132), Constant Region (133-237)

Figure 27

SEQ ID NO:50: Nucleotide Sequence of h#32A1-T1H

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGTGC
 AACTGGTGGAGAGCGGCGGCGGACTTGTGCAACCTGGCGGCTCCCTGAGACTTAGCTGTGCCGC
 CTCCGGCTTCAACTTCAACGACTACTTCATGAACTGGGTGAGACAAGCCCCCTGGCAAGGGCCTG
 GAGTGGGTGGCCCCAAATCAGAAACAAGATCTACACCTACGCCACCTTCTACGCCGAGAGCCTTG
 AGGGCAGATTACCATCTCCAGAGACAACGCCAAGAACAGCCTGTACCTTCAAATGAACTCCCT
 GAGAGCCGAGGACACCGCCGTGTACTACTGTGCCAGAAGCCTTACCGGCGGCGACTACTTCGAC
 TACTGGGGCCAAGGCACCCTGGTGACCGTGAGCTCAGCCTCCACCAAGGGCCCCAAGCGTCTTCC
 CCCTGGCACCCCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCTGCCTGGTCAAGGA
 CTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGACCAGCGGCGTGACACCC
 TTCCCCGCTGTCTCGAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCA
 GCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGA
 CAAGAGAGTTGAGCCCAAATCTTGTGACAAACTCACACATGCCCACCCTGCCAGCACCTGAA
 CTCCTGGGGGGACCCCTCAGTCTTCTCTTCCCCCAAACCCCAAGGACACCCTCATGATCTCCC
 GGACCCCTGAGGTACATGCGTGGTGGTGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAA
 CTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCCCGGGAGGAGCAGTACAAC
 AGCACGTACCGGTGGTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGGAGT
 ACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAA
 AGGCCAGCCCCGGGAACCACAGGTGTACACCCTGCCCCCATCCCGGGAGGAGATGACCAAGAAC
 CAGGTACAGCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGA
 GCAATGGCCAGCCCGAGAACAACTACAAGACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTT
 CTTCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGC
 TCCGTGATGCATGAGGCTCTGCACAACCACTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCA
 AA

Signal Sequence (1-57) , Variable Region (58-420) , Constant Region
 (421-1410)

SEQ ID NO:51: Amino Acid Sequence of h#32A1-T1H

MKHLWFFLLLVAAAPRWVLSEVQLVESGGGLVQPGGSLRLSCAASGFNFDYFMNWVRQAPGKGL
 EWVAQIRNKIYTYATFYAESLEGRFTISRDNKNSLYLQMNSLRAEDTAVYYCARSLTGGDYFD
 YWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHT
 FPAVLQSSGLYSLSSVTVTPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPE
 LLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKN
 QVSLTCLVKGFPYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSC
 SVMHEALHNHYTQKSLSLSPGK

Signal Sequence (1-19) , Variable Region (20-140) , Constant Region
 (141-470)

Figure 28

SEQ ID NO:52: Nucleotide Sequence of h#32A1-T2H

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGTGC
 AACTGGTGGAGAGCGGCGGCGGACTGGTGCAACCTGGCGGCTCCCTGAGACTGAGCTGTGCCGC
 CTCCGGCTTCAACTTCAACGACTACTTCATGAACTGGGTGAGACAAGCCCCTGAGAAGGGCCTG
 GAGTGGGTGGCCCAAATCAGAAACAAGATCTACACCTACGCCACCTTCTACGCCGAGAGCCTGG
 AGGGCAGAGTGACCATCTCCAGAGACAACGCCAAGAACAGCCTGTACCTGCAAATGTCCTCCCT
 GAGAGCCGAGGACACCGCCGTGTACTACTGTGCCAGAAGCCTGACCGGCGGCGACTACTTCGAC
 TACTGGGGCCAAGGCACCTGGTGACCGTGAGCTCAGCCTCCACCAAGGGCCCAAGCGTCTTCC
 CCCTGGCACCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCTGCCTGGTCAAGGA
 CTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGACCAGCGGCGTGACACC
 TTCCCCGCTGTCTGAGTCTCAGGACTTACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCA
 GCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGA
 CAAGAGAGTTGAGCCCAAATCTTGTGACAAACTCACACATGCCCCACCCTGCCCAGCACCTGAA
 CTCCTGGGGGGACCCTCAGTCTTCCTCTTCCCCCAAAACCCAAGGACACCCTCATGATCTCCC
 GGACCCCTGAGGTACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAA
 CTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCCCGGGAGGAGCAGTACAAC
 AGCACGTACCGGGTGGTCAGCGTCTCACCGTCTGACCAGGACTGGCTGAATGGCAAGGAGT
 ACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAA
 AGGCCAGCCCCGGGAACACAGGTGTACACCTGCCCCCATCCCGGGAGGAGATGACCAAGAAC
 CAGGTGAGCCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGA
 GCAATGGCCAGCCCCGAGAACAATAACAAGACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTT
 CTTCTCTACAGCAAGCTACCGTGGACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGC
 TCCGTGATGCATGAGGCTCTGCACAACCACTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCA
 AA

Signal Sequence (1-57) , Variable Region (58-420) , Constant Region
 (421-1410)

SEQ ID NO:53: Amino Acid Sequence of h#32A1-T2H

MKHLWFFLLLVAAPRWVLSEVQLVESGGGLVQPGGSLRLSCAASGFNFDYFMNWVRQAPEKGL
 EWVAQIRNKIYTYATFYAESLEGRVTISRDNAKNSLYLQMSSLRAEDTAVYYCARSLTGGDYFD
 YWGQGLTVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHT
 FPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPE
 LLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKN
 QVSLTCLVKGFPYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFC
 SVMHEALHNHYTQKSLSLSPGK

Signal Sequence (1-19) , Variable Region (20-140) , Constant Region
 (141-470)

Figure 29

SEQ ID NO:54: Nucleotide Sequence of h#32A1-T3H

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGTGC
 AGATCGTGGAGAGCGGCGGCGGACTTGTGCAGCCTGGCGGCTCCCTGAGACTTAGCTGTGCCAC
 CTCCGGCTTCAACTTCAACGACTACTTCATGAACTGGGTGAGACAGGCCCCCTGAGAAGGGCCTG
 GAGTGGGTGGCCCAGATCAGAAACAAGATCTACACCTACGCCACCTTCTACGCCGAGAGCCTTG
 AGGGCAGAGTGACCATCTCCAGAGACGACAGCGAGTCCAGCGTGTACCTTCAGATGTCCAGCCT
 GAGAGCCGAGGACACCGCCGTGTACTACTGTACCAGAAGCCTTACCGGCGGCGACTACTTCGAC
 TACTGGGGCCAGGGCACCCCTGGTGACCGTGAGCTCAGCCTCCACCAAGGGCCCAAGCGTCTTCC
 CCCTGGCACCCCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCTGCCTGGTCAAGGA
 CTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGACCAGCGGCGTGACACCC
 TTCCCCGCTGTCTCTGCAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCA
 GCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGA
 CAAGAGAGTTGAGCCCAAATCTTGTGACAAACTCACACATGCCACCCCTGCCAGCACCTGAA
 CTCCTGGGGGGACCCCTCAGTCTTCTCTTCCCCCCTTCCCAAGGACACCCCTCATGATCTCCC
 GGACCCCTGAGGTACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAA
 CTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCCCGGGAGGAGCAGTACAAC
 AGCACGTACCGGGTGGTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGGAGT
 ACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAA
 AGGCCAGCCCCGGGAACACAGGTGTACACCCTGCCCCCATCCCGGGAGGAGATGACCAAGAAC
 CAGGTACGCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGA
 GCAATGGCCAGCCCGAGAACAACTACAAGACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTT
 CTTCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGC
 TCCGTGATGCATGAGGCTCTGCACAACCACTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCA
 AA

Signal Sequence (1-57) , Variable Region (58-420) , Constant Region
 (421-1410)

SEQ ID NO:55: Amino Acid Sequence of h#32A1-T3H

MKHLWFFLLLVAAAPRWVLSEVQIVESGGGLVQPGGSLRLSCATSGFNFNDYFMNWVRQAPEKGL
 EWVAQIRNKIYTYATFYAESLEGRVTISRDDSESSVYLQMSSLRAEDTAVYYCTRSLTGDDYFD
 YWGQGLTVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHT
 FPAVLQSSGLYSLSSVTVTPSSSLGTQTYICNVNHKPSNTKVKDKRVEPKSCDKHTHTCPPCPAPE
 LLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKN
 QVSLTCLVKGFPYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSC
 SVMHEALHNHYTQKSLSLSPGK

Signal Sequence (1-19) , Variable Region (20-140) , Constant Region
 (141-470)

Figure 30

SEQ ID NO:56: Nucleotide Sequence of h#32A1-T5H

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGTGC
 AGGTGGTGGAGAGCGGCGGCGGACTTGTGCAGCCTGGCGGCTCCCTGAGACTTAGCTGTGCCAC
 CTCCGGCTTCAACTTCAACGACTACTTCATGAACTGGGTGAGACAGGCCCTGGCAAGGGCCTG
 GAGTGGGTGGCCCAGATCAGAAACAAGATCTACACCTACGCCACCTTCTACGCCGAGAGCCTTG
 AGGGCAGATTACCATCTCCAGAGACAACAGCAAGTCCACCGTGTACCTTCAGATGAACTCCCT
 GAGAGCCGAGGACACCGCCGTGTACTACTGTACCAGAAGCCTTACCGGCGGCGACTACTTCGAC
 TACTGGGGCCAGGGCACCCCTGGTGACCGTGAGCTCAGCCTCCACCAAGGGCCCAAGCGTCTTCC
 CCCTGGCACCCCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCTGCCTGGTCAAGGA
 CTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGACCAGCGGCGTGACACCC
 TTCCCCGCTGTCTCTGCAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCA
 GCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGA
 CAAGAGAGTTGAGCCCAAATCTTGTGACAAAACCTCACACATGCCACCCCTGCCCAGCACCTGAA
 CTCCTGGGGGGACCCCTCAGTCTTCCTCTTCCCCC AAAACCCAAGGACACCCTCATGATCTCCC
 GGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAA
 CTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCCCGGGAGGAGCAGTACAAC
 AGCACGTACCGGTGGTTCAGCGTCCTCACCCTGCTGCACCAGGACTGGCTGAATGGCAAGGAGT
 ACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAGCCAA
 AGGCCAGCCCCGGGAACCAACAGGTGTACACCCTGCCCCCATCCCCGGGAGGAGATGACCAAGAAC
 CAGGTTCAGCCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGA
 GCAATGGCCAGCCCGAGAACAACTACAAGACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTT
 CTTCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGC
 TCCGTGATGCATGAGGCTCTGCACAACCACTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCA
 AA

