

FIG. 1

Human	-MIVFI FLAMGLSLENEYTSQTNNCTYLREQCLRDANGCKHAWRVMEDACNDSDPGDPCK
Chimpanzee	-MIVFI FLAMGLSLENEYTSQTNNCTYLREQCLRDANGCKHAWRVMEDACNDSDPGDPCK
Cynomolgus	-FVVVVIQALGLSLENEYTSQTNNCTYLREQCLHDANGCKHAWRIMEDACNDSDPGDPCK
Giant Panda	-MVVFI FLAVALCLENESTSETIDCTYLREQCLRDANGCKHAWRIMEDSCNVSEPGNPCK
Dog	-MIVFI FLAMVLCLENESTSQTIDCTHLREQCLSDADGCKHAWRIMEYSCNVSVPGNPCK
Cat	-SVLIVI SAMVLCLENESTSQTIDCTYLREQCLSDTNGCKLAWRKMEDSCNVSDPGNPCK
Pig	-SVIAVLQAVGLYLENESTSQTTDCTYLRELCLNDTDGCKQAWRIMEDACNVSDPGNTCQ
Bovine	-PLIVVIQAVGLCLN - KSASQTTDCTYLRELCLSDADGCKHAWRIMEDACNV - -GNTCQ
Mouse	-MLVFI FLAVTLSSENESSSQTNDCAHLIQKCLIDANGCEQSWRSMEDTCLT - -PGDSCK
Rat	-MLVFI FLAVRLSSENESSSQTNDCAYFMRQCLTDTDGCKQSWRSMEDACLV - -SGDSCK
Chinese Hamster	
Platypus	MKHYFLFVVLMLGFKCESASLT* * * * *TGCLHLRKQCVSAMDGCESAWAVIEDVCNV - -GHNCT
Human	MRNSSYCNLSIQYLVESNFQFKECLCTDDFYCTVKNLLGKKCINKSDNVKED - KFKWNLT
Chimpanzee	MRNSSYCNLSIQYLVESNFQFKECLCTDDFYCTVKNLLGKKCINKSDNVKED - KFKWNLT
Cynomolgus	MNNSYCNLSIQYLVESNFRFKECLCTDDFYCTVKNLLGKECVNKSNDMRED - KFKWNLT
Giant Panda	MKDSSKCNLSIQSLVESNFQFEDCLCTDNLCTINKLLGEQCINESGNVKEDNQSKWNLT
Dog	MKDSSNCNLSIQSLVENNFQFEDCLCTDNIYCTINKLLGEQCMNESDNMKEDNQYKWNLT
Cat	MKDSSNCNLSIQSLVENNFQFEDCLCTGNLHCTINKLLGKKCINESDNMKEDNQSKWNLT
Pig	MKDSSSCNQSIQSLAESNFQFKDCLCSDDLYCTVNNLI GKKCTNESDNMKEDGVFKRNLT
Bovine	MKNSSCCGLSIQSLVESNLQFKDCLCFDDLYCTFNKLLGKKCINESDNI KEDNKYKWNLT
Mouse	INNSLHCNLSIQALVEKNFQFKECLCMDDLHCTVKNLFGKKCTNKTDNMEKDNKDKNLT
Rat	INNPLPCNLSIQSLVEKHFQFGKCLCTDDLHCTVNKI FGKKCTNKTDMSMKDNKYKRNLT
Chinese Hamster	
Platypus	MKESLNCNLSIQLLADRYPAFKDCLCAEDISCSATNFLGRKCI IKTENEHKDKNIKSLWN

FIG. 1 (continued)

Human	TRSH--HGFKGMWSCLEVAEACVGDVVVCNAQLASYLKACSAANGNPCDLKQCQAAIRFFFYQ
Chimpanzee	TRSH--HGFKGMWSCLEVAEACVGDVVVCNAQLASYLKACSAANGNPCDVKQCQAAIRFFFYQ
Cynomolgus	THSH--HGFKGMWSCLEVAEACVGDVVVCNAQLASYLKACSAANGNPCDVKHCQAAIRFFFYQ
Giant Panda	TLPY--QGIGKIQSCLEVAEACVGDVVVCNAQLAPYLKACSAANGNLCDVKHCQAAIRFFFYQ
Dog	TLPY--HGIGKIQSCLEVAEACVGDVVVCNTQLAAAYLKACSAANGNLCDVKHCQAAIRFFFYQ
Cat	TLPY--NGIGKIQSCLEVAEACVGDVVVCNAQLAPYLKACSAANGNLCDVKHCQAAIRFFFYQ
Pig	APSY--HGIRGIQSCLEVAEACVRDTCVNAQLALYLKACSAANGNLCDVKHCQAAIRFFFYQ
Bovine	TLSY--HGGRGVQSCLEVAEVCIGDALCNAQLALYLKACSAADGKLCDVKHCQAAIRFFFYQ
Mouse	TTPF--YHGFKQMQSCLEVTEACVGDVVVCNAQLALYLKACSAANGNLCDVKHCQAAIRFFFYQ
Rat	TPLYHDTGFKQMQSCLEVTEACVGDVVVCNAQLALYLKACTANGNLCDVKHCQAAIRFFFYQ
Chinese Hamster	@ ACSANGNLCDVKHCQAAIRFFFYQ
Platypus	STSLQHGHGFKGTRSCLEVTVACVGDVTVCNKQLARFLKDCSTHGSGLCNMNQCQAAIRFFFYQ
	* **** * * * * * **** *
Human	NIPFNIAQMLAFCDCAQSDIPCQQSKEALHSKTCAVNMVPPPTCLSVIRSCQNDELCTRRH
Chimpanzee	NIPFNIAQMLAFCDCAQSDIPCQQSKEALHSKTCAVNLVPPPTCLSVIRSCQNDELCTRRH
Cynomolgus	NIPFNIAQMLAFCDQSQSDIPCQQSKEALHSKPCALNMVPPPTCLNVIRSCQNDELCTRRH
Giant Panda	NMPFNIAQMLAFCDCAQSDIPCQQSREALHSKPCAVNVVPPPTCLDVIHSCRNDELCTRRR
Dog	NMPFNIAQMLAFCDCAQSDIPCQQSKEALHSKPCAVNVVPPPSCLDVIHSCRNDELCTRRR
Cat	SMPFNIAQMLAFCDCAQSDIPCQQSKEALHSKPCAVNI VPPPTCLNVIHSCRNDELCTRRR
Pig	NMPFNIAQMLAFCDCAQSDIPCQQSKEALHSKPCALNRVPAFTCLDVIRSCQNDELCTRRR
Bovine	NMPFNIAQMLAFCDCAQSDIPCQQSREALHSPCAVNRVPTTCLDVIHSCQDDDELCTRRR
Mouse	NMPFNIAQMLAFCDCAQSDIPCQQSKEALHSPCAVNRVPTTCLDVIHSCRNDELCTRRH
Rat	NMPFNIAQMLAFCDCAQSDIPCQQSKEALHSPCAVNRVPTTCLSVIHTCRNDELCTRRH
Chinese Hamster	NMPFNIAQMLAFCDCAQSDIPCQQSKEALHSPCAVNVVPPPTCLSVIHTCRNDELCTRRH
Platypus	NIPFNIAQMLAFCDCAQSDIPCQQSKEALHSPCAVNVVPTPSCLVIRSCRDDELCTRRH
	*** ***** * ***** * * * * * * * * * * * * * * * *

FIG. 1 (continued)

Human	YRTFQSKCWQVRVTRKCHEDENCISTLSKQDLTCSGSDDDCKAAYIDILGTVLQVQCTCRTI
Chimpanzee	YRTFQSKCWQVRVTRKCHEDENCISALSQDLTCSGSDDDCKAAYIDILGTVLQVQCTCRTI
Cynomolgus	YRTFQTKCWQVRVTRKCHEDENCISALSQDLTCSGSDDDCKAAYIDILGTVLQVQCNCRTI
Giant Panda	YRTFQSKCWQHVTRKCHEDELICISTLSQDLTCSGSDDDCKAAYIGTFFTVLQVQCTCRTI
Dog	YRTFQSKCWQHMIRKCHEDELICISTLSQDLTCSGSDDDCKAAYIGTFFTVLQVQCTCRTT
Cat	YRTFQWKCWQVTRKCHEDEFICISTLSQDLTCSGSDDDCKAAYIGILGTVLQAQCTCRTI
Bovine	YRIFQAKCWQHVMRKCHEDETCIGTLSKQDLACSGSDDDCKAAYIGTIGTVLQGQCTCRTI
Pig	YRIFQAKCWQHVTAACHDDETCISTLNKQDFTCSRSDDDCKAAYMGTLGTALQGQCTCRTT
Mouse	YRTFQTECWPHITGKCHEDETCISMLGKQDLTCSGSESCRAAFGLGTFVLQVPCACRGV
Rat	YRTFQTECWPHVAGKCREDETCISMLGKQDLTCSGSDSCRAAYLGTFFTVLQVPCACRSI
Chinese Hamster	YQTFQSECFWFHVMGKCHEDETCIGTIGKQDLICSGSDSCRAAYLGTFFTVLQVPCACRSI
Platypus	FETFQSKCWQDM-DKCSDDDETCIVTLNKENITCSRNEECREAYIGTLGTYLHVQCTCSTL
	** ** ** ** ** * ** * * *
Human	TQSEESLCKIFQHMLHRKSCFNYPPTLSNVKGMALYTRKHANKITLTGFHSPFNGEVIYAA
Chimpanzee	TQSEESLCKIFQHMLHRKSCFNYPPTLSNVKGMALYTRKHANKITLTGFHSPFNGEVIYAA
Cynomolgus	TQSEESLCKIFQHMLHRKSCFNYPPTLSNVKSMALYTRKHTNKITLTGFQSPFNGEVIYAA
Giant Panda	TQSEESLCKIFQHMLHRRSCFDYLTLSNVKGMALHKKRPAKEITLSGFHSPFNGEVIYAV
Dog	TQNEESLCKIFQHMLHGRSCFDYPTLSNVKGMALHERKHAKETLSGFHSPFNGEVIYAV
Cat	TQGEESLCKIFQHMLHRRSCFNYPPTLSNVKGIALHKKRHAKEITLSGFHSPFNGEVIYAV
Bovine	TQSEESLCKTFQHMLHRKSCFNNKPTQNLK-----
Pig	TQSEESLCKIFQHMLHGKSCFNYPPTLSNVKGIALHKKRHAKEISLSCQSPFNGEVIYAV
Mouse	TQAEHVCMIFQHMLHLSKSCFNYPPT-PNVKDISSYEKKNSKEITLTGFNSFFNGELLYVV
Rat	TQGEPLCMAFQHMLHLSKSCFNYPPT-PNVKDISSYERKHSKEITLTGFNSPFSGELIYVV
Chinese Hamster	TQDEEPLCMTFQHMLQSKSCFNYPPT-PNVKDISSYKGKHSKEITLTGFESPFNGELVYAV
Platypus	SLTEEYLCKIFHHILHSRSCFS-----
	** * * * **

FIG. 1 (continued)

Human	MCMTVTTCGILLLLVMVKLR	TSRISSKARDPSSIQIPGEL---	(1797)
Chimpanzee	MCMTVTTCGILLLLVMVKLR	TSRISSKARDPSPiQIPGEL---	(1832)
Cynomolgus	MCMTVTTCGILLLLVMVKLR	TSRISSKARDPSLSQVPGEL---	(1800)
Giant Panda	MCMTVTTCGILLLLVMVKLR	TSRISSQTRDHSPIRIPGGL---	(1833)
Dog	MCMTVTTCGILLLLVMVKLR	TSRISSQTRDHSPIQIPGGL---	(1834)
Cat	MCMTVTTCGILLLLVMVKLR	TSRISSQTRDHSVPQILEEL---	(1835)
Bovine	-----	-----	(1836)
Pig	MCMTVTTCGILLLLVMFKLR	NFRISQTRDPSPiQIPGEP---	(1837)
Mouse	VCMAVTCGILFLVMLKLR---	--IQSEKRDPSIIEIAGGVIIQ	(1802)
Rat	VCMVVTSGILSLVMLKLR---	--IPSKKRDPAPIEIAGAVIIQ	(1804)
Chinese Hamster	LCMVVTCGILFLVMLKLR---	-----	(1838)
Platypus	-----	-----	(1839)

@ Chinese hamster

MDVLLNHSFTSFIEESTLPSDLVPRSNVTQGFREDTFLTAERKDDCVAAAEACQESVHC
SLIHENFKACGKGTAQCHTSLSGQQFCVALRESLRETVLWDCQCQGFPLEGDCIRIWKGLF
EDICIEDTQINQIATFSQDNEDRLKEDIASDNLKDNKFKWDLTTLHH (1840)

FIG. 2

Human	-----MPGQELRTVNGSQMLLVLLVLSWLPHGGALSLAEASRASFPGPS-----ELHSE
Rhesus monkey	-----MPGQELKTLNGSQMLLVLLVLLWPPHGGAMSLAEASRASFPGPS-----DLHSE
Gibbon	-----MPRQEPRLNGSQMLLVLLVLSWPPHGGALSLAEASPASFPGPS-----ELHSK
Chimpanzee	-----MPRQELRTLNGSQMLLVLLVLSWPPHGGALSLAEASRASFSGPS-----ELHSE
Orangutan	-----MPRQELRTLNGFQMLLVLLVLSWPPHGGALSLAEASRASFPGPS-----DLHSE
Cow	-----MPGQRPAAPHRSRMLLMLLMFSLWLSRSGGALSLTQEHLQTFQGPS-----NVHSS
Pig	-----MPGQLPSPRRSPTLLMLMLLSWLPSGGALSLAQEHLPALPGPS-----DVHSS
Dog	-----MPGQGPAPAHCSFMLVILVMSLWLPSCGALSLAQEHLPAFPGPS-----DPHSS
Giant panda	-----MPGQGLTPPPGSPMLMLLMFSLWLPSCGALSLAQEHLPAFPGPS-----DTHSS
Ferret	-----HSSPMLPVLLMFSLWLPSCGALSLAQERLPAFPGPS-----DAHSS
Mouse	MAPPALQAQPPGGSQRLFLFLLLLLLSWPSQGDALAMPEQR-PSGPES-----
Guinea pig	-----MPA-----LGFTLLLLAAVSRPPPGGASGP-AEKLPAEPDPDLDPDRDPD
	* * *
Human	--DSRFRELKRYEDLLTRLRANQSWEDSNTDLPAPAVRILTPEVRLGSGGHLHLRISR
Rhesus monkey	--DSRFRELKRYEDLLTRLRANQSWEDSNTDLIOAPEVRILTPEVRLGSGGHLHLRISR
Gibbon	--DSRFRELKRYEDLLTRLRVNQSWEDLNTDLPAPAVRILTPEVRLGSGGHLHLRISR
Chimpanzee	--DARFRELKRYEDLLTRLRANQSWEDSNTDLPAPAVRILTPEVRLGSGGHLHLRISR
Orangutan	--DSRFRELKRYEDLLTRLRANQSWEDSNTDLPAPAVRILTPEVRLGSGGHLHLRISR
Cow	PDISRFRELKRYEDLLTRLRANQSWEDSNPDLI PPQVRI VTPKLR L GPGGHLHLRIPR
Pig	SDVSRFRELKRYEDLLTRLRANQSWEDSNPNLI PAPQVRI VTPKFR L GPGGHLHLRIPR
Dog	TDVSRIQELRKRYEHLQTKLR L NQGWADSNPDLPATRVRI LTPKLR L GPRGHLHLRIAR
Giant panda	TDVSR AQEF RKRYAHLQTRLWLNQSRADSNSDLI PAAQVRILTPKLR L GSGGHLHLRIAR
Ferret	MDISRAQEF RKHYEHLQTRLRLNQSWGDSNSDLNLTAPVRILTPKLR L GPGGHLHLRIAL
Mouse	--QLNADELRCRFQDLLSRLHANQSREDSNSESPDPAVRILSPEVRLGSHGQLLLRVNR
Guinea pig	PAAHPARELRRRFEDLLARLRANRSADALPAERSPAPVVHTLTDPVRRGHDGSLHLRIPR
	* * * * *

FIG. 2 (continued)

Human	AALPEGLPEASRLHRALEFRLSPTASRSWDVTRPLRRQLSLARPQAPALHLRLSPPPSQSD
Rhesus monkey	AVLPEGLPEASRIHRALEFRLSPTASRSWDVTRPLRRQLRLARPQAPALHLRLSPPPSQSD
Gibbon	AALPEGLPEASRLHRALEFRLSPTASRSWDVTRPLRRQLSLARPQAPALHLRLSPPPSRSD
Chimpanzee	AALPEGLPEASRLHRALEFRLSPTAARSWDVTRPLRRQLSLARPQAPALHLRLSPPPSQSD
Orangutan	AALPEGLPEASRLHRALEFRLSPTASRSWDVTRLLRRQLSLARPQAPALHLRLSPPPSQSD
Cow	VNLTEGLPAAASRLHRALEFRLSPTAARSSWDVTRPLRRQLRGGSRGPSIRLLRLARPDQ--
Pig	VNLTEGLPAAASRLHRALEFRLSPTAARSSWDVTRPLRRQLSVGGSRGSAIHLRLLRPDQ--
Dog	ADLTAGLPAAASRLHRALEFRLSPTESPSSWDVTRPLQRQLSRVGSRTPTLRLRLPRWDR--
Giant panda	ADLTEGLPAAASRLHRALEFRLSPTESPSSWDVTRPLQRQLSLGGSRAPVLRRLRLPQWDP--
Ferret	ADLTEGLPATSRHQAALLRLSPMEPSSWDVTRPLQRQLSLGGSRASALHLRLRLPRLN--
Mouse	ASLSQGLPEAYRVHRALEFRLSPTA-RPWDITRPLKRALSLRGPRAPALRLRLTPPPDL--
Guinea pig	ASLPPGVPRASRVQHALLRLSPETREPWDVTRPLQRQLRLDPRAPALLHLWPPSDRW-
	* * * * *
Human	QLLAESSARPQLELHLRPQAARGRRRARARNGDHCPLGPGRCCRLHTVRSASLEDLGWAD
Rhesus monkey	QLLVKSSSRPQLELHLRLRAARGRRRARARNGDRCPLGPGRCCRLHTVHASLEDLGWAD
Gibbon	QLLAESSARPQLELHLRPQAARGRRRARARNGDHCPLGPGRCCRLHTVRSASLEDLGWAD
Chimpanzee	QLLAESSARPQLELHLRSRAAGLRARARNGDHCPLGPGRCCRLHTVRSASLEDLGWSD
Orangutan	QLLAESSARPQLELHLRPRAARGRRRARARNGDHCPLGPGRCCRLHTVRSASLEDLGWAD
Cow	-LQEALPSAPPQLELHWRP SATRGRHHAHAHTRDGCPLGEGRCCHLQSLRASLEDLGWAD
Pig	-LLEALPAGQPQLELHWRP SSTRGRRNTHAHTRDGCPLGTGRCCRLQSLRASLEDLGWAD
Dog	-SR-ALPSARPQLELHWRP PRAARGRRNAHAHARDGCPLGEGRCCRLQSLRASLEDLGWAN
Giant panda	-LGATLPSARPQLELHWRP PRAARGRRNAHAHGGDGCPLGEGRCCRLQSLRASLEDLGWAD
Ferret	-LRATLPSARPQLELHWRP SAARGRRDAHAHAGDGCPLGEGRCCRLQSLRASLEDLGWAN
Mouse	-- --AMLPSGGTQLELRLRVAAGRRRSAHAHPRDSCPLGPGRCCCHLETTVQATLEDLGWSD
Guinea pig	-- --RELSSAPPRLLEHLRTRSAARGRRSTRMRTRDDCPLGPGRCCRLHTVRSASLEDLGWTD
	*** * ** * * * * *

FIG. 2 (continued)

Human	WVLSPREVQVTMCIGACPSQFRAANMHAQIKTSLHRLKPDTPAPCCVPASYNPMVLIQK	
Rhesus monkey	WVLSPREVQVTMCIGACPSQFRAANMHAQIKMNLHRLKPDTPAPCCVPASYNPMVLIQK	
Gibbon	WVLSPREVQVTMCIGACPSQFRAANMHAQIKTSLHRLKPDTPAPCCVPASYNPMVLIQK	
Chimpanzee	WVLSPREVQVTMCIGACPSQFRAANMHAQIKTSLHRLKPDTPAPCCVPASYNPMVLIQK	
Orangutan	WVLSPREVQVTMCIGACPSQFRAANMHAQIKTSLHRLKPDTPAPCCVPASYNPMVLIQK	
Cow	WVLAPRELDVRMCIGACPSHFRSANTHAQMQARLHGLNPDAAAPCCVPASYEPVVLMHQ	
Pig	WVLAPRELDVRMCVGACPSHFRSANTHAQMQARLHGLNPDAAAPCCVPASYEPVVLMHQ	
Dog	WVVAPRELDVRMCVGACPSQFRSANTHAQMQARLHGLNPDAAAPCCVPASYEPVVLMHQ	
Giant panda	WVVAPRELDVRMCVGACPSQFRSANTHAQMQARLHGLNPEAAPCCVPASYEPVVLMHQ	
Ferret	WVVAPRELDVRMCIGACPSQFRSANTHAQMQARLHGLNPDAAAPCCVPASYEPVVLHMQ	
Mouse	WVLSPRQLQLSMCVGECPHLYRSANTHAQIKARLHGLQPDKVPAPCCVPSSYTPVVLMHR	
Guinea pig	WVLSPRELHVIGICMGECPSLYRSANTHAQVKARLHGLKPDSPAPCCVPSSSYDLVVLMHK	** ** *
		** ** *
Human	-TDTGVSLQTYDDLLAKDCHCI (1810)	
Rhesus monkey	-TDTGVSLQTYDDLLAKDCHCV (1841)	
Gibbon	-TDTGVSLQTYDDLLAKDCHCI (1842)	
Chimpanzee	-TDTGVSLQTYDDLLAKDCHCI (1843)	
Orangutan	-TDTGVSLQTYDDLLAKDCHCI (1844)	
Cow	DSDGRVSLTPFDDLLVAKDCHCV (1845)	
Pig	DSDGRVSLTPFDDLLVAKDCHCV (1846)	
Dog	DSDGRVSLTPFDDLLVAKDCHCV (1847)	
Giant panda	DSDGRVSLTPFDDLLVAKDCHCV (1848)	
Ferret	DSDGRVSLTPFDDLLVAKDCHC- (1849)	
Mouse	-TDSGVSLQTYDDLLVARGCHCA (1850)	
Guinea pig	-TDGGIALHTYDDLLIAKGCHCA (1851)	*
		* ** *

