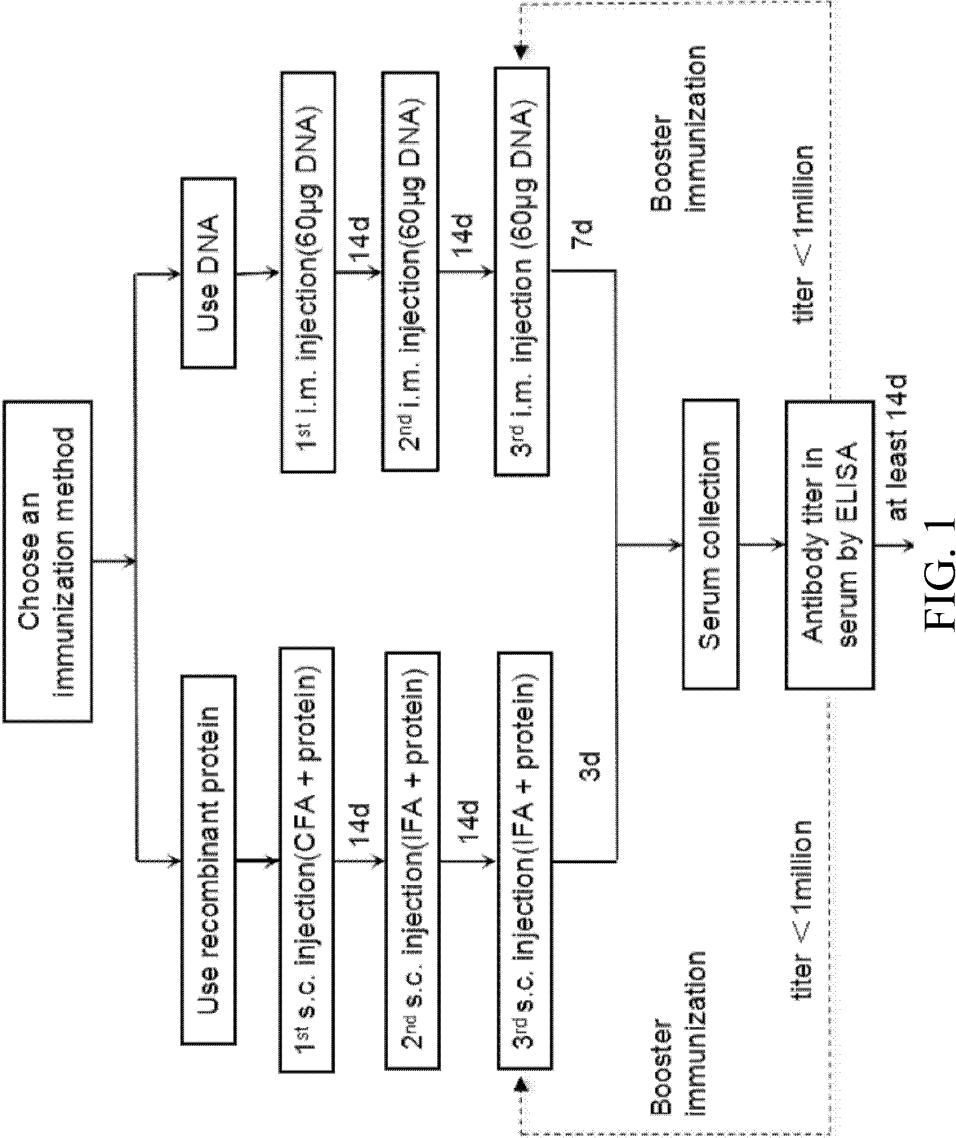




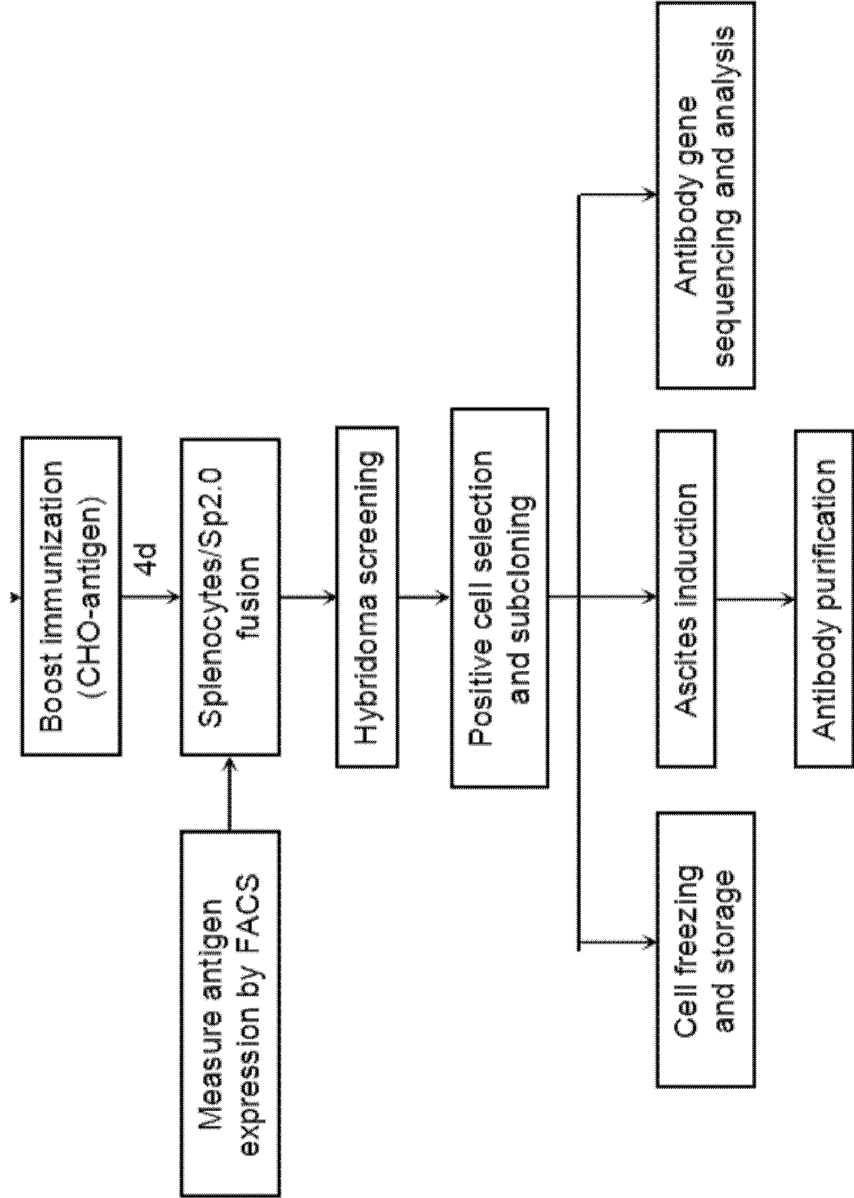


FIG. 2

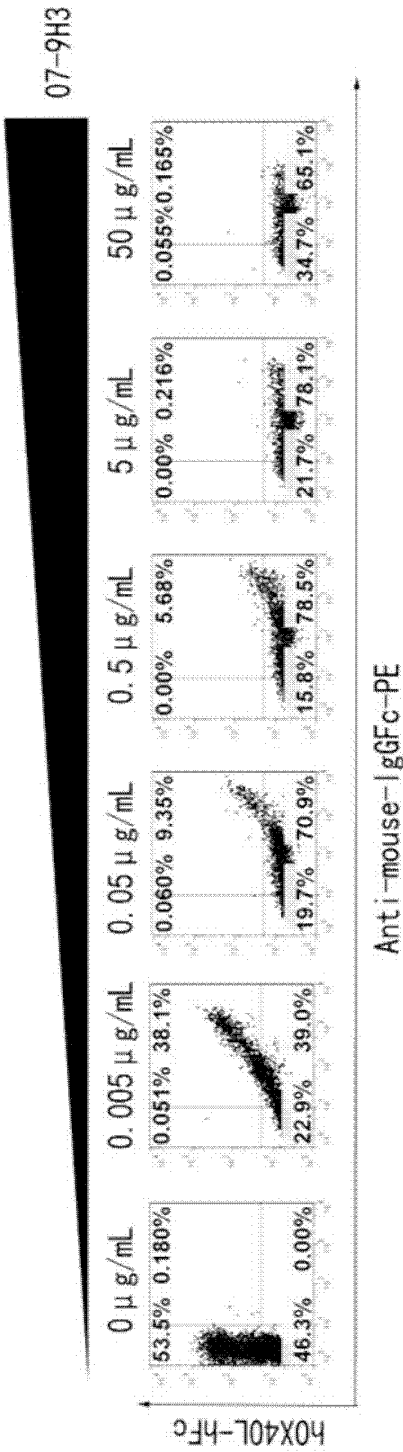


FIG. 3

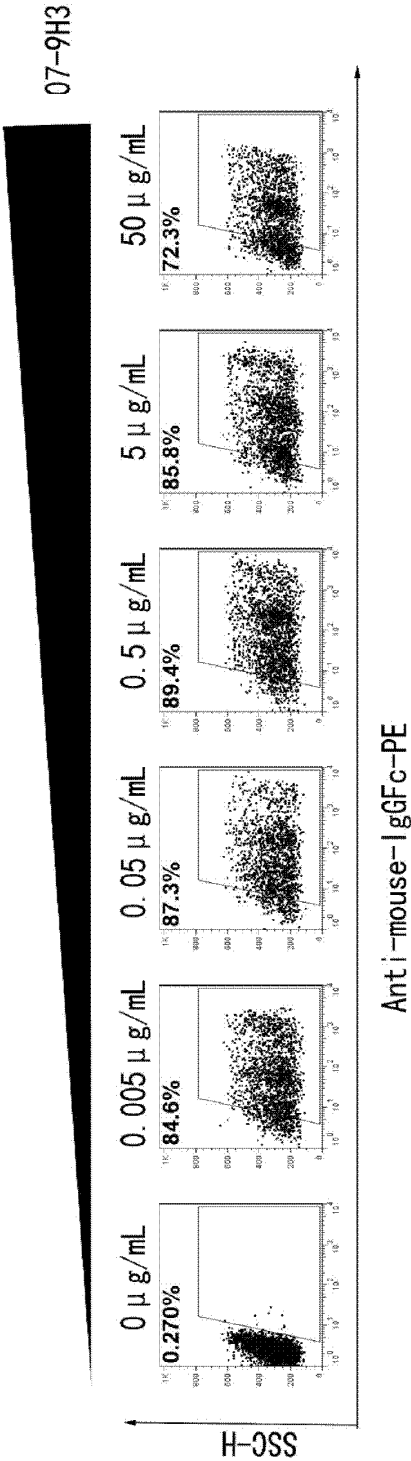


FIG. 4

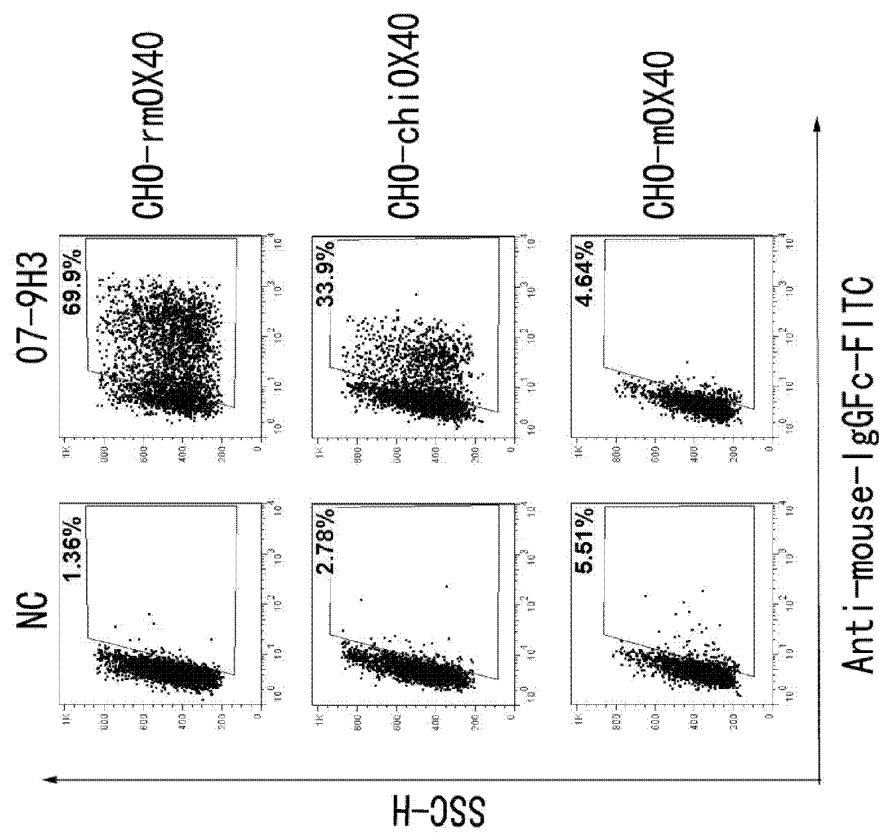


FIG. 5

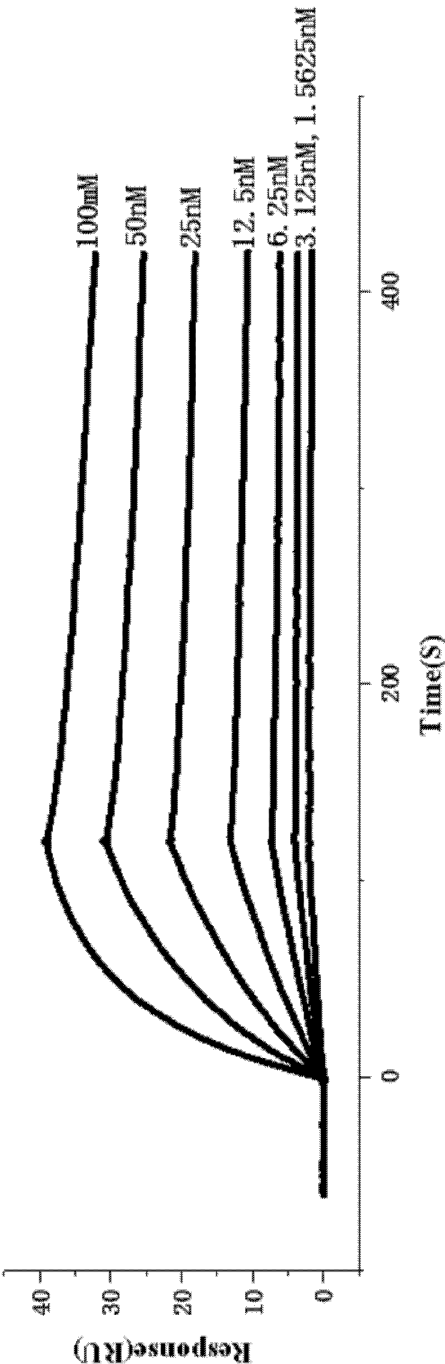


FIG. 6

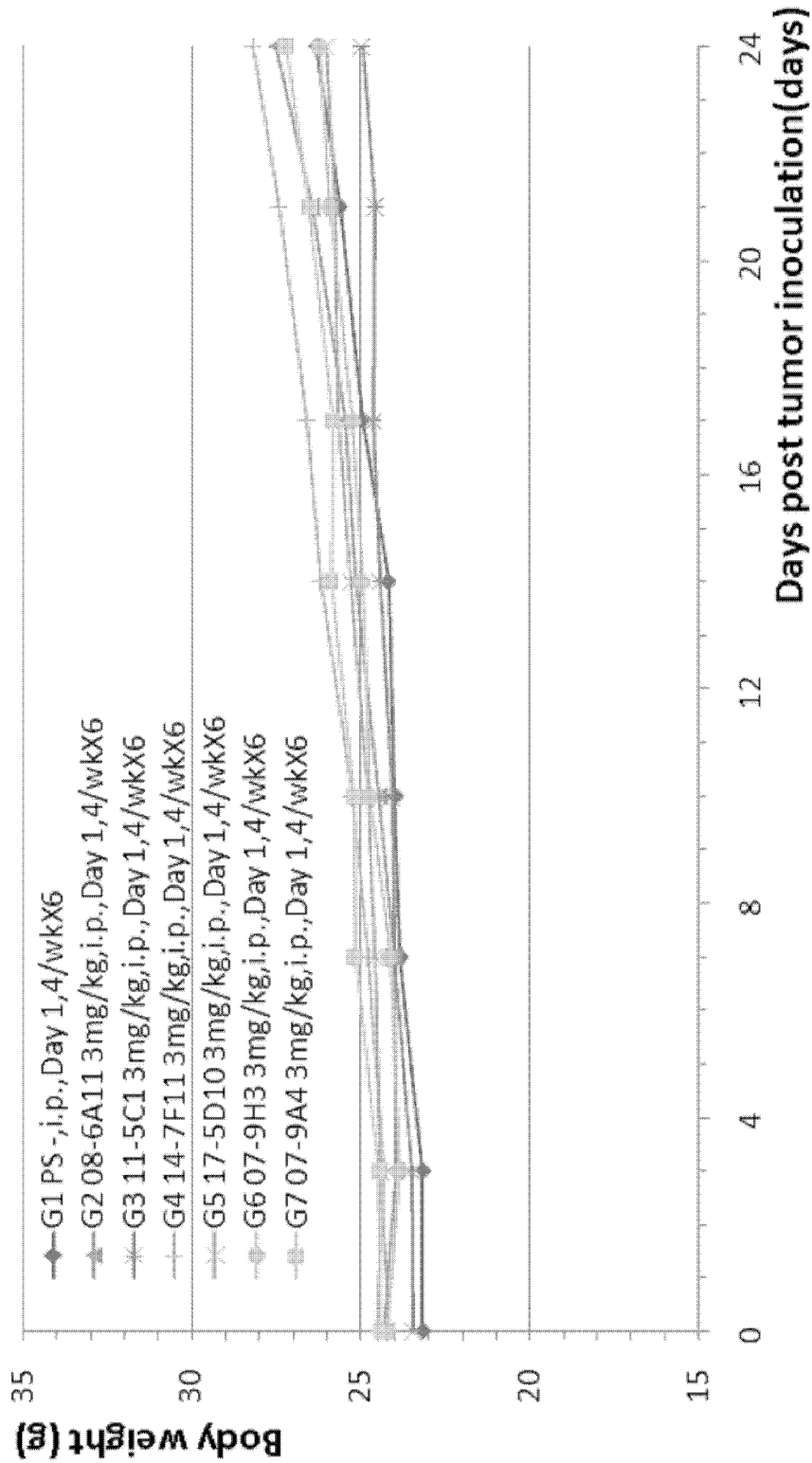


FIG. 7

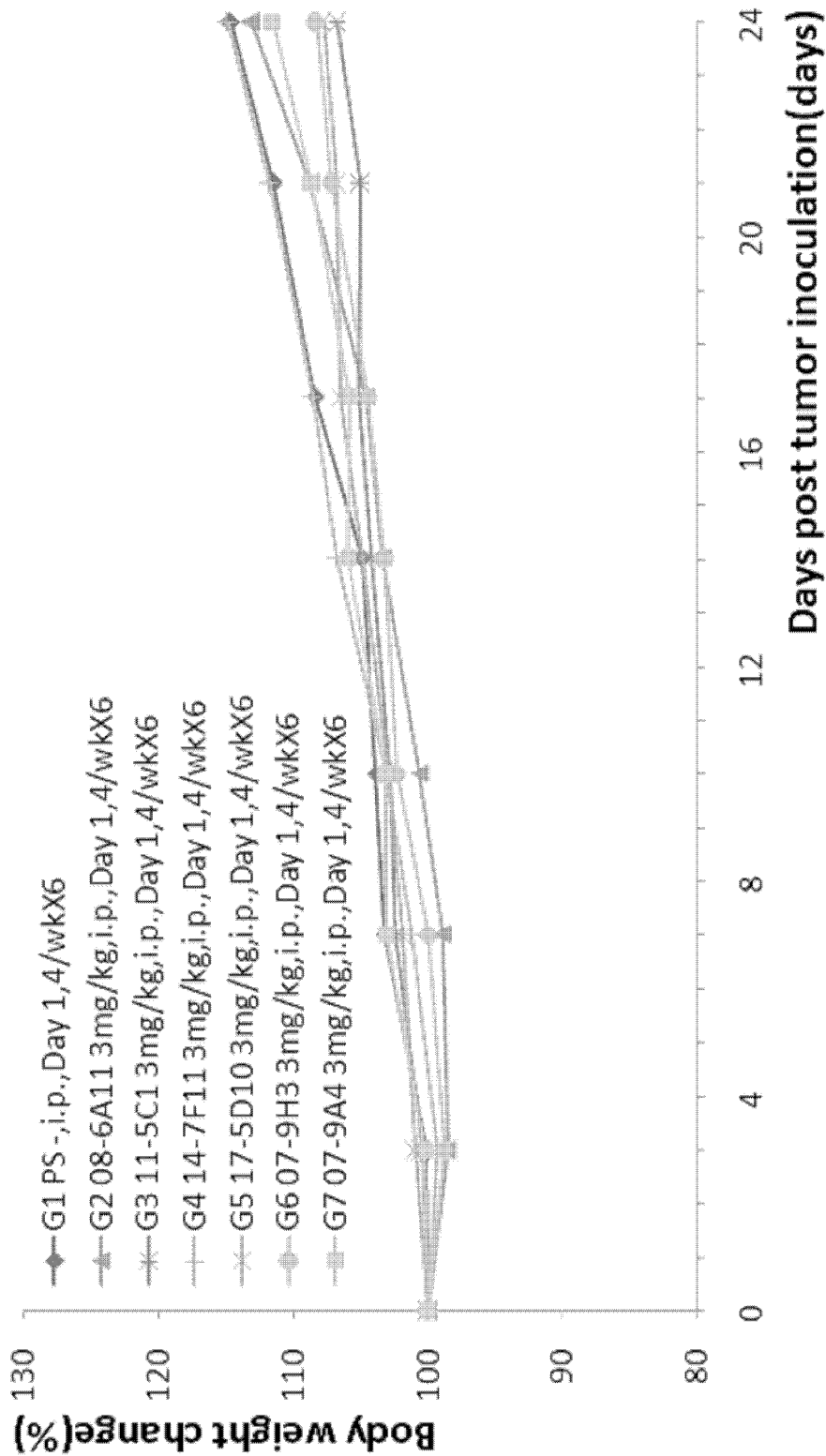


FIG. 8