Signal Sequence (1-57) , Variable Region (58-420) , Constant Region
 (421-1410)

SEQ ID NO:57: Amino Acid Sequence of h#32A1-T5H

MKHLWFFLLLVAAAPRWVLSEVQVVESGGGLVQPGGSLRLSCATSGFNFNDYFMNWVRQAPGKGL
 EWVAQIRNKIYTYATFYAESLEGRFTISRDNKSTVYLQMNSLRAEDTAVYYCTRSLTGGDYFD
 YWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHT
 FPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPE
 LLGGPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKN
 QVSLTCLVKGFPYSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSC
 SVMHEALHNHYTQKSLSLSPGK

Signal Sequence (1-19) , Variable Region (20-140) , Constant Region
 (141-470)

Figure 31

SEQ ID NO:58: Nucleotide Sequence of h#32A1-T6H

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGTGC
 AGGTGGTGGAGAGCGGCGGCGGACTTGTGCAGCCTGGCGGCTCCCTGAGACTTAGCTGTGCCAC
 CTCCGGCTTCAACTTCAACGACTACTTCATGAACTGGGTGAGACAGGCCCTGAGAAGGGCCTG
 GAGTGGGTGGCCCAGATCAGAAACAAGATCTACACCTACGCCACCTTCTACGCCGAGAGCCTTG
 AGGGCAGAGTGACCATCTCCAGAGACAACAGCAAGTCCACCGTGTACCTTCAGATGTCCAGCCT
 TAGAGCCGAGGACACCGCCGTGTACTACTGTACCAGAAGCCTTACCGGCGGCGACTACTTCGAC
 TACTGGGGCCAGGGCACCCCTTGTGACAGTGAGCTCAGCCTCCACCAAGGGCCCAAGCGTCTTCC
 CCCTGGCACCCCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCTGCCTGGTCAAGGA
 CTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGACCAGCGGCGTGCACACC
 TTCCCCGCTGTCTGCAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCA
 GCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGA
 CAAGAGAGTTGAGCCCAAATCTTGTGACAAAACCTCACACATGCCACCCCTGCCCAGCACCTGAA
 CTCCTGGGGGGGACCCCTCAGTCTTCTCTTCCCCCCTTCCCAAGGACACCCTCATGATCTCCC
 GGACCCCTGAGGTACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCCTGAGGTCAAGTTCAA
 CTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCCCGGGAGGAGCAGTACAAC
 AGCACGTACCGGGTGGTCAAGCTCCTCAGCGTCTGACCAGGACTGGCTGAATGGCAAGGAGT
 ACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAGCCAA
 AGGCCAGCCCCGGGAACACAGGTGTACACCCTGCCCCCATCCCGGGAGGAGATGACCAAGAAC
 CAGGTCAAGCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGA
 GCAATGGCCAGCCCGAGAACAACTACAAGACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTT
 CTTCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGAGGGCAACGTCTTCTCATGC
 TCCGTGATGCATGAGGCTCTGCACAACCACTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCA
 AA

Signal Sequence (1-57) , Variable Region (58-420) , Constant Region
 (421-1410)

SEQ ID NO:59: Amino Acid Sequence of h#32A1-T6H

MKHLWFFLLLVAAPRWVLSEVQVVESGGGLVQPGGSLRLSCATSGFNFNDYFMNWVRQAPEKGL
 EWVAQIRNKIYTYATFYAESLEGRVTISRDNKSTVYLQMSSLRAEDTAVYYCTRSALTGGDYFD
 YWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHT
 FPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKRVPEPKSCDKHTHTCPPCPAPE
 LLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKN
 QVSLTCLVKGFPYSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFC
 SVMHEALHNHYTQKSLSLSPGK

Signal Sequence (1-19) , Variable Region (20-140) , Constant Region
 (141-470)

Figure 32

SEQ ID NO:60: Nucleotide Sequence of h#32A1-T1L

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGACA
TCGTGATGACCCAGAGCCCTGACTCCCTTGCCGTGTCCCTGGGCGAGAGAGCCACCATCAACTG
TAGAGCCTCCCAGAGCGTGACCATCTCCGGCTACAGCTTCATCCACTGGTACCAGCAGAAGCCT
GGCCAGCCTCCTAAGCTTCTGATCTACAGAGCCTCCAACCTTGCCAGCGGCGTGCCTGCCAGAT
TCTCCGGCAGCGGCTCCGGCACCGACTTCACCCTGACCATCAGCTCCCTTCAGGCCGAGGACGT
GGCCGTGTACTACTGTCTAGCAGAGCAGAAAGTCCCCTTGGACCTTCGGCGGCGGCACCAAGGTG
GAGATCAAGCGTACGGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGA
AGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCA
GTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACCTCCAGGAGAGCGTGACCGAGCAGGACAGC
AAGGACAGCACCTACAGCCTGAGCAGCACCTGACCCTGAGCAAAGCCGACTACGAGAAGCACA
AGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAG
GGGGGAGTGT

Signal Sequence (1-60) , Variable Region (61-399) , Constant Region
(400-714)

SEQ ID NO:61: Amino Acid Sequence of h#32A1-T1L

MVLQTQVFISLLLWISGAYGDIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFIHWYQQKP
GQPPKLLIYRASNLASGVPARFSGSGSGTDFTLTISSLQAEDVAVYYCQQSRKSPWTFGGGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDS
KDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-133) , Constant Region
(134-238)

Figure 33

SEQ ID NO:62: Nucleotide Sequence of h#32A1-T2L

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGACA
TCGTGATGACCCAGAGCCCTGACTCCCTTGCCGTGTCCCTGGGCGAGAGAGCCACCATCAGCTG
TAGAGCCTCCCAGAGCGTGACCATCTCCGGCTACAGCTTCATCCACTGGTACCAGCAGAAGCCT
GGCCAGCCTCCTAGACTTCTGATCTACAGAGCCTCCAACCTTGCCAGCGGCGTGCCCTGCCAGAT
TCTCCGGCAGCGGCTCCGGCACCGACTTCACCCTGACCATCAGCTCCCTTCAGGCCGAGGACGT
GGCCGTGTACTTCTGTTCAGCAGAGCAGAAAGTCCCCTTGGACCTTCGCCGGCGGCACCAAGGTG
GAGATCAAGCGTACGGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGA
AGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCA
GTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACTCCCAGGAGAGCGTGACCGAGCAGGACAGC
AAGGACAGCACCTACAGCCTGAGCAGCACCTGACCCTGAGCAAAGCCGACTACGAGAAGCACA
AGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAG
GGGGGAGTGT

Signal Sequence (1-60) , Variable Region (61-399) , Constant Region
(400-714)

SEQ ID NO:63: Amino Acid Sequence of h#32A1-T2L

MVLQTQVFISLLLWISGAYGDIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKP
GQPPRLLIYRASNLASGVPARFSGSGSGTDFTLTITSSSLQAEDVAVYFCQQSRKSPWTFAGGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDS
KDSTYLSLSLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-133) , Constant Region
(134-238)

Figure 34

SEQ ID NO:64: Nucleotide Sequence of h#32A1-T3L

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGACA
TCGTGCTTACCCAGAGCCCTGACTCCCTTGCCGTGTCCCTGGGCGAGAGAGCCACCATCAGCTG
TAGAGCCTCCCAGAGCGTGACCATCTCCGGCTACAGCTTCATCCACTGGTACCAGCAGAAGCCT
GGCCAGCAGCCTAGACTTCTGATCTACAGAGCCTCCAACCTTGCCAGCGGCATCCCTGCCAGAT
TCTCCGGCAGCGGCTCCGGCACCGACTTCACCCTGACCATCAGCTCCCTTCAGGCCGAGGACGT
GGCCACCTACTTCTGTCAGCAGAGCAGAAAGTCCCCTTGGACCTTCGCCGGCGGCACCAAGGTG
GAGATCAAGCGTACGGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGA
AGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCA
GTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACTCCCAGGAGAGCGTGACCGAGCAGGACAGC
AAGGACAGCACCTACAGCCTGAGCAGCACCTGACCCTGAGCAAAGCCGACTACGAGAAGCACA
AGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAG
GGGGGAGTGT

Signal Sequence (1-60) , Variable Region (61-399) , Constant Region
(400-714)

SEQ ID NO:65: Amino Acid Sequence of h#32A1-T3L

MVLQTQVFISLLLWISGAYGDIVLTQSPDSLAVSLGERATISCRASQSVTISGYSFIHWYQQKP
GQQPRLLIYRASNLASGIPARFSGSGSGTDFTLTISSLQAEDVATYFCQQSRKSPWTFAGGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDS
KDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-133) , Constant Region
(134-238)

Figure 35

SEQ ID NO:66: Nucleotide Sequence of h#32A1-T4L

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGACA
TCGTGCTTACCCAGAGCCCTGCCCTTGCCGTGTCCCTGGGCGAGAGAGCCACCATCAGCTGTAG
AGCCTCCCAGAGCGTGACCATCTCCGGCTACAGCTTCATCCACTGGTACCAGCAGAAGCCTGGC
CAGCAGCCTAGACTTCTGATCTACAGAGCCTCCAACCTTGCCAGCGGCATCCCTGCCAGATTCT
CCGGCAGCGGCTCCGGCACCGACTTCACCCTGACCATCAGCTCCCTTCAGGCCGAGGACGTGGC
CACCTACTTCTGTCTCAGCAGAGCAGAAAGTCCCCTTGACCTTCGCCGGCGGCACCAAGCTGGAG
ATCAAGCGTACGGTGGCCGCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGAAGT
CCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCAGTG
GAAGGTGGACAACGCCCTGCAGTCCGGGAACCTCCAGGAGAGCGTGACCGAGCAGGACAGCAAG
GACAGCACCTACAGCCTGAGCAGCACCTGACCCTGAGCAAAGCCGACTACGAGAAGCACAAAGG
TGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAGGGG
GGAGTGT

Signal Sequence (1-60) , Variable Region (61-396) , Constant Region
(397-711)