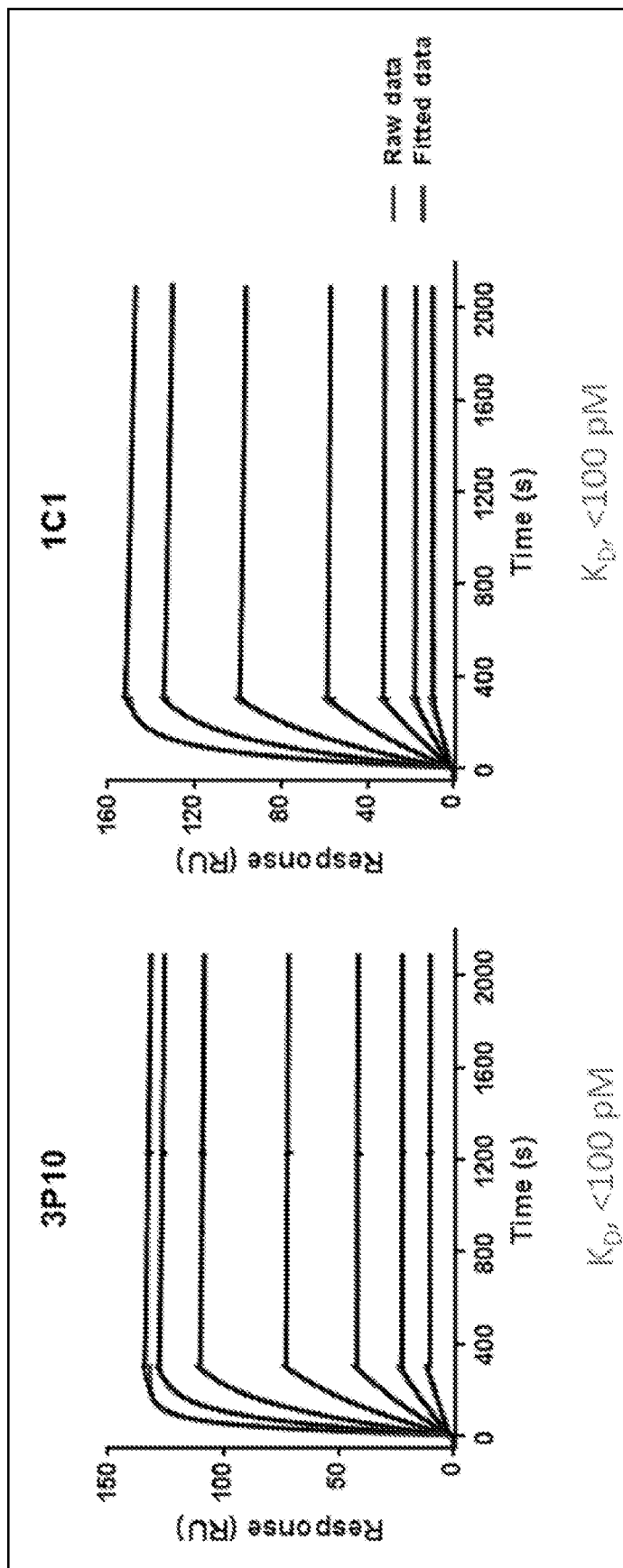
**FIG. 3**

FIG. 4A

VH Domains											
Kabat	1	10	22	31	35	40	50	58	65	74	76
AbM	1	10	22	26	35	40	50	58	65		
Chothia	1	10	22	26	32	40	a-55		65		
Contact	1	10	22	30	35	40	47	58	65		
IMGT	1		23	27	38	41	56	65			
AHon	1		23	27	42		57				
1C1	QMQLKQSGPGLVQPSQSLITCTVS GFSLND-YGVH WIRQSPGKGLEWLG VIW-SGGRTDYNAAFIS										
P8G4	QVQLKQSGPGLVQPSQSLITCTVS GFSLTS-YGVH WVRQSPGKGLDWLG VLV-SGGSTDYNAAFIS										
3P10	QIQLVQSGPELKKPGETVKISCKAS GYTFTD-YGVI WVKQAPGKALKWMG WINTYTGEPTYADDLKG										
12A3	QIQLVQSGPELKKPGETVKISCKAS GYPFTI-YGMN WVEQAPGKGLKWMG WINTYSGVPTYADDFKG										
2B8	QIQLVQSGPELKKPGETVKISCKAS GYTFTT-YGMS WVKQAPGKIFKWMG WINTYSGVPTFVDDFRG										
22N5	QNQLVQSGPELKKPGEIVKISCKTS GYTFTD-YSMH WVKTPGKGFKWMG WINTETGEPTYADDFKG										
2I23	QAQLQSQGAELVKPGASVKLSCKAS GYSFTS-YNID WVRQRPQGLEWIG WIFPGDGSIKYNEKFKG										
6N16	QVQLQSQGSELVKPGTSMKLSCKAS GYTFTS-YNIN WVRLRPEQGLEWIG WIFPGDDSIKYNENFRG										
1B3	QVHLQQPGAELVKPGASVKLSCKAS GFTFTG-YNIN WVRLRPEQGLEWIG WIFPGDDNAKYNEKFKG										
25M22	QVQLQSQGPDLVKPGASVKISCKAS GYTFTS-YWVN WMKQRPKGLEWIG RIYPGDGDTNNGKFKG										
19K19	QVQLQSQGPDLVKPGASVKISCKAS GYAFTS-YWMN WVKQRPKGLEWIG RIYPGDGDTNNGKFKG										
5F12	QVQLKQSGTELVRPGASVKLSCKAS GYTFTD-YYIN WVKQRPQGLEWIA RIYPGNGNTYHNEKFKG										
5A20	QVQLQSQGPELMKPGASVILSKAI GYTFTD-YWIE WVKERPQHGLEWIG EILLGSDSIHFNEKFKG										
8D8	QVQLKESGPGLVAPSQSLITCTVS GFSLSR-YSVH WVRQPPGKGLEWLG MIW-GFGSTDYNSALKS										
17J16	QVQLQSQGAELAKPGASVKMSCKTS GYTFTD-YWIH WVKQRPQGLEWIG YINPNSNYAEYNQKFKV										
2B3	EVKLVESSGGLVQPGGSLKLSCAAS GFTFSD-YFMF WVRQTPEKRLEWVA YISNDGDSITYYDPTVQG										
8C10	QVQLQSQSGVELARPGAAVKLSCKAS GYTTFAN-YGLT WVKQRTGQGLEWIG EIYPGSGHTHYNEDFKG										
2A9	EVKLVESSGGLVKPGGSLKLSCAAS GFTFST-YAMS WVRQTPEKRLEWVA SIT-SGGTTYTDSVKG										
24G2	QVQLQSQGAELLKPGASVKLSCKAS GYTFTT-YWMH WVKQRPQGLEWIG MIHPNSGSSNRYNEKFKN										
6G9	QVQLHQPGAELVKPGASVKLSCKTS GYTFTS-YWMQ WVKQRPQGLEWIG EIDPSDSYTNYNQKFKG										
2B11	DVQLQESGPGLVKPSQSLITCSVT GYSITSGYYVN WIRQFPGNKLEWVG HIA-NDGGSNYNPFLLKH										
P1B6	EVQLQSQSGPELVKPGASVKMSCKAS GYTFTD-YYMN WVKQTHGKSLEWIG DINPNNGGPIYNQKFKG										
1A3	EVQLQSQSGPELVKPGASVKISCKAS GFTFTD-YYMN WVKQSHGKSLEWIG DIIINNNGVTSYNQKFKG										
P1H8	EVQLQSQSGPELVKPGASVKISCKAS GYTFTD-YYMN WVKQSHGKSLEWIG DINPNNGGTTYNQKFKG										

FIG. 4A (continued)

Kabat	70	80	abc	90	95--100-----102	110
AbM	70	80	abc	90	95--100-----102	110
Chothia	70	80	abc	90	96-100-----101	110
Contact	70	80	abc	90	93-----100-----101	110
IMGT	75	89		105-----117		
AHon				106 109	138	
1C1	RLSISKDNKSQVFFKMSSLOPNDAIYYCAR	WALYFLYGG	---SMDY	WGQGTSVTVSS		
P8G4	RLSISKDNKSQVFFKMNSLOADDAIYYCAR	N-----FGDY		WGQGTSVTVSS		
3P10	RFAFSLETSASSASLQINNLKNEDTATYFCAR	RYGPE	-----DIDY	WGQGTTLTVSS		
12A3	RFAFSLETSASTAYLQINNLKDEDTATYFCAS	ATG	-----NY	WGQGTTLTVSS		
2B8	RFAFSLETSASTAYLQIGNLKNEDTATYFCAR	RSSYYPIW	---YFDV	WGTTTTLTVSS		
22N5	RFAFSLETSANTAHLQITNLKNEDTATYFCVK	GTL	-----NY	WGQGTTLTVSS		
2I23	QATLTDDKSSSTTYIHLRSLTSEDSAVYFCAR	SGIYYGS	-----HFVY	WGQGTTLTVSA		
6N16	KATLTDDKSSSTAYMHLRSLTSDSDSAVYFCAR	SGIFYGN	---NFAY	WGQGTTLTVSA		
1B3	KATLTDDKSSNTAYMQLSRLTSEDSAVYFCAR	TPVLSN	-----YFDY	WGQGTTLTVSS		
25M22	KATLTADKSSSTAYMQLSSLTSEDSAVYFCAR	AYLLRLRRTGYAMDY		WGQGTSVTVSS		
19K19	KATLTADKSSSTAYMQLSSLTSEDSAVYFCAR	AYLLRLRRTGYAMDY		WGQGTSVTVSS		
5F12	KATLTAEKSSSTAYMQLSSLTSEDSAVYFCAR	EGLYDYDR	---YFDY	WGQGTALTVSS		
5A20	KATISADTSSNTAYMQLSSLTTEDSAIYYCVR	QDWNW	-----YFDV	WGTTTTLTVSS		
8D8	RLSITKDNKSQFFLKMNSLQTDDEDTAMYYCAR	IHTT	-----AGSY	WGQGTTLTVSA		
17J16	KATLTADKSSSTAYLQLSRLTSEDSAVYFCAR	FDWNW	-----YFHV	WGAGSTTVTVSS		
2B3	RFTISRDNAKNTLYLQMSRLRSEDTAMYYCTR	QGAQA	-----TLDY	WGQGTTLTVSS		
8C10	KATLTADRSSSTAYMELRSLTSEDSAVYFCAR	RIQLLLPVG	---GFVY	WGQGTTLTVSA		
2A9	RFTISRDNARNILYLQMSLSRSEDTAMYYCAR	DGNFYFY	-----GMDY	WGQGTSVTVSS		
24G2	KATLTVDKSSSTAYMQLSSLTSEDSAVYFCAR	SDYGFIP	-----YFDY	WGQGTTLTVSS		
6G9	KATLTVDTSSTTAYMQLSSLTSEDSAVYFCAR	PLDRSAY	-----YFDY	WGQGTTLTVSS		
2B11	RVSITRDTSKNQFFLKLNSVTIQDTATYYCAR	GGSYFD	-----YVDY	WGQGTTLTVSS		
P1B6	KATLTVDKSSSTAYMELRSLTSEDSAVYFCAR	SDSA	-----WFTY	WGQGTTLTVSA		
1A3	KATLTVDKSSSTAYMELRSLTSEDSAVYFCAR	EWLLR	-----GMDY	WGQGTSVTVSS		
P1H8	KATLTVDKSSSTAYMELRSLTSEDSAVYFCAR	QGPW	-----YFDV	WGTTTTLTVSS		

FIG. 4B

VL Domains									
Kabat	1	10	20	24-27abcde-----34	40			50-----56	
AbM	1	10	20	24----30abcde--34	40			50-----56	
Chothia	1	10	20	26--30abcd-32	40			50--	
Contact	1	10	20	30abcde-----36	40	46-----55			
IMGT	1		23	27-----38	41			56-65	69
AHon	1		23	42				58	72
1C1									
3P10									
12A3									
1B3									
2B3									
2B11									
2B8									
22N5									
P1B6									
P8G4									
DIVLITQTPLSLPVSFGDQASISC RSSQSLVHSSGITYLH WYQKPGQSPKLLIY KLSNRFS									
DIVLTQSPVSLAVSLGQRATISC RASEVDNYGI-SFMS WFQKPGQPPKLLIY AASHQGS									
DIQMTQSPSSLSASLGERVSLTC RASQDIG-----SSLN WLQEPDGTIKRLIY ATSSLDS									
DIQMTQSPSSLSASLGGKVTITC KASQDIS-----KYIS WYQHKPGKSPRLLIH YTSITLQP									
QIVLTQSPAIMASLGEETITLTC SASSSV-----FYMH WYQKSGTSPKLLIY STSNLAS									
DIQMTQTSSLSASLGDRTVINC RASQDIS-----NYLN WYQKPDGTVKLLIY YTSRLHS									
DIQMTQSPASLSASVGETVTITC RPSENIY-----SYLT WFQEQGKSPQLLIV NAQTLAE									
DIKMTQSPSSMYASLGERVTITC KASQDIK-----SYLN WFQKPGKSPKLLIY RTKRLVD									
QIVLTQSPAIMASASPGKVTMTC SASSSV-----SYMY WYQKPGSSPRLIY DTSNLAS									
QIVLTQSPAIMASASPGKVTMTC SASSRV-----SYMH WYQKSGTSPKRWIY DTSKLAS									
DIVMTQSQKFMSTSIGDRVSVTC KASQNVG-----TNVA WYQKPGQSPKALVY STSYRYS									
DIVMTQSQKFMSTSVGDRVSVTC KASQNVG-----TAVA WYQKPGQSPKILY SASNRFT									
DFVLTQSPATLSVTPGDSVSLSC RASQSI-----NNLH WYQKSHESPRLLIK YASQSI									
DILLTQSPAILSVSPGERVSFSC RASQSIG-----TSIH WYQRTNGSPRLLIK YASESIS									
DVVMTQTPLTSLVSTIGQASISC RSSQSLLDSDGKTYLN WLLQRPQSPKRLIY LVSKVDS									
DVVMTQAPLILSVTIQGPASISC KSSQSLLDGDETYLS WLLQRPQSPKRLIY LVSKLDS									
DVVMTQTPLTSLVTIGHPASISC KSSQSLLDGDKTYLN WLFQRPQSPKRLFY LVSKLDS									
DVALTQIPLTSLVTVGQPASISC KSSQSLSDSDGKTYLN WLLQKPGQSPKRLIY LVSRGGS									
DIVMTQAAAFSNPVTLTGTSASISC RSSKSLHNSNGITYLY WYQKPGQSPQLLIY QMSNLAS									
DVLMTQTPLSLPVSIGDQASISC RSSQTIVHSNGITYLE WYQKPGQSPKLLIY KVSNRFS									
DVVLTQTPLSLPVNIGDQASISC KSTKSLNSDEFTYLD WYQKPGQSPQLLIF LVSNRFS									
DVVLTQTPLSLPVNIGDQASISC KSTKSLNSDEFTYLD WYQKPGQSPQLLIY LVSNRFS									
NIVLTQSPASLAVSLGQRATISC RASEVDTYGN-SFMH WYQKPGQPPKLLIY IASNLES									
DIVLTQSPASLAVSLGQRATISC RASEVDVDFGN-SFMH WYQKPGQPPKLLIY RASNLD									

FIG. 4B (continued)

Kabat	60	70	80	89-----97
AbM	60	70	80	89-----97
Chothia	60	70	80	91-----96
Contact	60	70	80	89-----96
IMGT	70	89		105-----117
AHon	73	91		107-----138
1C1	GVPDRFSGSGGTDFTLKISRVEAEDLGVYFC	SQSTHVPWT	FGGGTKLEIK	(1852)
3P10	GVPARFSGSGGTDFTSLNIHPMEEDDSAMYFC	LQKEVP-WT	FGGGTKLEIK	(1853)
12A3	GVPKRFSGSRGSDYSLTISLSEDFDYVC	LQYASSP-YT	FGGGTKVEIK	(1854)
1B3	GIPSRFSGSGRDYSFISNLEPEDIAIYYC	LQYDNL--YT	FGGGTKLEIK	(1855)
2B3	GIPSRFSGSGGTIFYSLTISVEAEDAADYYC	HQWS----ST	FGGGTKLEIK	(1856)
2B11	GVPSRFSGSGTDYSLTITNLEQEDIAIYFC	QQGNTLP-FT	FGSGTKLEIK	(1857)
2B8	GVPSRFSGSGGTHFSLKINSIQPEDFGTYVC	QHYYGYP-FT	FGSGTKLEIK	(1858)
22N5	GVPSRFSGSGGQDYSLTVSSLEYDDVGIIYYC	LQYVEFP-LT	FGDGTKELEK	(1859)
P1B6	GVPVRFSGSGGTIFYSITISRMEAEADAATYYC	QQWNSYP-PT	FGGGTKLEIK	(1860)
P8G4	GVPARFSGSGGTSYSLTISMEAEADAATYYC	QQWNNNP-PT	FGAGTTLELK	(1861)
8D8	GVPDRFTGSGSGTDFTLTISNVQSEDLAEYFC	HQYNSYP-LT	FGAGTKLELK	(1862)
2A9	GVPDRFTGSGSGTDFTLTISNMQSEDLADYFC	QQYSSY--FT	FGGGTKLELK	(1863)
8C10	GIPSRFSGSGSGTDFTLSINSVETEDFGVYFC	QQNSWP-HT	FGGGTKLEIK	(1864)
24G2	GIPSRFSGSGSGTDFTLIINSVESEDIADYYC	QQSNSWPTFT	FGAGTKLELK	(1865)
2I23	GVPDRFTGSGSGTDFTLKISRVEAEDLGVYFC	WQTHFP-LT	FGAGTKLELK	(1866)
6N16	GVPDRFTGSGSGTDFTLKISRVEAEDLGVYVC	CQSTHFP-LT	FGAGTKLELK	(1867)
5A20	GVPDRFTGSGSGTDFTLKISRVEAEDLGVYVC	WQTHFP-RT	FGGGTKLEIK	(1868)
17J16	GVPDRFTGSGSGADFTLKISRVEAEDLGVYVC	WQTHFP-QT	FGGGTKLEIK	(1869)
1A3	GVPDRFSSSGSGTDFTLRI SRVEAEDGVYVC	AQHLELT-WT	FGGGTKLEIK	(1870)
P1H8	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYVC	FQSHVP-WT	FGGGTKLEIK	(1871)
25M22	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYVC	FQSNYLP-YT	FGGGTKLEIK	(1872)
19K19	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYVC	FQSNYLP-YT	FGGGTKLEIK	(1873)
5F12	GVPARFSGSGSRDFTLTIDPVEADDAATYYC	HQNNEDP-PA	FGGGTKLEIK	(1874)
6G9	GIPARFSGVGSRTDFTLTINPVEADDAATYYC	QQSNEDP-YT	FGGGTKLEIE	(1875)

FIG. 5A

Domain 1 Binders		Antibody VH Domain		Antibody VL Domain		Antigen	
Kabat	1	10	22	31--35	40	50--a-----60----	65
AbM	1	10	22	26-----35	40	50--a-----58	65
Chothia	1	10	22	26-----32	40	a-55	65
Contact	1	10	22	30----35	40	47-----a-----58	65
IMGT	1		23	27-----38	41	56-----65	74
AHon	1		23	27	42	57	76
1A3	EVQLQQSGPELVKPGASVKISCKAS	GYTFTDYMN	WVKQSHGKSLEWIG	DIIPNNGVTSYNQKFKG			
P1B6	EVQLQQSGPELVKPGASVKMSCKAS	GYTFTDYMN	WVKQTHGKSLEWIG	DINPNNGGPIYNQKFKG			
P1H8	EVQLQQSGPELVKPGASVKISCKAS	GYTFTDYMN	WVKQSHGKSLEWIG	DINPNNGGTYYNQKFKG			
P8G4	QVQLKQSGPGLVQPSSLSITCTVS	GFSLTSYGVH	WVRQSPGKGLDWLG	VLW-SGGSTDYNAAFIS			
Kabat	70	80	abc	90	95-----102	110	
AbM	70	80	abc	90	95-----102	110	
Chothia	70	80	abc	90	96---101	110	
Contact	70	80	abc	90	93-----101	110	
IMGT	75	89		105-----117			
AHon				106	109	138	
1A3	KATLTVDKSSSTAYMELRSLTSEDS	SAVYYCAR	EWLLRGM DY	WGQGTSTVTSS	(1876)		
P1B6	KATLTVDKSSSTAYMELRSLTSEDS	SAVYYCAR	SDSA-WFTY	WGQGTSLVTSSA	(1877)		
P1H8	KATLTVDKSSSTAYMELRSLTSEDS	SAVYYCAR	QGPW-YFDV	WGTGTTVTSS	(1878)		
P8G4	RLSISKDNSKSQVFFKMNSLQADD	TAIYYCAR	N----FGDY	WGQGTSTVTSS	(1879)		

FIG. 5B

Domain 1 Binders									
Antibody VL Domain									
Kabat	1	10	20	24-27abcde-----34	40	50-----56			
AbM	1	10	20	24-----30abcde--34	40	50-----56			
Chothia	1	10	20	26--30abcd-32	40	50--			
Contact	1	10	20	30abcde-----36	40	46-----55			
IMGT	1	23	27-----38	41	56-65	69			
AHon	1	23	42		58	72			
1A3	DIVMTQAAFSNPVTLTGSASISC			RSSKSLHNSNGITYLY	WYLQKPGQSPQLLIY	QMSNLAS			
P1B6	QIVLTQSPAIMASAPGEKVTMT			SASSSV-----SYMY	WYQKPGSSPRLLIY	DTSNLAS			
P1H8	DVLMTQTPLSLPVSIGDQASISC			RSSQTIVHSNGYTYLE	WYLQKPGQSPKLLIY	KVSNRFS			
P8G4	QIVLTQSPAIMASAPGEKVTMT			SASSRV-----SYMH	WYQKSGTSPKRWIY	DTSKLAS			
Kabat	60	70	80	89-----97					
AbM	60	70	80	89-----97					
Chothia	60	70	80	91---96					
Contact	60	70	80	89-----96					
IMGT	70	89	105-----117						
AHon	73	91	107	138					
1A3	GVPDRFSSSGSGTDFTLRISRVEAEDVGYYC			AQHLELTWT	FGGGTKLEIK	(1880)			
P1B6	GVPVRFSGSGSGTFYSITISRMEAEADAATYYC			QQWNSYPPT	FGGGTKLEIK	(1881)			
P1H8	GVPDRFSGSGSGTDFTLKISRVEAEDLGYYC			FQGSHPWT	FGGGTKLEIK	(1882)			
P8G4	GVPARFSGSGSGTSYSLTISSEAEADAATYYC			QQWNNNPPT	FGAGTTLELK	(1883)			

Domain 2 Binders					
Antibody	VH Domain				
Kabat	1	10			
AAbM	1	10			
Chothia	1	10			
Contact	1	10			
IMGT	1				
AHon	1				
1C1					
2A9					
5A20					
8C10					
8D8					
12A3					
17J16					
225M22					
19K19					
22N5					

FIG. 5C (continued)

Kabat	70	80	abc	90	95--100-----	102	110
AbM	70	80	abc	90	95--100-----	102	110
Chothia	70	80	abc	90	96-100-----	101	110
Contact	70	80	abc	90	93-----	101	110
IMGT	75	89		105-----	117		
AHon				106 109	138		
1C1	RLSISKDNSKSVFFKMSLQPNDDTAIYYCAR WALYFLYGG---SMDY						
2A9	RFTISRDNARNILYLQMSLRSSEDTAMYYCAR DGNFYFY-----GMDY						
	WGQGTSTVTSS (1884) WGQGTSTVTSS (1885)						
5A20	KATISADTSSNTAYMQLSSLTTEDSAIYYCVR QDWNW-----YFDV						
8C10	KATLTADRSSSTAYMELRSLTSEDSAVYFCAR RIQLLLPVG---GFVY						
8D8	RLSITKDNSKSQFFLKMNLSLQTDDEDTAMYYCAR IHTT-----AGSY						
12A3	RFAFSLETSASTAYLQINNKKDEDTATYFCAS ATG-----NY						
17J16	KATLTADKSSSTAYLQSLRSLTSEDSAVYFCAR FDWNW-----YFHV						
25M22	KATLTADKSSSTAYMQLSSLTSEDSAVYFCAR AYLLRLRRTGYAMDY						
19K19	KATLTADKSSSTAYMQLSSLTSEDSAVYFCAR AYLLRLRRTGYAMDY						
22N5	RFAFSLETSAHTAHLQITNLKNEDTATYFCVK GTL-----NY						
	WGQGTSTVTSS (1887) WGQGTSTVTSS (1888)						
	WGQGTSTVTSS (1889) WGQGTSTVTSS (1890)						
	WGQGTSTVTSS (1891) WGQGTSTVTSS (1892)						
	WGQGTSTVTSS (1893) WGQGTSTVTSS (1894)						

FIG. 5D

Domain 2 Binders		Antibody VL Domain				
Kabat	1	10	20	24-27abcde-----34	40	50-----56
AbM	1	10	20	24-----30abcde--34	40	50-----56
Chothia	1	10	20	26--30abcd-32	40	50--
Contact	1	10	20	30abcde-----36	40	46-----55
IMGT	1		23	27-----38	41	56-65 69
AHon	1		23	42	58	72
1C1	DVVLTTQTPSLPVSPGDQASISC		RSSQSLVHSSGITYLH		WYLQKPGQSPKLLIY	KLSNRFS
2A9	DIVMTQSQKFMSTSVGDRVSITC		KASQNVG-----TAVA		WYQOKPGQSPKILIIY	SASNRFT
5A20	DVVMTTQTPLTSLVTIGHPASISC		KSSQSLLDFFDGKTYLN		WLFQRPQGQSPKRIFY	LVSKLDS
8C10	DFVLTQSPATLSVTPGDSVSLSC		RASQIS-----NNLH		WYQOKSHESPRLLIK	YASQIS
8D8	DIVMTQSQKFMSTSIGDRVSVTC		KASQNVG-----TNVA		WYQOKPGQSPKALVY	STSYRYS
12A3	DIQMTQSPSSLSASLGERVSLTC		RASQDIG-----SSLN		WLQQEPDGTIKRLIY	ATSSLDS
17J16	DVALTQIPLTSLVTVGQPASISC		KSSQSLSDSDGKTYLN		WLLQKPGQSPKRLLIY	LVSRLGS
225M22	DVVLTTQTPSLPVNIGDQASISC		KSTKSLNLSDEFTYLD		WYLQKPGQSPQLLIF	LVSNRFS
19K19	DVVLTTQTPSLPVNIGDQASISC		KSTKSLNLSDEFTYLD		WYLQKPGQSPQLLIIY	LVSNRFS
22N5	DIKMTQSPSSMYASLGERVTITC		KASQDIK-----SYLN		WFOQKPGKSPKTLIY	RTKRLVD

FIG. 5D (continued)

Kabat	60	70	80	89-----97	
AbM	60	70	80	89-----97	
Chothia	60	70	80	91-----96	
Contact	60	70	80	89-----96	
IMGT	70			105-----117	
AHon	73	89	91	107	138
1C1	GVPDFRFSGSGGTDFTTLKISRVEAEDLGVYFC SQSTHVPPWT				FGGGTKLEIK (1895)
2A9	GVPDFRTGSGSGTDFTLTISNMQSEDLADYFC QQYSSY--FT				FGGGTKLELK (1896)
5A20	GVPDFRTGSGSGTDFTTLKISRVEAEDLGVYIC WQTHFP-RT				FGGGTKLEIK (1898)
8C10	GIPSRFSGSGSGTDFTLSINSVETEDFGVYFC QQNSWP-HT				FGGGTKLEIK (1899)
8D8	GVPDFRTGSGSGTDFTLTISNVQSEDLAEYFC HQNSYP-LT				FGAGTKLELK (1900)
12A3	GVPKRFSGSRSGSDYSLTISSESEDFVDYIC LQYASSP-YT				FGGGTKVEIK (1901)
17J16	GVPDFRTGSGSGADFTTLKISRVEAEDLGVYIC WQTHFP-QT				FGGGTKLEIK (1902)
25M22	GVPDFRFSGSGSGTDFTTLKISRVEAEDLGVYIC FQSNYLP-YT				FGGGTKLEIK (1903)
19K19	GVPDFRFSGSGSGTDFTTLKISRVEAEDLGVYIC FQSNYLP-YT				FGGGTKLEIK (1904)
22N5	GVPSRFSGSGSGQDYSLTVSSLEYDDVGIIYIC LQYVEFP-LT				FGDGTKLELK (1905)