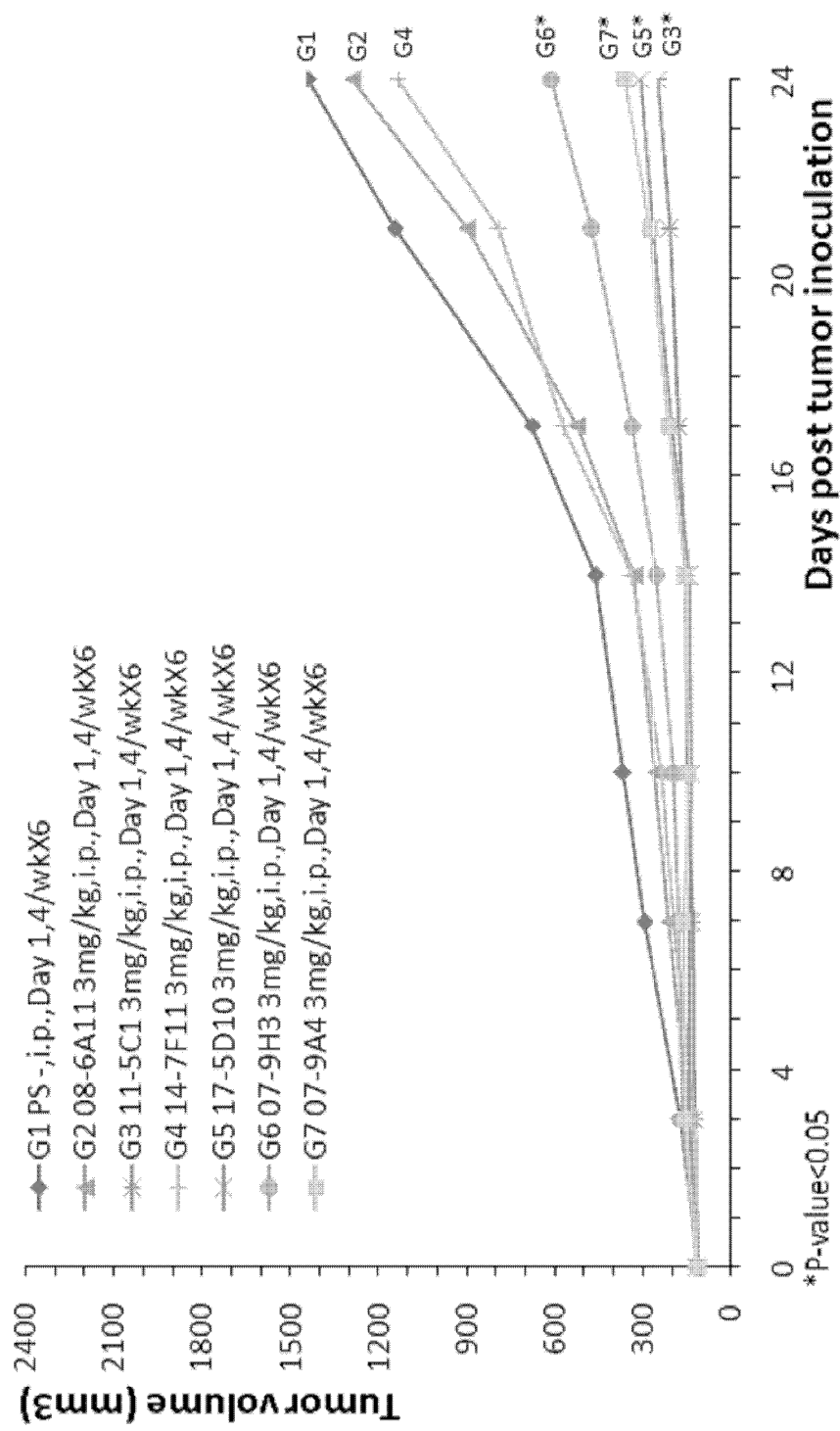


FIG. 9

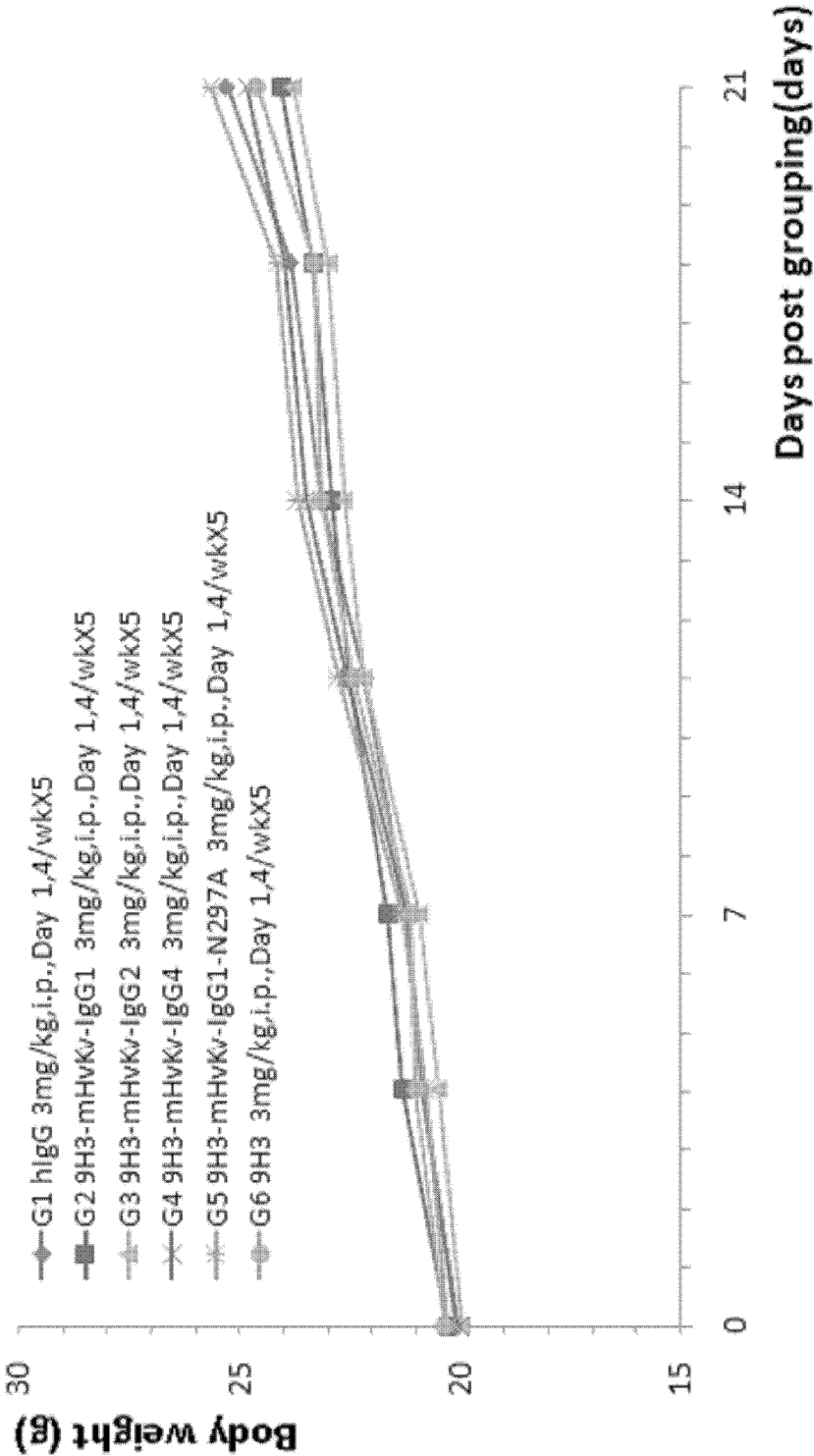


FIG. 10

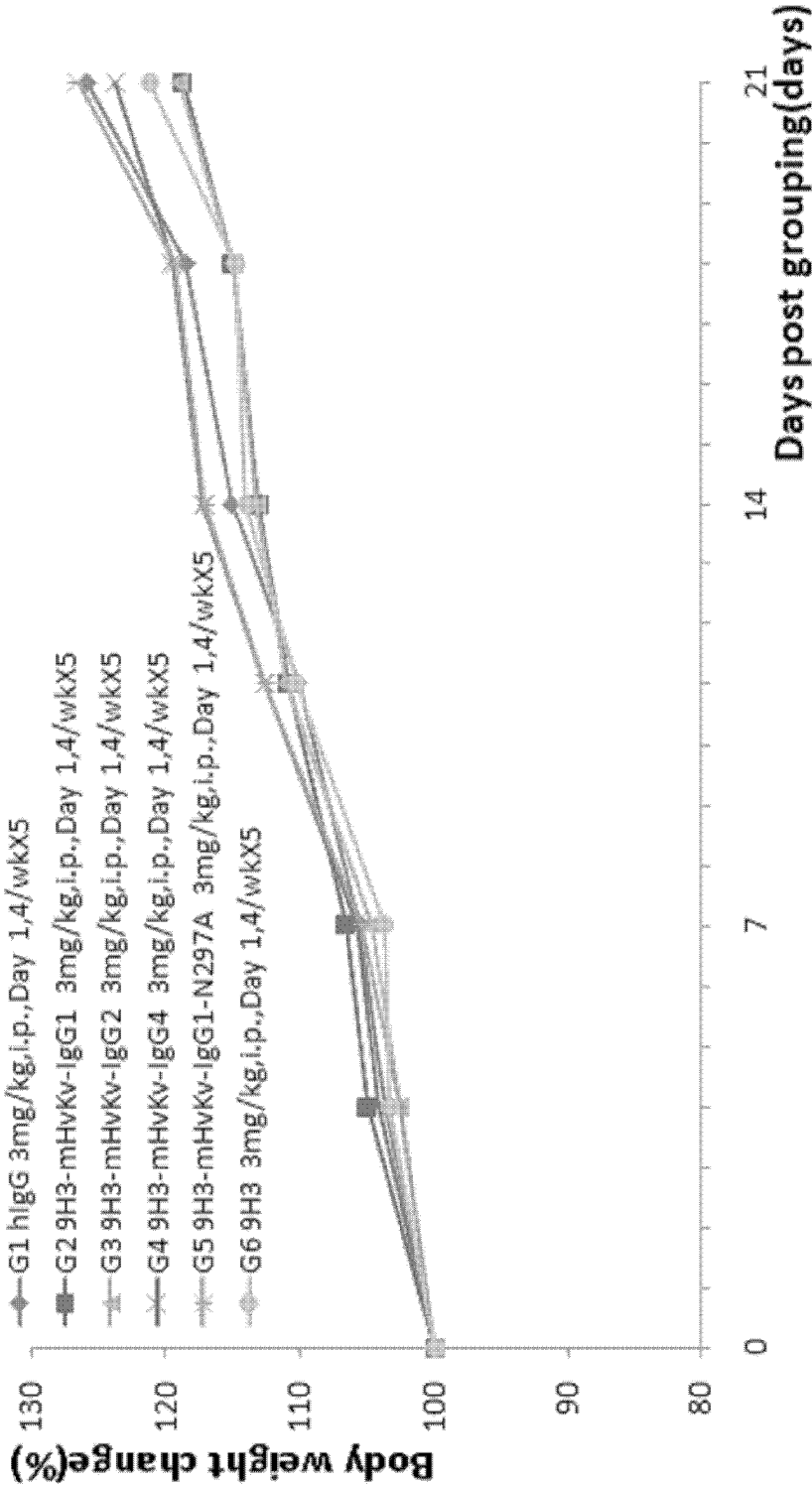


FIG. 11

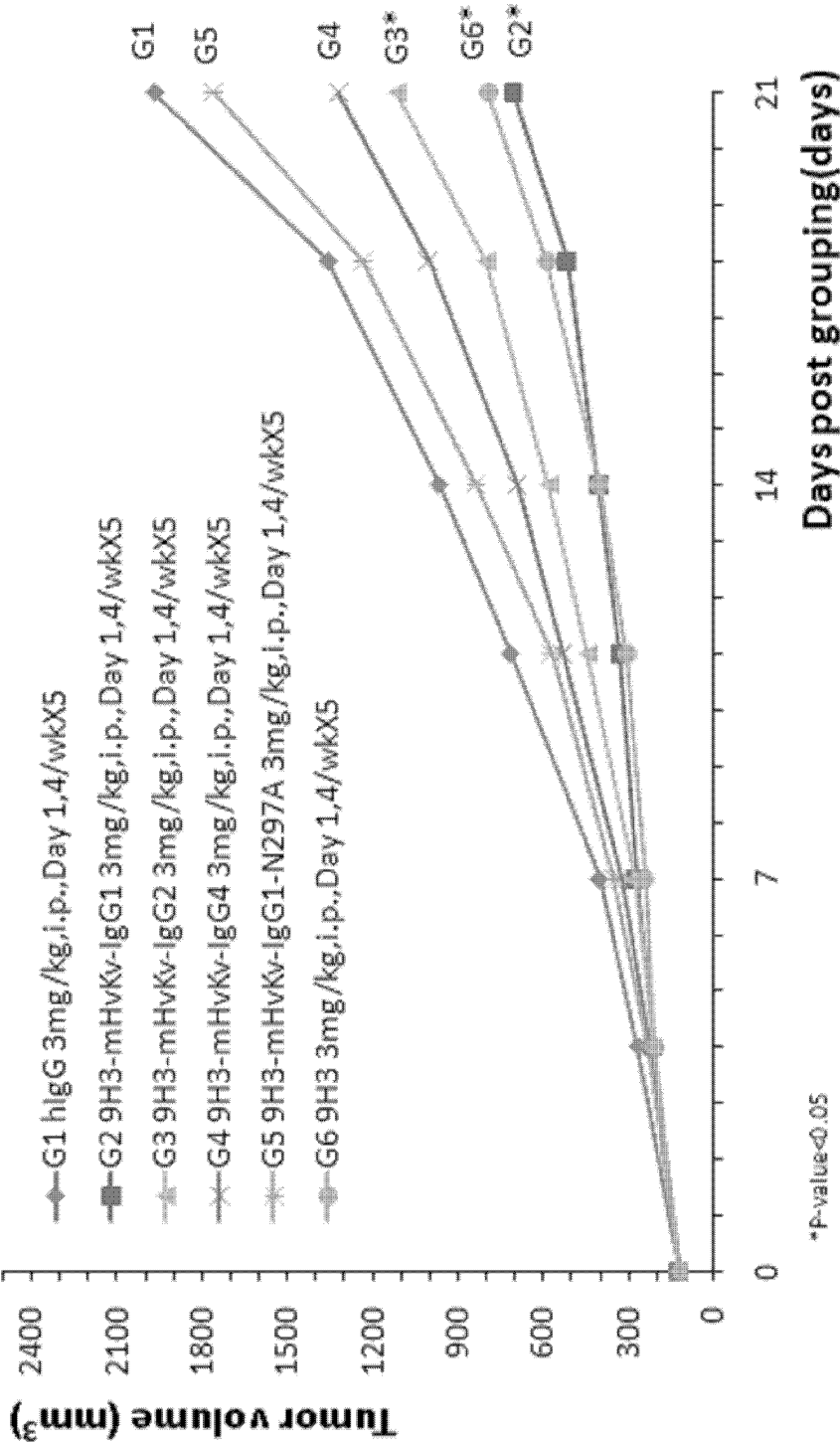


FIG. 12

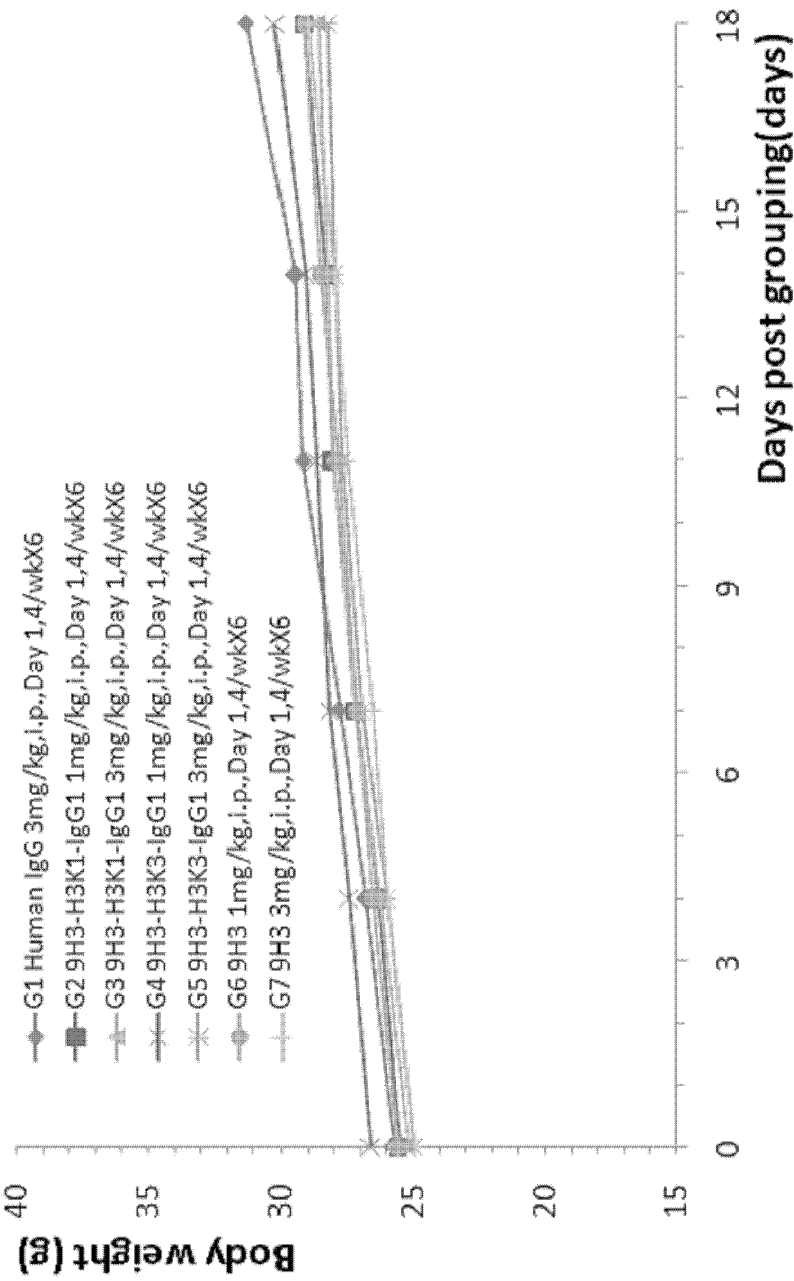


FIG. 13

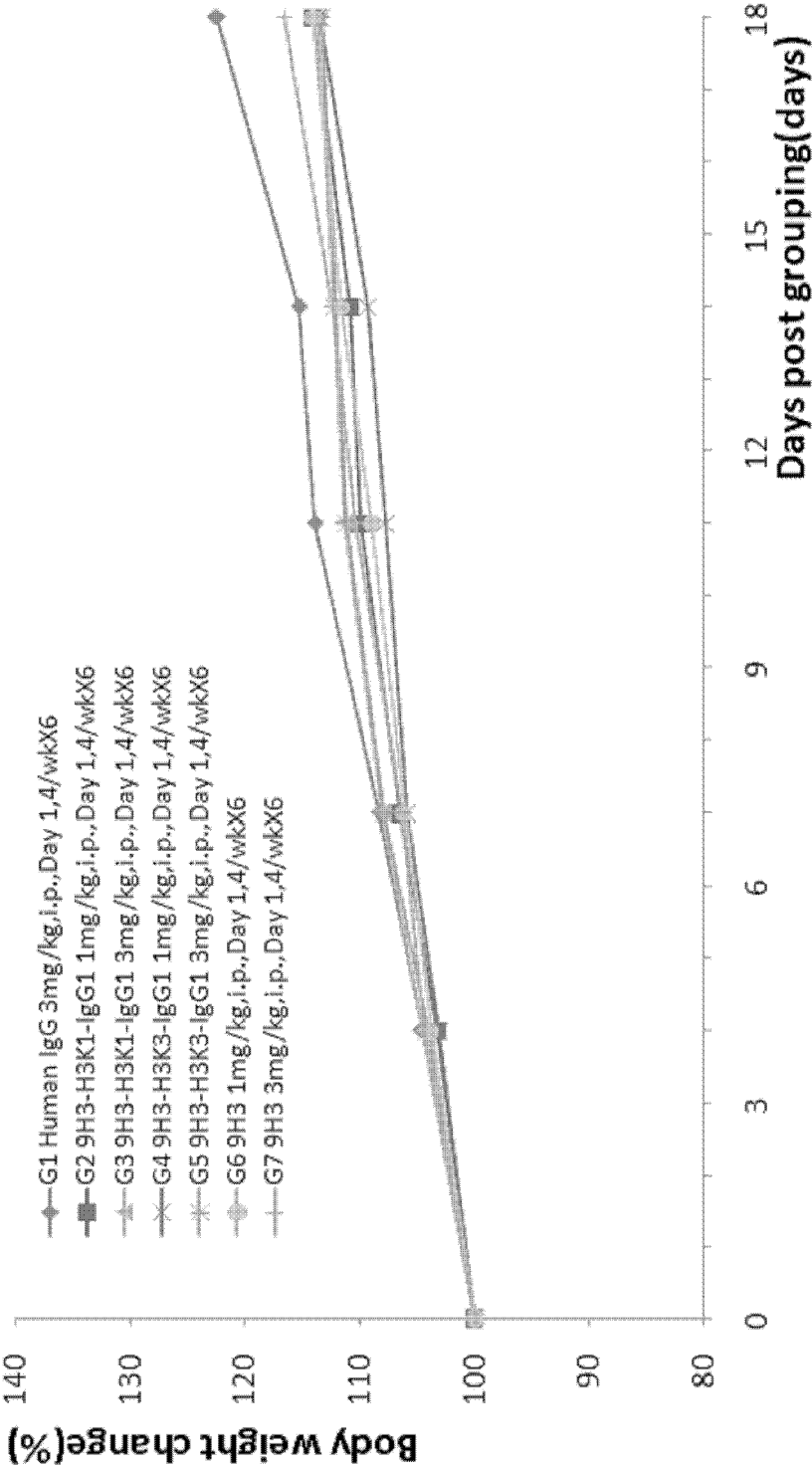


FIG. 14

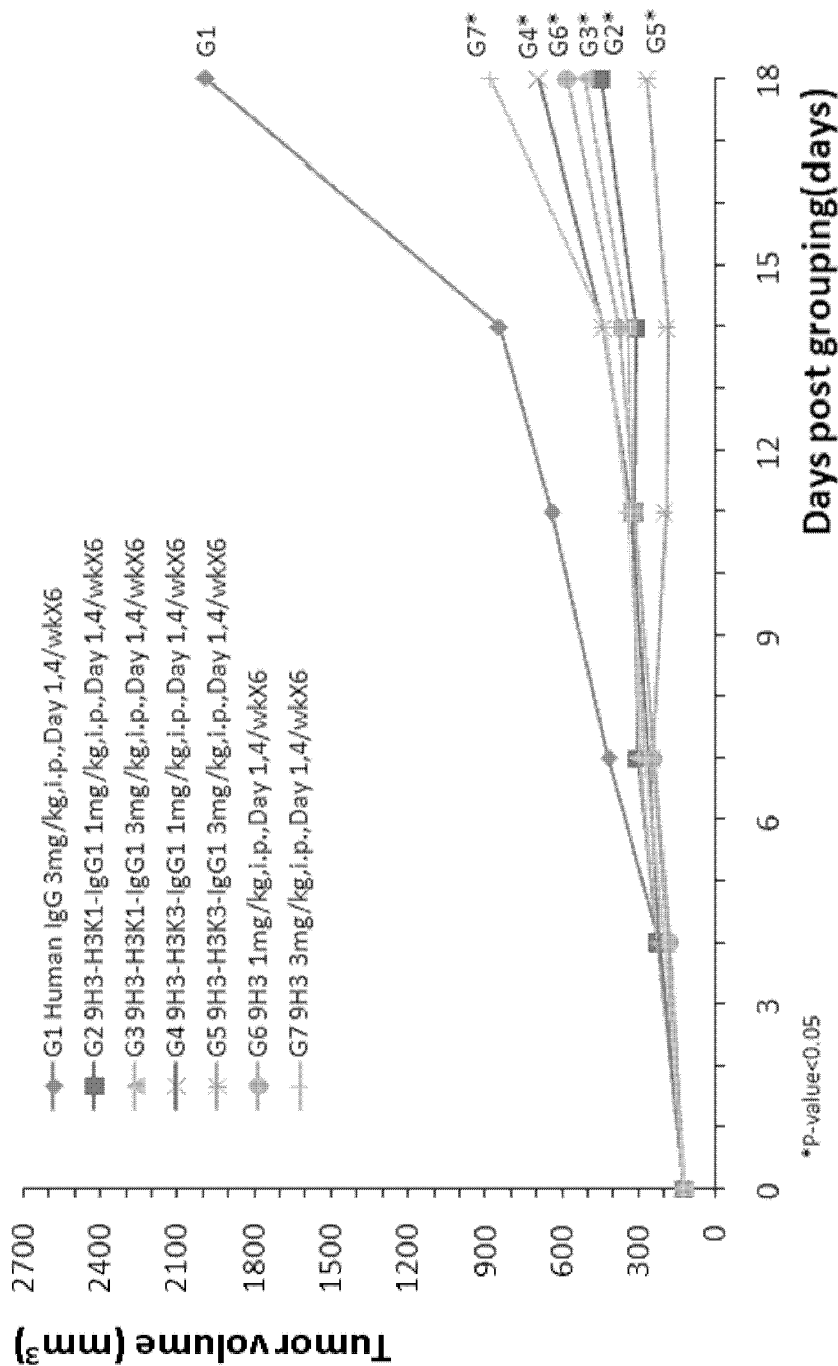
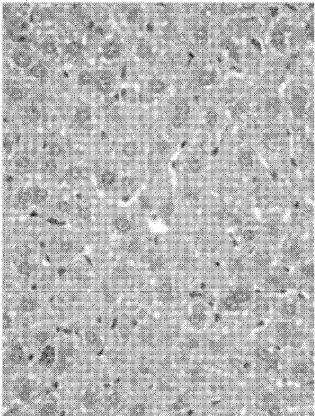