SEQ ID NO:67: Amino Acid Sequence of h#32A1-T4L

MVLQTQVFISLLLWISGAYGDIVLTQSPALAVSLGERATISCRASQSVTISGYSFHWHYQQKPG
QQPRLLIYRASNLASGIPARFSGSGSDFTLTISSLQAEDVATYFCQQSRKSPWTFAGGTKLE
IKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSK
DSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-132) , Constant Region
(133-237)

Figure 36

SEQ ID NO:68: Nucleotide Sequence of h#32A1-T5L

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGACA
TCGTGCTTACCCAGAGCCCTGACTCCCTTGCCGTGTCCCTGGGCGAGAGAGCCACCATCAACTG
TAGAGCCTCCCAGAGCGTGACCATCTCCGGCTACAGCTTCATCCACTGGTACCAGCAGAAGCCT
GGCCAGCCTCCTAAGCTTCTGATCTACAGAGCCTCCAACCTTGCCAGCGGCATCCCTGCCAGAT
TCTCCGGCAGCGGCTCCGGCACCGACTTCACCCTGACCATCAGCTCCCTTCAGGCCGAGGACGT
GGCCACCTACTACTGTCAGCAGAGCAGAAAGTCCCCTTGACCTTCGGCCAGGGCACCAAGGTG
GAGATCAAGCGTACGGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGA
AGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCA
GTGGAAGGTGGACAACGCCCTGCAGTCCGGGAAGTCCCAGGAGAGCGTGACCGAGCAGGACAGC
AAGGACAGCACCTACAGCCTGAGCAGCACCCCTGACCCTGAGCAAAGCCGACTACGAGAAGCACA
AGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAG
GGGGGAGTGT

Signal Sequence (1-60) , Variable Region (61-399) , Constant Region
(400-714)

SEQ ID NO:69: Amino Acid Sequence of h#32A1-T5L

MVLQTQVFISLLLWISGAYGDIVLTQSPDSLAVSLGERATINCRASQSVTISGYSFHWYQQKP
GQPPKLLIYRASNLASGIPARFSGSGSDFTLTISLQAEDVATYYCQQSRKSPWTFGQGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDS
KDSTYLSSTLTLSKADYEEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-133) , Constant Region
(134-238)

Figure 37

SEQ ID NO:70: Nucleotide Sequence of h#32A1-T6L

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGACA
TCGTGCTTACCCAGAGCCCTGACTCCCTTGCCGTGTCCCTGGGCGAGAGAGCCACCATCAGCTG
TAGAGCCTCCCAGAGCGTGACCATCTCCGGCTACAGCTTCATCCACTGGTACCAGCAGAAGCCT
GGCCAGCCTCCTAGACTGCTGATCTACAGAGCCTCCAACCTTGCCAGCGGCATCCCTGCCAGAT
TCTCCGGCAGCGGCTCCGGCACCGACTTCACCCTGACCATCAGCTCCCTTCAGGCCGAGGACGT
GGCCACCTACTTCTGTCTAGCAGAGCAGAAAGTCCCCTTGGACCTTCGCCGGCGGCACCAAGGTG
GAGATCAAGCGTACGGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGA
AGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCA
GTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACTCCCAGGAGAGCGTGACCGAGCAGGACAGC
AAGGACAGCACCTACAGCCTGAGCAGCACCCCTGACCCTGAGCAAAGCCGACTACGAGAAGCACA
AGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAG
GGGGGAGTGT

Signal Sequence (1-60) , Variable Region (61-399) , Constant Region
(400-714)

SEQ ID NO:71: Amino Acid Sequence of h#32A1-T6L

MVLQTQVFISLLLWISGAYGDIVLTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKP
GQPPRLLIYRASNLASGIPARFSGSGGTDFTLTISSLQAEDVATYFCQQSRKSPWTFAGGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDS
KDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-133) , Constant Region
(134-238)

Figure 38

SEQ ID NO:72: Amino Acid Sequence of h#32A1-T7H

EVQLVESGGGLVQPGGSLRLSCAASGFNFNDYFMNWVRQAPEKGLEWVAQIRNKIYTYATFYAE
SLEGRFTISRDNAKNSLYLQMNSLRAEDTAVYYCARSLTGGDYFDYWGQGTSLTVTVSSASTKGPS
VFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTV
PSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLM
ISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVE
WESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSVMSVMEALHNHYTQKSLSLS
PGK

Variable Region (1-121), Constant Region (122-451)

SEQ ID NO:73: Amino Acid Sequence of h#32A1-T8H

EVQLVESGGGLVQPGGSLRLSCAASGFNFNDYFMNWVRQAPGKGLEWVAQIRNKIYTYATFYAE
SLEGRVTISRDNAKNSLYLQMNSLRAEDTAVYYCARSLTGGDYFDYWGQGTSLTVTVSSASTKGPS
VFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTV
PSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLM
ISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVE
WESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSVMSVMEALHNHYTQKSLSLS
PGK

Variable Region (1-121), Constant Region (122-451)

SEQ ID NO:74: Amino Acid Sequence of h#32A1-T9H

EVQLVESGGGLVQPGGSLRLSCAASGFNFNDYFMNWVRQAPGKGLEWVAQIRNKIYTYATFYAE
SLEGRFTISRDNAKNSLYLQMSSLRAEDTAVYYCARSLTGGDYFDYWGQGTSLTVTVSSASTKGPS
VFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTV
PSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLM
ISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVE
WESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSVMSVMEALHNHYTQKSLSLS
PGK

Variable Region (1-121), Constant Region (122-451)

Figure 39

SEQ ID NO:75: Amino Acid Sequence of h#32A1-T10H

EVQLVESGGGLVQPGGSLRLSCAASGFNFNDYFMNWVRQAPEKGLEWVAQIRNKIYTYATFYAE
SLEGRVTISRDNAKNSLYLQMNSLRAEDTAVYYCARSLTGGDYFDYWGQGTSLTVTVSSASTKGPS
VFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTV
PSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLM
ISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVE
WESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLS
PGK

Variable Region (1-121), Constant Region (122-451)

SEQ ID NO:76: Amino Acid Sequence of h#32A1-T11H

EVQLVESGGGLVQPGGSLRLSCAASGFNFNDYFMNWVRQAPEKGLEWVAQIRNKIYTYATFYAE
SLEGRFTISRDNAKNSLYLQMSSLRAEDTAVYYCARSLTGGDYFDYWGQGTSLTVTVSSASTKGPS
VFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTV
PSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLM
ISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVE
WESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLS
PGK

Variable Region (1-121), Constant Region (122-451)

SEQ ID NO:77: Amino Acid Sequence of h#32A1-T12H

EVQLVESGGGLVQPGGSLRLSCAASGFNFNDYFMNWVRQAPGKGLEWVAQIRNKIYTYATFYAE
SLEGRVTISRDNAKNSLYLQMSSLRAEDTAVYYCARSLTGGDYFDYWGQGTSLTVTVSSASTKGPS
VFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTV
PSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLM
ISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVE
WESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLS
PGK

Variable Region (1-121), Constant Region (122-451)

Figure 40

SEQ ID NO:78: Amino Acid Sequence of h#32A1-T7L

DIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYYCQQSRKSPWTFGGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:79: Amino Acid Sequence of h#32A1-T8L

DIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYYCQQSRKSPWTFGGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:80: Amino Acid Sequence of h#32A1-T9L

DIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYYFCQQSRKSPWTFGGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:81: Amino Acid Sequence of h#32A1-T10L

DIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYYCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:82: Amino Acid Sequence of h#32A1-11L

DIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYYCQQSRKSPWTFGGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

Figure 41

SEQ ID NO:83: Amino Acid Sequence of h#32A1-T12L

DIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYFCQQSRKSPWTFGGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:84: Amino Acid Sequence of h#32A1-T13L

DIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYYCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:85: Amino Acid Sequence of h#32A1-T14L

DIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFHWHYQQKPGQPPRLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYFCQQSRKSPWTFGGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:86: Amino Acid Sequence of h#32A1-T15L

DIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFHWHYQQKPGQPPRLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYYCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:87: Amino Acid Sequence of h#32A1-T16L

DIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTISSLQAEDVAVYFCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDYSLSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

Figure 42

SEQ ID NO:88: Amino Acid Sequence of h#32A1-T17L

DIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKPGQPPRLLIYRASNLASGVPA
 RFSGSGSGTDFTLTITSSSLQAEDVAVYFCQQSRKSPWTFGGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:89: Amino Acid Sequence of h#32A1-T18L

DIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKPGQPPRLLIYRASNLASGVPA
 RFSGSGSGTDFTLTITSSSLQAEDVAVYYCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:90: Amino Acid Sequence of h#32A1-T19L

DIVMTQSPDSLAVSLGERATISCRASQSVTISGYSFHWHYQQKPGQPPKLLIYRASNLASGVPA
 RFSGSGSGTDFTLTITSSSLQAEDVAVYFCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:91: Amino Acid Sequence of h#32A1-T20L

DIVMTQSPDSLAVSLGERATINCRASQSVTISGYSFHWHYQQKPGQPPRLLIYRASNLASGVPA
 RFSGSGSGTDFTLTITSSSLQAEDVAVYFCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:92: Amino Acid Sequence of h#32A1-T21L

EILMTQSPATLSLSPGERATLSCRASQSVTISGYSFHWHYQQKPGQAPRLLIYRASNLASGIPA
 RFSGSGSGTDFTLTITSSLEPEDFALYYCQQSRKSPWTFGQGTKVEIKRTVAAPSVFIFPPSDEQ
 LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

Figure 43

SEQ ID NO:93: Amino Acid Sequence of h#32A1-T22L

EILMTQSPATLSLSPGERATLSCRASQSVTISGYSFHWHYQQKPGQAPRLLIYRASNLASGIPA
RFGSGSGSGTDFTLTITSSLEPEDFALYFCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:94: Amino Acid Sequence of h#32A1-T23L

EILLTQSPATLSLSPGERATLSCRASQSVTISGYSFHWHYQQKPGQAPRLLIYRASNLASGIPA
RFGSGSGSGTDFTLTITSSLEPEDFALYYCQQSRKSPWTFGQGTKVEIKRTVAAPSVFIFPPSDEQ
LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:95: Amino Acid Sequence of h#32A1-T24L

EILLTQSPATLSLSPGERATLSCRASQSVTISGYSFHWHYQQKPGQAPRLLIYRASNLASGIPA
RFGSGSGSGTDFTLTITSSLEPEDFALYYCQQSRKSPWTFGQGTKVEIKRTVAAPSVFIFPPSDEQ
LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