Domain 3 Binders					
Antibody	VH Domain				
Kabat	1	10	22	31-----35	40
AbM	1	10	22	26-----35	40
Chothia	1	10	22	26-----32	40
Contact	1	10	22	30-----35	40
IIMGT	1		23	27-----38	41
AHon	1		23	27	42
QVHLQQGAELVKPGASVKLSCKAS	GFTFTG-YNIN	WVRLRPEQGLEWIG	WIFPDDDNAKYNEKFKG		76
DVQLQESGPGLVKPSQSLTCSVT	GYSITSGYYWN	WIRQFPGNKLEWMG	HIA-NDGSNYYNPFLLKH		
QIQLVQSGLPELKKPGETVKISCKAS	GYTFTD-YGVI	WVKQAPGKALKWMG	WINTYTGEPTYADDLKG		
QVOLKQSGTELVRPASVKLSCKAS	GYTFTD-YYIN	WVKQRPGQGLEWIA	RIYPNGNTYHNEKFKG		
QVOLHQPGAELVKPGASVKLSCKTS	GYTFTS-YWMQ	WVKQRPGQGLEWIG	EIDPSDSYTYNNQKFKG		
QVOLQQSGSELVKPGTSMKLSCAS	GYTFTS-YNIN	WVRLRPEQGLEWIG	WIFPDDSIKYNENFRG		
Kabat	70	80	abc	90	95--100----102
AbM	70	80	abc	90	95--100----102
Chothia	70	80	abc	90	96-100----101
Contact	70	80	abc	90	93-----100----101
IIMGT	75	89		105-----117	
AHon				106 109	138
11B3	KATLTDTDKSSNTAYMQLSRLTSEDSAVYFCAR	TPVLSN---	YFDY	WGQGTTLTVSS	(1906)
2B11	RVSITTRDTSKNQFFLKLSVTIQDTATYYCAR	GGSYFD---	YVDY	WGQGTTLTVSS	(1907)
3P10	RFAPSLETSSASSASLQINNLIKNETATYFCAR	RYGPE---	DIDY	WGQGTTLTVSS	(1908)
5F12	KATLTAEKSSSTAYMQLSLSTSEDSAVYFCAR	EGLYYDYDRYFDY		WGQTALTIVSS	(1909)
6G9	KATLTVDTSSTTAYMQLSLSTSEDSAVYFCAR	PLDRSAY--	YFDY	WGQGTTLTVSS	(1910)
N16	KATLTDTDKSSSTAYMHLSRLTSDSAVYFCAR	SGIFYGN--	NFAY	WGQGTTLTVSA	(1911)

FIG. 6A**1C1 VH Domain**

Kabat	1	10	22	31--35	40	50-----60----	65
AbM	1	10	22	26-----35	40	50-----58	65
Chothia	1	10	22	26-----32	40	-55	65
Contact	1	10	22	30---35	40	47-----58	65
IMGT	1		23	27-----38	41	56-----65	74
AHon	1		23	27	42	57	76
1C1	QMLKQSGPGLVQPSQSL	ITCTVS	GFSLNDYGVH	WIRQSPGKGLEWL	G	VIWSGGRTDYNAAFIS	
<u>based on IGHV4-59/IGHJ1-1</u>							
HC-349a	QVQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	
HC-349b	QVQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	
HC-349c	QMQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	
HC-349d	QMQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	
HC-349e	QMQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	
HC-349f	QMQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	L	VIWSGGRTDYNAAFIS	
HC-350a	QVQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	
HC-350b	QMQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	
HC-350c	QMQLQESGPGLVKPS	ETLSLTCTVS	GFSLNDYGVH	WIRQPPGKGLEW	I	VIWSGGRTDYNAAFIS	

FIG. 6A (continued)

1C1 VH Domain

Kabat	70	80	abc	90	95--100-----102	110
AbM	70	80	abc	90	95--100-----102	110
Chothia	70	80	abc	90	96-100-----101	110
Contact	70	80	abc	90	93-----100---101	110
IMGT	75	89			105-----117	
AHon				106 109	138	
1C1	RLSISKDNSKSQVFFKMSLQPN	DTAIYYCAR	WALYFLYGGSM	DY	WGQGT	SVTVSS (1918)
based on IGHV4-59/IGHJ1-1						
HC-349a	RVTISVDTSKNQFSLKLS	SVTAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1919)
HC-349b	RVTISKDTSKNQFSLKLS	SVTAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1920)
HC-349c	RLTISVDTSKNQVSLKLS	SVQAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1921)
HC-349d	RVTISKDNKSKQFSLKLS	SVTAQDTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1922)
HC-349e	RLTISKDTSKNQFSLKM	SVTAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1923)
HC-349f	RLTISKDTSKNQVSFK	MSSLTAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1924)
HC-350a	RVTISRDTSKNQFSLKLS	SVTAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1925)
HC-350b	RVTISRDTSKSQFSLKLS	SVTAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1926)
HC-350c	RLTISRDTSKSQVSKL	SVTAADTAVYYCAR	WALYFLYGGSM	DY	WGQGT	TLVTVSS (1927)

FIG. 6B

1C1 VL Domain

Kabat	1	10	20	24-27abcde-----34	40	50-----56
AbM	1	10	20	24-----30abcde--34	40	50-----56
Chothia	1	10	20	26--30abcd-32	40	50--
Contact	1	10	20	30abcde-----36	40	46-----55
IMGT	1		23	27-----38	41	56-65 69
AHon	1		23		42	58 72
1C1	DVVL	TQTPLSLPVS	PGDQASIS	RSSQSLVHSSGITTYLH	WYLQKPGQSPKLLIY	KLSNRFS
based on IGKV2-30/IGKJ4-1						
LC-349a	DVVM	TQSPLSLPVT	IGQPASIS	RSSQSLVHSSGITTYLH	WFQQRPGQSPRRLIY	KLSNRFS
LC-349b	DVVL	TQSPLSLPVT	IGQPASIS	RSSQSLVHSSGITTYLH	WYQQRPGQSPRRLIY	KLSNRFS
LC-349c	DVVL	TQSPLSLPVT	IGQPASIS	RSSQSLVHSSGITTYLH	WYQQRPGQSPKLLIY	KLSNRFS
LC-349d	DVVL	TQSPLSLPVT	IGDPASIS	RSSQSLVHSSGITTYLH	WYQQKPGQSPKLLIY	KLSNRFS
LC-350a	DVVL	TQTPLSLPVS	PGDQASIS	RSSQSLVHSSGITTYLH	WYLQKPGQSPKLLIY	KLSNRFS
LC-350b	DVVM	TQTPLSLPVS	PGDQASIS	RSSQSLVHSSGITTYLH	WYLQKPGQSPKLLIY	KLSNRFS

FIG. 6B (continued)

1C1 VL Domain

Kabat	60	70	80	89-----97	
AbM	60	70	80	89-----97	
Chothia	60	70	80	91-----96	
Contact	60	70	80	89-----96	
IMGT	70	89		105-----117	
AHon	73	91	107	107	138
1C1	GVPDRFSGSGGTDFTLKISRVEAEDLGVYFC SQSTHVPPWT				FGGGTKLEIK (1928)
based on IGKV2-30/IGKJ4-1					
LC-349a	GVPDRFSGSGGTDFTLKISRVEAEDVGVYIC SQSTHVPPWT				FGGGTKVEIK (1929)
LC-349b	GVPDRFSGSGGTDFTLKISRVEAEDVGVYIC SQSTHVPPWT				FGGGTKVEIK (1930)
LC-349c	GVPDRFSGSGGTDFTLKISRVEAEDVGVYIC SQSTHVPPWT				FGGGTKVEIK (1931)
LC-349d	GVPDRFSGSGGTDFTLKISRVEAEDVGVYIC SQSTHVPPWT				FGGGTKVEIK (1932)
LC-350a	GVPDRFSGSGGTDFTLKISRVEAEDLGVYFC SQSTHVPPWT				FGGGTKLEIK (1933)
LC-350b	GVPDRFSGSGGTDFTLKISRVEAEDLGVYFC SQSTHVPPWT				FGGGTKLEIK (1934)

FIG. 7A

25M22 VH Domain

Kabat	1	10	22	31--35	40	50--a-----60----	65
AbM	1	10	22	26-----35	40	50--a-----58	65
Chothia	1	10	22	26-----32	40	a-55	65
Contact	1	10	22	30---35	40	47-----a-----58	65
IMGT	1		23	27-----38	41	56-----65	74
AHon	1		23	27	42	57	76
25M22	QVQLQQSGPDLVKPGASVKISCKAS GYFTTSYWVN WMKQRPKGKLEWIG RIYPGDGDTNNGKFKG						
<u>based on IGHV5-51/IGHJ6</u>							
HC-389a	EVQLVQSGAEVKKPGESLKISCKGS GYFTTSYWVN WVRQMPKGKLEWMG RIYPGDGDTNNGKFKG						
HC-389b	EVQLVQSGAEVKKPGESLKISCKGS GYFTTSYWVN WVRQMPKGKLEWIG RIYPGDGDTNNGKFKG						
HC-389c	EVQLVQSGAEVKKPGESLKISCKGS GYFTTSYWVN WVRQMPKGKLEWIG RIYPGDGDTNNGKFKG						
<u>based on IGHV1-69/IGHJ6</u>							
HC-390a	QVQLVQSGAEVKKPGSSVKVCKAS GYFTTSYWVN WVRQAPQGKLEWMG RIYPGDGDTNNGKFKG						
HC-390b	QVQLVQSGAEVKKPGSSVKVCKAS GYFTTSYWVN WVRQAPQGKLEWIG RIYPGDGDTNNGKFKG						
HC-390c	QVQLVQSGAEVKKPGSSVKVCKAS GYFTTSYWVN WVRQAPQGKLEWIG RIYPGDGDTNNGKFKG						

FIG. 7A (continued)

25M22 VH Domain

Kabat	70	80	abc	90	95--100-----102	110
AbM	70	80	abc	90	95--100-----102	110
Chothia	70	80	abc	90	96-100-----101	110
Contact	70	80	abc	90	93-----100-----101	110
IMGT	75	89		105-----117		
AHon				106 109	138	
25M22	KATLTADKSSSTAYMQLSSLTSEDSAVYFCAR	AYLLRLRRTGYAMDY	WGQGTSTVTSS	(1935)		
based on	IGHV5-51/IGHJ6					
HC-389a	QVTISADKSIStAYLQWSSLKASDTAMYYCAR	AYLLRLRRTGYAMDY	WGQGTSTVTSS	(1936)		
HC-389b	QATISADKSIStAYLQWSSLKASDTAMYYCAR	AYLLRLRRTGYAMDY	WGQGTSTVTSS	(1937)		
HC-389c	QATLSADKSIStAYLQWSSLKASDTAMYYCAR	AYLLRLRRTGYAMDY	WGQGTSTVTSS	(1938)		
based on	IGHV1-69/IGHJ6					
HC-390a	RVTITADESTStAYMELSSLRSEDTAVYYCAR	AYLLRLRRTGYAMDY	WGQGTSTVTSS	(1939)		
HC-390b	RATITADESTStAYMELSSLRSEDTAVYYCAR	AYLLRLRRTGYAMDY	WGQGTSTVTSS	(1940)		
HC-390c	RATLTADKSTStAYMELSSLRSEDTAVYYCAR	AYLLRLRRTGYAMDY	WGQGTSTVTSS	(1941)		

FIG. 7B

25M22 VL Domain

Kabat	1	10	20	20	24-27abcde-----34	40	50-----56
AbM	1	10	20	20	24-----30abcde---34	40	50-----56
Chothia	1	10	20	20	26---30abcd-32	40	50--
Contact	1	10	20	20	30abcde-----36	40	46-----55
IMGT	1		23	23	27-----38	41	56-65 69
AHon	1		23	23	42	58	72
25M22	DVVL	TQTPLSLP	VNIGDQASIS	C	KSTKSL	NSDEFTYLD	WYLQKPGQSPQLLI F LVSNRFS
based on	IGKV2-30/IGKJ4						
LC-389a	DVVM	TQSPLSLP	VTIGQPASIS	C	KSTKSL	LLNSDEFTYLD	WFQQRPGQSPRRLLIY LVSNRFS
LC-389b	DVVL	TQSPLSLP	VTIGQPASIS	C	KSTKSL	LLNSDEFTYLD	WFQQRPGQSPRLLIY LVSNRFS
LC-389c	DVVL	TQSPLSLP	VTIGQPASIS	C	KSTKSL	LLNSDEFTYLD	WYQQRPGQSPRLLI F LVSNRFS
based on	IGKV3-20/IGKJ4						
LC-390a	EIVL	TQSPGTL	SLSPGERATL	SC	KSTKSL	LLNSDEFTYLD	WYQQRPGQAPRLLIY LVSNRFS
LC-390b	EVVL	TQSPGTL	SLSPGERATL	SC	KSTKSL	LLNSDEFTYLD	WYQQRPGQAPRLLI F LVSNRFS

FIG. 7B (continued)

25M22 VL Domain

Kabat	60	70	80	89-----97	
AbM	60	70	80	89-----97	
Chothia	60	70	80	91---96	
Contact	60	70	80	89-----96	
IMGT	70			105-----117	
AHon	73	89		107 138	
25M22	GVPDRFSGSGGTDFTLKISRVEAEDLGVYC			FQSNYLPYT	FGGGTKLEIK (1942)
<u>based on IGKV2-30/IGKJ4</u>					
LC-389a	GVPDRFSGSGGTDFTLKISRVEAEDVGVYC			FQSNYLPYT	FGGGTKVEIK (1943)
LC-389b	GVPDRFSGSGGTDFTLKISRVEAEDVGVYC			FQSNYLPYT	FGGGTKVEIK (1944)
LC-389c	GVPDRFSGSGGTDFTLKISRVEAEDVGVYC			FQSNYLPYT	FGGGTKVEIK (1945)
<u>based on IGKV3-20/IGKJ4</u>					
LC-390a	GIPDRFSGSGGTDFTLTISRLEPEDFAVYC			FQSNYLPYT	FGGGTKVEIK (1946)
LC-390b	GIPDRFSGSGGTDFTLTISRLEPEDFAVYC			FQSNYLPYT	FGGGTKVEIK (1947)

FIG. 8A

17J16 VH Domain

	Kabat	1	10	22	31--35	40	50--a-----60----	65
AbM	1	10	22	26-----35	40	50--a-----58		65
Chothia	1	10	22	26-----32	40	a- 55		65
Contact	1	10	22	30---35	40	47-----a-----58		65
IMGT	1		23	27-----38	41	56-----65		74
AHon	1		23	27	42	57		76
17J16	QVQLQQSGAEIAKPGASVKMSCKTS	GyTFTDYWIH	VVKQRPGGLEWIG	YINPNSNYAEYNQKFVK				
based on	IGHV1-69/IGHJ6							
HC-356a	QVQLVQSGAEVKKPKGSSVKVSKKAS	GyTFTDYWIH	WVRQAPQGQLEWMG	YINPNSNYAEYNQKFVK				
HC-356b	QVQLVQSGAEVKKPKGSSVKVSKKAS	GyTFTDYWIH	WVRQAPQGQLEWIG	YINPNSNYAEYNQKFVK				
HC-356c	QVQLVQSGAEVKKPKGSSVKVSKKAS	GyTFTDYWIH	WVRQAPQGQLEWIG	YINPNSNYAEYNQKFVK				
HC-356d	QVQLVQSGAEVKKPKGSSVKVSKKAS	GyTFTDYWIH	WVKQAPQGQLEWIG	YINPNSNYAEYNQKFVK				
Kabat	70	80	abc	90	95-----102	110		
AbM	70	80	abc	90	95-----102	110		
Chothia	70	80	abc	90	96---101	110		
Contact	70	80	abc	90	93-----101	110		
IMGT	75	89		105-----117				
AHon		106	109	138				
17J16	KATLTADKSSSTAYLQLRLTSEDSAVYYCAR	FDWNWYFHV	WGAGSTVTIVSS	(1948)				
based on	IGHV1-69/IGHJ6							
HC-356a	RVTITADESTSTAYMEISSLRSEDTA VYYCAR	FDWNWYFHV	WGQGT TTVTVSS	(1949)				
HC-356b	RVTITADESTSTAYMEI SLR SEDTA VYYCAR	FDWNWYFHV	WGQGT TTVTVSS	(1950)				
HC-356c	RATL TADESTSTAYLE LSLR SEDTA VYYCAR	FDWNWYFHV	WGQGT TTVTVSS	(1951)				
HC-356d	RATL TADES SS TAYLE LSLR SEDTA VYYCAR	FDWNWYFHV	WGQGT TTVTVSS	(1952)				

FIG. 8B

17J16 VL Domain

Kabat	1	10	20	24-27abcde-----34	40	50-----56
AbM	1	10	20	24-----30abcde--34	40	50-----56
Chothia	1	10	20	26--30abcd-32	40	50--
Contact	1	10	20	30abcde-----36	40	46-----55
IMGT	1		23	27-----38	41	56-65 69
AHon	1		23		42	
17J16 b1	DVALTQIPLTSLVTVGQPASISC			KSSQSLSDSDGKTYLN	WLLQKPGQSPKRLIY	LVSRLGS
based on IGKV2-30/IGKJ4						
LC-356a	DVVMTQSPSLPVTILGQPASISC			KSSQSLSDSDGKTYLN	WFQRPQGQSPRRLIY	LVSRLGS
LC-356b	DVVLTTQSPSLPVTILGQPASISC			KSSQSLSDSDGKTYLN	WLQRPQGQSPRRLIY	LVSRLGS
LC-356c	DV ALT QSPSLPVTILGQPASISC			KSSQSLSDSDGKTYLN	WLQRPQGQSP K RRLIY	LVSRLGS

Kabat	60	70	80	89-----97	
AbM	60	70	80	89-----97	
Chothia	60	70	80	91---96	
Contact	60	70	80	89-----96	
IMGT	70		89	105-----117	
AHon	73		91	107	138
17J16	GVPDRFTGSGGADFTLKISRVEAEDLGVYYC			WQGTTHFPQT	FGGGTKLEIK (1953)
based on IGKV2-30/IGKJ4					
LC-356a	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC			WQGTTHFPQT	FGGGTKVEIK (1954)
LC-356b	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC			WQGTTHFPQT	FGGGTKVEIK (1955)
LC-356c	GVPDRFSGSGG AD FTLKISRVEAEDVGVYYC			WQGTTHFPQT	FGGGTKVEIK (1956)

FIG. 9A

5F12 VH Domain

Kabat	1	10	22	31--35	40	50--a-----60----	65
AbM	1	10	22	26-----35	40	50--a-----58	65
Chothia	1	10	22	26-----32	40	a-55	65
Contact	1	10	22	30--35	40	47-----a-----58	65
IMGT	1		23	27-----38	41	56-----65	74
AHon	1		23	27	42	57	76
5F12	QVQLKQSGTELVRLPGASVKLSCKAS GYTFDDYIN WVKQRPQGQLEWIA RIYPGNGNTYHNEKFKG						
based on	IGHV1-69/IGHJ1-1						
HC-375a	QVQLVQSGAEVKKPGSSVKVCKAS GYTFDDYIN WVRQAPGQGLEWMG RIYPGNGNTYHNEKFKG						
HC-375b	QVQLVQSGAEVKKPGSSVKVCKAS GYTFDDYIN WVRQAPGQGLEWIG RIYPGNGNTYHNEKFKG						
HC-375c	QVQLVQSGAEVKKPGSSVKVCKAS GYTFDDYIN WVRQAPGQGLEWIG RIYPGNGNTYHNEKFKG						
HC-375d	QVQLVQSGAEVKKPGSSVKVCKAS GYTFDDYIN WVRQAPGQGLEWIG RIYPGNGNTYHNEKFKG						
HC-375e	QVQLVQSGAEVKKPGSSVKVCKAS GYTFDDYIN WVRQAPGQGLEWMG RIYPGNGNTYHNEKFKG						
HC-375f	QVQLVQSGAEVKKPGSSVKVCKAS GYTFDDYIN WVKQAPGQGLEWIG RIYPGNGNTYHNEKFKG						
HC-375g	QVQLVQSGAEVKKPGSSVKVCKAS GYTFDDYIN WVRQAPGQGLEWIA RIYPGNGNTYHNEKFKG						
based on	IGHV1-3/IGHJ1-1						
HC-375h	QVQLVQSGAEVKKPGASVKVCKAS GYTFDDYIN WVRQAPGQRLWIA RIYPGNGNTYHNEKFKG						

FIG. 9A (continued)

5F12 VH Domain

Kabat	70	80	abc	90	95--100----	102	110
AbM	70	80	abc	90	95--100----	102	110
Chothia	70	80	abc	90	96-100----	101	110
Contact	70	80	abc	90	93-----100----	101	110
IMGT	75	89			105-----117		
AHon				106 109	138		
5F12	KATLTAEKSSSTAYMQLSSLTSEDSAVYFCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1957)		
based on IGHV1-69/IGHJ1-1							
HC-375a	RVTITADESTSTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1958)		
HC-375b	RVTITADESTSTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1959)		
HC-375c	RVTITADKSTSTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1960)		
HC-375d	RATLTADKSTSTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1961)		
HC-375e	RATLTADESTSTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1962)		
HC-375f	RATLTADESTSTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1963)		
HC-375g	RATLTADKSTSTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1964)		
based on IGHV1-3/IGHJ1-1							
HC-375h	RATLTTRDKSASTAYMELSSLRSEDTAVYYCAR	EGLYYDYDRYFDY	WGQGTALT	VSS	(1965)		

FIG. 9B

5F12 VL Domain

Kabat	1	10	20	24-27abcd-----34	40	50-----56
AbM	1	10	20	24-----30abcd--34	40	50-----56
Chothia	1	10	20	26--30abcd32	40	50--
Contact	1	10	20	30abcd-----36	40	46-----55
IMGT	1		23	27-----38	41	56-65 69
AHon	1		23	42		58 72
5F12	NIVLTQSPASLAVSLGQRATISC		23	RASESVDTYGNSFMH	WYQQKPGQPPKLLIY	LASNLES
based on IGKV4-1/IGKJ4-1						
LC-375a	DIVMTQSPDSLAVSLGERATINC			RASESVDTYGNSFMH	WYQQKPGQPPKLLIY	LASNLES
LC-375b	DIVLTQSPDSLAVSLGERATINC			RASESVDTYGNSFMH	WYQQKPGQPPKLLIY	LASNLES
LC-375g	DIVLTQSPDSLAVSLGERATINC			RASESVDTYGNSFMH	WYQQKPGQPPKLLIY	LASNLES
based on IGKV1-39/IGKJ4-1						
LC-375c	DIQMTQSPSSLSASVGDRTITC			RASESVDTYGNSFMH	WYQQKPGKAPKLLIY	LASNLES
LC-375d	DIQLTQSPSSLSASVGDRTITC			RASESVDTYGNSFMH	WYQQKPGKAPKLLIY	LASNLES
based on IGKV3-11/IGKJ4-1						
LC-375e	EIVLTQSPATLSLSPGERATLSC			RASESVDTYGNSFMH	WYQQKPGQAPRLLIY	LASNLES
LC-375f	EIVLTQSPATLSVSPGERATLSC			RASESVDTYGNSFMH	WYQQKPGQAPRLLIY	LASNLES
based on IGKV2-30/IGKJ4-1						
LC-375h	DVVMTQSPSLPVTILGQPASISC			RASESVDTYGNSFMH	WFQQRPGQSPRRLLIY	LASNLES
LC-375i	DVVL TQSPSLPVTILGQPASISC			RASESVDTYGNSFMH	WFQQRPGQSPRLLIY	LASNLES
LC-375j	DIVLTQSPSLPVTILGQPASISC			RASESVDTYGNSFMH	WYQQRPGQSPRLLIY	LASNLES

FIG. 9B (continued)