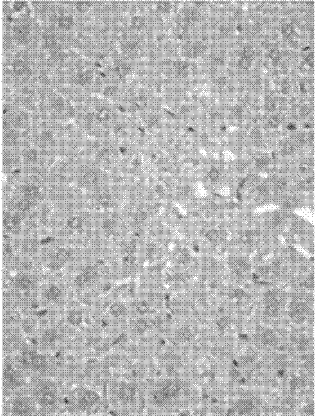
FIG. 15

Liver Tissue Pathology (H&E staining; 400X)

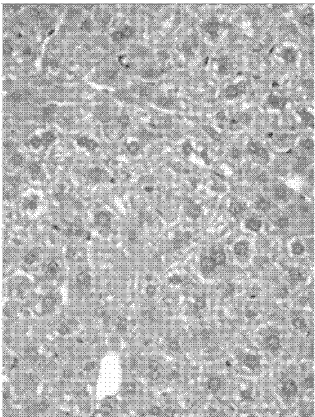
hIgG (#25829)



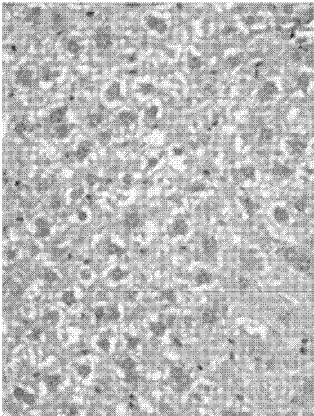
hIgG (#25861)



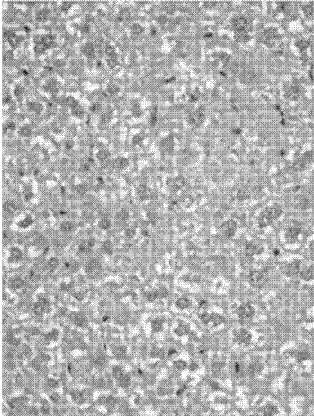
hIgG (#25867)



OX40(#25832)



OX40(#25874)



OX40(#25878)

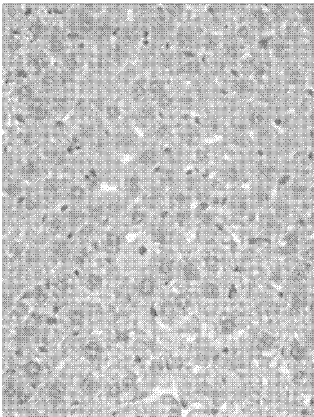


FIG. 16

Kidney Tissue Pathology (H&E staining; 400X)