SEQ ID NO:96: Amino Acid Sequence of h#32A1-T25L

DILLTQSPATLSLSPGERATLSCRASQSVTISGYSFHWHYQQKPGQAPRLLIYRASNLASGIPA
RFGSGSGSGTDFTLTITSSLEPEDFATYFCQQSRKSPWTFAGGTKVEIKRTVAAPSVFIFPPSDEQ
LKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
HKVYACEVTHQGLSSPVTKSFNRGEC

Variable Region (1-113), Constant Region (114-218)

Figure 44

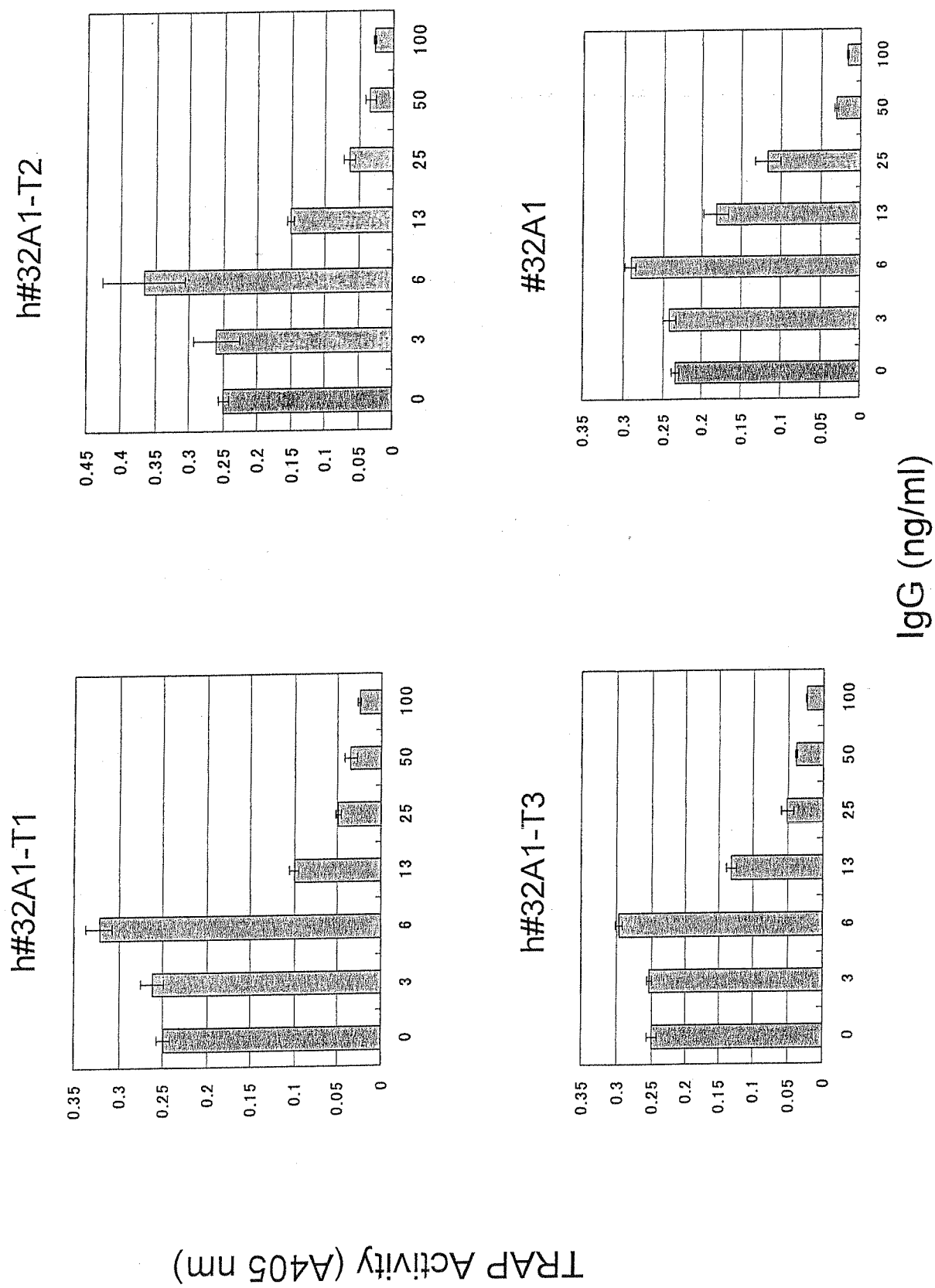


Figure 45

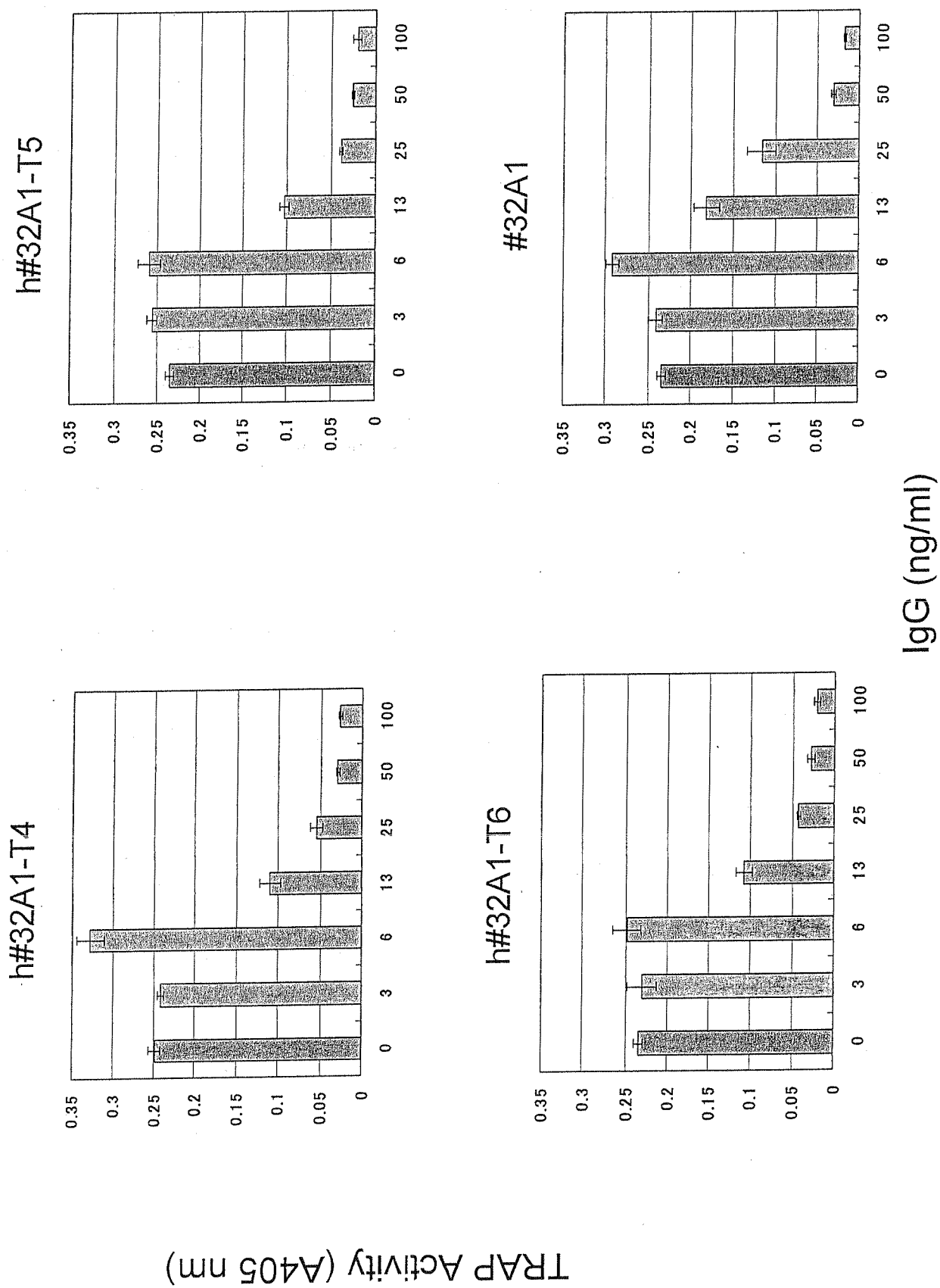


Figure 46

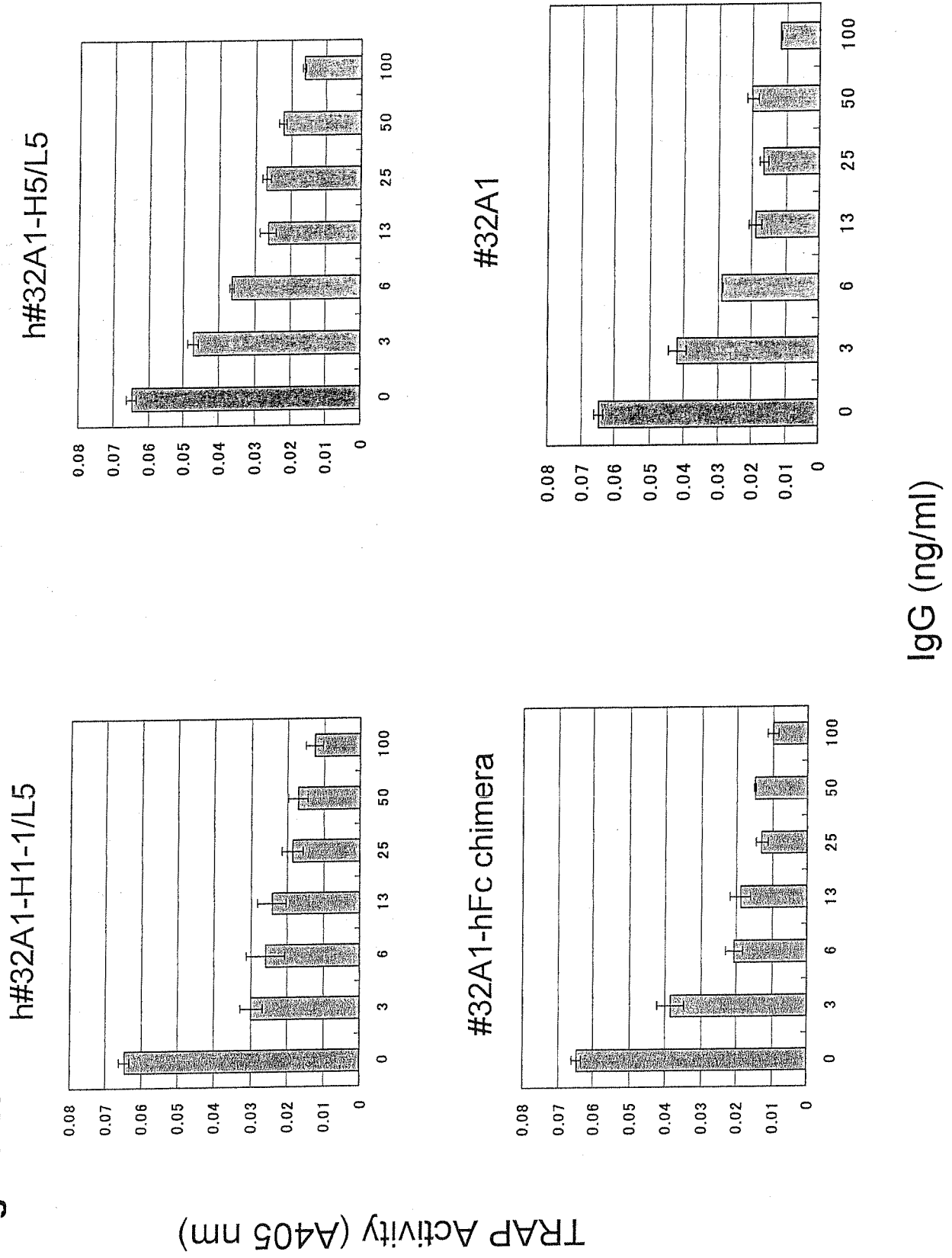


Figure 47

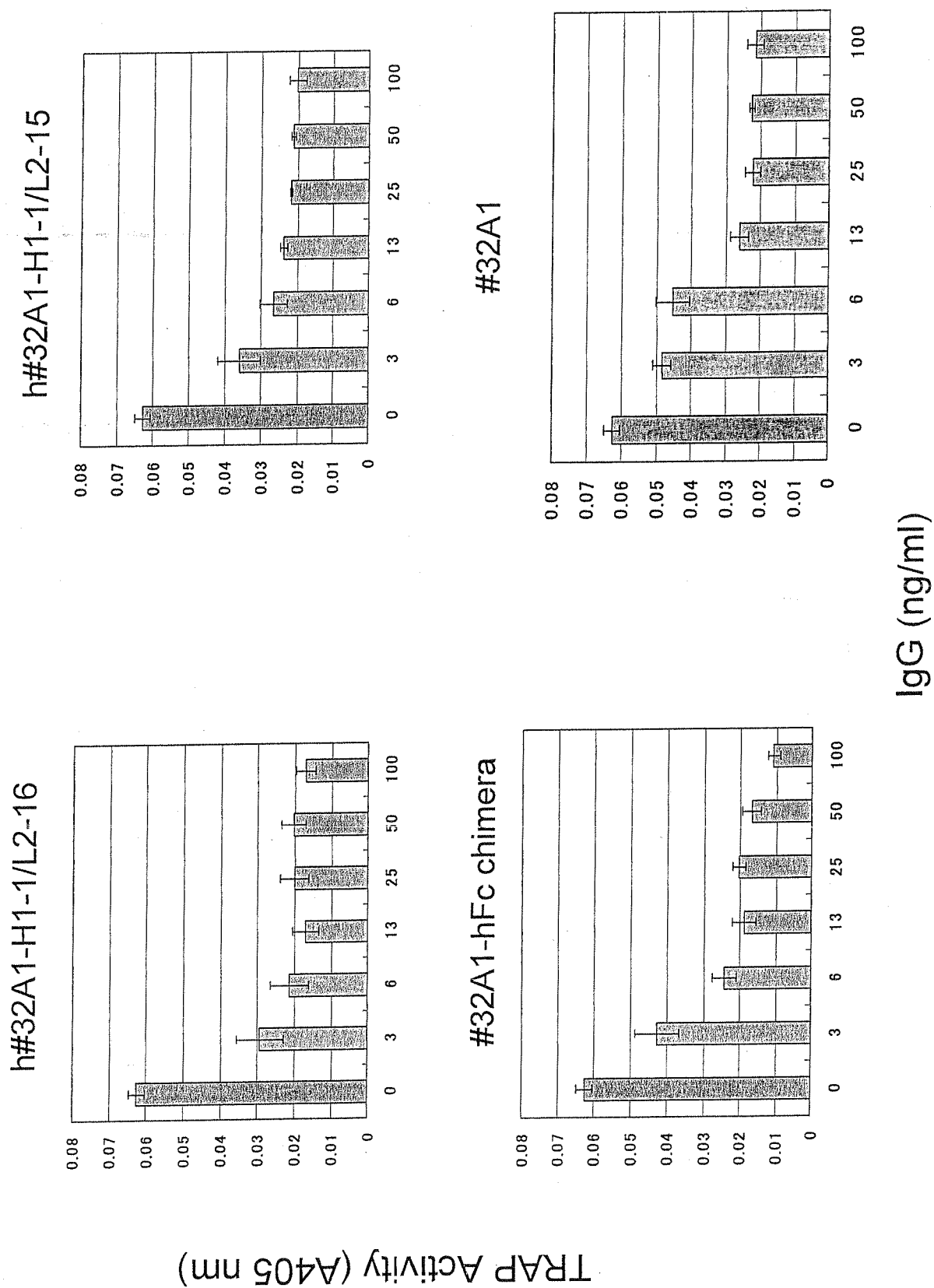


Figure 48

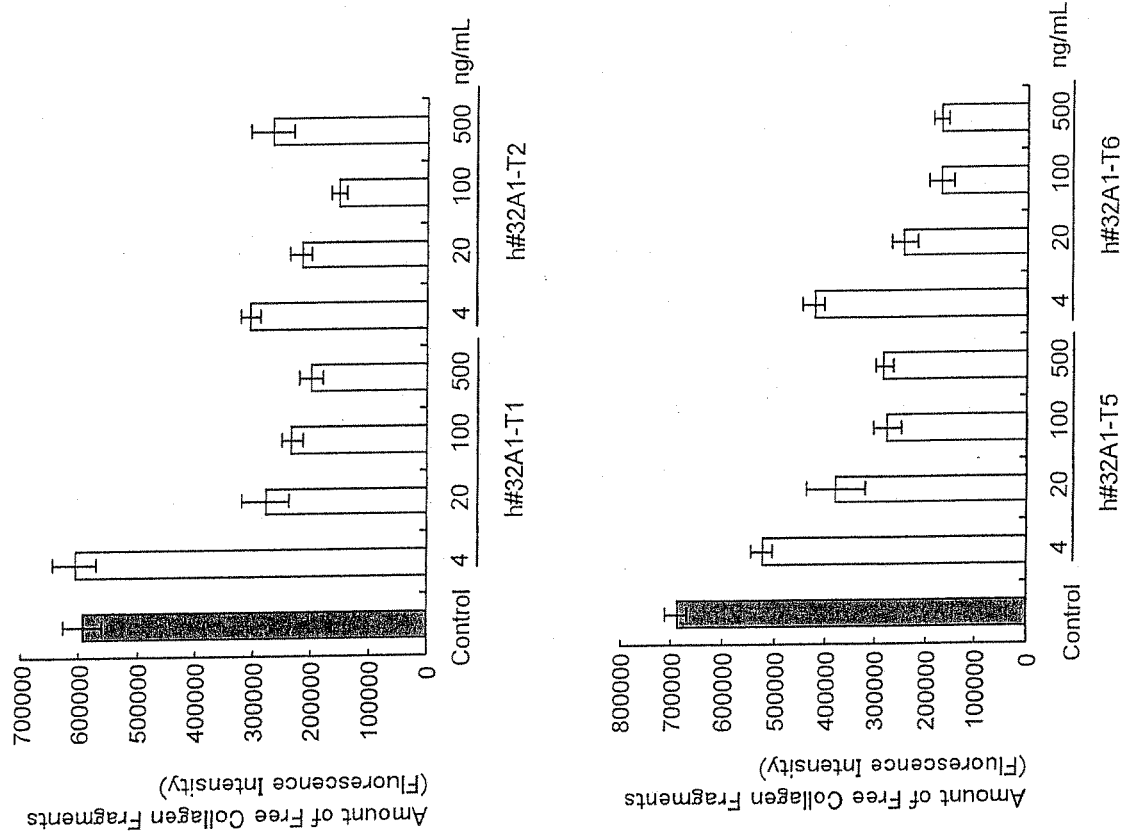
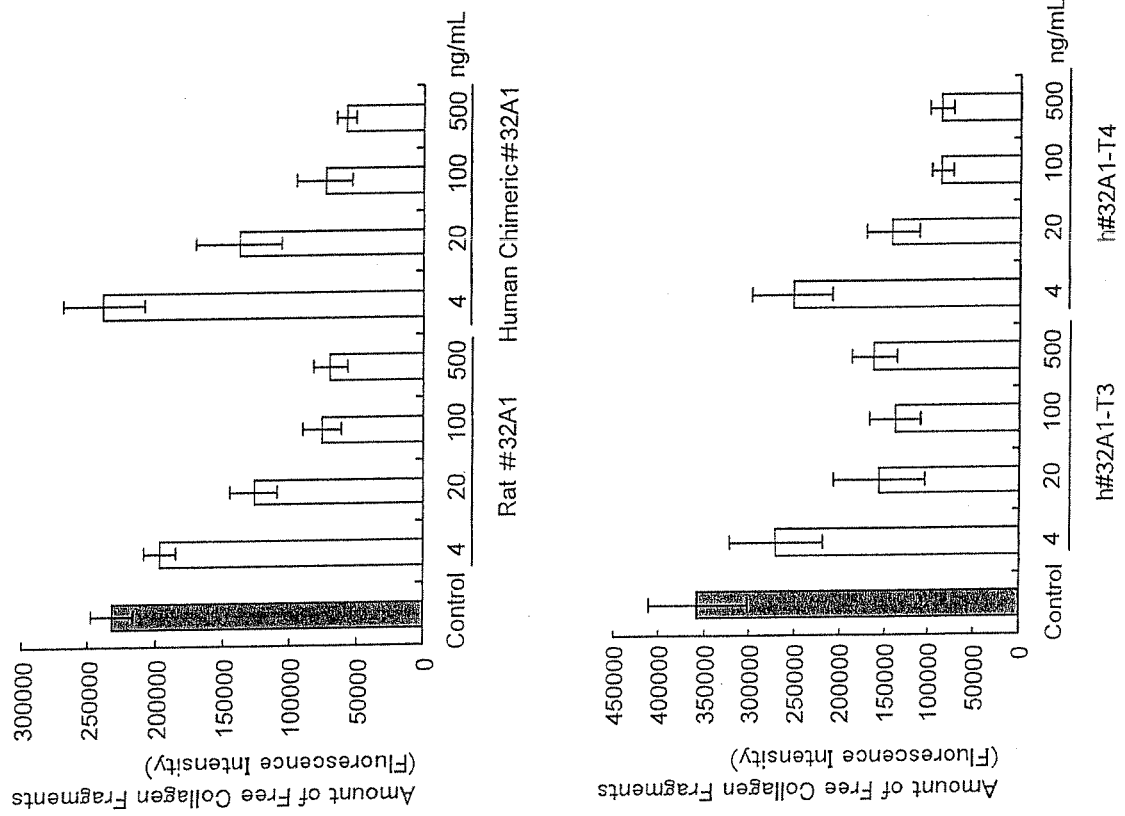