5F12 VL Domain

Kabat	60	70	80	89-----97	
AbM	60	70	80	89-----97	
Chothia	60	70	80	91---96	
Contact	60	70	80	89-----96	
IMGT	70	89		105-----117	
AHon	73	91	107	138	
5F12	GVPARFSGSGSR	TDFTLTIDPVEADDAATYYC	HQNNEDPPA	FGGGTKLEIK	(1966)
<u>based on IGKV4-1/IGKJ4-1</u>					
LC-375a	GVPDRFSGSGG	TDFTLTISLQAEDVAVYYC	HQNNEDPPA	FGGGTKVEIK	(1967)
LC-375b	GVPDRFSGSGG	TDFTLTISSVQAEDVAVYYC	HQNNEDPPA	FGGGTKVEIK	(1968)
LC-375g	GVPDRFSGSGS	R TDFTLTISLQAEDVAVYYC	HQNNEDPPA	FGGGTKVEIK	(1969)
<u>based on IGKV1-39/IGKJ4-1</u>					
LC-375c	GVPDRFSGSGG	TDFTLTISLQPEDFATYYC	HQNNEDPPA	FGGGTKVEIK	(1970)
LC-375d	GVPDRFSGSGG	TDFTLTISSVQPEDFATYYC	HQNNEDPPA	FGGGTKVEIK	(1971)
<u>based on IGKV3-11/IGKJ4-1</u>					
LC-375e	GIPARFSGSGG	TDFTLTISLLEPEDFVAVYYC	HQNNEDPPA	FGGGTKVEIK	(1972)
LC-375f	GVPARFSGSGG	TDFTLTISSVLEPEDFVAVYYC	HQNNEDPPA	FGGGTKVEIK	(1973)
<u>based on IGKV2-30/IGKJ4-1</u>					
LC-375h	GVPDRFSGSGG	TDFTLTIKISRVEAEDVG	VVYYC HQNNEDPPA	FGGGTKVEIK	(1974)
LC-375i	GVPDRFSGSGG	TDFTLTIKISRVEAEDVG	VVYYC HQNNEDPPA	FGGGTKVEIK	(1975)
LC-375j	GVPDRFSGSGS	R TDFTLTIKISRVEAEDVG	VVYYC HQNNEDPPA	FGGGTKVEIK	(1976)

FIG. 10A

3P10 VH Domain

Kabat	1	10	22	31--35	40	50--a-----60----	65
AbM	1	10	22	26-----35	40	50--a-----58	65
Chothia	1	10	22	26-----32	40	a-55	65
Contact	1	10	22	30----35	40	47-----a-----58	65
IMGT	1		23	27-----38	41	56-----65	74
AHon	1		23	27	42	57	76
3P10	QIQLVQSGPELKKPGETVKISCKAS GYTF TDYGV I WVKQAPGKALKWMG WINTYTGEPTYADDLKG						
based on	IGHV1-69/IGHJ6-1						
HC-344a	QVQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGQGLEWMG WINTYTGEPTYADDLKG						
HC-344b	QIQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGQGLEWMG WINTYTGEPTYADDLKG						
HC-344c	QIQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGQGLKWMG WINTYTGEPTYADDLKG						
HC-344d	QIQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGKALKWMG WINTYTGEPTYADDLKG						
HC-344e	QVQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGQGLEWMG WINTYTGEPTYADDLKG						
HC-344f	QVQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGQGLKWMG WINTYTGEPTYADDLKG						
HC-344g	QVQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGQGLKWMG WINTYTGEPTYADDLKG						
HC-344h	QIQLVQSGAEVKKPGSSVKVCKAS GYTF TDYGV I WVRQAPGQGLKWMG WINTYTGEPTYADDLKG						
HC-345a	QVQLVQSGAEVKKPGATVKISCKVS GYTF TDYGV I WMQAPGKGLEWIG WINTYTGEPTYADDLKG						
HC-345b	QIQLVQSGAEVKKPGATVKISCKVS GYTF TDYGV I WMQAPGKGLEWIG WINTYTGEPTYADDLKG						
HC-345c	QIQLVQSGAEVKKPGATVKISCKVS GYTF TDYGV I WMQAPGKGLEWIG WINTYTGEPTYADDLKG						

FIG. 10A (continued)

3P10 VH Domain

Kabat	70	80	abc	90	95-----102	110
AbM	70	80	abc	90	95-----102	110
Chothia	70	80	abc	90	96-----101	110
Contact	70	80	abc	90	93-----101	110
IMGT	75	89		105-----117		
AHon				106 109	138	
3P10	RFAFSLETSASSASLQINN	LNK	NEDTATYFCAR	RYGPEDIDY	WGQGTTLTVSS	(1977)
based on IGHV1-69/IGHJ6-1						
HC-344a	RVTITADESTSTAYMELSS	LRSEDTAVYYCAR	RYGPEDIDY	WGQGTTLTVSS	(1978)	
HC-344b	RFTITLDESTSTAYMELSS	LRSEDTAVYYCAR	RYGPEDIDY	WGQGTTLTVSS	(1979)	
HC-344c	RFTFTLDESTSTAYMELSS	LRSEDTAVYYCAR	RYGPEDIDY	WGQGTTLTVSS	(1980)	
HC-344d	RVTFTADESTSTAYMELSS	LRSEDTAVYFCAR	RYGPEDIDY	WGQGTTLTVSS	(1981)	
HC-344e	RVTFTADESTSTAYMELSS	LRSEDTAVYYCAR	RYGPEDIDY	WGQGTTLTVSS	(1982)	
HC-344f	RVTITADESTSTAYMELSS	LRSEDTAVYYCAR	RYGPEDIDY	WGQGTTLTVSS	(1983)	
HC-344g	RVTFTADESTSTAYMELSS	LRSEDTAVYYCAR	RYGPEDIDY	WGQGTTLTVSS	(1984)	
HC-344h	RVTFTADESTSTAYMELSS	LRSEDTAVYYCAR	RYGPEDIDY	WGQGTTLTVSS	(1985)	
HC-345a	RVTLTADTSTD	TAYMELSSLRSEDTAVYFCAR	RYGPEDIDY	WGQGTMTVSS	(1986)	
HC-345b	RFTFTA	DTSTD	TAYMELSSLRSEDTAVYFCAR	RYGPEDIDY	WGQGTMTVSS	(1987)
HC-345c	RFTFTA	DTSTD	TAYLELSSLRSEDTAVYFCAR	RYGPEDIDY	WGQGTMTVSS	(1988)

FIG. 10B

3P10 VL Domain

Kabat	1	10	20	24-27abcd-----34	40	50-----56
AbM	1	10	20	24-----30abcd--34	40	50-----56
Chothia	1	10	20	26--30abcd32	40	50--
Contact	1	10	20	30abcd-----36	40	46-----55
IMGT	1		23	27-----38	41	56-65 69
AHon	1		23		42	58 72
3P10	1	DIVLTQSPVSLAVSLGQRATISC	23	RASESVDNYGISFMS	WFQQKPGQPPKLLIY	AASHQGS
based on IGKV2-30/IGKJ4-1						
LC-344a		DVVMTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344b		DIVLTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344c		DIVLTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344d		DIVMTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344e		DVVLTTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344f		DVVLTTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344g		DVVMTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344h		DVVLTTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-344i		DVVMTQSPVSLPVTILGQPASISC		RASESVDNYGISFMS	WFQQRPGQSPRRLLIY	AASHQGS
LC-345a		DIVLTQSPVSLAVSLGQRATISC		RASESVDNYGISFMS	WYQQKPGQPPKLLIY	AASHQGS
LC-345b		DIVLTQSPVSLAVSLGQRATISC		RASESVDNYGISFMS	WYQQKPGQPPKLLIY	AASHQGS

FIG. 10B (continued)**3P10 VL Domain**

Kabat	60	70	80	89-----97	
AbM	60	70	80	89-----97	
Chothia	60	70	80	91---96	
Contact	60	70	80	89-----96	
IMGT	70	89		105-----117	
AHon	73	91	107	107	138
3P10	GVPARFSGSGGTDFTSLNIHPMEEDDSAMYFC LQSKEVPWT FGGGTKLEIK (1989)				
<u>based on IGKV2-30/IGKJ4-1</u>					
LC-344a	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC LQSKEVPWT FGGGTKVEIK (1990)				
LC-344b	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC LQSKEVPWT FGGGTKVEIK (1991)				
LC-344c	GVPDRFSGSGGTDFTLKISRVEAEDVGVYFC LQSKEVPWT FGGGTKVEIK (1992)				
LC-344d	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC LQSKEVPWT FGGGTKVEIK (1993)				
LC-344e	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC LQSKEVPWT FGGGTKVEIK (1994)				
LC-344f	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC LQSKEVPWT FGGGTKVEIK (1995)				
LC-344g	GVPDRFSGSGGTDFTLKISRVEAEDVGVYYC LQSKEVPWT FGGGTKVEIK (1996)				
LC-344h	GVPDRFSGSGGTDFTLKISRVEAEDVGVYFC LQSKEVPWT FGGGTKVEIK (1997)				
LC-344i	GVPDRFSGSGGTDFTLKISRVEAEDVGVYFC LQSKEVPWT FGGGTKVEIK (1998)				
LC-345a	GIPVRFSGSGGTDFTLNHPVEEEDAATYYC LQSKEVPWT FGSGTKLEIK (1999)				
LC-345b	GIPVRFSGSGGTDFTLNHPVEEEDAATYYC LQSKEVPWT FGSGTKLEIK (2000)				