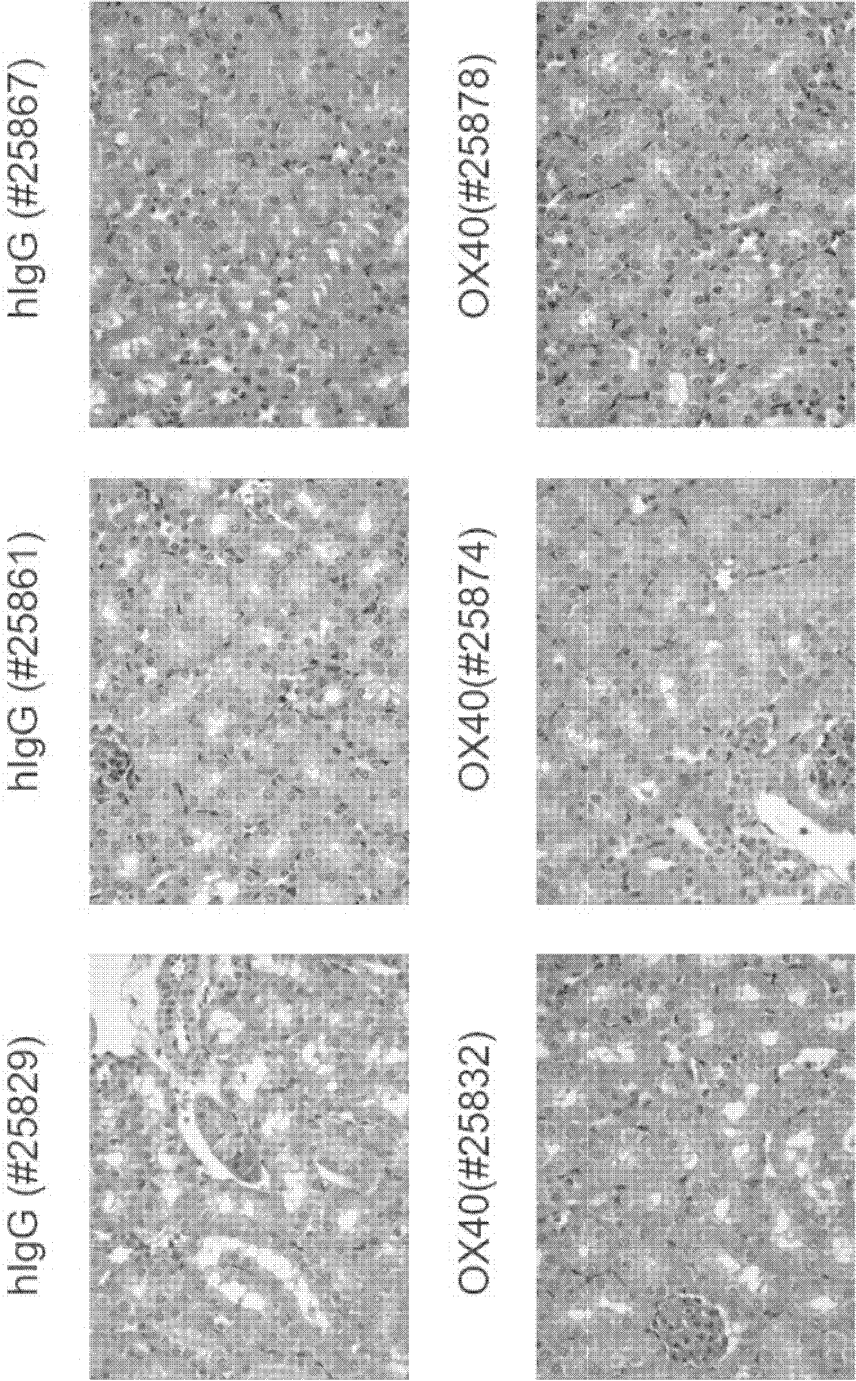
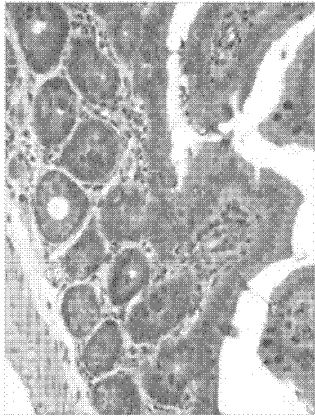


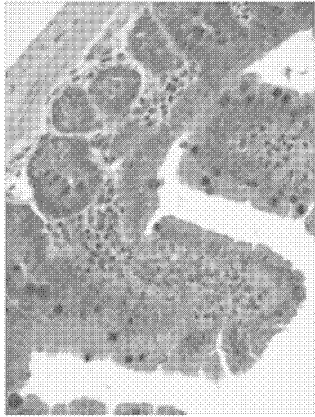
FIG. 17

Intestine Tissue Pathology (H&E staining; 400X)

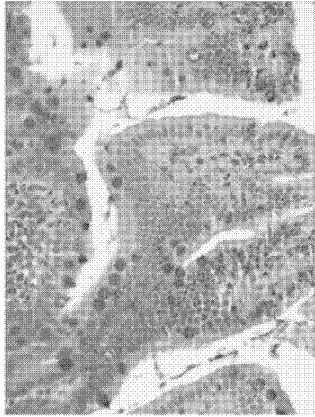
hIgG (#25829)



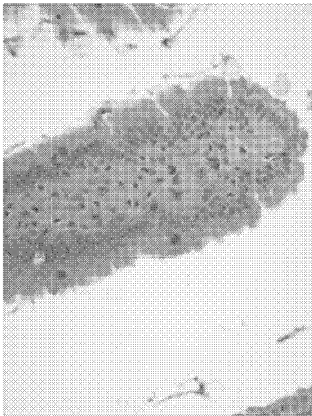
hIgG (#25861)



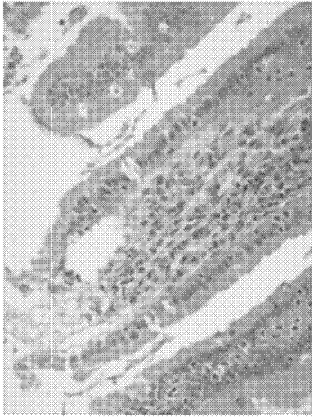
hIgG (#25867)



OX40(#25832)



OX40(#25874)



OX40(#25878)