Figure 49

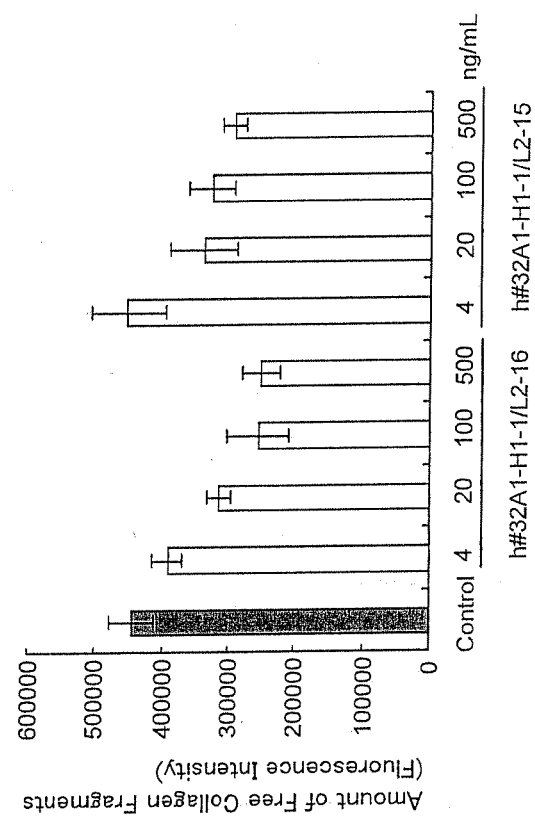
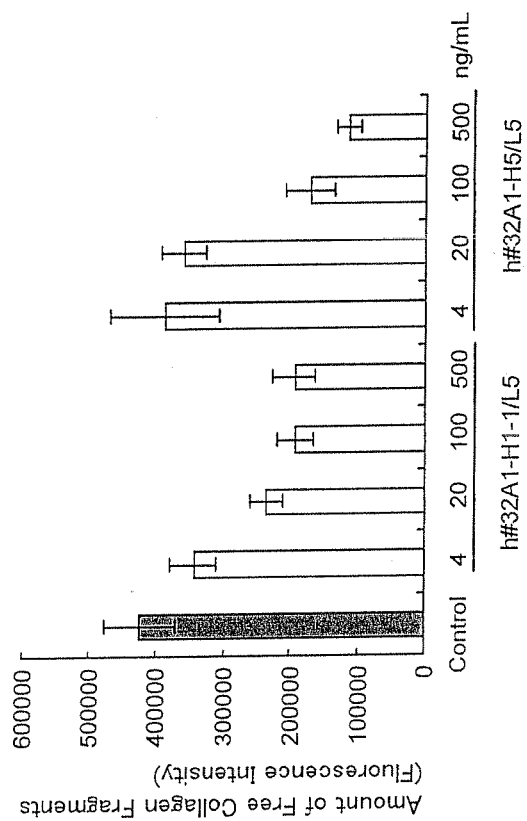