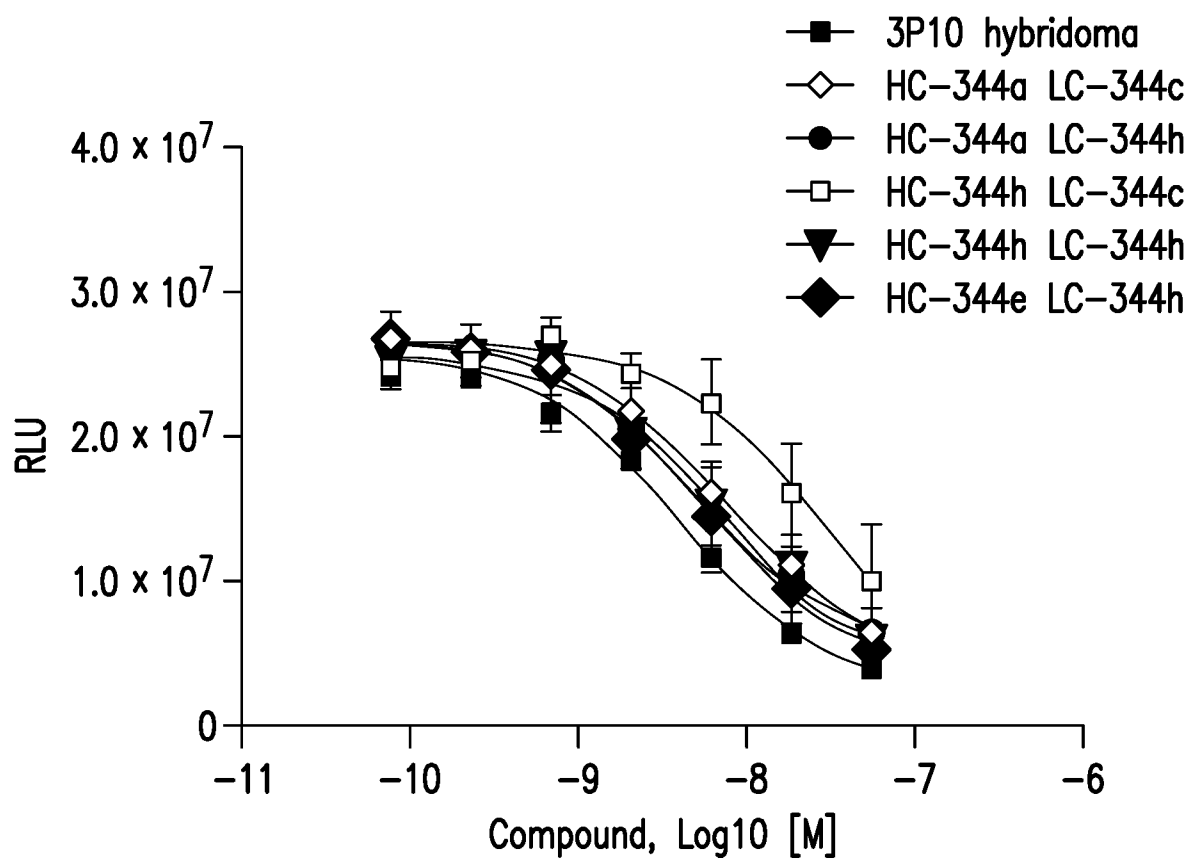


FIG. 11

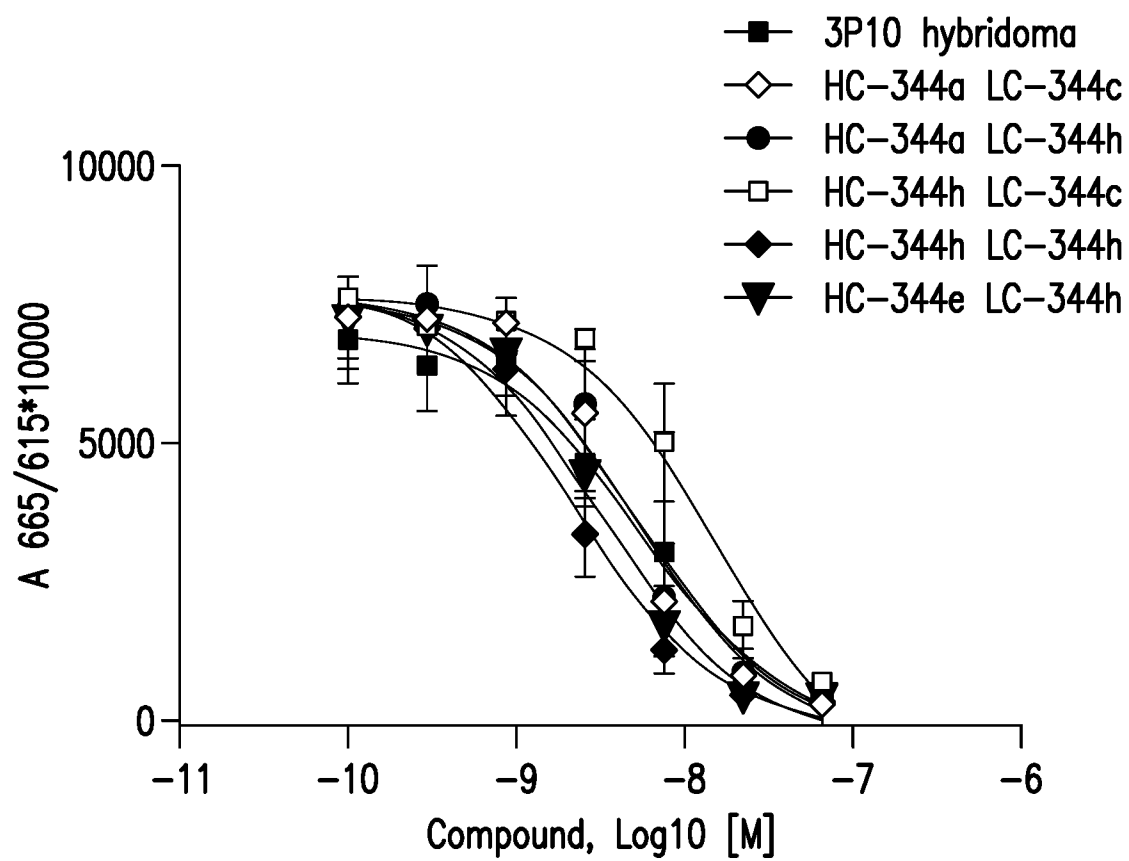


FIG. 12

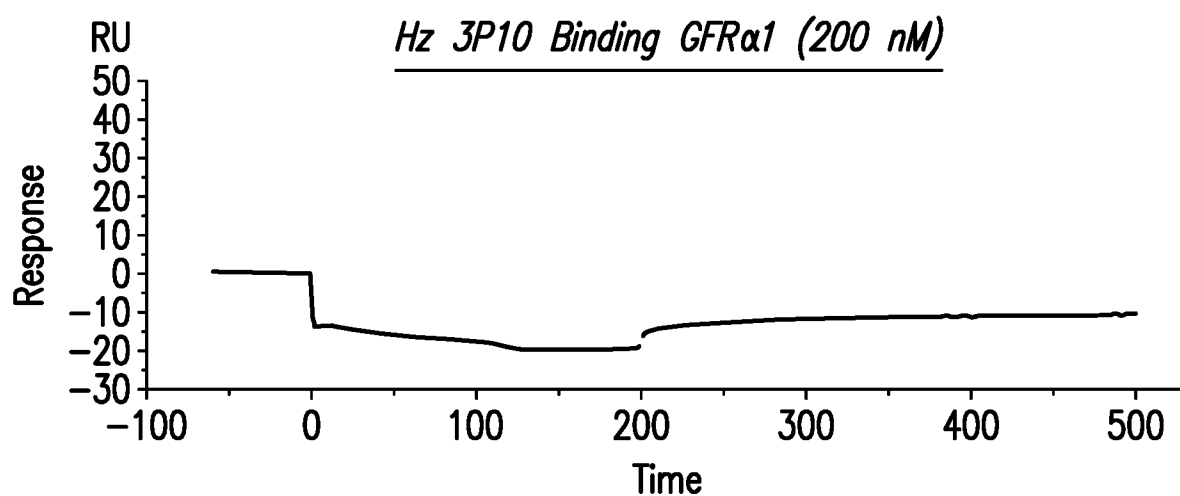


FIG. 13A

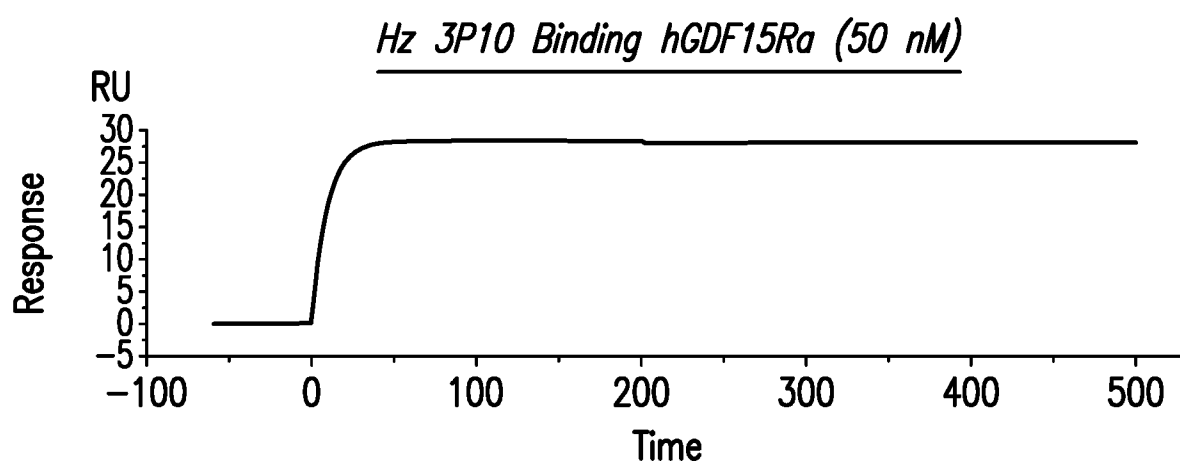


FIG. 13B

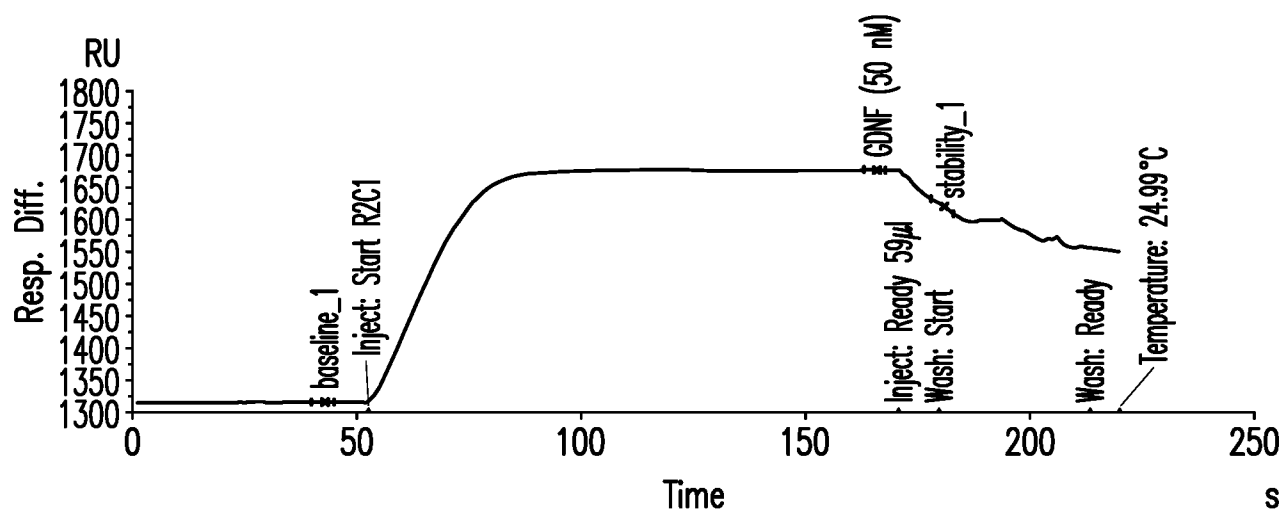


FIG. 13C

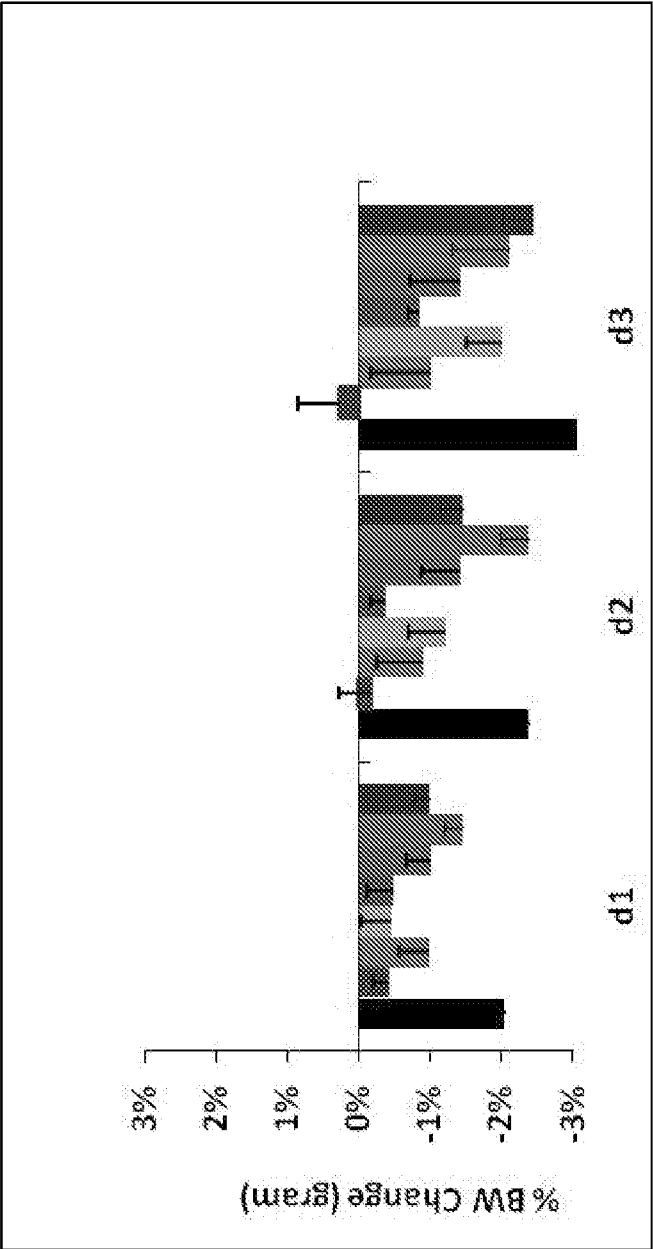


FIG. 14A

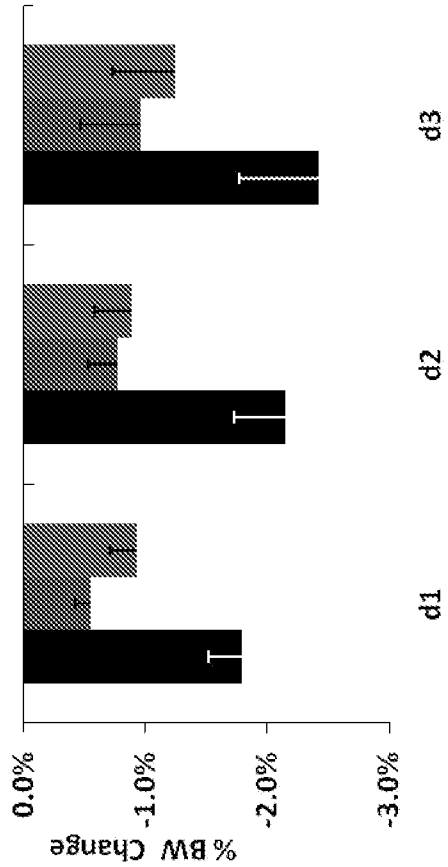


FIG. 14B

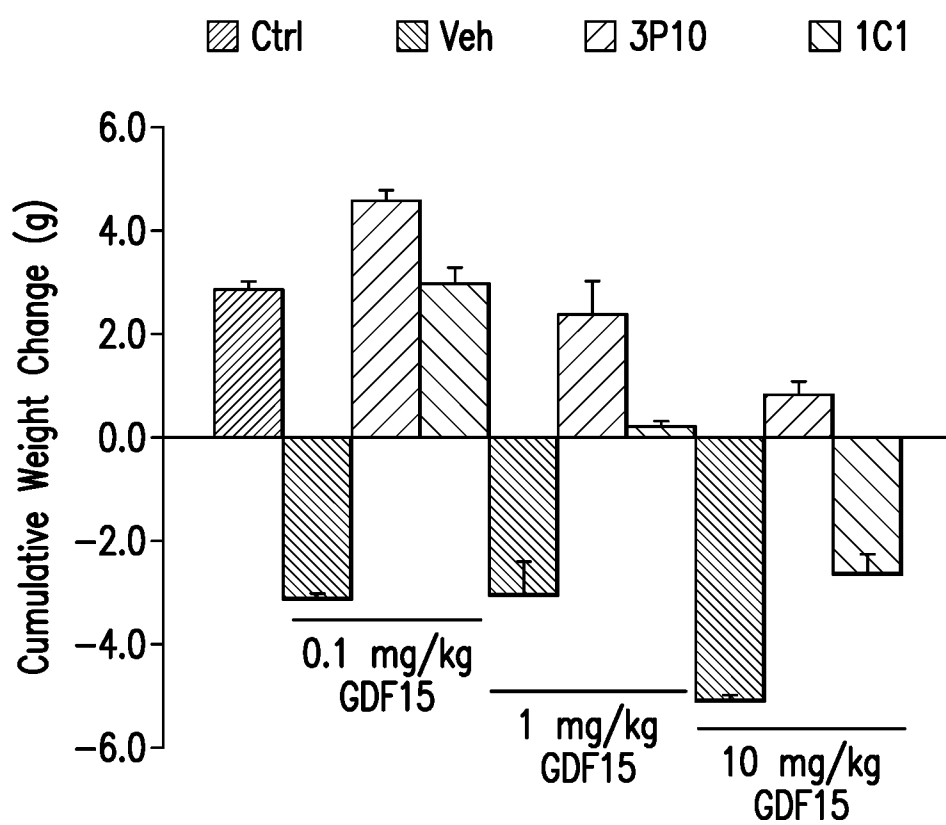
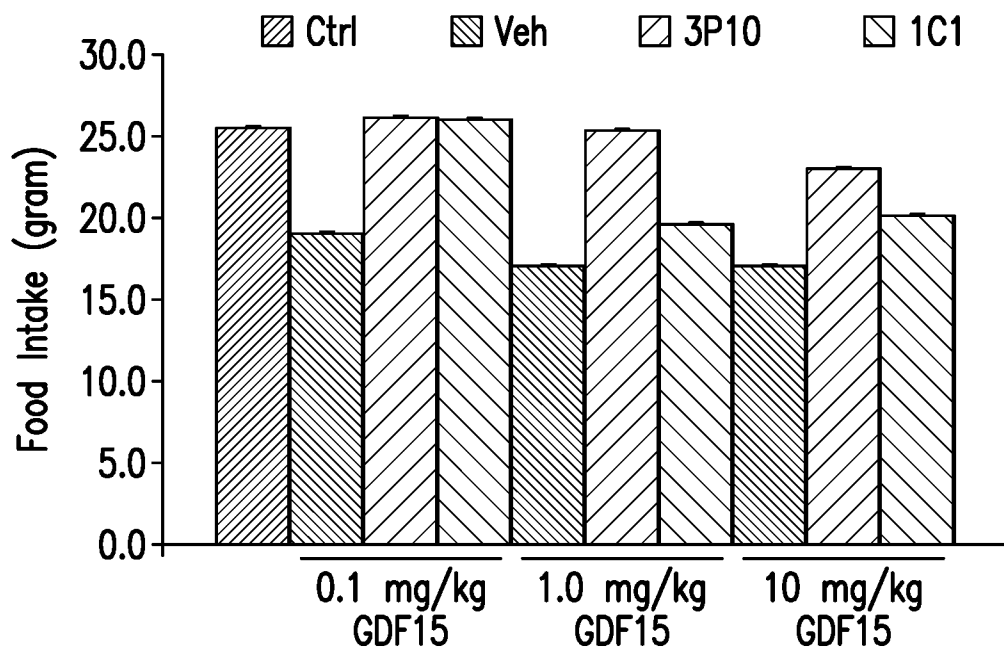