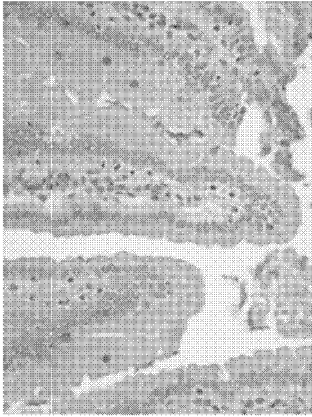


FIG. 18

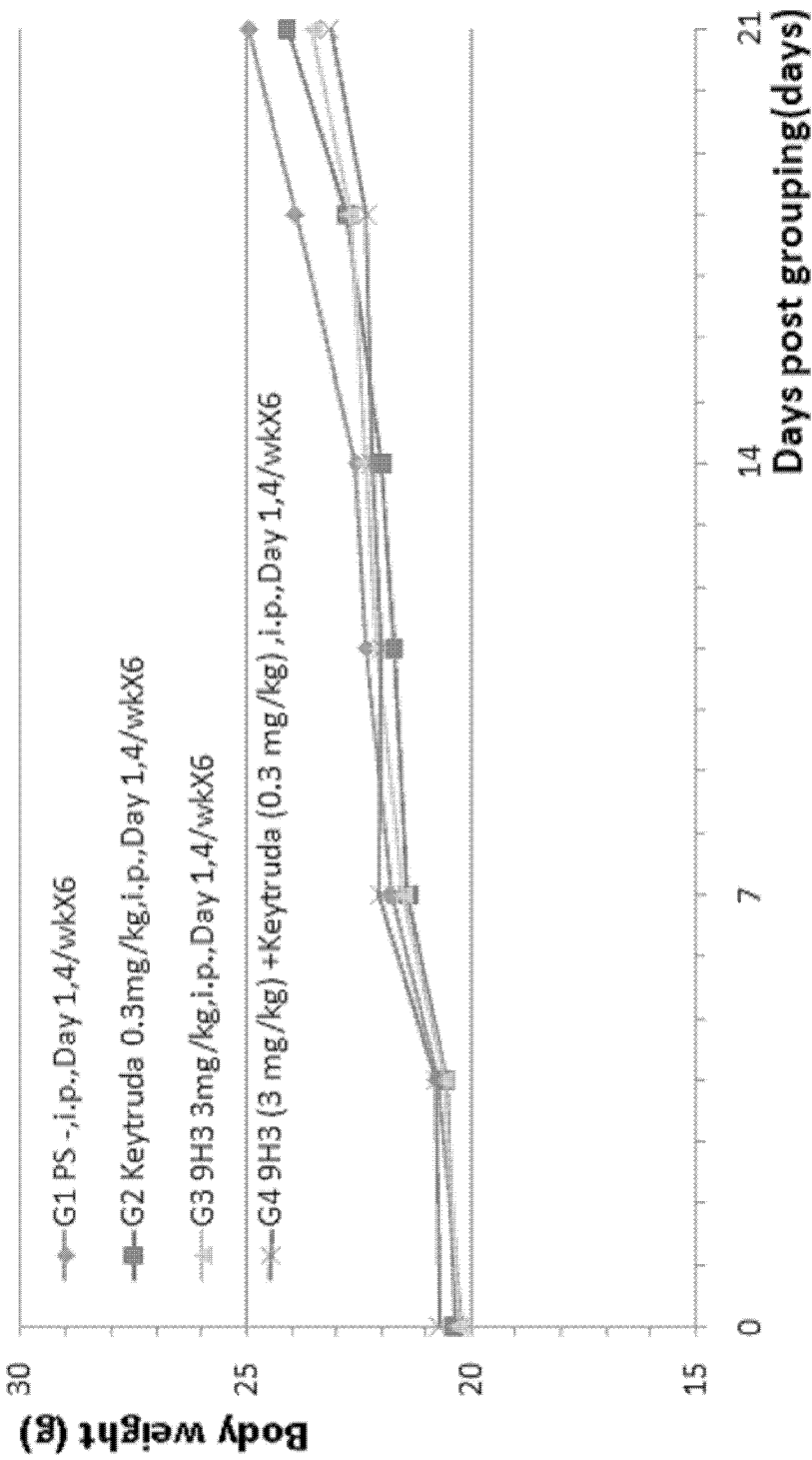


FIG. 19

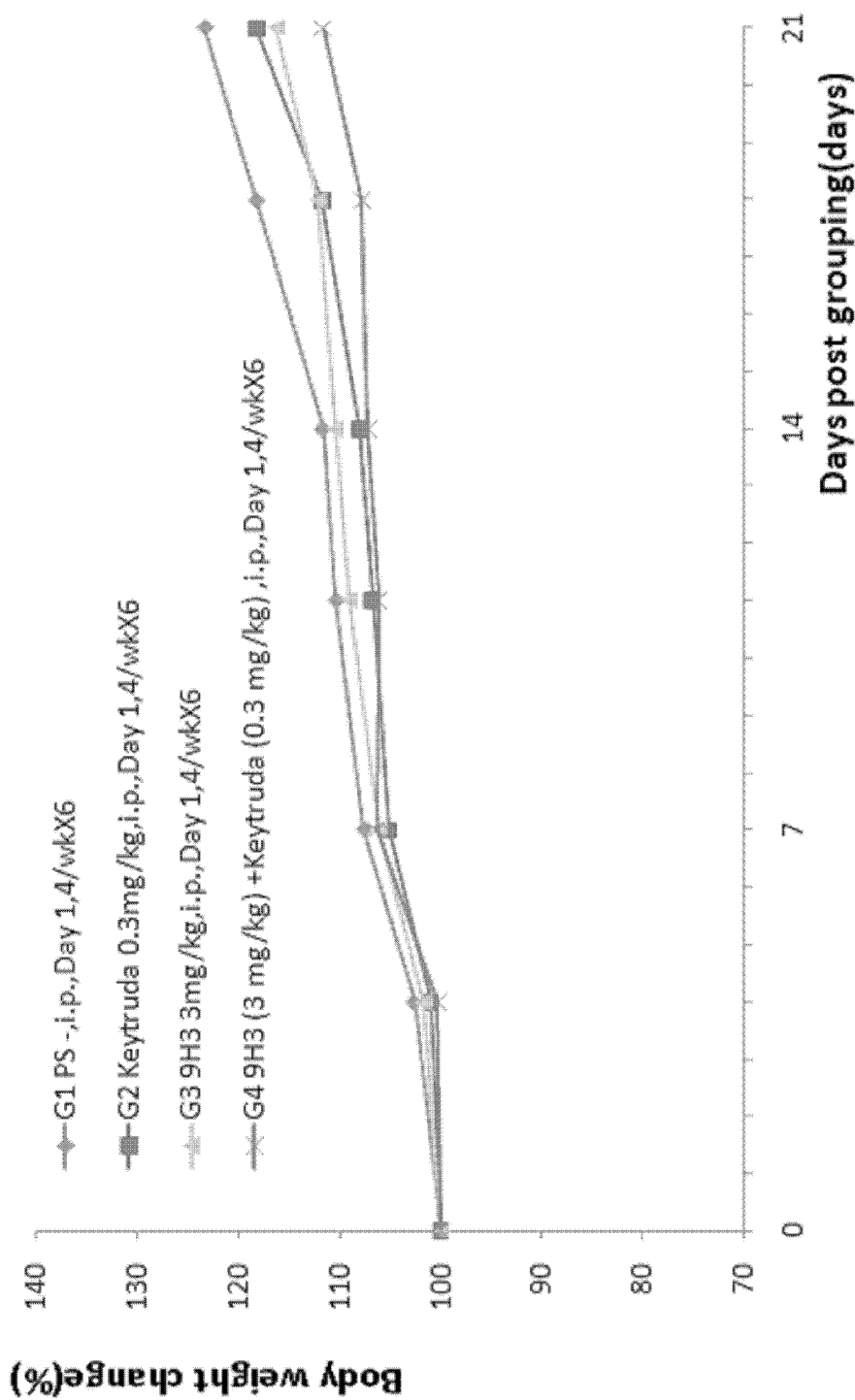


FIG. 20

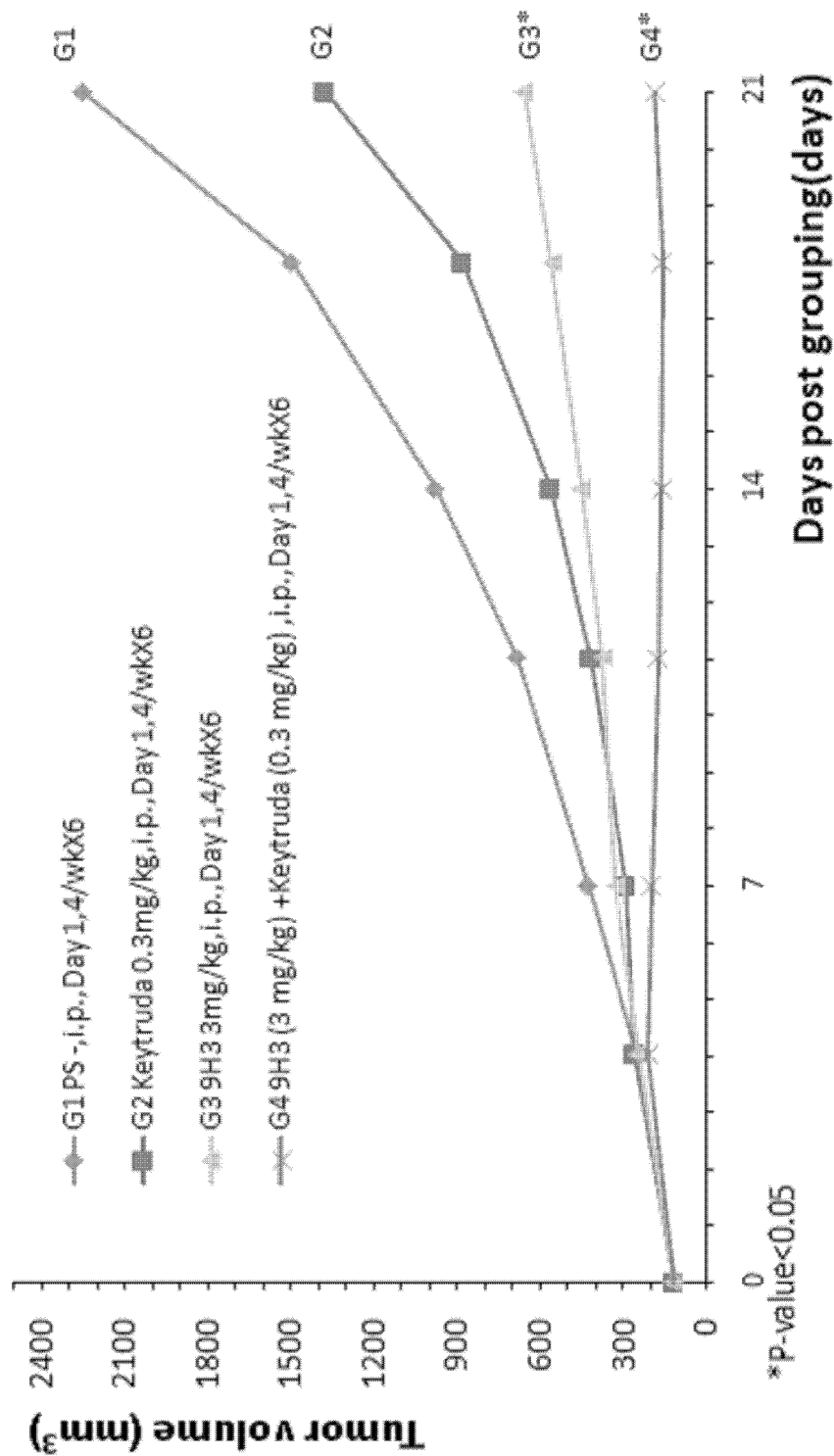


FIG. 21

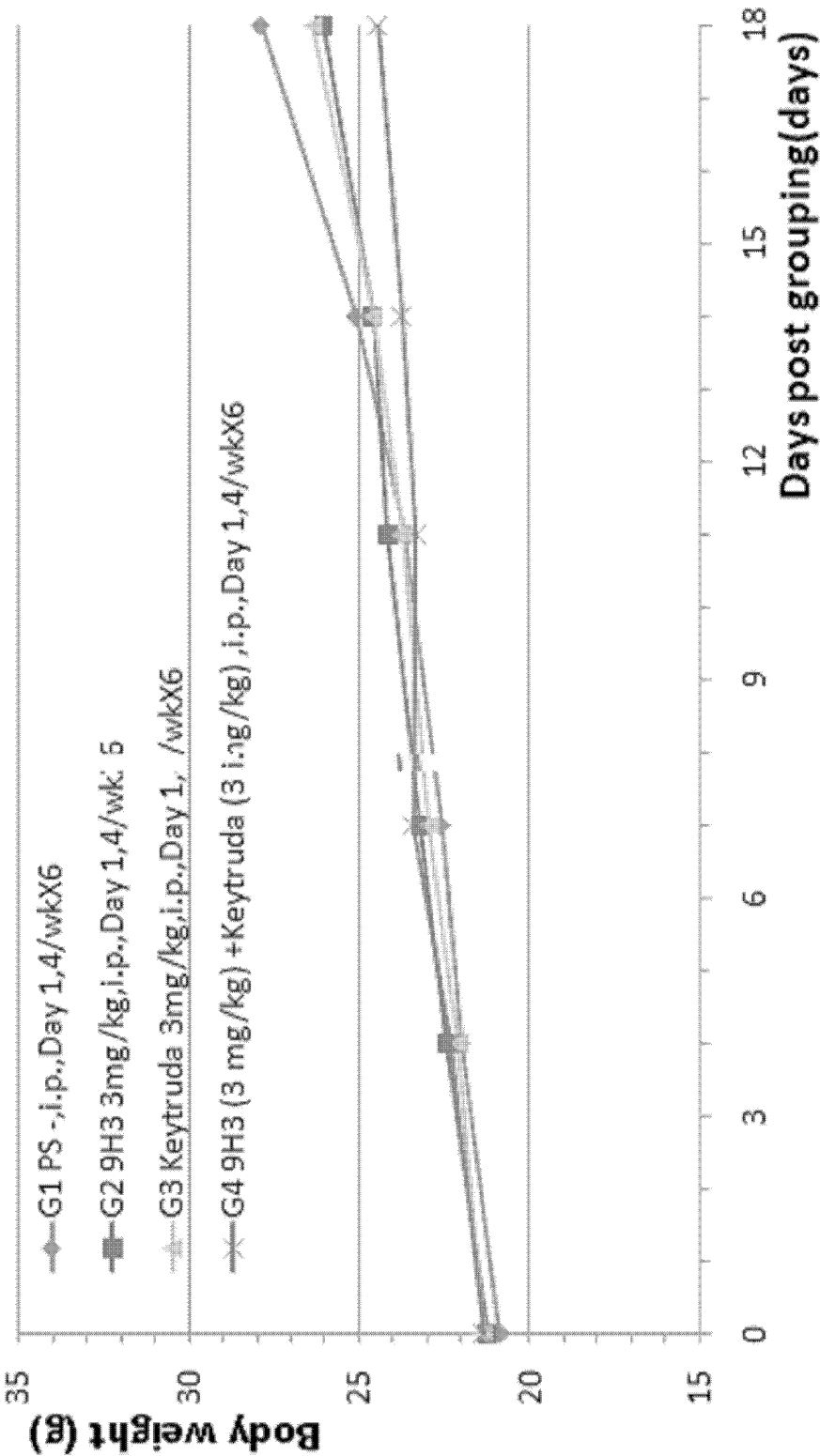


FIG. 22

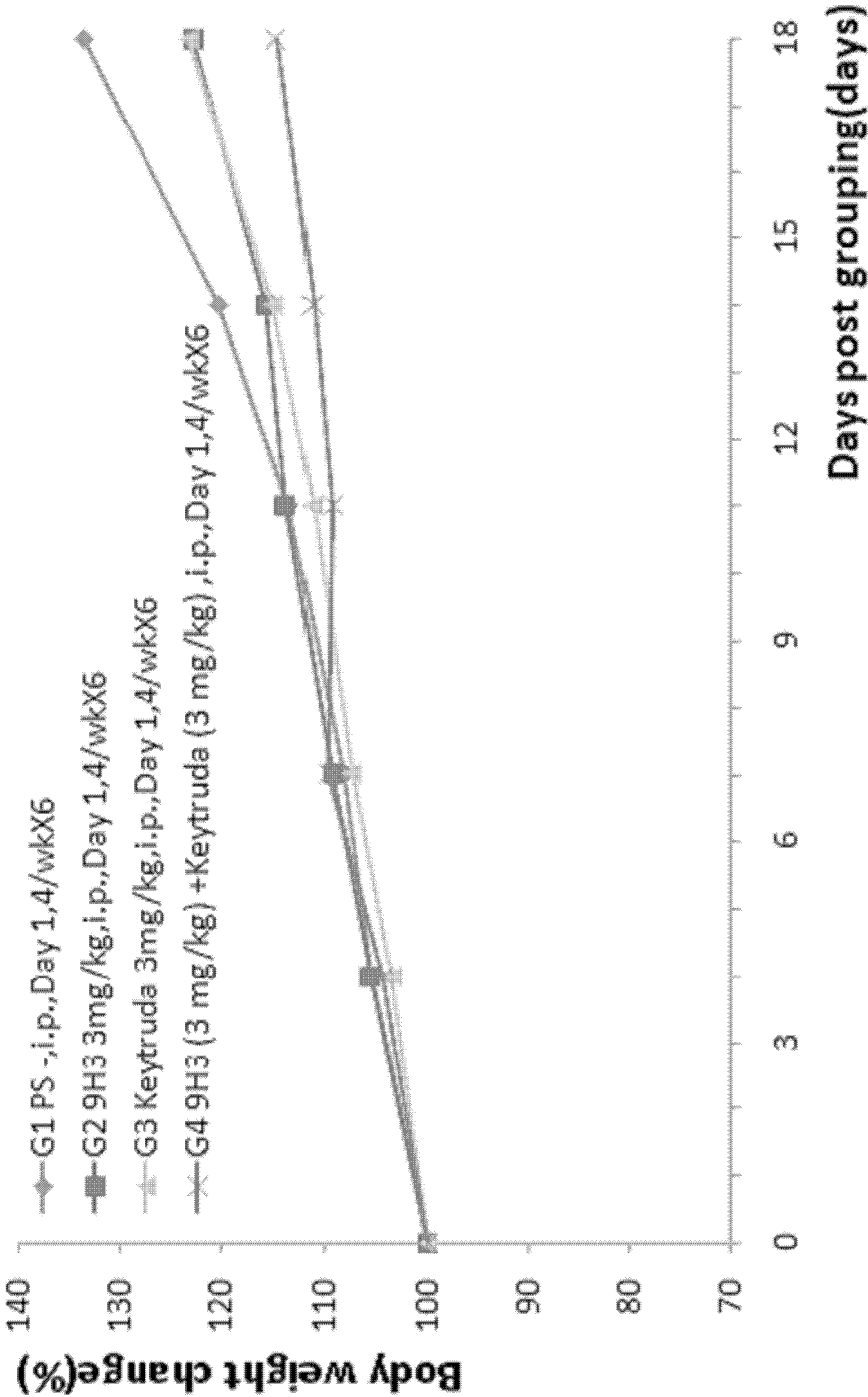


FIG. 23

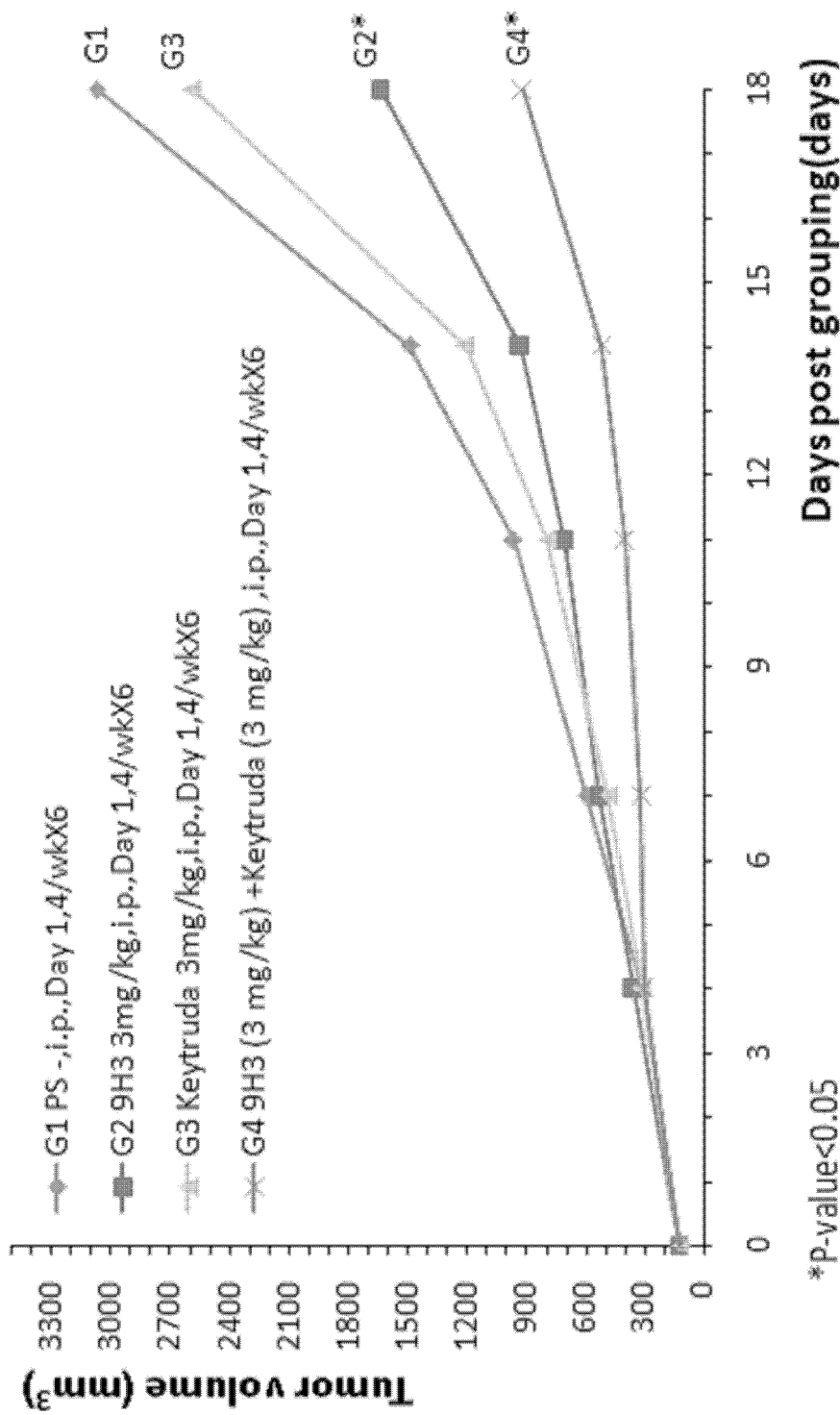


FIG. 24

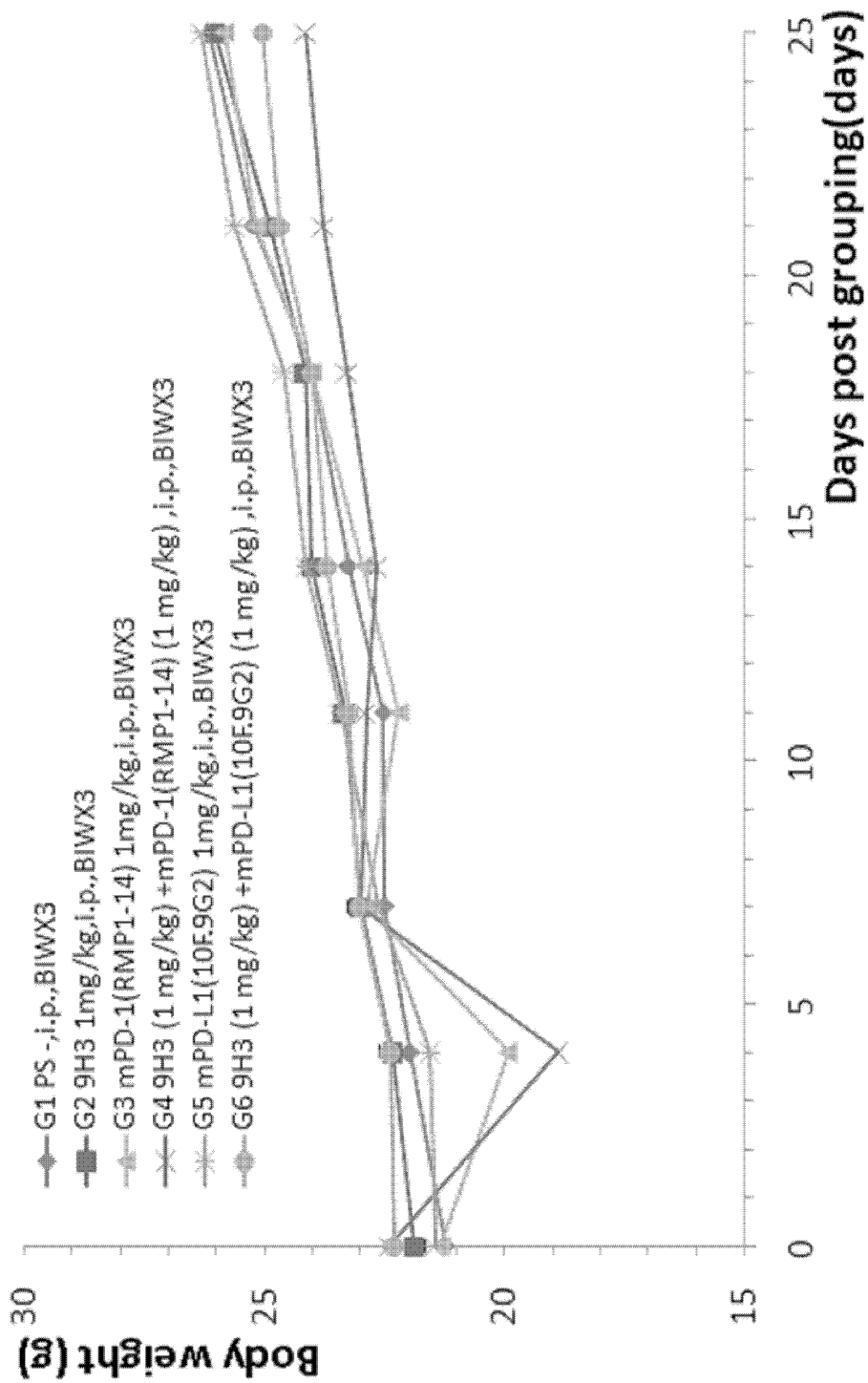


FIG. 25

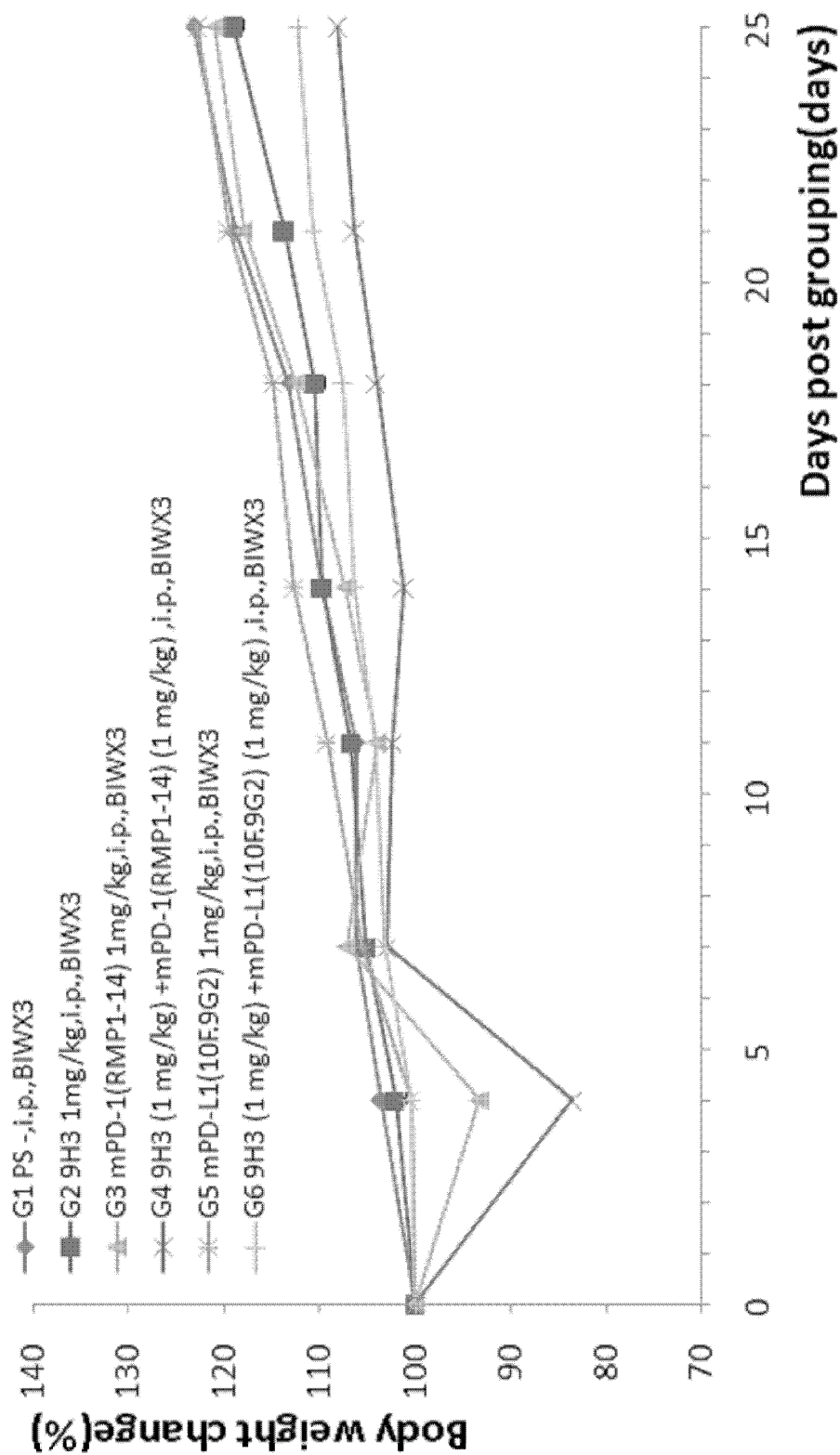


FIG. 26

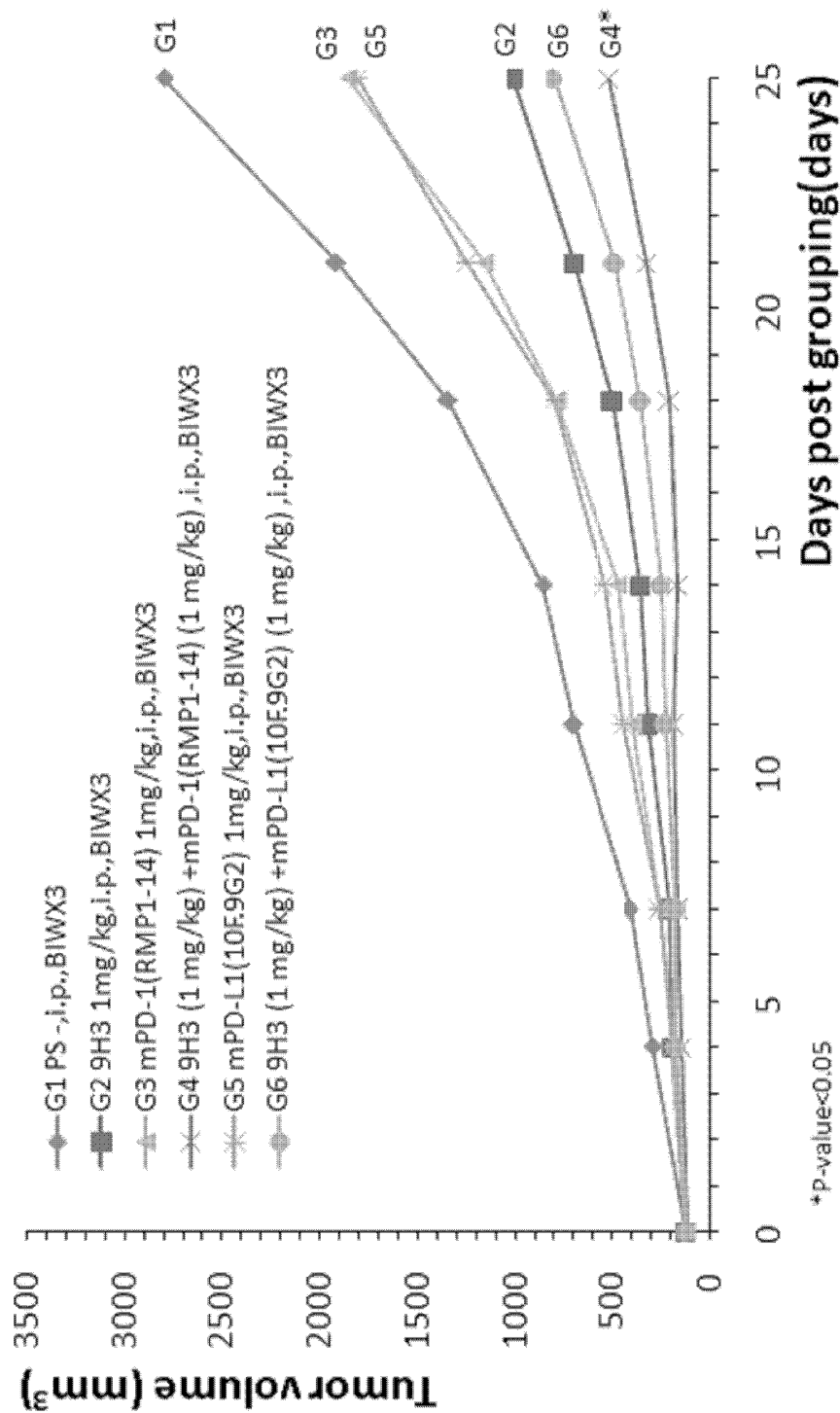


FIG. 27

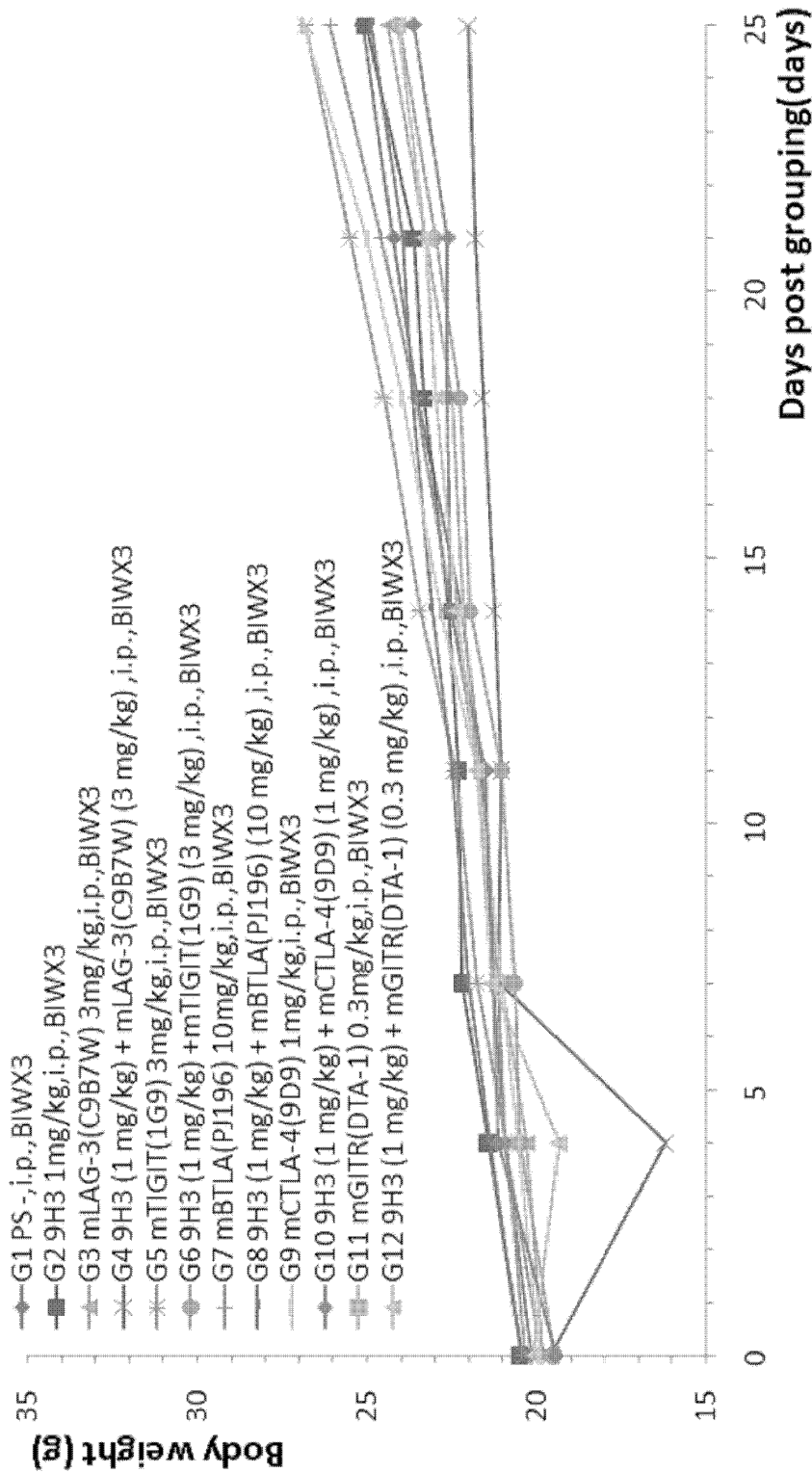


FIG. 28

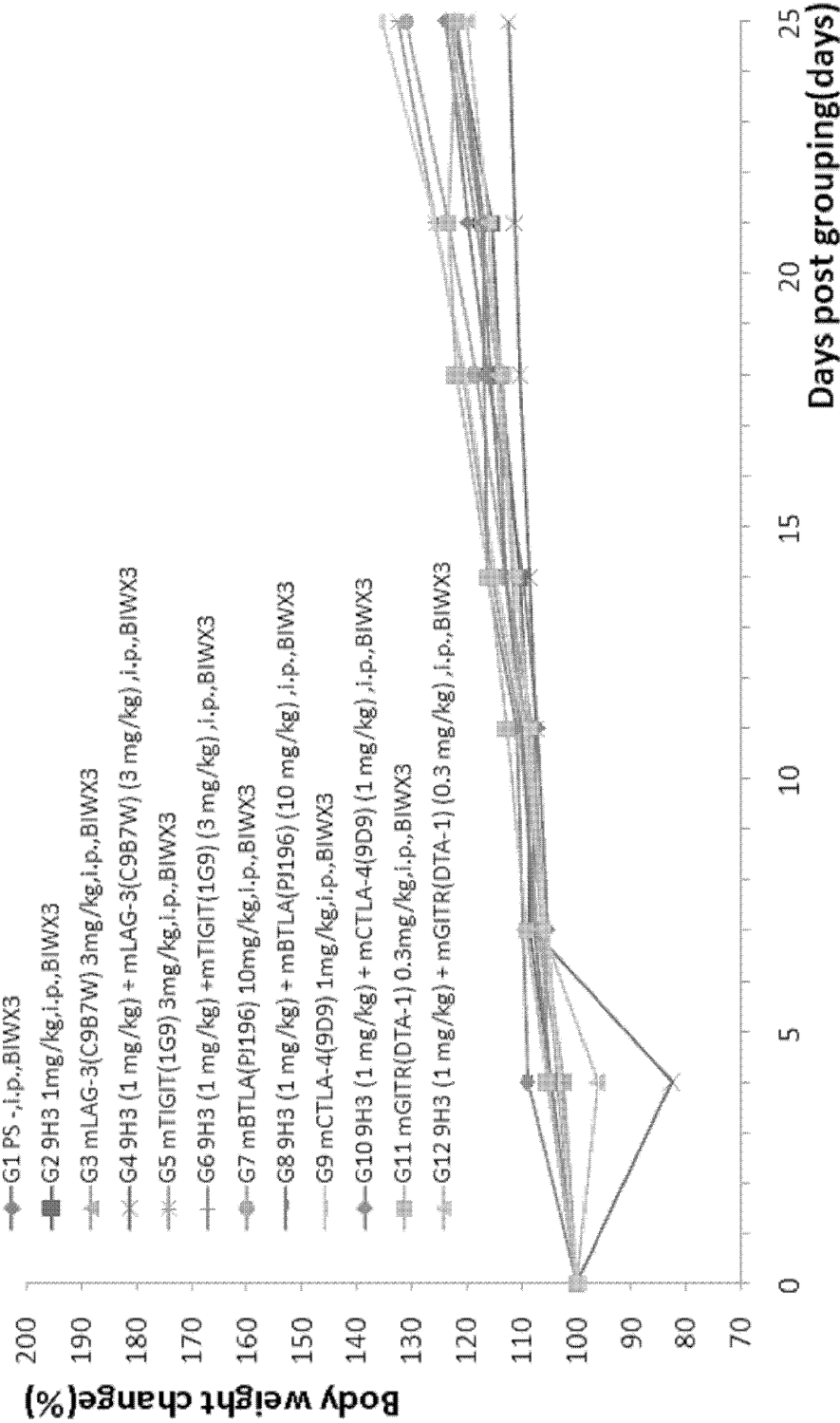