Figure 50

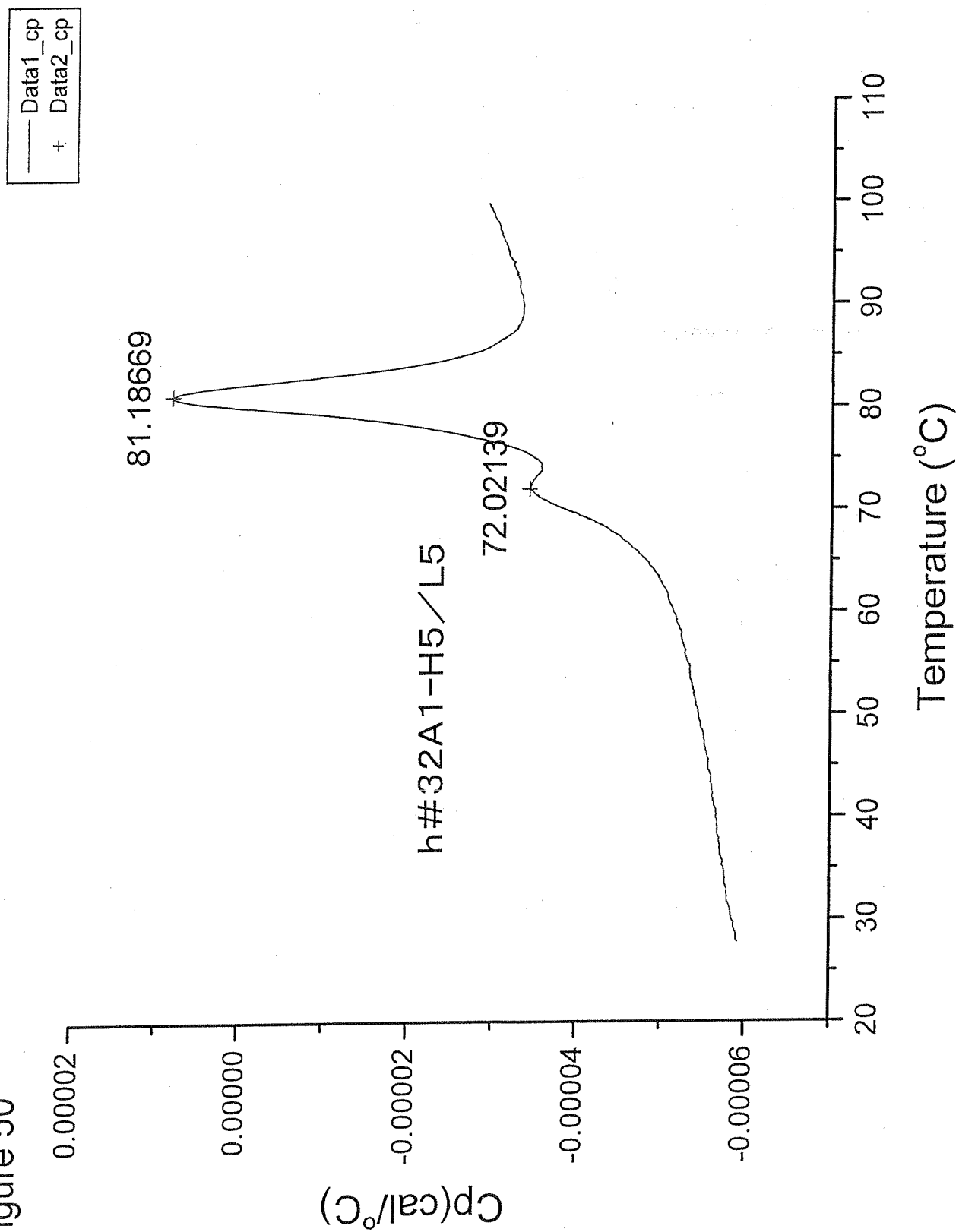


Figure 51

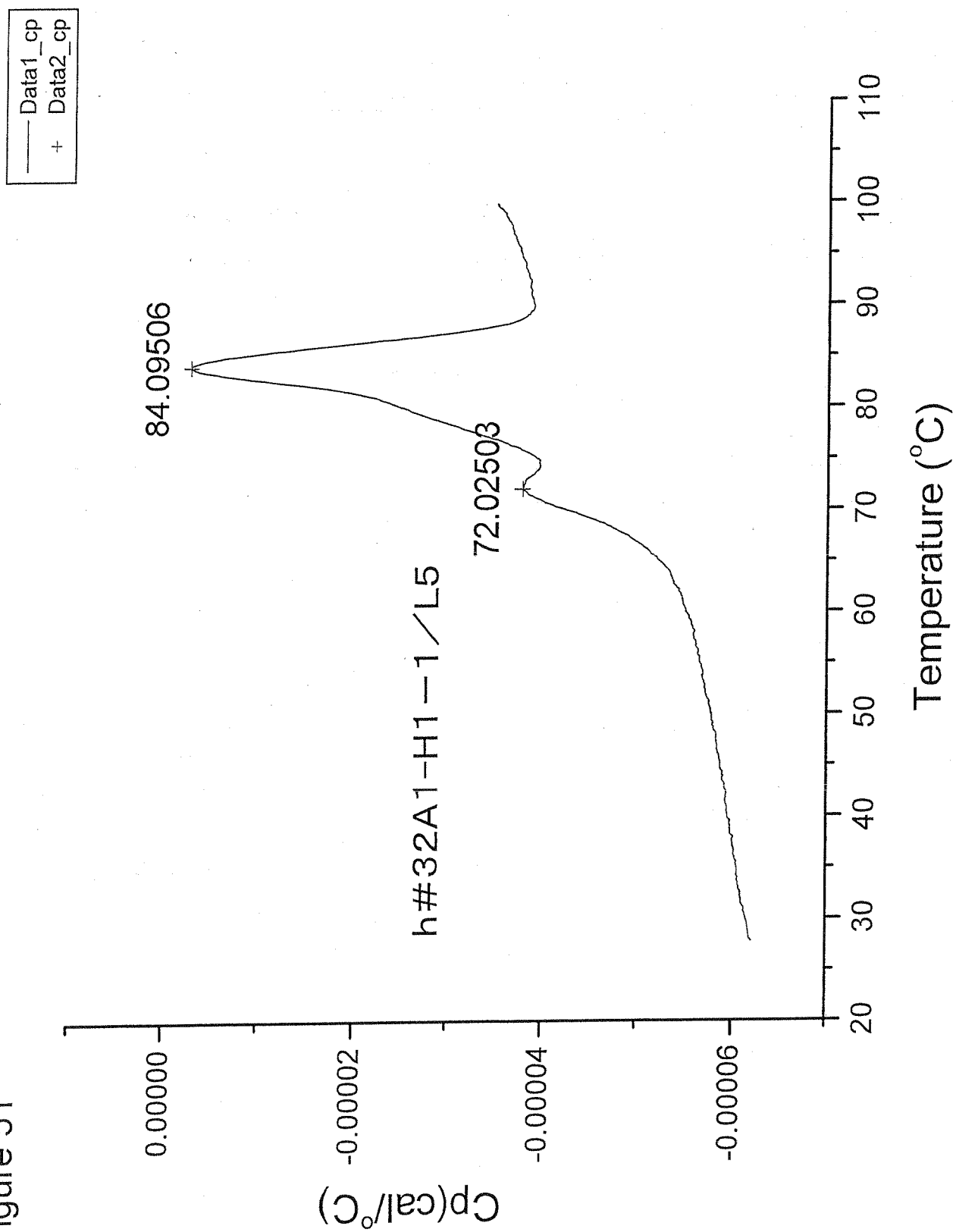


Figure 52

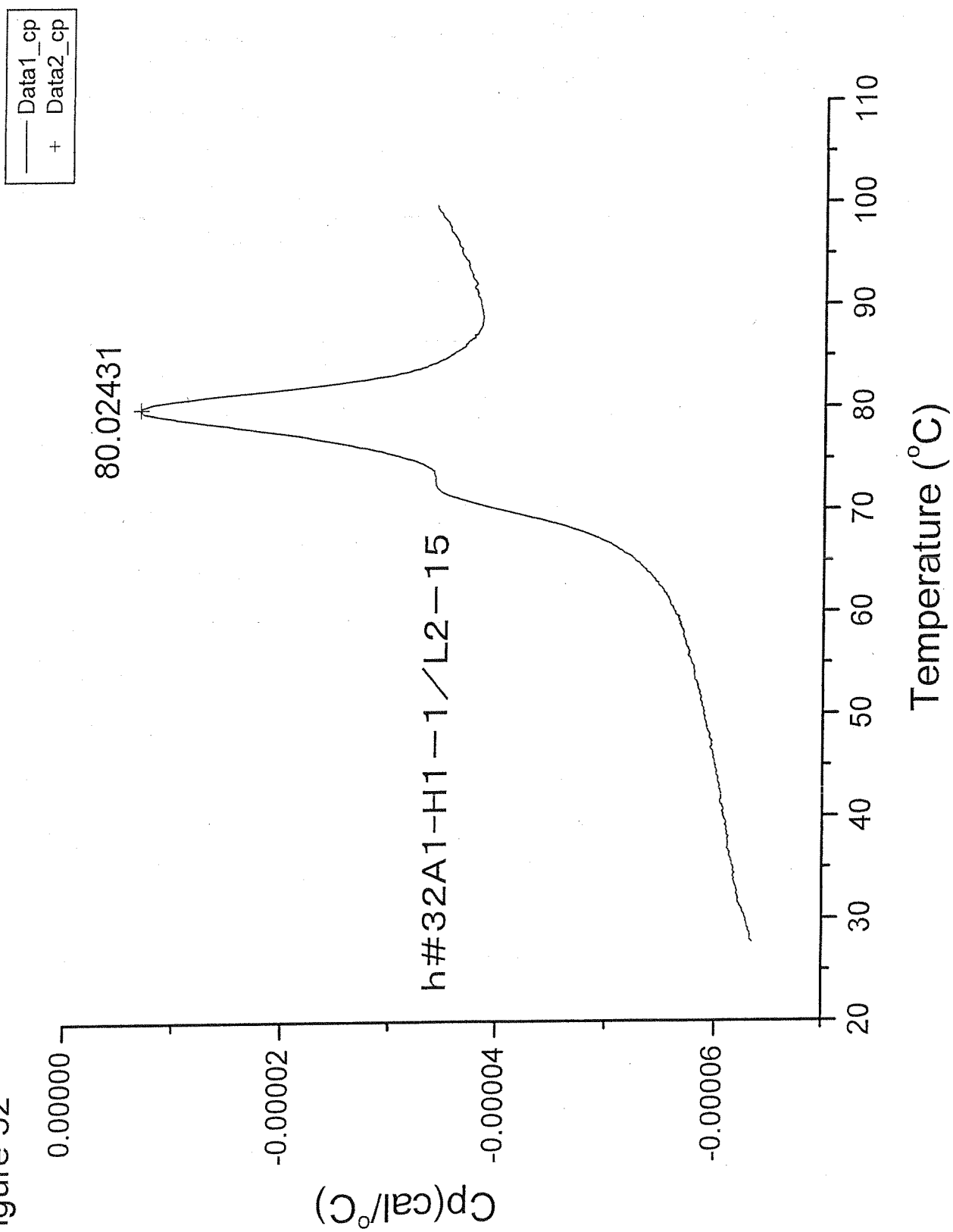


Figure 53

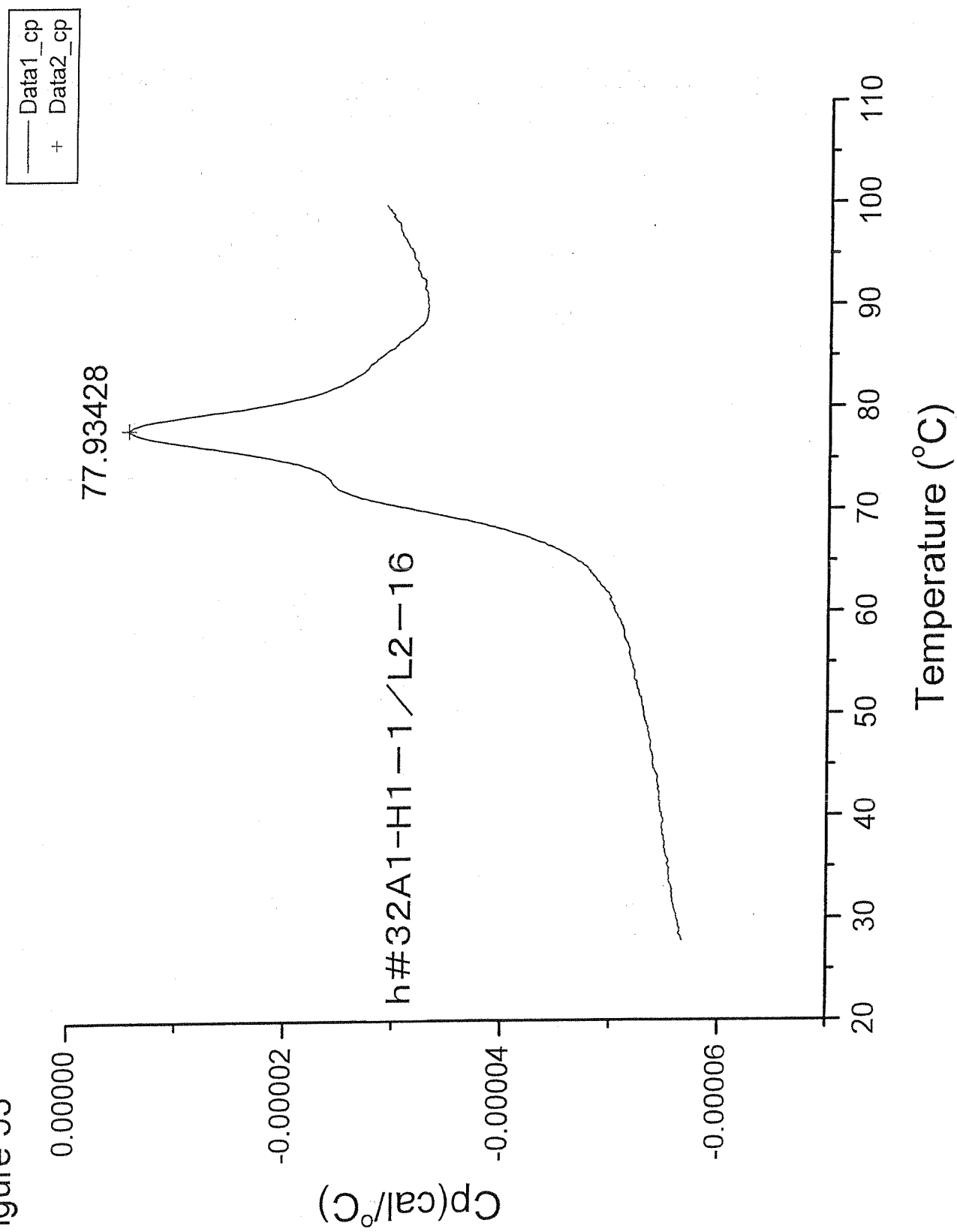


Figure 54

SEQ ID NO:98: Nucleotide Sequence of h#32A1-H1-1

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAAGTCC
 AGCTTGTGGAAAGCGGAGGGGGACTCGTTTCAGCCAGGAGGCTCTCTGCGCCTGTCATGCGCTGC
 CAGCGGATTTAATTTCAATGATTATTTTATGAACTGGGTTCAGGCAGGCTCCGGGAAAAGGGCTG
 GAATGGGTGCGCCAGATCAGAAACAAGATCTATACTTACGCTACATTCTACGCCGCATCTGTAA
 AGGGGAGGTTTACAATTAGTCGCGACAATGCAAAAAATAGTCTGTATCTCCAAATGAACTCCCT
 CCGCGCAGAGGATACTGCTGTCTACTACTGCGCCAGGTCCTTGACTGGCGGCGACTATTTTGAT
 TACTGGGGACAGGGCACCCCTGGTGACGGTGAGCTCAGCCAGCACCAAGGGCCCTTCCGTGTTCC
 CTCTGGCCCCCTTGTAGCCGTTCCACCAGCGAGTCCACCGCCGCCCTTGGCTGTCTGGTGAAGGA
 CTACTTCCCTGAGCCTGTGACCGTGAGCTGGAACCTCCGGAGCCCTTACCAGCGGCGTGACACC
 TTCCCTGCCGTGCTGCAGTCCAGCGGCCTTTACTCCCTGAGCTCCGTGGTGACCGTGCCTAGCT
 CCAACTTCGGCACCCAAACCTACACCTGTAACGTGGACCACAAGCCTAGCAACACCAAGGTGGA
 CAAGACCGTGGAGCGTAAGTGTGTGTGGAGTGTCTCCTTGTCTGCCCCCTCCTGTGGCCGGA
 CCTTCCGTGTTCCCTTTTCCCTCCTAAGCCTAAGGACACCCTGATGATCAGCCGTACCCCTGAGG
 TGACCTGTGTGGTGGTGGACGTGTCCACGAGGACCCTGAGGTGCAGTTCAACTGGTACGTGGA
 CGGCGTGGAGGTGCACAACGCCAAGACCAAGCCTCGTGAGGAGCAATTCAACAGCACCTTCCGT
 GTGGTGTCCGTGCTTACCGTGGTGACCAAGACTGGCTGAACGGCAAGGAGTACAAGTGTAAAG
 TGAGCAACAAGGGACTTCCTGCCCCCTATCGAGAAGACCATCTCCAAGACCAAGGGCCAACCTCG
 TGAGCCTCAAGTGTACACCCTTCCCTCCTAGCCGTGAGGAGATGACCAAGAACCAAGTGTCCCTT
 ACCTGTCTGGTGAAGGGCTTCTACCCTAGCGACATCGCCGTGGAGTGGGAGTCCAACGGACAAC
 CTGAGAACAATAACAAGACCACCCCTCCTATGCTTGACAGCGACGGCTCCTTCTTCTGTACAG
 CAAGCTGACCGTGGACAAGTCCCGTTGGCAACAAGGCAACGTGTTTCCGTGATGCAC
 GAGGCCCTGCACAACCACTACACCCAAAAGAGCCTTTCCCTGAGCCCTGGAAAG

Signal Sequence (1-57) , Variable Region (58-420) , Constant Region (421-1398)

SEQ ID NO:99: Amino Acid Sequence of h#32A1-H1-1

MKHLWFFLLLVAAAPRWVLSEVQLVESGGGLVQPGGSLRLSCAASGFNFDYFMNWVRQAPGKGL
 EWVAQIRNKIYTYATFYAASVKGRFTISRDNKNSLYLQMNSLRAEDTAVYYCARSLTGGDYFD
 YWGQGTLLTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHT
 FPAVLQSSGLYSLSSVVTVPSSNFGTQTYTCNVDPKPSNTKVDKTVRKCCVECPPCPAPPVAG
 PSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFR
 VVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSL
 TCLVKGFPYPSDIAVEWESNGQPENNYKTPPMLDSDGSFFLYSKLTVDKSRWQQGNVFSQSVMH
 EALHNHYTQKSLSLSPGK

Signal Sequence (1-19) , Variable Region (20-140) , Constant Region (141-466)

Figure 55

SEQ ID NO:100: Nucleotide Sequence of h#32A1-H5

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGTGC
 AGGTGGTGGAGAGCGGCGGCGGACTTGTGCAGCCTGGCGGCTCCCTGAGACTTAGCTGTGCCAC
 CTCCGGCTTCAACTTCAACGACTACTTCATGAACTGGGTGAGACAGGCCCCCTGGCAAGGGCCTG
 GAGTGGGTGGCCCAGATCAGAAACAAGATCTACACCTACGCCACCTTCTACGCCGAGAGCCTTG
 AGGGCAGATTACCATCTCCAGAGACAACAGCAAGTCCACCGTGACCTTCAGATGAACTCCCT
 GAGAGCCGAGGACACCGCCGTGTACTACTGTACCAGAAGCCTTACCGGCGGCGGACTACTTCGAC
 TACTGGGGCCAGGGCACCCCTGGTGACCGTGAGCTCAGCCAGCACCAAGGGCCCTTCCGTGTTCC
 CTCTGGCCCCCTTGTAGCCGTTCCACCAGCGAGTCCACCGCGGCCCTTGGCTGTCTGGTGAAGGA
 CTACTTCCCTGAGCCTGTGACCGTGAGCTGGAACCTCCGGAGCCCTTACCAGCGGCGTGACACCC
 TTCCCTGCCGTGCTGCAGTCCAGCGGCCTTTACTCCCTGAGCTCCGTGGTGACCGTGCCTAGCT
 CCAACTTCGGCACCCAAACCTACACCTGTAACTGAGGACCACAAGCCTAGCAACACCAAGGTGGA
 CAAGACCGTGAGCGTAAGTGTGTGTGGAGTGTCTCCTTGTCTGCCCCCTCCTGTGGCCGGA
 CCTTCCGTGTTCCCTTTTCCCTCCTAAGCCTAAGGACACCCTGATGATCAGCCGTACCCCTGAGG
 TGACCTGTGTGGTGGTGGACGTGTCCACGAGGACCCTGAGGTGCAGTTCAACTGGTACGTGGA
 CGGCGTGGAGGTGCACAACGCCAAGACCAAGCCTCGTGAGGAGCAATTCAACAGCACCTTCCGT
 GTGGTGTCCGTGCTTACCGTGGTGCACCAAGACTGGCTGAACGGCAAGGAGTACAAGTGTAAAG
 TGAGCAACAAGGGACTTCCTGCCCCCTATCGAGAAGACCATCTCCAAGACCAAGGGCCAACCTCG