FIG. 15

**FIG. 16**

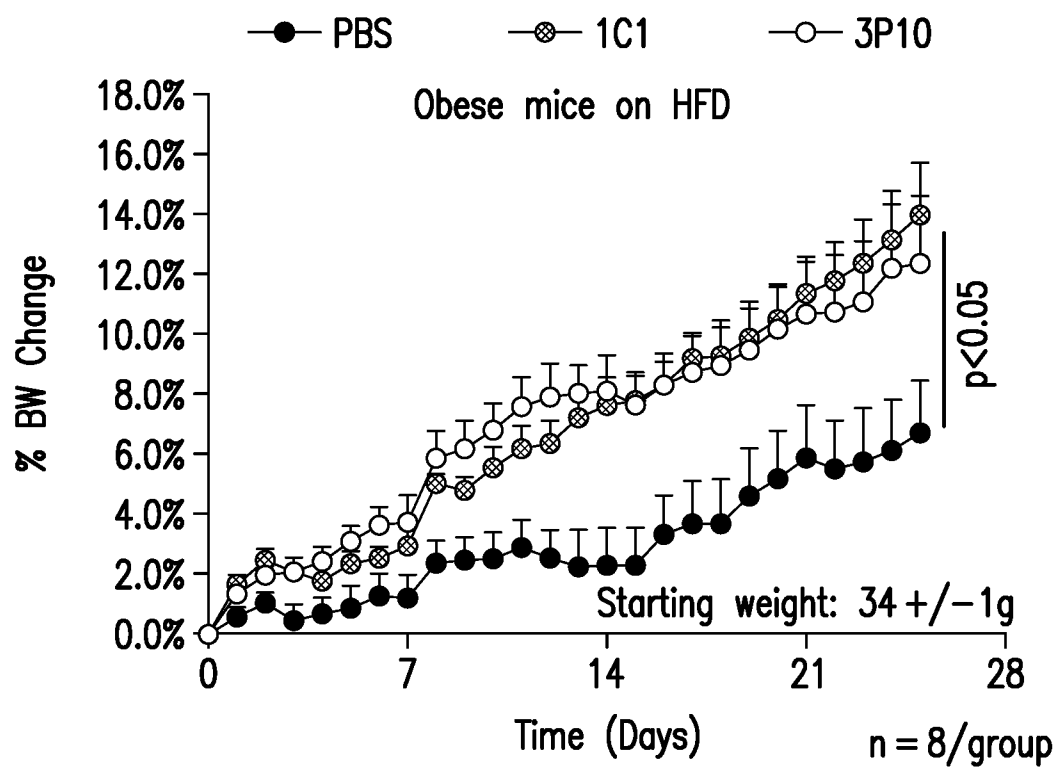


FIG. 17

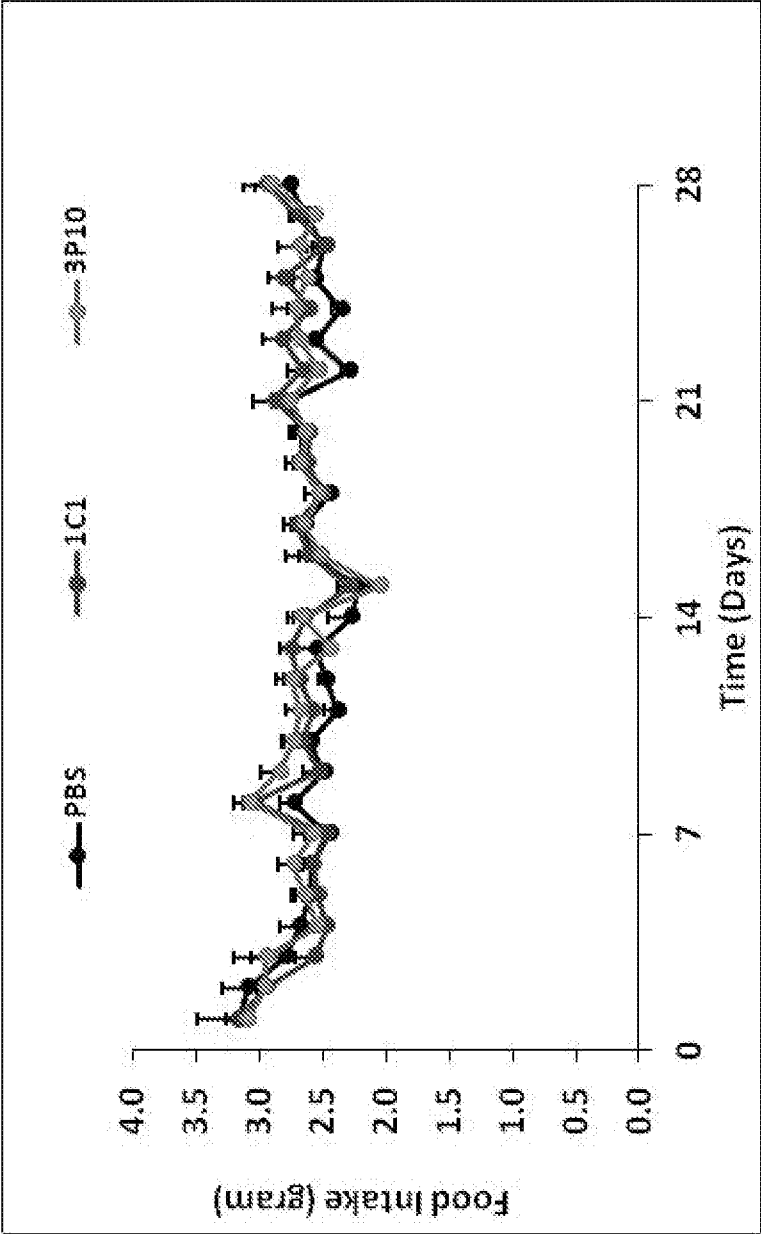


FIG. 18

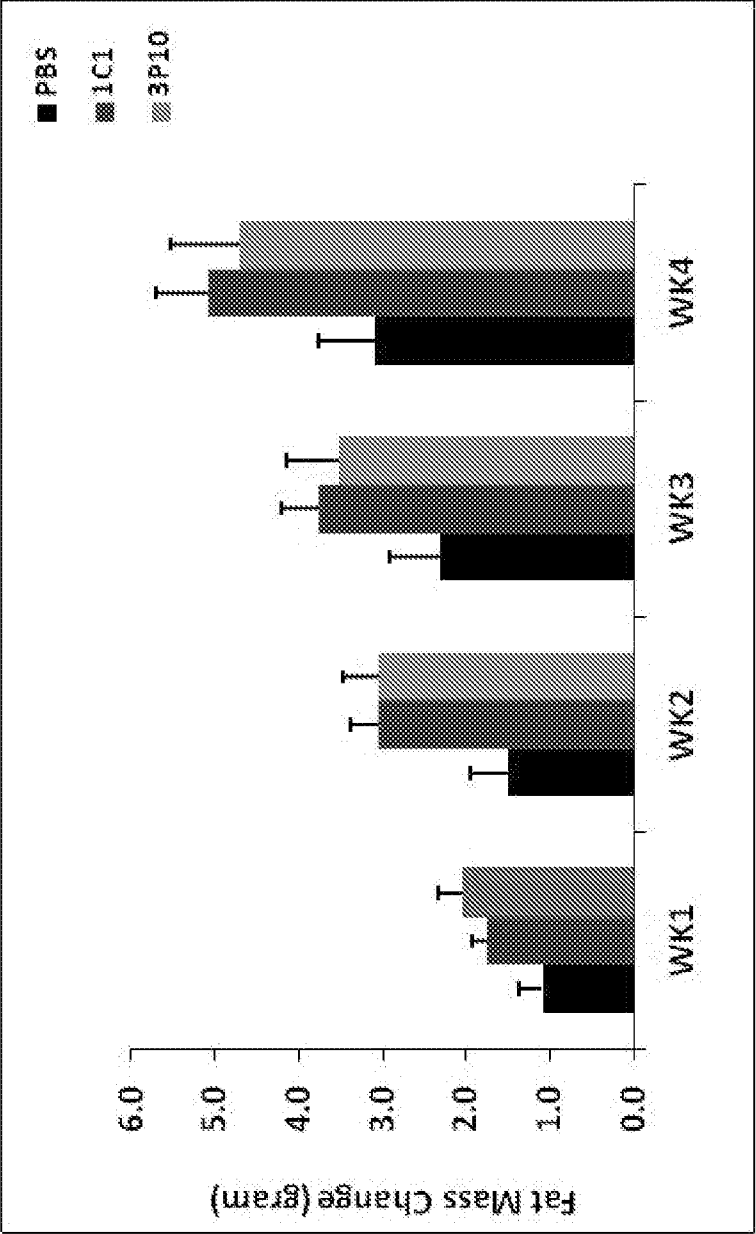


FIG. 19

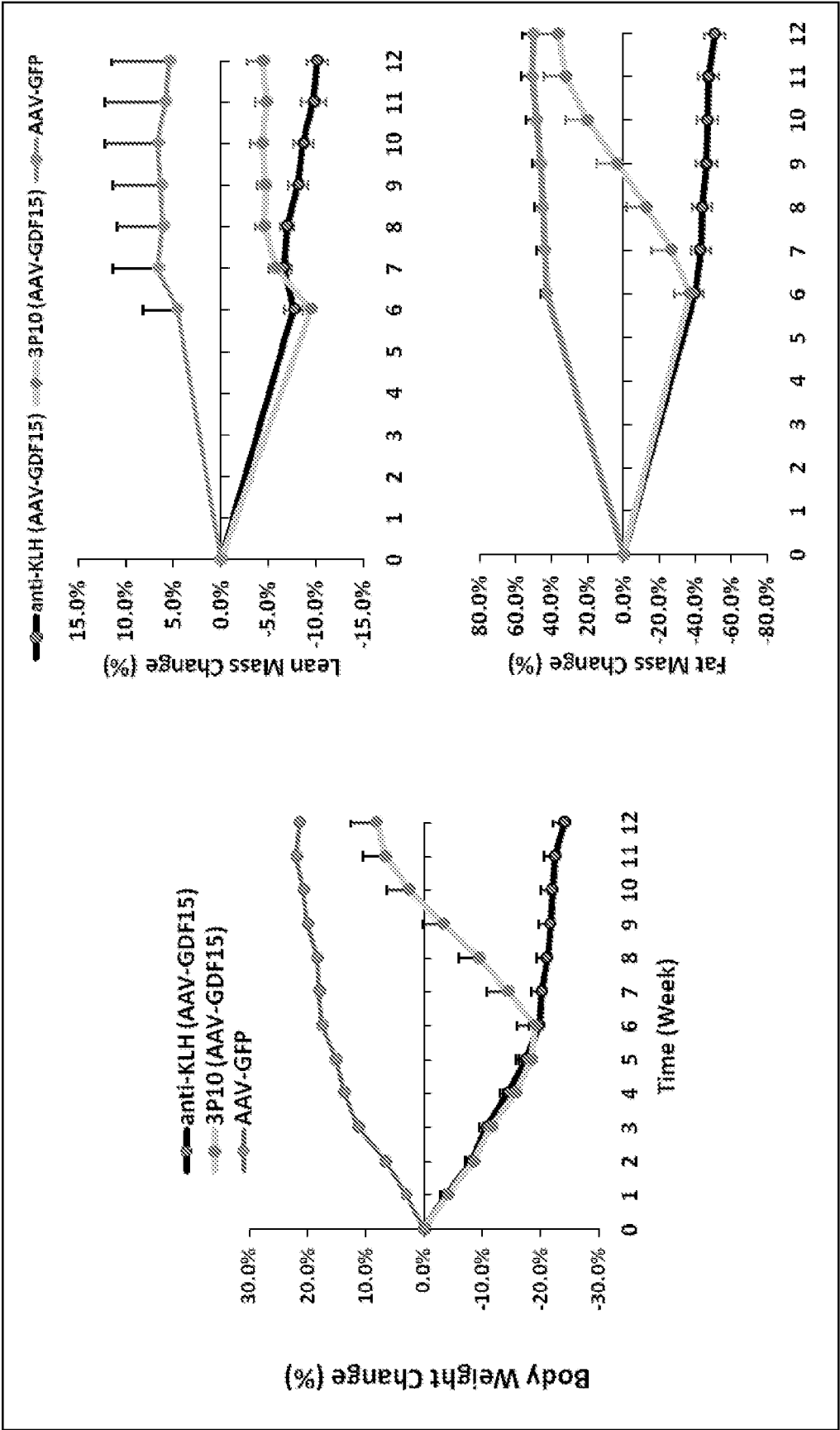


FIG. 20

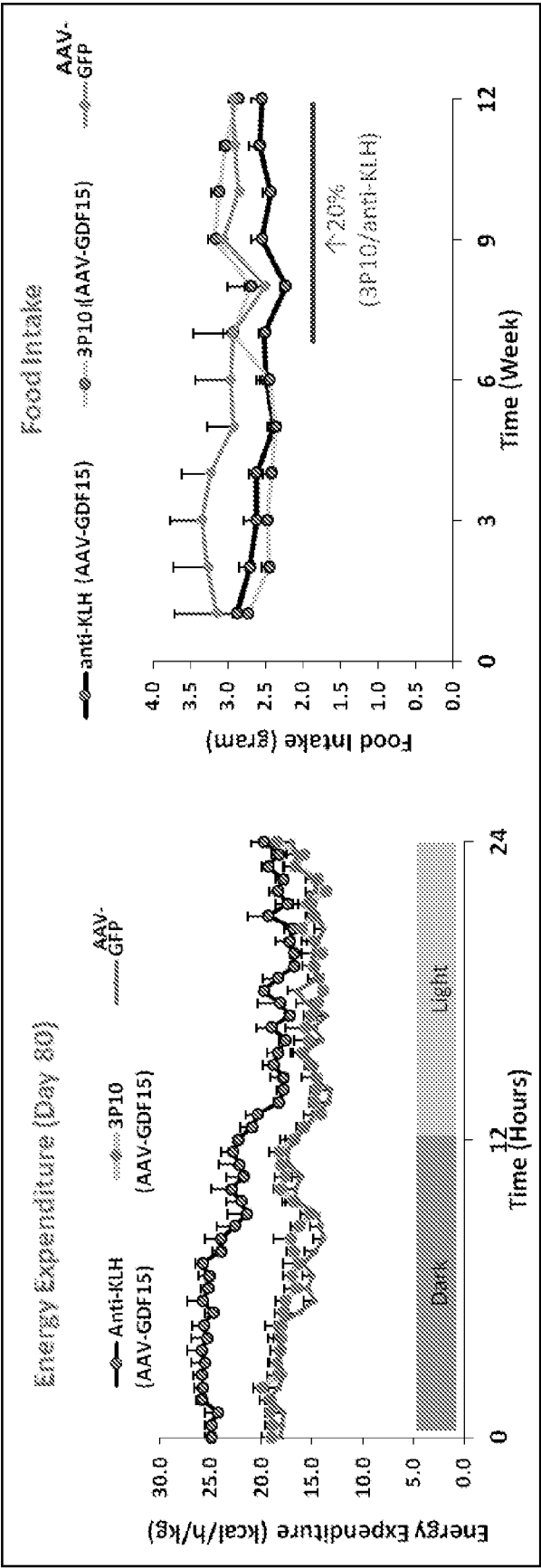


FIG. 21

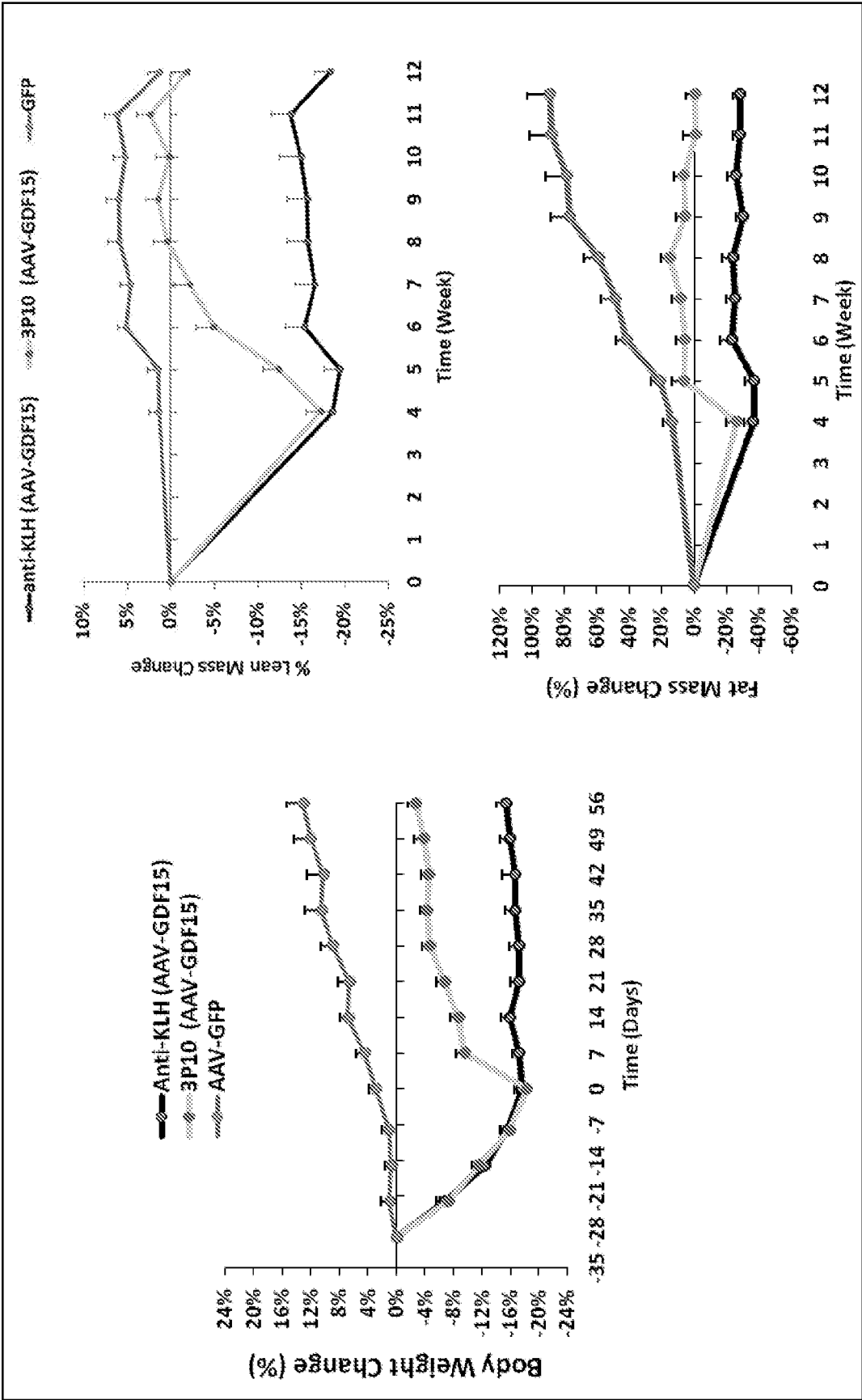


FIG. 22

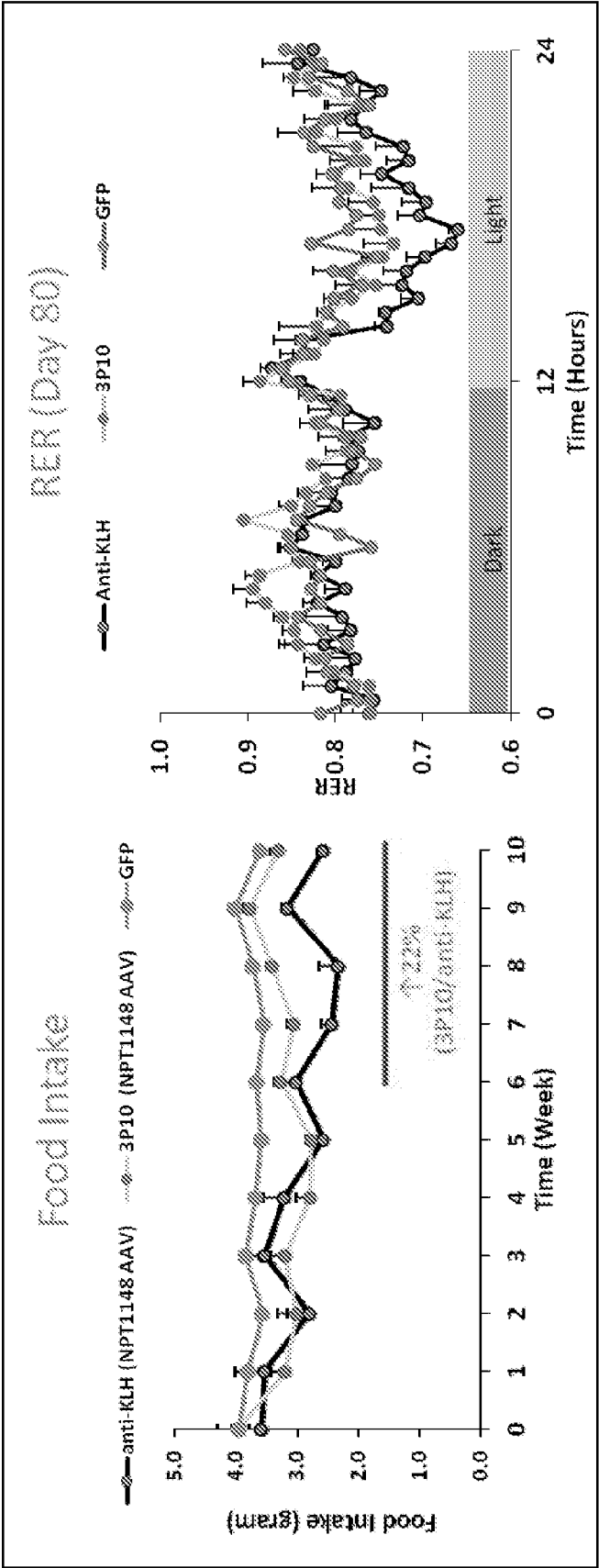


FIG. 23

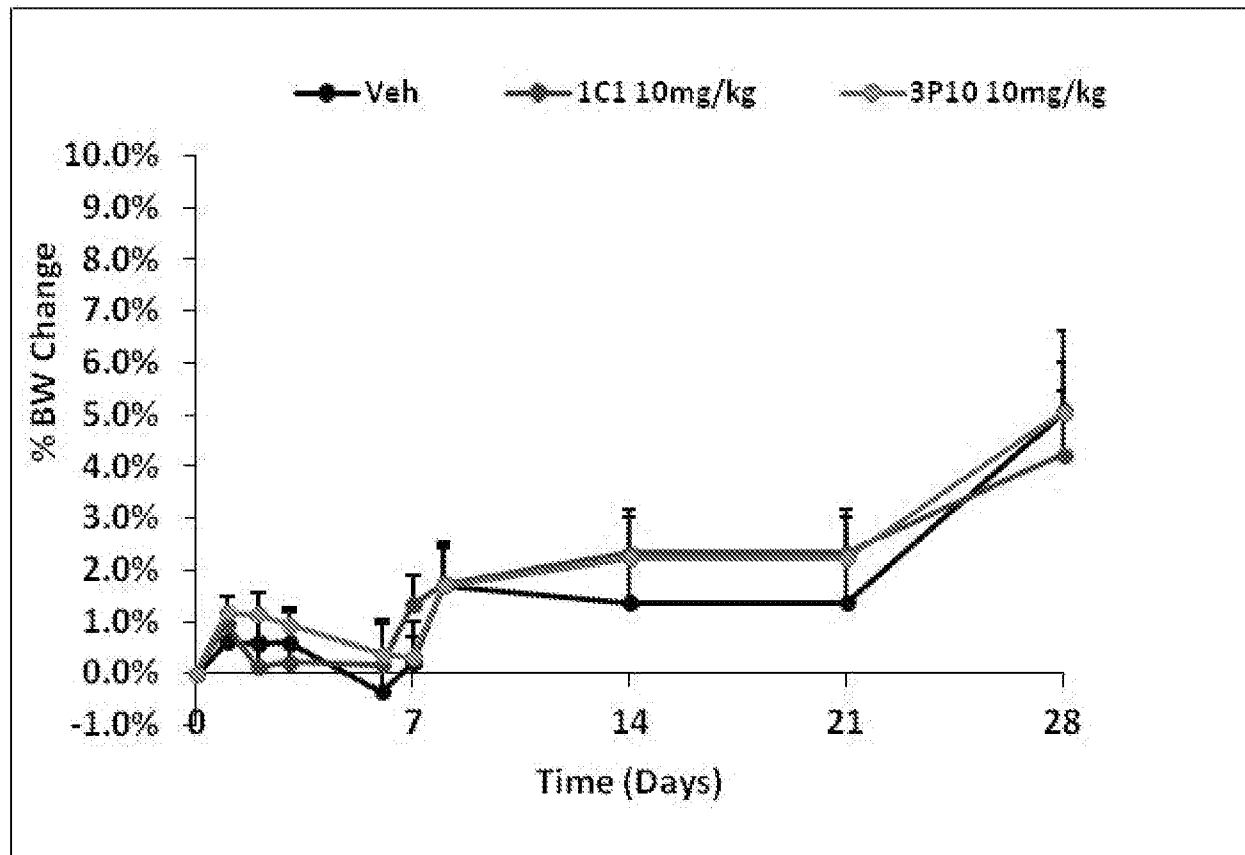
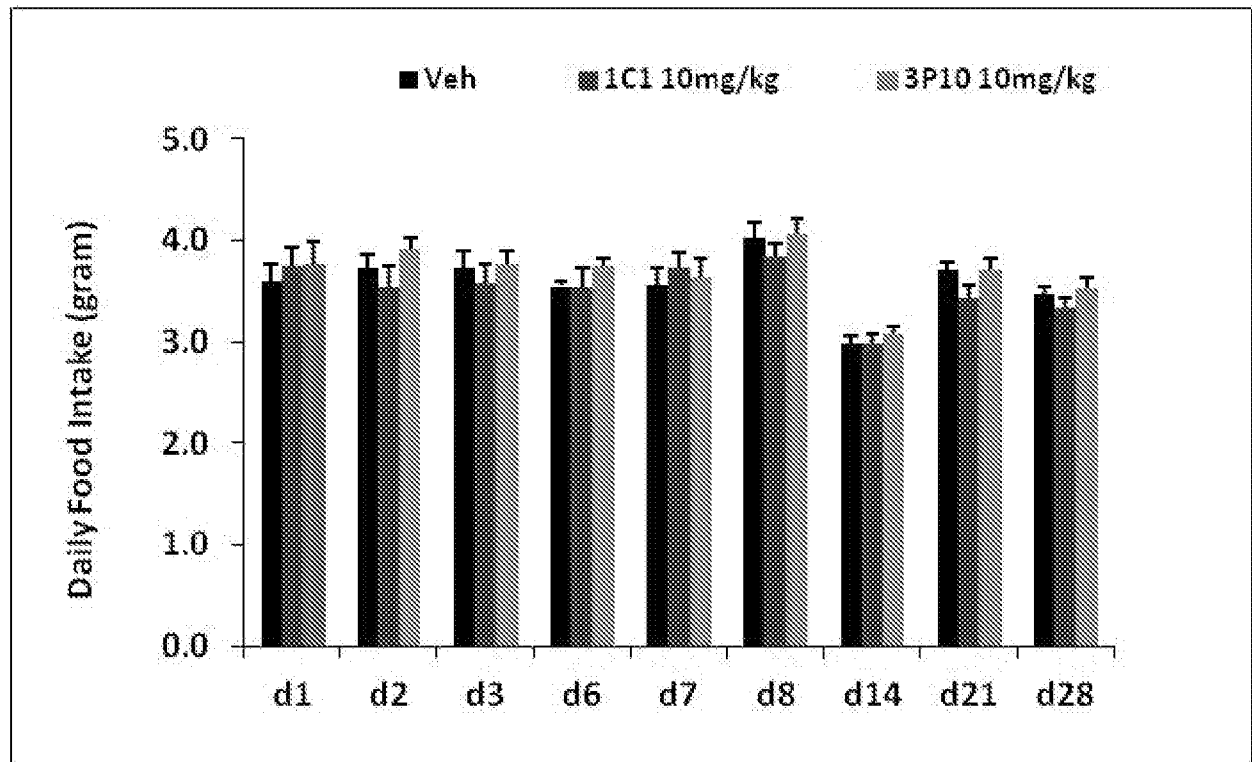