FIG. 29

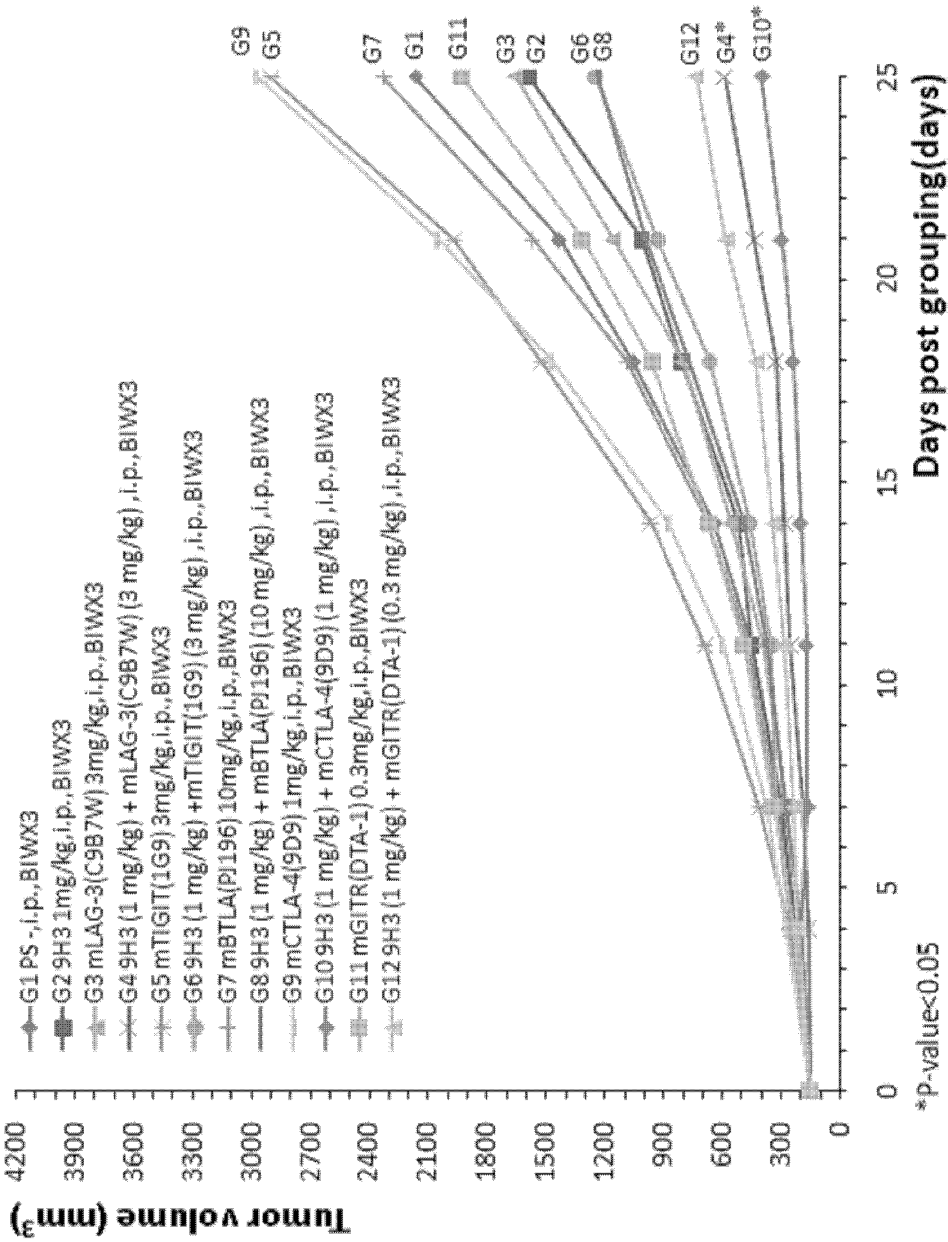


FIG. 30

Kabat CDR

Ab	VH CDR1	SEQ ID:	VH CDR2	SEQ ID:	VH CDR3	SEQ ID:	VL CDR1	SEQ ID:	VL CDR2	SEQ ID:	VL CDR3	SEQ ID:
07-9H3 or humanized 07-9H3	SYGVL	1	VIWSGGSTDYNA AFIS	2	EEFGY	3	RASQDINNVLN	4	YTSRLHS	5	QQNTLP WT	6
07-9A4 or humanized 07-9A4	DYN MD	7	DINPNYDST SYNQKFKG	8	GGYGN VDYFDY	9	KASENVVT YVS	10	GASNR YT	11	GQSYS YPT	12
11-5C1 or humanized 11-5C1	SYWM H	13	TIVPGNSDTSNN QKFKG	14	FYRYEDY AMDY	15	KASQDVNTAV A	16	SASYRYT	17	QQHYSTP FT	18
17-5D10 or humanized 17-5D10	SYGVH	19	VIWAGGNTNPN SALMS	20	YDGYGWF AY	21	RASQDISYVLN	22	YTSRLHS	23	QQGHTL PWT	24

FIG. 31

Chothia CDR

Ab	VH CDR1	SEQ ID:	VH CDR2	SEQ ID:	VH CDR3	SEQ ID:	VL CDR1	SEQ ID:	VL CDR2	SEQ ID:	VL CDR3	SEQ ID:
07-9H3 or humanized 07-9H3	GFSLT SYGVL	25	WSGGS	26	EEFGY	27	RASQDINNVLN	28	YTSRLHS	29	QQTNLTLP WT	30
07-9A4 or humanized 07-9A4	G Y T F T D Y N M D	31	N P N Y D S	32	G G Y G N Y V D Y F D Y	33	K A S E N V V T Y V S	34	G A S N R Y T	35	G Q S Y S Y P Y T	36
11-5C1 or humanized 11-5C1	GYSFT SYWM H	37	YPGNSD	38	FYYRYEDYY AMDY	39	KASQDVNTAV A	40	SASYRYT	41	QQHYSTP FT	42
17-5D10 or humanized 17-5D10	GFSLT SYGVH	43	WAGGN	44	YDGYYGWF AY	45	RASQDISYVLN	46	YTSRLHS	47	QQGHTL PWT	48