 TGAGCCTCAAGTGTACACCCTTCTCCTAGCCGTGAGGAGATGACCAAGAACCAAGTGTCCCTT
 ACCTGTCTGGTGAAGGGCTTCTACCCTAGCGACATCGCCGTGGAGTGGGAGTCCAACGGACAAC
 CTGAGAACAACTACAAGACCACCCCTCCTATGCTTGACAGCGACGGCTCCTTCTTCTGTACAG
 CAAGCTGACCGTGGACAAGTCCCGTTGGCAACAAGGCAACGTGTTTCCGTGATGCAC
 GAGGCCCTGCACAACCACTACACCCAAAAGAGCCTTTCCCTGAGCCCTGGAAAG

Signal Sequence (1-57) , Variable Region (58-420) , Constant Region
 (421-1398)

SEQ ID NO:101: Amino Acid Sequence of h#32A1-H5

MKHLWFFLLLVAAPRWVLSEVQVVESGGGLVQPGGSLRLSCATSGFNFNDYFMNWVRQAPGKGL
 EWVAQIRNKIYTYATFYAESLEGRFTISRDNKSTVYLQMNSLRAEDTAVYYCTRSLTGGDYFD
 YWGQGTLLTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHT
 FPAVLQSSGLYSLSSVVTVPSSNFGTQTYTCNVDPKPSNTKVDKTVRKCCVECPPCPAPPVAG
 PSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFR
 VVSVLTVVHQDNLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSL
 TCLVKGFYPSDIAVEWESNGQPENNYKTTTPMLDSDGSFFLYSKLTVDKSRWQQGNVFSQSVMH
 EALHNHYTQKSLSLSPGK

Signal Sequence (1-19) , Variable Region (20-140) , Constant Region
 (141-466)

Figure 56

SEQ ID NO:102: Nucleotide Sequence of h#32A1-L2-15

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGAAA
TTCTGATGACGCAGAGTCCTGCAACTCTTAGTCTGTACCTGGCGAGAGAGCCACACTCAGCTG
CCGAGCGTCCCAGTCCGTGACCATTAGCGGCTATTCTTTTATTCATTGGTATCAGCAAAAGCCT
GGACAGGCGCCAAGGCTGCTCATTTACAGAGCAAGCAACCTTGCCTCTGGCATTCCAGCAAGAT
TCAGCGGGAGCGGATCAGGGACAGATTTACCTTGACCATCTCCTCCCTGGAGCCGGAGGATTT
CGCGTTGTATTATTGTGAGCAATCTAGGAAGAGTCCATGGACATTTGGCCAGGGCACCAAAGTG
GAGATCAAGCGTACGGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGA
AGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCA
GTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACTCCCAGGAGAGCGTGACCGAGCAGGACAGC
AAGGACAGCACCTACAGCCTGAGCAGCACCCCTGACCCTGAGCAAAGCCGACTACGAGAAGCACA
AGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAG
GGGGGAGTGT

Signal Sequence (1-60) , Variable Region (61-399) , Constant Region
(400-714)

SEQ ID NO:103: Amino Acid Sequence of h#32A1-L2-15

MVLQTQVFISLLLWISGAYGEILMTQSPATLSLSPGERATLSCRASQSVTISGYSFIHWYQQKP
GQAPRLLIYRASNLASGIPARFSGSGSTDFTLTISSLEPEDFALYYCQQSRKSPWTFGQGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDS
KDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-133) , Constant Region
(134-238)

Figure 57

SEQ ID NO:104: Nucleotide Sequence of h#32A1-L2-16

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCATATGGCGAAA
 TCCTGATGACACAGAGTCCTGCGACCCTCTCCCTCTCACCAGGCGAGAGGGCCACCCTGTCTTG
 TAGAGCCAGCCAGTCAGTCACTATTAGTGGATACTCATTTATCCATTGGTATCAACAGAAACCA
 GGACAGGCGCCTCGGCTTCTGATCTACCGCGCCTCAAACCTTGCTCTGGCATCCCCGCGAGGT
 TCTCTGGCTCTGGCAGCGGTACCGATTTTACACTGACTATCTCAAGCCTCGAACCTGAAGACTT
 CGCACTGTACTTTTGCCAGCAGAGCAGGAAGTCCCCCTGGACTTTTGCACAGGGAACCAAAGTC
 GAAATCAAGCGTACGGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCTGA
 AGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGGTGCA
 GTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACCTCCAGGAGAGCGTGACCGAGCAGGACAGC
 AAGGACAGCACCTACAGCCTGAGCAGCACCCCTGACCCTGAGCAAAGCCGACTACGAGAAGCACA
 AGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGAGCTTCAACAG
 GGGGGAGTGT

Signal Sequence (1-60) , Variable Region (61-399) , constant Region (400-714)

SEQ ID NO:105: Amino Acid Sequence of h#32A1-L2-16

MVLQTQVFISLLLWISGAYGEILMTQSPATLSLSPGERATLSCRASQSVTISGYSFHWHYQQKP
 GQAPRLLIYRASNLASGIPARFSGSGGTDFTLTISSELEPEDFALYFCQQSRKSPWTFAGTKV
 EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDS
 KDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSPVTKSFNRGEC

Signal Sequence (1-20) , Variable Region (21-133) , constant Region (134-238).