FIG. 24

**FIG. 25**

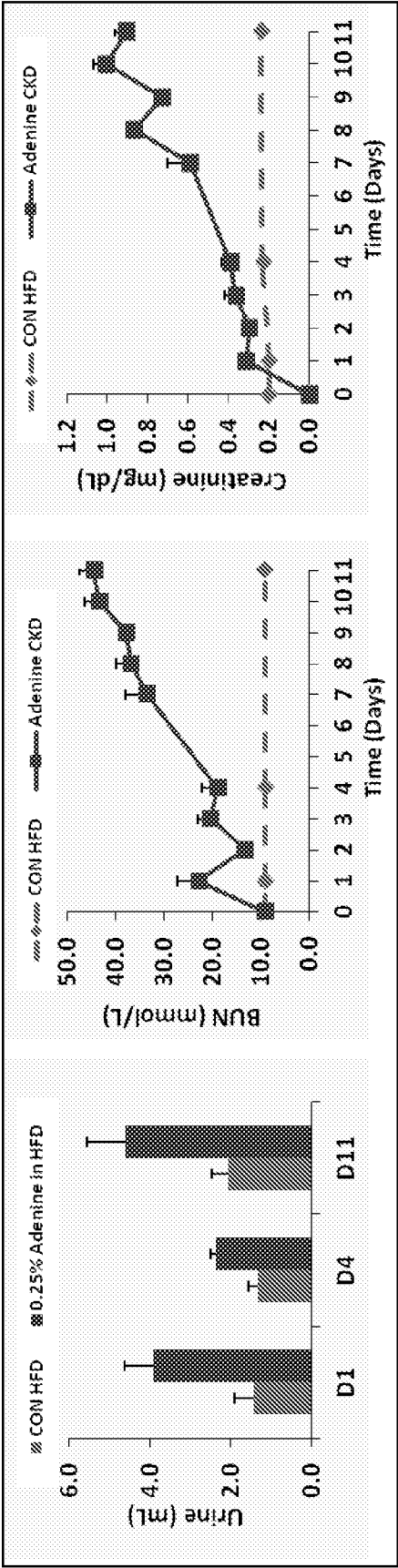


FIG. 26A

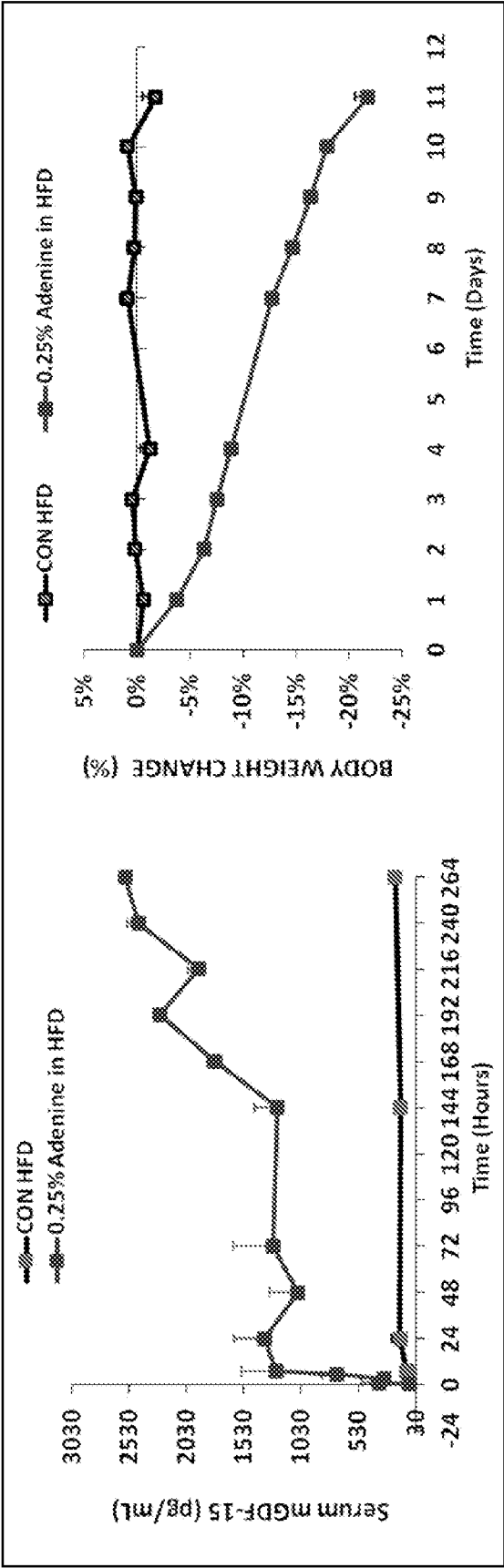


FIG. 26B

FIG. 26C

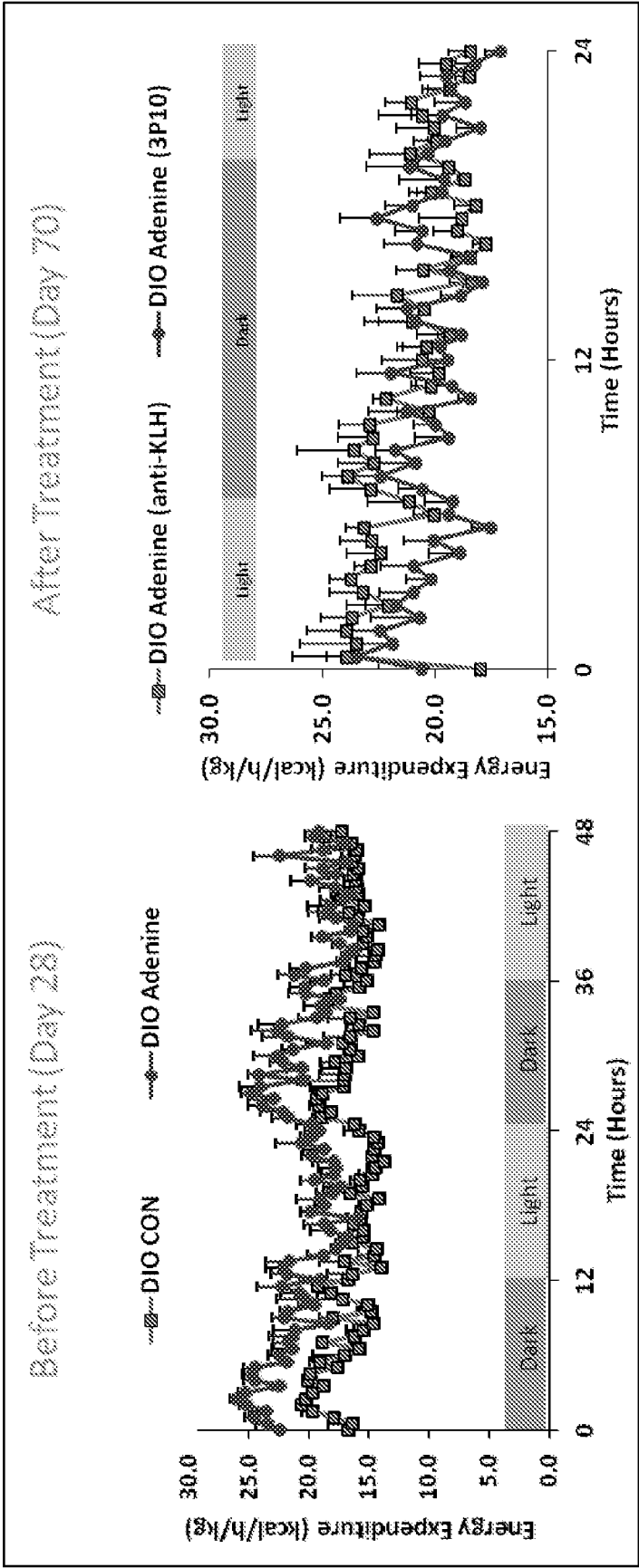


FIG. 27B

FIG. 27A

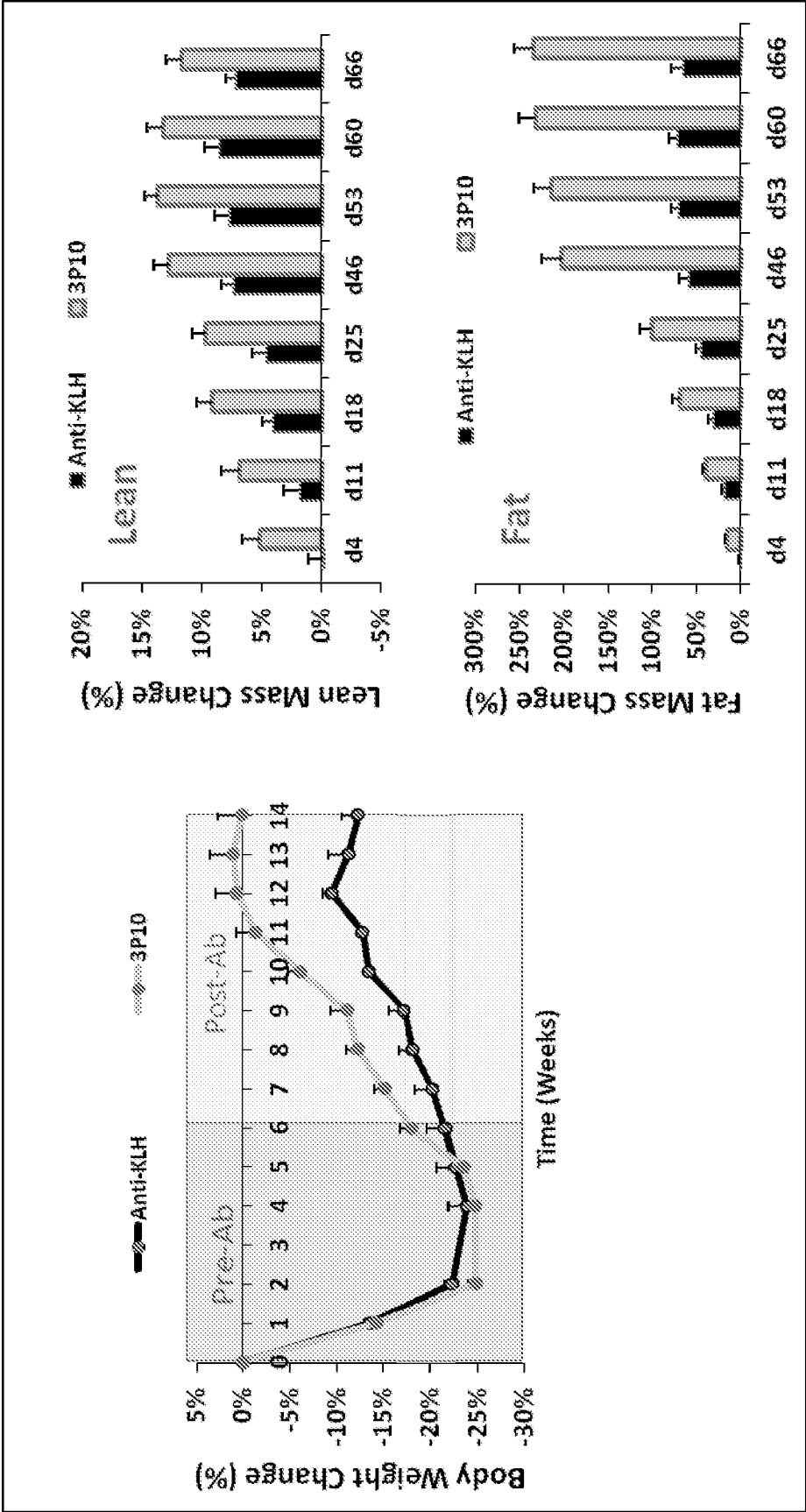


FIG. 28

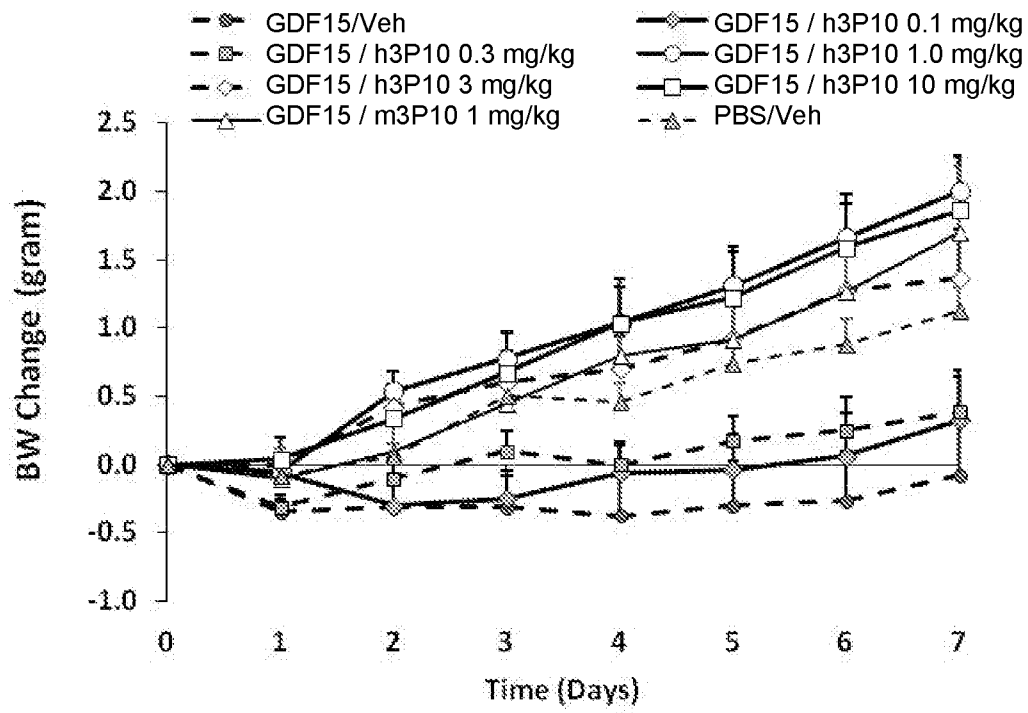


FIG. 29

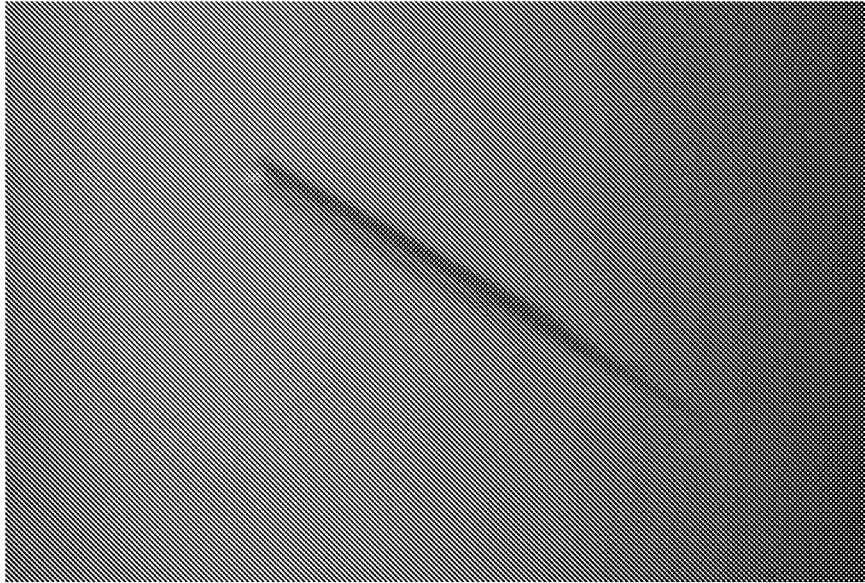


FIG. 30

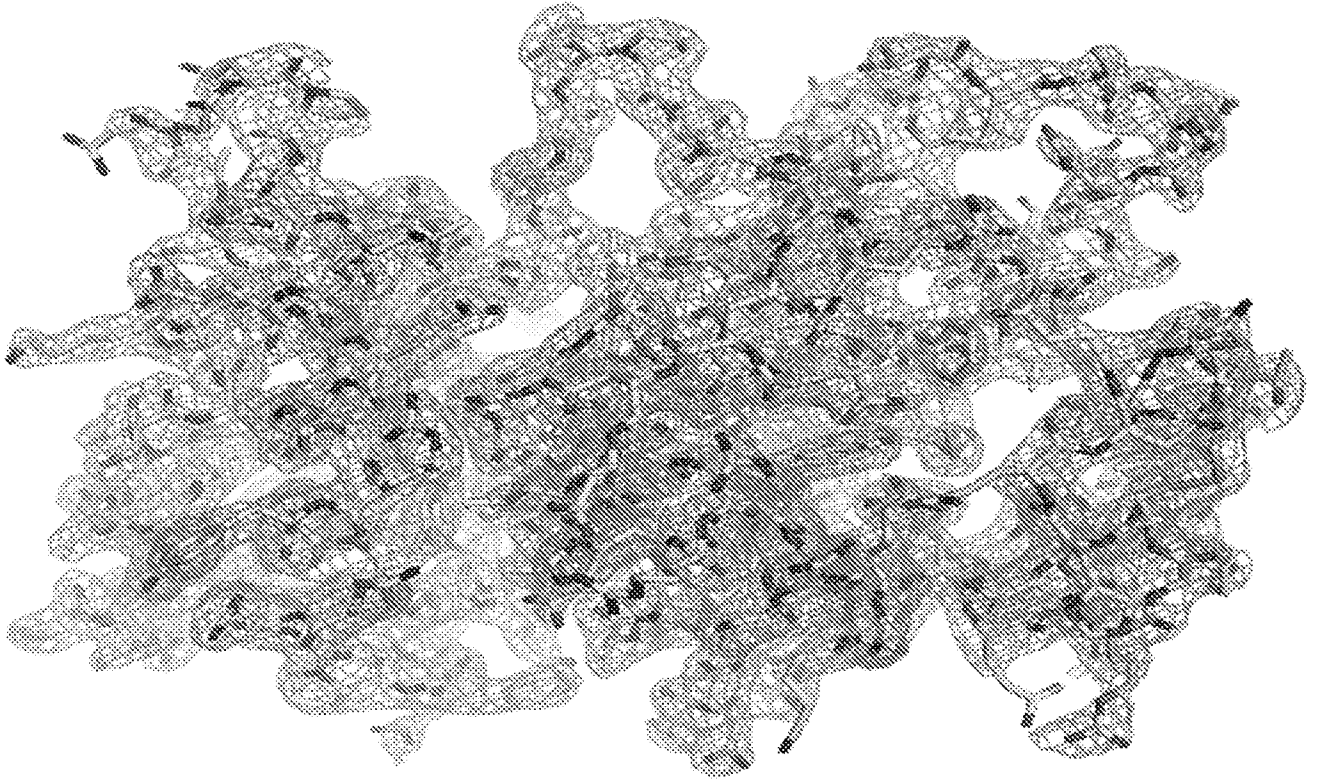
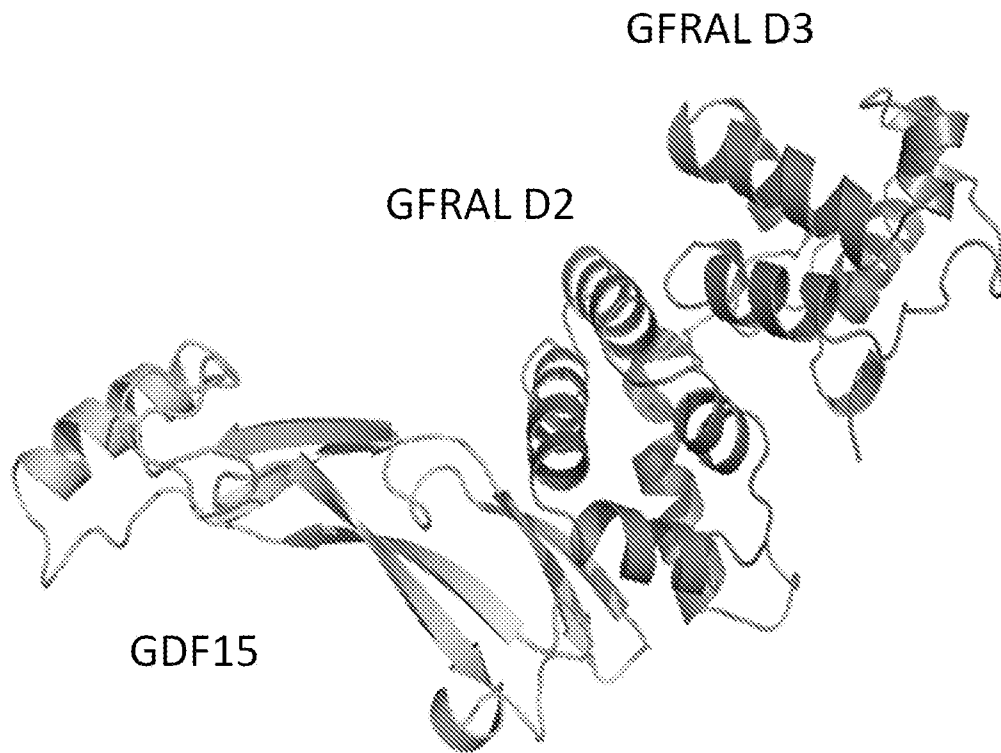
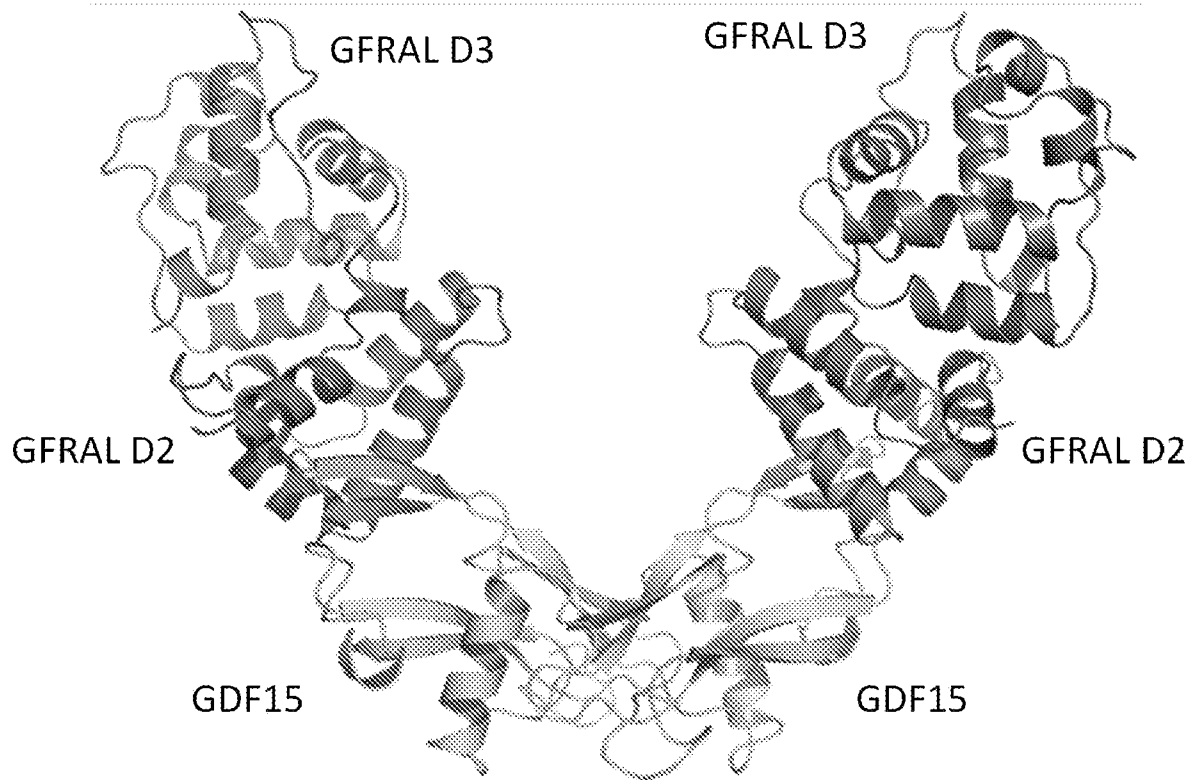


FIG. 31

**FIG. 32****FIG. 33**

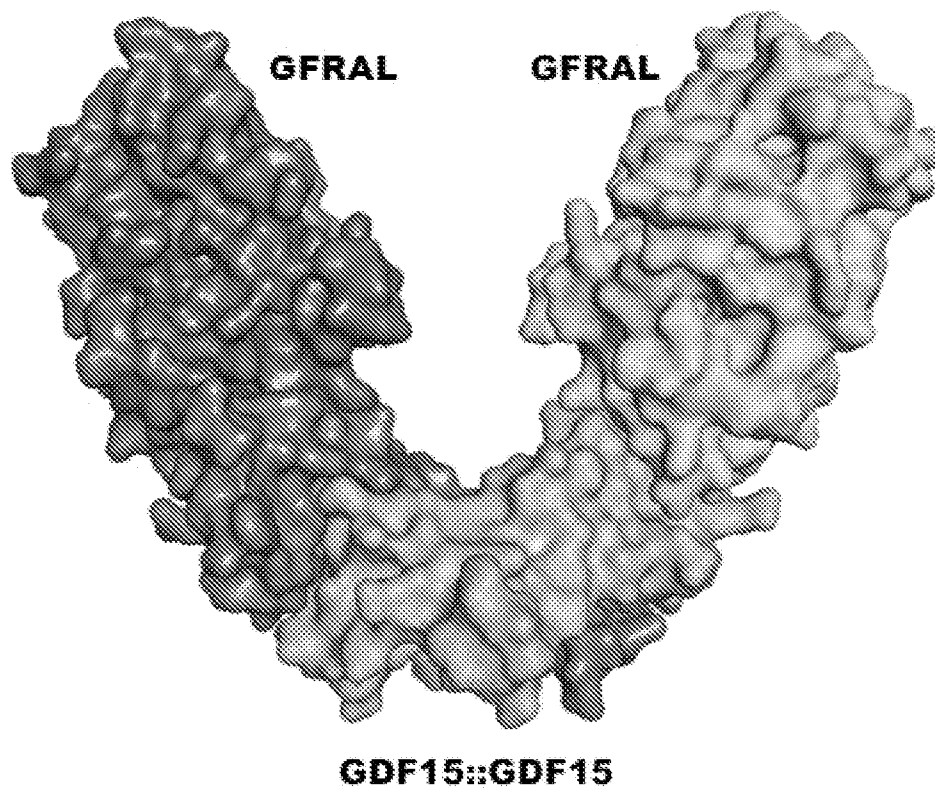
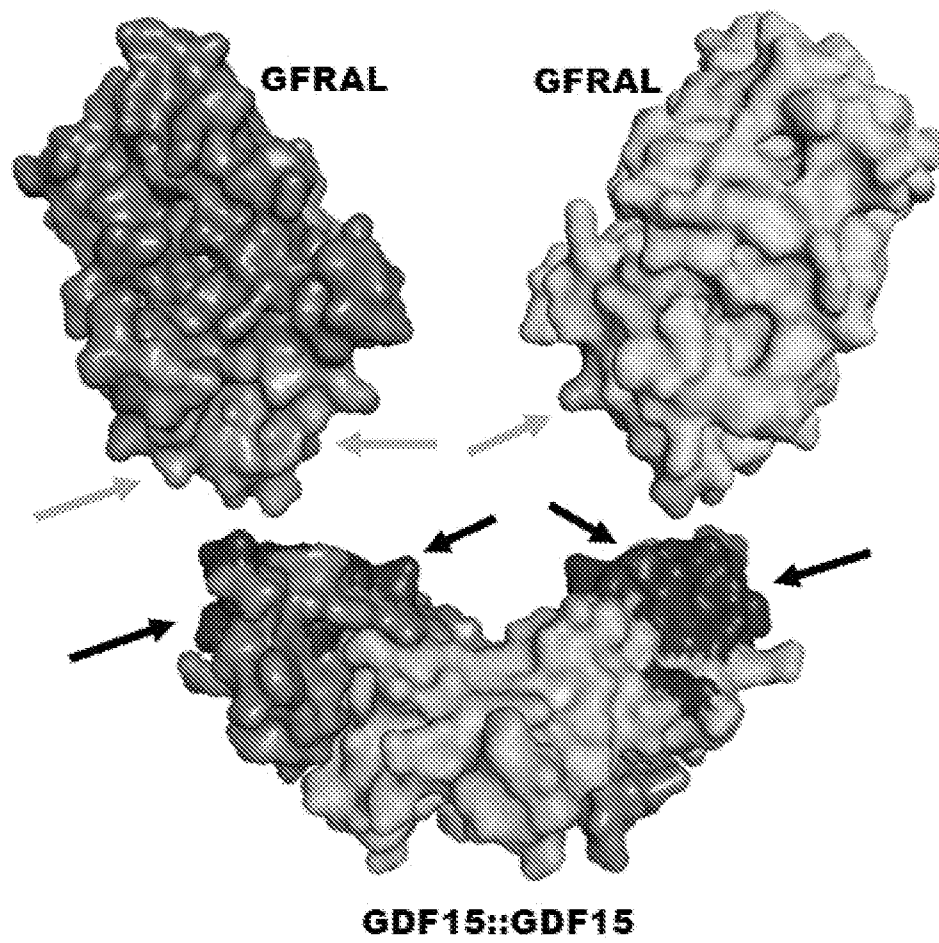
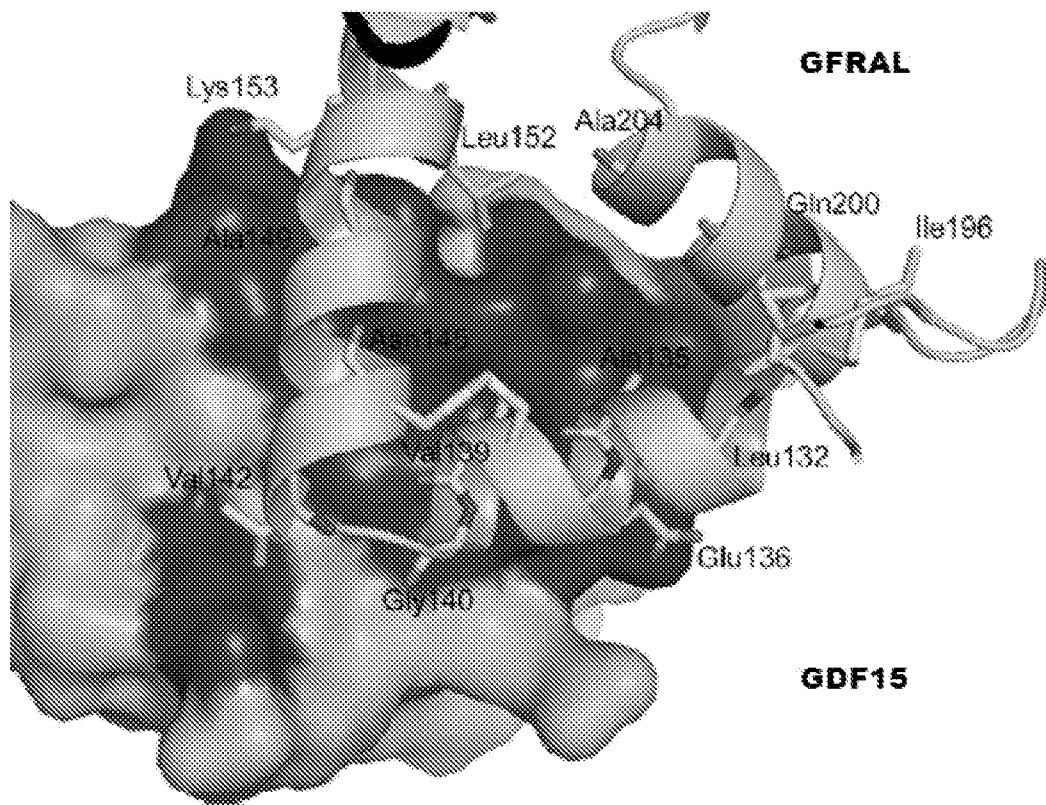
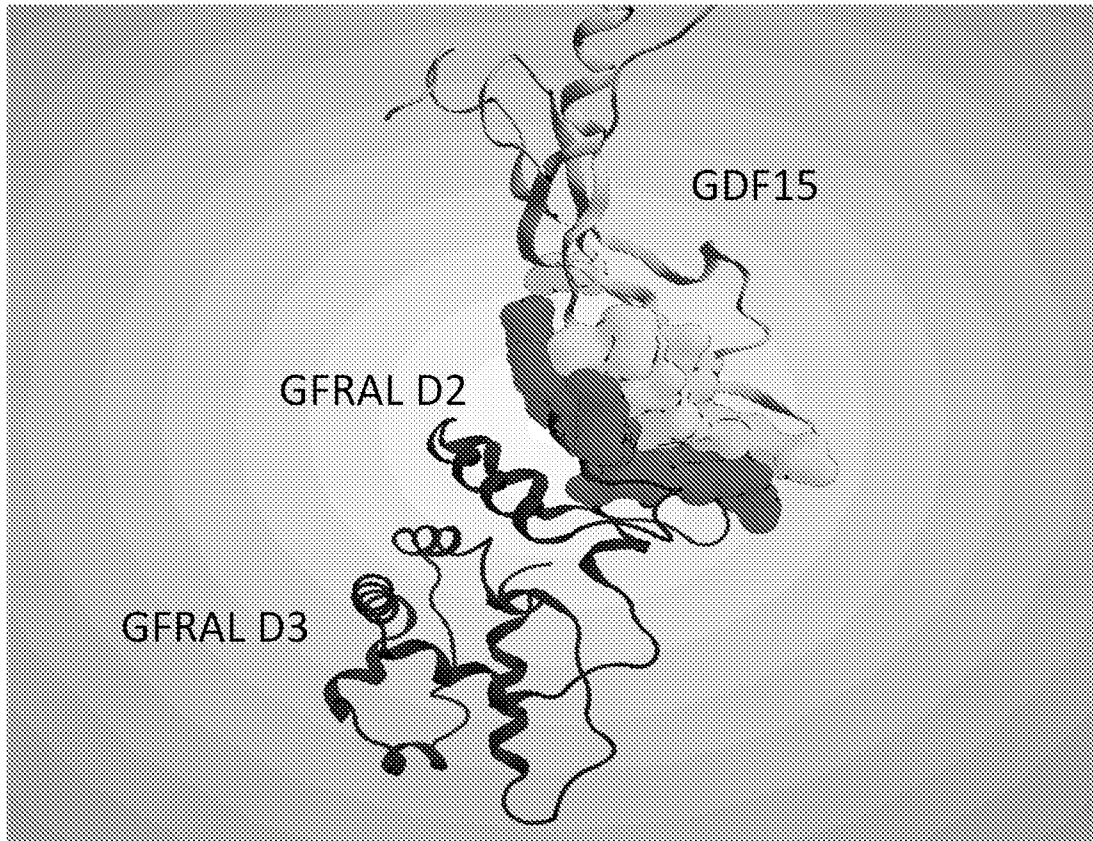
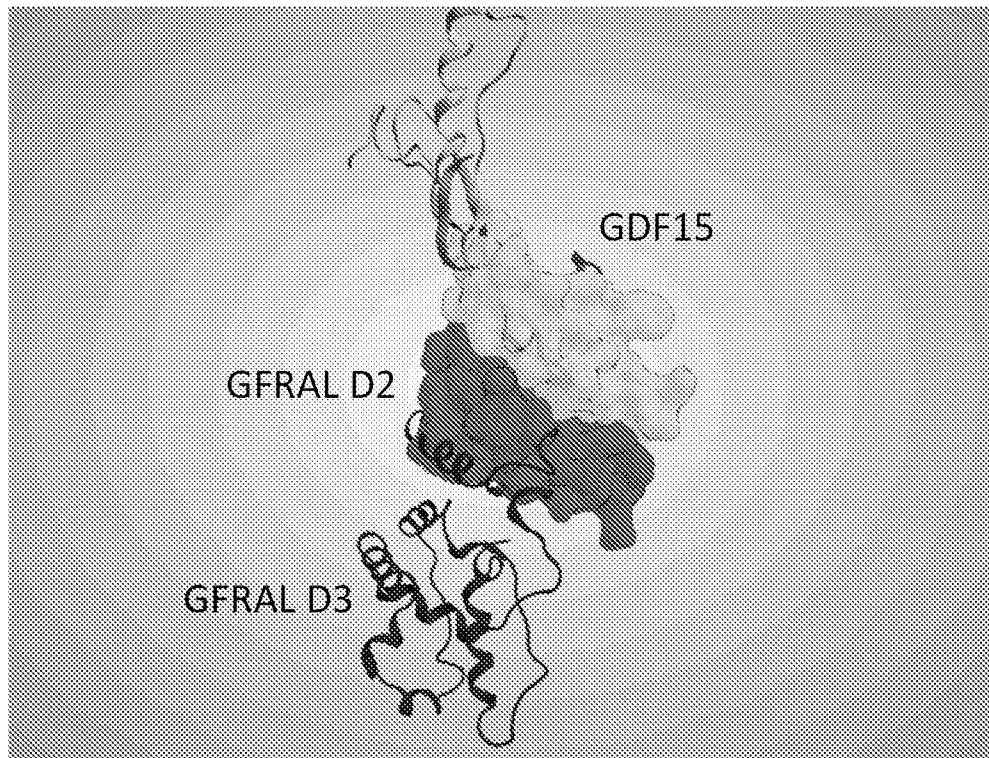
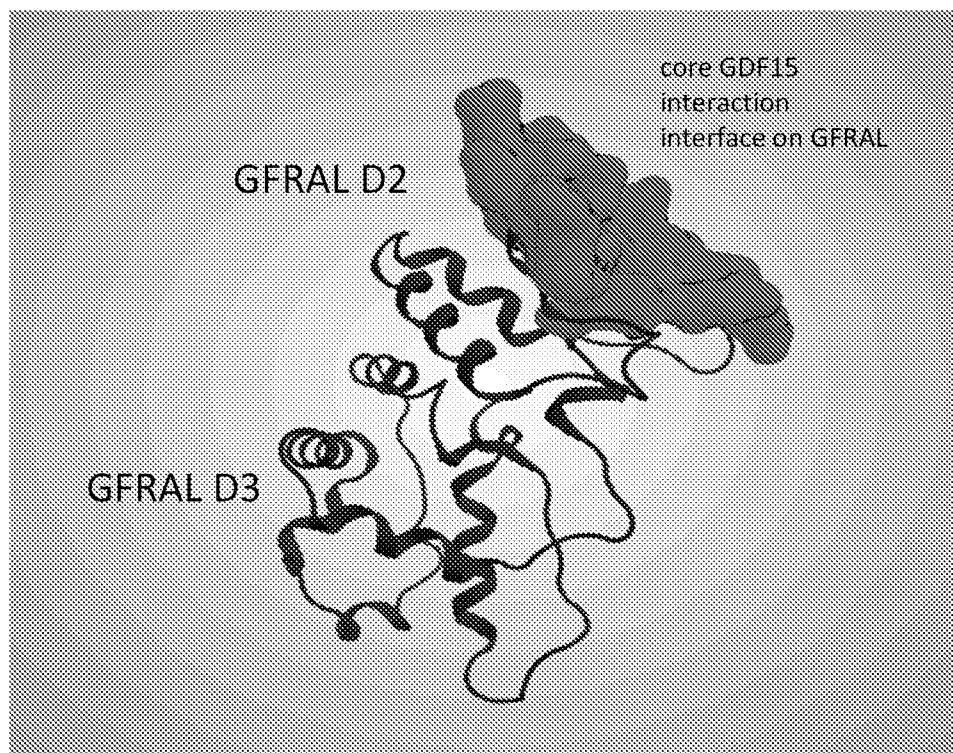