FIG. 32

Protein	Amino acid sequence	SEQ ID NO:
Human OX40 (hOX40) NP_003318.1	MCVGARLGR GPCAAALLLG LGLSTVTGLH CVGDTYPSND RCHECRPGN GMVSRCSRSQ NTVCRPCGPG FYNDVWSSKP CKPCTWCNLR SGSEKQLCT ATQDTVCRCR AGTQPLDSYK PGVDCAPCPP GHFSPGDNQA CKPWTNCTLA GKHTLQPASN SSDAICEDRD PPATQPQETQ GPPARPTVQ PTEAWPRTSQ GPSTRPVEVP GGRAVAAILG LGLVLGLLGP LAILLALYLL RRDQRLPPDA HKPPGGGSR TPIQEEQADA HSTLAKI	49
Mouse OX40 (mOX40) NP_035789.1	MYVWQPTA LLLGLTLGV TARRLNCVKH TYPSGHKCCR ECQPGHGMVS RCDHTRDTLC HPCETGFYNE AVNYDTCKQC TQCNHRSGSE LKQNCPTPTQD TVCRCRPGTQ PRQDSGYKLG VDCVPCPPGH FSPGNNQACK PWTNCTLSGK QTRHPASDSL DAVCEDRSLL ATLLMETQRP TFRPTTVQST TVWPRTSELP SPPTLVTPPEG PAFAVLLGLG LGLLAPLTVL IALYLLRKAW RLPNTPKPCW GNSFRTPIQE EHTDAHFTLA KI	50
Monkey OX40 (mOX40) XP_001090870.1	MCVGARLGR GPCAAALLLG LGLSTAKLH CVGDTYPSND RCCQECRPGN GMVSRCNRSQ NTVCRPCGPG FYNDVWSAKP CKACTWCNLR SGSEKQPCT ATQDTVCRCR AGTQPLDSYK PGVDCAPCPP GHFSPGDNQA CKPWTNCTLA GKHTLQPASN SSDAICEDRD PPPTQPQETQ GPPARPTVQ PTEAWPRTSQ RPSTRPVEVP RGPAAVAAILG LGLALGLLGP LAMLLALLLL RRDQRLPPDA PKAPGGGSR TPIQEEQADA HSAIAKI	51
Chimeric OX40 (chiOX40) (Humanized OX40)	MYVWQPTA LLLGLTLGV TARRLNCVKH TYPNSNDRCCHECRPGNGMVSRCSRSQNTVCRPCGPGFYND VSSKPKCPCTWCNLRSGSEKQLCTATQDTVCRCRAGTQPLDSYKPGVDCAPCPGHHFSPGDNQACKPW TNCTLAGKHTLQPASNSSDAICEDRDPPATQPQETQGPAPRITVQPTAWPRTSELPSPPTIVTPGEP FAVLLGLGLLAPLTVL LAILYLLRKAWRLPNTPKPCWGNFRTPIQEHTDAHFTLAKI	52

FIG. 33

FIG. 34

Humanized antibody variable domains	Description	AMINO ACID SEQUENCE	SEQ ID NO:
9H3 Humanized heavy chain variable domain (H1)	HuVHv1: humanization percentage 81.6%; top hit to human and <i>Macaca fascicularis</i>	QVQLVESGGGVVQPGRLSLRISCAASGFSLTSGVLWVRQAP GKGLEWAVIWSGGSTDYNAAFISRLTISRDNKSTLYFQM NSLRAEDTAVYICAREEFGYWGQGLTVTVSS	53
9H3 Humanized heavy chain variable domain (H2)	HuVHv2: humanization percentage 78.6%; top hit to human and <i>Macaca fascicularis</i>	QVQLVESGGGVVQPGRLSLRISCAVSGFSLTSGVLWVRQAP GKGLEWAVIWSGGSTDYNAAFISRLTISRDNKSTLYFQM NSLRAEDTAVYICAREEFGYWGQGLTVTVSS	54
9H3 Humanized heavy chain variable domain (H3)	HuVHv3: humanization percentage 76.5%; not top hit to human and <i>Macaca fascicularis</i>	QVQLVESGGGVVQPGRLSLRISCAVSGFSLTSGVLWVRQAP GKGLEWLVGIWSGGSTDYNAAFISRLTISRDNKSTLYFQM NSLRAEDTAVYICAREEFGYWGQGLTVTVSS	55
9H3 Humanized light chain variable domain (K1)	HuVLv1: humanization percentage 87.4%; top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGDRTVITCRASQDINNINYNWYQQKPG GAVKLLIYYTSLRHTGVPSPRFSGSGGTDFTLTISLQPED IATYYCQQQTNTLPWTFGGGTKLEIKR	56
9H3 Humanized light chain variable domain (K2)	HuVLv2: humanization percentage 86.3%; not top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGDRTVITCRASQDINNINYNWYQQKPG GAVKLLIYYTSLRHSGLVSPRFSGSGGTDFTLTISLQPED IATYYCQQQTNTLPWTFGGGTKLEIKR	57
9H3 Humanized light chain variable domain (K3)	HuVLv3: humanization percentage 84.2%; not top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGDRTVITCRASQDINNINYNWYQQKPG GAVKLLIYYTSLRHSGLVSPRFSGSGGTDFTLTISLQPED IATYFCQQQTNTLPWTFGGGTKLEIKR	58
9A4 Humanized heavy chain variable domain (H1)	HuVHv1: humanization percentage 81.6%; not top hit to human and <i>Macaca fascicularis</i>	EVQLQQSGAEVKKPGASVKVSCKASGYTFDYNMMDWVRQAP GKGLEWIGDINPNYDSTSYNQKFKGRATLTVDKSTSTAYME LSSLRSEDTAVYICARGGYGNYVDYFDYWGQGLTVTVSS	59
9A4 Humanized heavy chain variable domain (H2)	HuVHv2: humanization percentage 80.6%; not top hit to human and <i>Macaca fascicularis</i>	EVQLQQSGAEVKKPGASVKVSCKASGYTFDYNMMDWVRQAP GKGLEWIGDINPNYDSTSYNQKFKGRATLTVDKSTSTAYME LSSLRSEDTAVYICARGGYGNYVDYFDYWGQGLTVTVSS	60

9A4 Humanized heavy chain variable domain (H3)	HuVHv3: humanization percentage 78.6%; not top hit to human and <i>Macaca fascicularis</i>	EVQLVQSGAEVVKPGASVKISCKASGYTFTDYNMDWVKQAP GKLEWIGDINPDYDSTSYNQKFKGRATLTVDKSTSTAYME LSSLRSEDTAVYICARGGYGNYVDYFDYWGQGTLLTVSS	61
9A4 Humanized light chain variable domain (K1)	HuVLv1: humanization percentage 84.4%; top hit to human and <i>Macaca fascicularis</i>	EIVMTQSPATLSLSPGERATLSCKASENVVTVVSWYQQKPG QAPRLIIYGASNRYTGIPARFSGSGSGTDFTLTISLQPED FADYHCGQSYSPYTFGQGTKEIK	62
9A4 Humanized light chain variable domain (K2)	HuVLv2: humanization percentage 84.2%; top hit to human and <i>Macaca fascicularis</i>	NIVMTQSPATLSLSPGERATLSCKASENVVTVVSWYQQKPG QAPRLIIYGASNRYTGIPARFSGSGSGTDFTLTISLQPED FADYHCGQSYSPYTFGQGTKEIK	63
9A4 Humanized light chain variable domain (K3)	HuVLv3: humanization percentage 80%; not top hit to human and <i>Macaca fascicularis</i>	NIVMTQSPATLSLSPGERATLSCKASENVVTVVSWYQQKPG QAPRLIIYGASNRYTGVPDRFSGSGSATDFTLTISLQPED FADYHCGQSYSPYTFGQGTKEIK	64
9A4 Humanized light chain variable domain (K4)	HuVLv4: humanization percentage 77.9%; not top hit to human and <i>Macaca fascicularis</i>	NIVMTQSPATLSLSPGERATLSCKASENVVTVVSWYQQKPG QSPRLIIYGASNRYTGVPDRFTGSGSATDFTLTISLQPED FADYHCGQSYSPYTFGQGTKEIK	65
5C1 Humanized heavy chain variable domain (H1)	HuVHv1: humanization percentage 81.2%; not top hit to human and <i>Macaca fascicularis</i>	QVQLVQSGAEVVKPGASVKMSCKASGYSTSYMMHWVRQRP GQGLEWIGTIYPGNSDTSNNQKFKGRVLTADTSASTAYME LSSLRSEDTAVYICTTFYRYEDYYAMDYWGQGTLLTVSS	66
5C1 Humanized heavy chain variable domain (H2)	HuVHv2: humanization percentage 80.2%; not top hit to human and <i>Macaca fascicularis</i>	EVQLVQSGAEVVKPGASVKMSCKASGYSTSYMMHWVRQRP GQGLEWIGTIYPGNSDTSNNQKFKGRVLTADTSASTAYME LSSLRSEDTAVYICTTFYRYEDYYAMDYWGQGTLLTVSS	67
5C1 Humanized heavy chain variable domain (H3)	HuVHv3: humanization percentage 79.2%; not top hit to human and <i>Macaca fascicularis</i>	EVQLVQSGAEVVKPGASVKMSCKASGYSTSYMMHWVRQRP GQGLEWIGTIYPGNSDTSNNQKFKGRVLTADTSASTAYME LSSLRSEDTAVYICTTFYRYEDYYAMDYWGQGTLLTVSS	68
5C1 Humanized light chain variable domain (K1)	HuVLv1: humanization percentage 84.2%; top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGRVITITCKASQDVNSAVAWYQQKPG KAPKLLIYSASRYTGVPSPRSGSGSGTDFTLTISLQPED FAVYICQGHYSTPFTFGQGTKEIK	69
5C1 Humanized light chain variable domain (K2)	HuVLv2: humanization percentage 83.2%; not top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGRVITITCKASQDVNTAVAWYQQKPG KAPKLLIYSASRYTGVPSPRSGSGSGTDFTLTISLQPED FAVYICQGHYSTPFTFGQGTKEIK	70

5C1 Humanized light chain variable domain (K3)	HuVLv3: humanization percentage 82.1%; not top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGDRVTITCKASQDVNTAVAWYQQKPG KSPKLLIYSASYRTGVPSRFSGSGGTFTTISLQPED FAVYYCQQHYSFTFGGKLEIK	71
5C1 Humanized light chain variable domain (K4)	HuVLv4: humanization percentage 77.9%; not top hit to human and <i>Macaca fascicularis</i>	DIVMTQSPSSMSASVGDRVTITCKASQDVNTAVAWYQQKPG KSPKLLIYSASYRTGVPSRFSGSGGTFTTISVQPED FAVYYCQQHYSFTFGGKLEIK	72
5D10 Humanized heavy chain variable domain (H1)	HuVHv1: humanization percentage 81.2%; top hit to human and <i>Macaca fascicularis</i>	QVQLQESGPGLVKPSSETLSLTCTVSGFSLTSYGVHWIRQPP GKGLEWLGVIWAGGNTNYSALMSRLTISKDNQVSLKM SSVTAADTAVYYCASYDGYGWFAYWGQGTIVTVSV	73
5D10 Humanized heavy chain variable domain (H2)	HuVHv2: humanization percentage 77.1%; not top hit to human and <i>Macaca fascicularis</i>	QVQLQESGPGLVKPSSETLSITCTVSGFSLTSYGVHWIRQPP GKGLEWLGVIWAGGNTNYSALMSRLTISKDNQVSLKM SSVTAADTAVYYCASYDGYGWFAYWGQGTIVTVSV	74
5D10 Humanized heavy chain variable domain (H3)	HuVHv3: humanization percentage 75%; not top hit to human and <i>Macaca fascicularis</i>	QVQLQESGPGLVKPSSETLSITCTVSGFSLTSYGVHWIRQPP GKGLEWLGVIWAGGNTNYSALMSRLTISKDNQVSLKM SSVTAADTAMYNCAASYDGYGWFAYWGQGTIVTVSV	75
5D10 Humanized light chain variable domain (K1)	HuVLv1: humanization percentage 86.3%; not top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGDRVTITCRASQDISYVLNHWYQQKPG KAVKLLIYTSRLHSGVPSRFSGSGGTFTTISLQPED FATYFCQQGHTLPWTFGGGKLEIK	76
5D10 Humanized light chain variable domain (K2)	HuVLv2: humanization percentage 85.3%; not top hit to human and <i>Macaca fascicularis</i>	DIQMTQSPSSLSASVGDRVTITCRASQDISYVLNHWYQQKPG GAVKLLIYTSRLHSGVPSRFSGSGGTFTTISLQPED FATYFCQQGHTLPWTFGGGKLEIK	77
5D10 Humanized light chain variable domain (K3)	HuVLv3: humanization percentage 82.1%; not top hit to human and <i>Macaca fascicularis</i>	DIQMTQSTSSLSASVGDRVTITCRASQDISYVLNHWYQQKPG GAVKLLIYTSRLHSGVPSRFSGSGGTFTTISLQPED IATYFCQQGHTLPWTFGGGKLEIK	78

07-9H3 ("9H3") Heavy chain variable region (SEQ ID NO: 79)
 QVQLKQSGPGLVQPSSQLSLITCTVSGFSLTSYGVLVVRQPPGKGLEWLGVIWSGGST
 DYNAAFISRLSISKDNSKQVFFKMNSLQADDTAIYYCAREEFGYWGQGTLLVTVSA

07-9H3 ("9H3") Light chain variable region (SEQ ID NO: 80)
 DIQMTQTSSLSASLGDRVTISCRASQDINNVLNWYQKPDGTVKLLIYYTSRLHSGV
 PSRFGSGSGTDYSLTISNLEQEDIATYFCQQQTNTLPWTFGGGTKLEIK

07-9A4 ("9A4") Heavy chain variable region (SEQ ID NO: 81)
 EVQLQQFGAELVKPGASVKISCKASGYTFRTDYNMDWVKQSHGKSLEWIGDINPNYDS
 TSYNQKFKGKATLTVDKSSSTAYMELRSLTSEDTAVYYCARGGYGNYVDYFDYWGQ
 GTTLTVSS

07-9A4 ("9A4") Light chain variable region (SEQ ID NO: 82)
 NIVMTQSPKSMMSVGERVTLSCKASENVVTYVSWYQQKPEQSPKLLIYGASNRYTG
 VPDRTGSGSATDFTLTISSVQAEDLADYHCGQSYSYPYTFGGGTKLEIK

11-5C1 ("5C1") Heavy chain variable region (SEQ ID NO: 83)
 EVQLQQSGTVLARPGLASVKMSCKASGYSTSYWMHWVKQRPQGQGLEWIGTIYPGNS
 DTSNNQKFKGKAKLTAVTSASTAYMELSSLTNEDESAVYYCTTFYRYEDYYAMDYVW
 GGTSVTVSS

11-5C1 ("5C1") Light chain variable region (SEQ ID NO: 84)
 DIVMTQSHKFMSTSVGDRVSITCKASQDVNTAVAWYQQKPGQSPKLLIYASRYRYTG
 VPDRTGSGSGTDFTFTISSVQAEDLAVYYCQQQHYSYTFPGSGTKLEIK

17-5D10 ("5D10") Heavy chain variable region (SEQ ID NO: 85)
 QVQLKESGPGLVAPSSQLSLITCTVSGFSLTSYGVVHWIRQPPGKGLEWLGVIWAGGNT
 NYNSALMSRLSISKDNSKQVFLKMNSLQTDDTAMYNCA SYDGYGWFAYWGGQGTLL
 VTVSV

17-5D10 ("5D10") Light chain variable region (SEQ ID NO: 86)
 DIQMTQTSSLSASLGDRVTISCRASQDISYYLNLNWYQQKPDGTVKLLIYYTSRLHSGV
 PSRFGSGSGTDYSLTISNLEQEDIATYFCQQGHTLPWTFGGGTKLEIK

FIG. 35