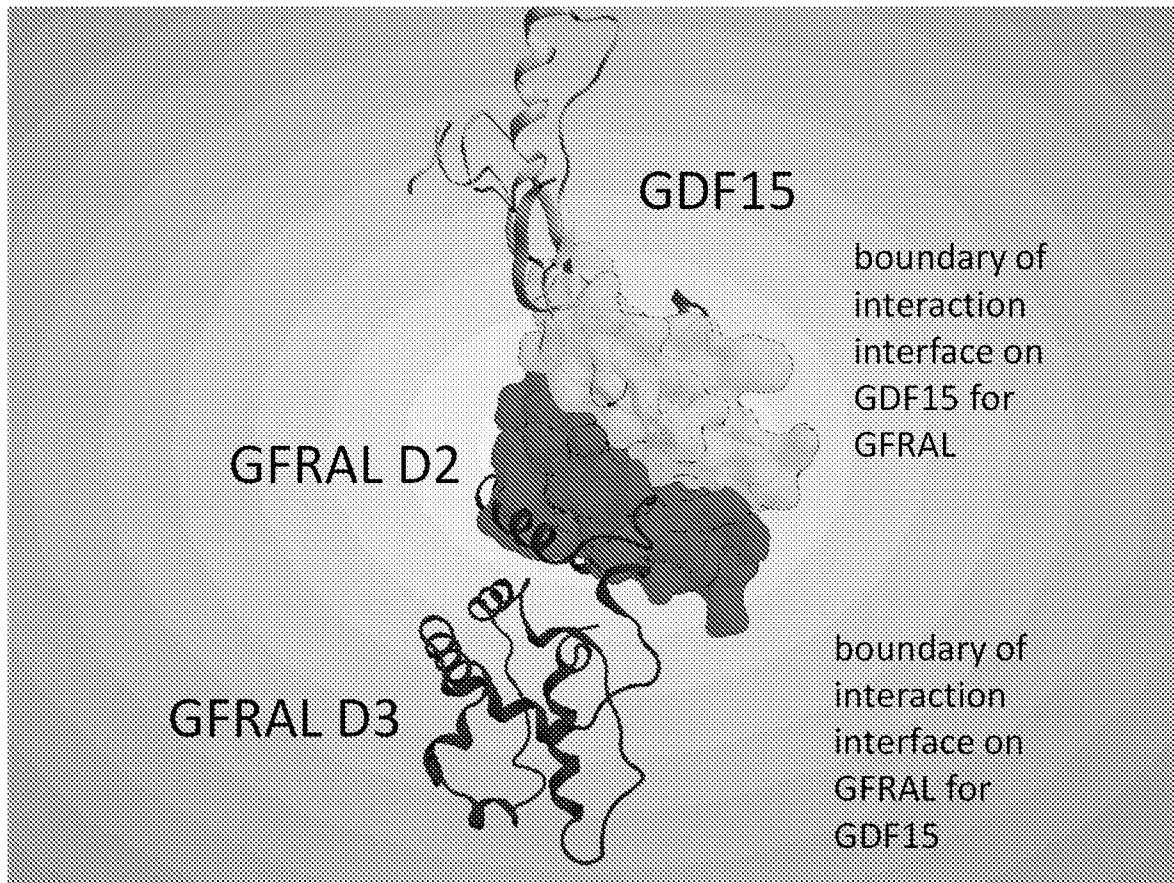
FIG. 34A

**FIG. 34B**

**FIG. 35**

**FIG. 36A**

**FIG. 36B****FIG. 36C**

**FIG. 36D**

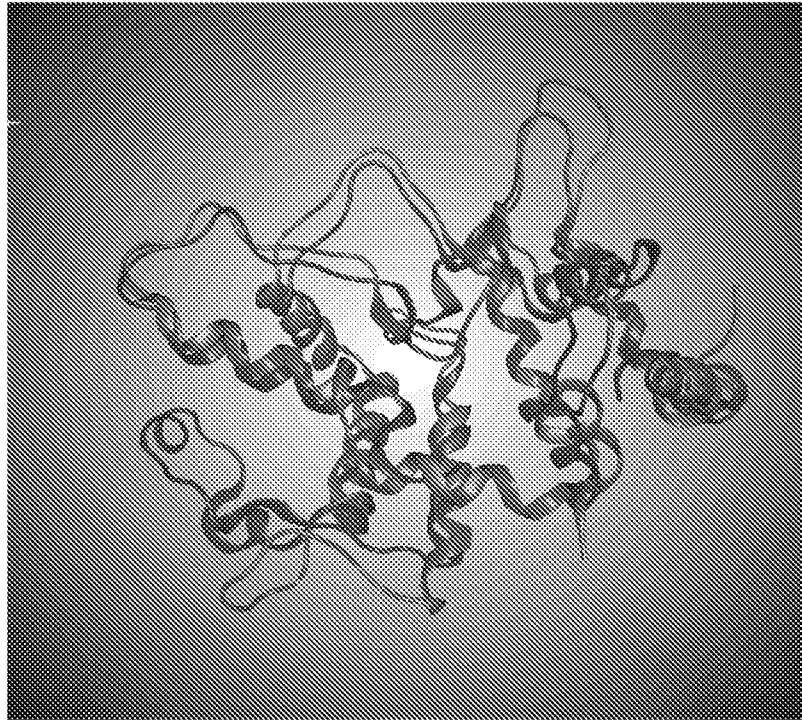


FIG.37A

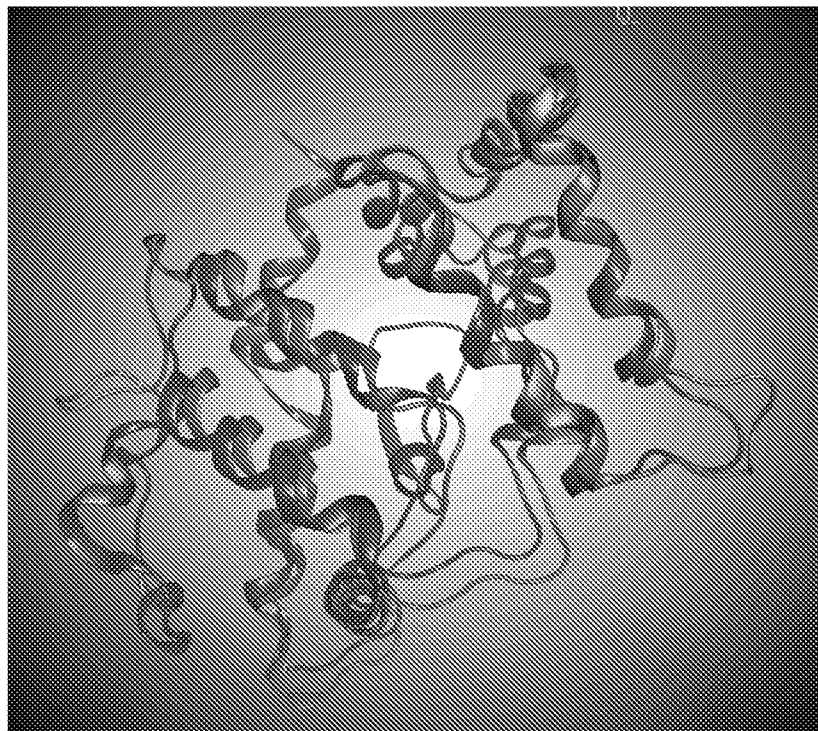


FIG. 37B

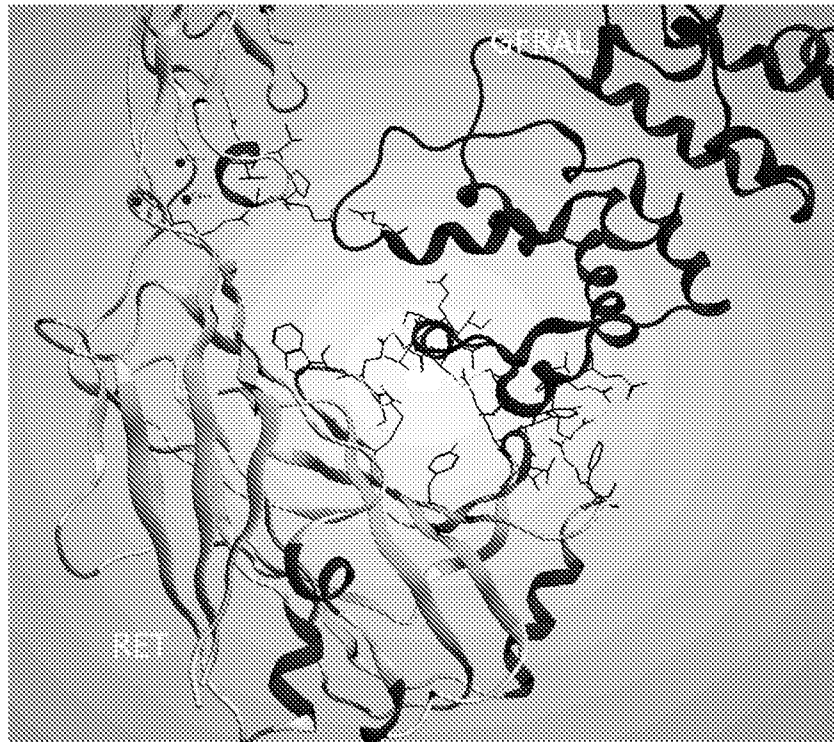


FIG. 38A

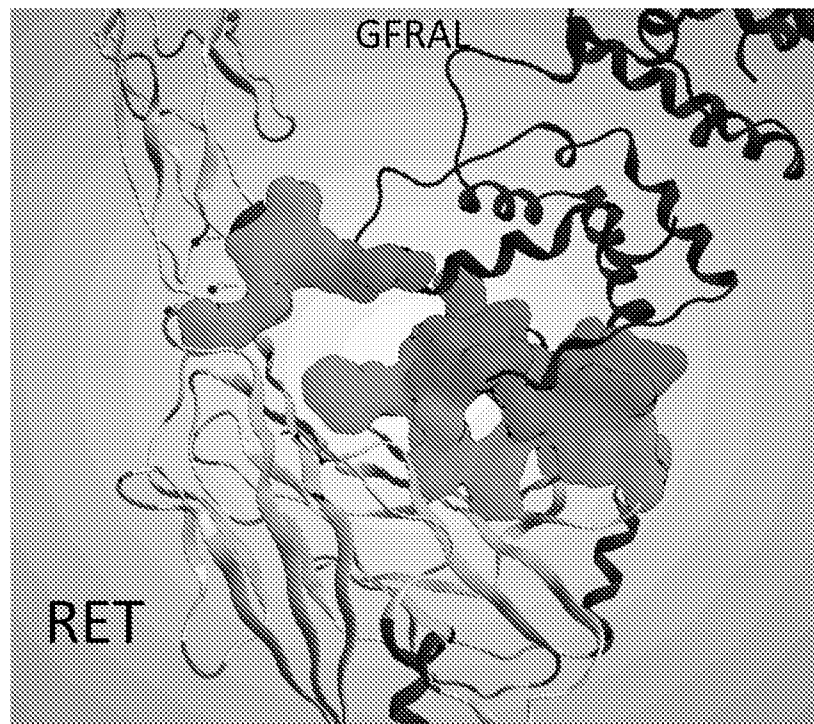


FIG. 38B

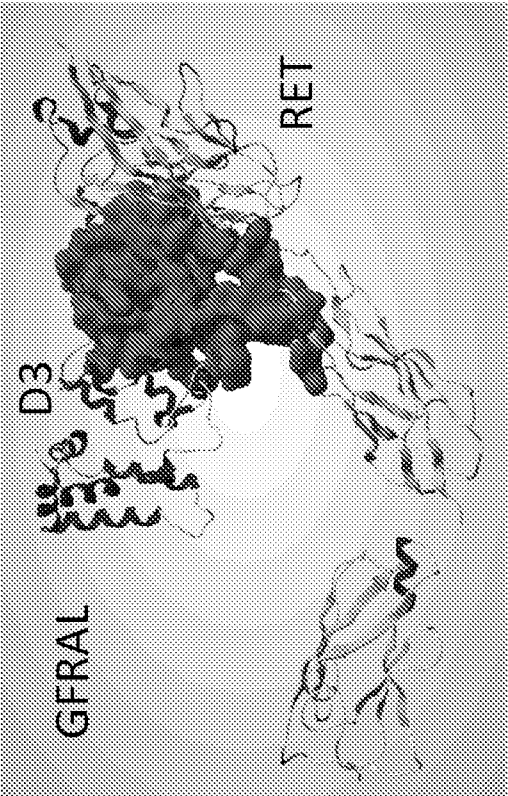


FIG. 38D

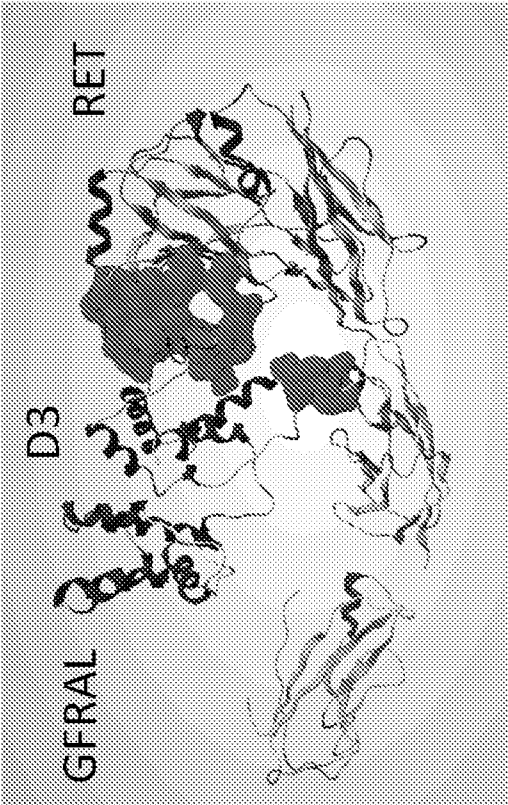
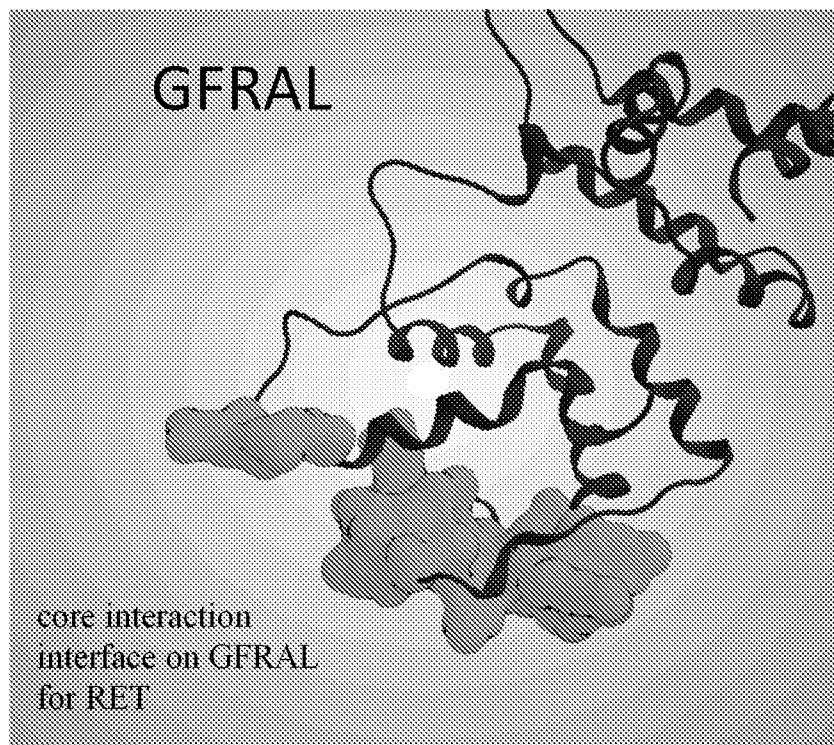
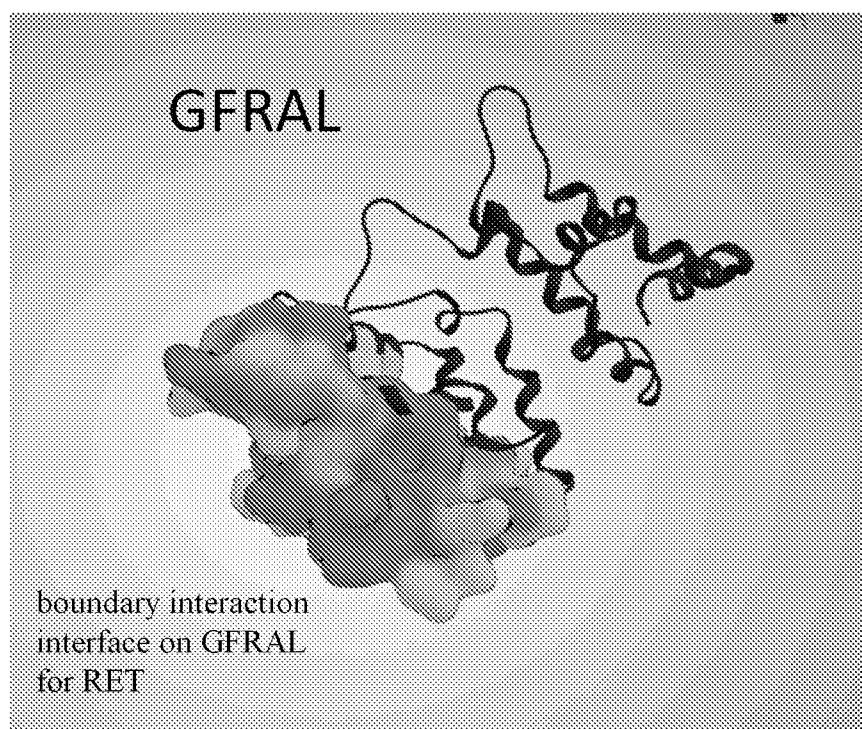


FIG. 38C

**FIG. 39A****FIG. 39B**

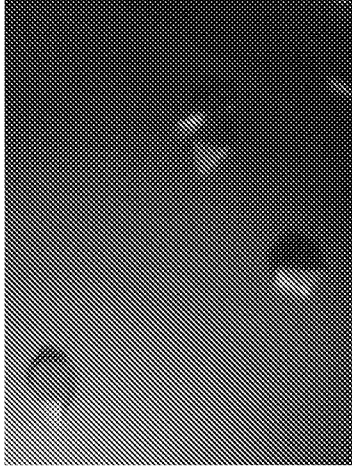


B11

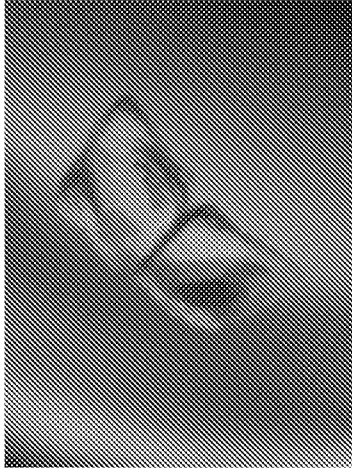
D11

H8

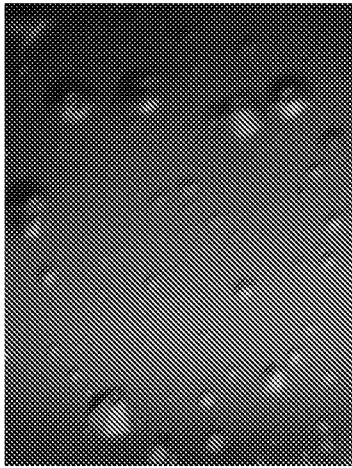
FIG. 40



C2

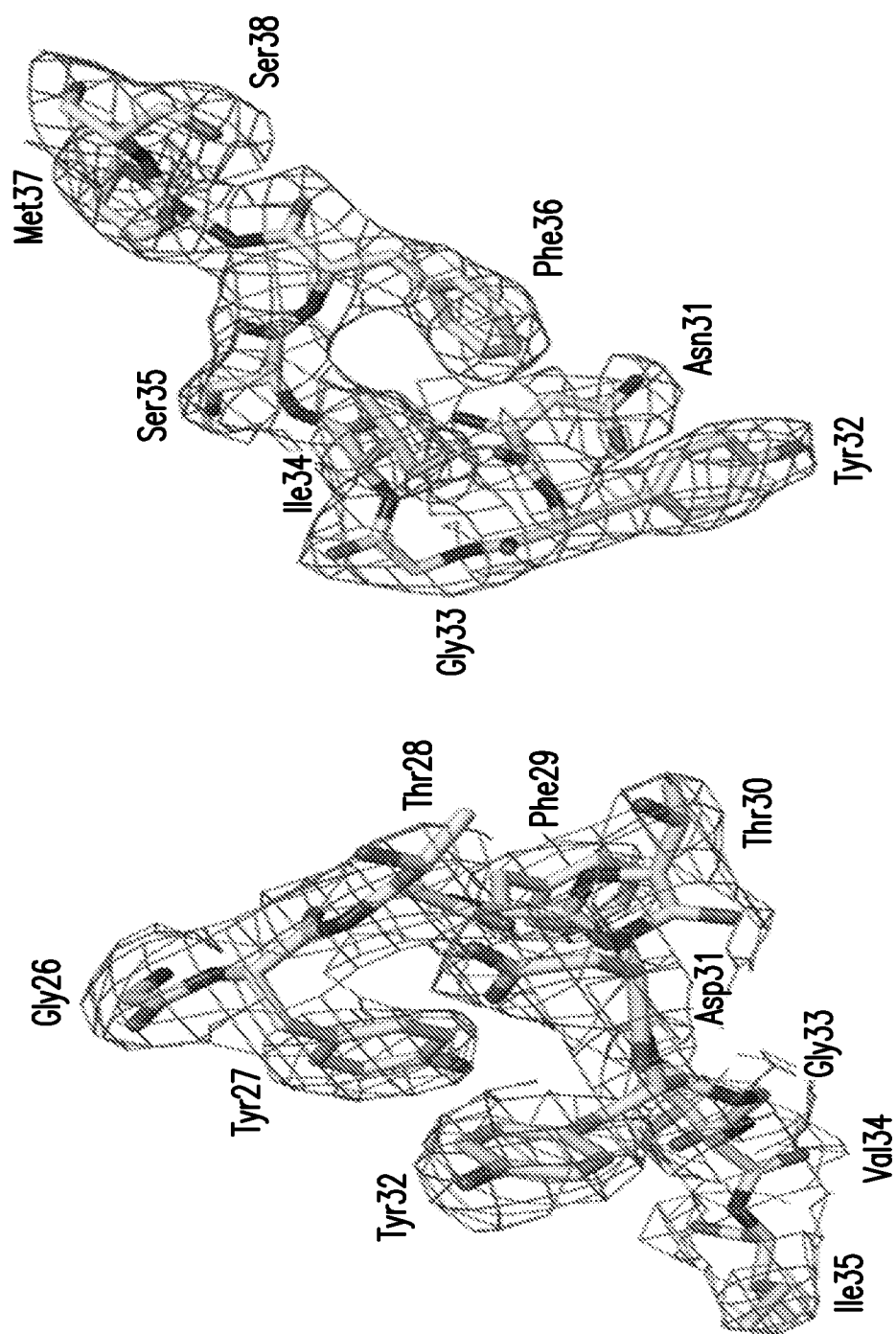


E11



C6

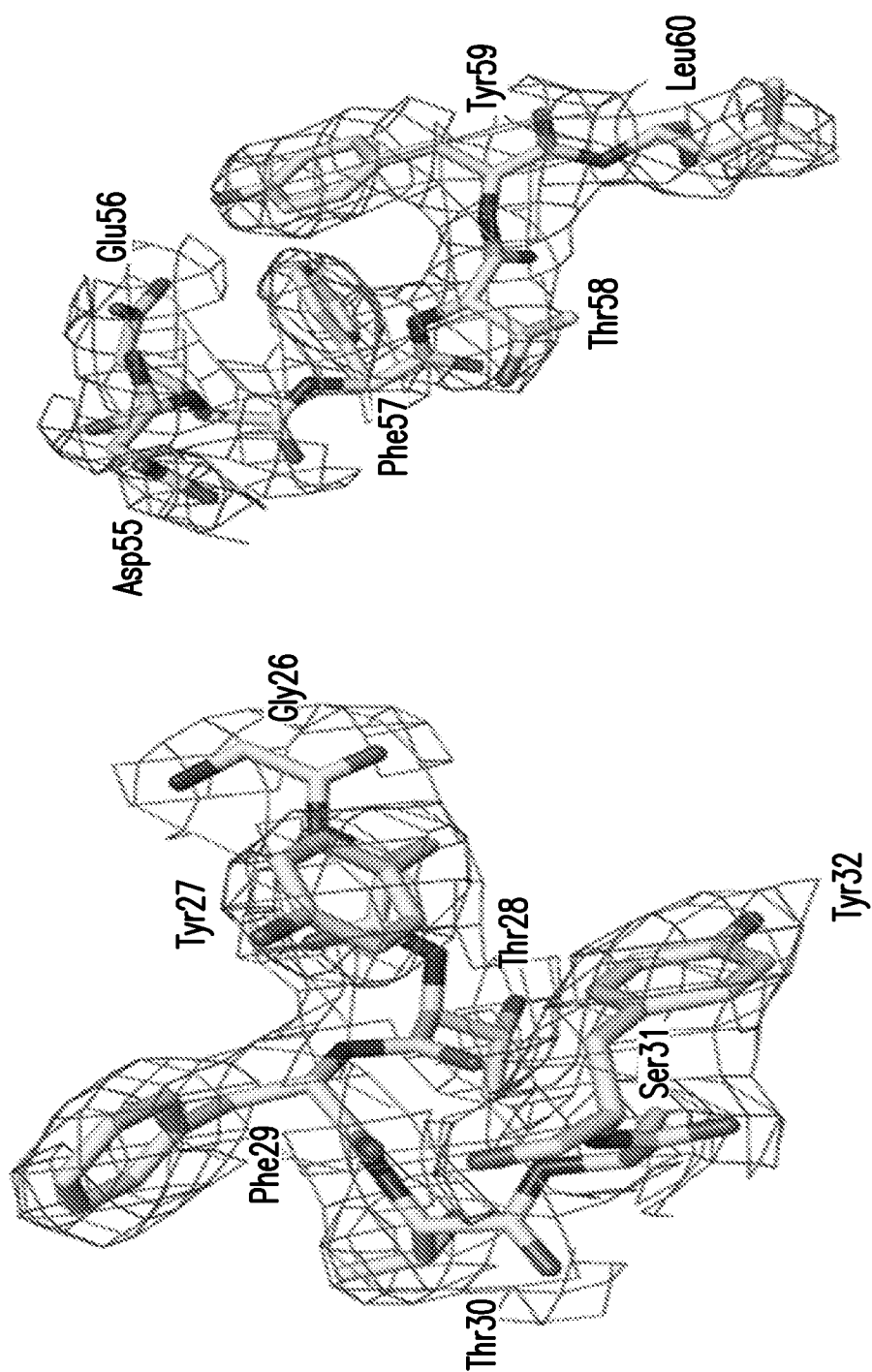
FIG. 41



Chain L: 3P10 Fab Lc (31-38)

Chain H: 3P10 Fab Hc (26-25)

FIG. 42



Chain M: 25M22 Fab Hc (26–32)

Chain N: 25M22 Fab Lc (55–60)

FIG. 42 (continued)

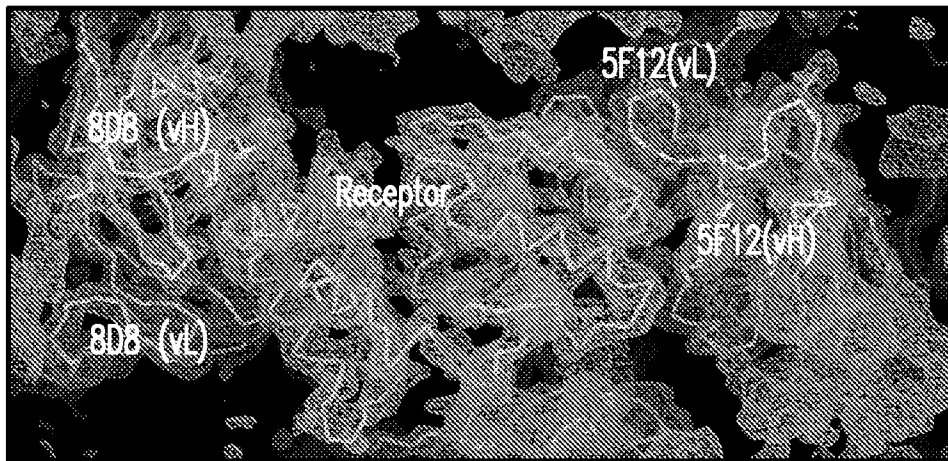


FIG. 43

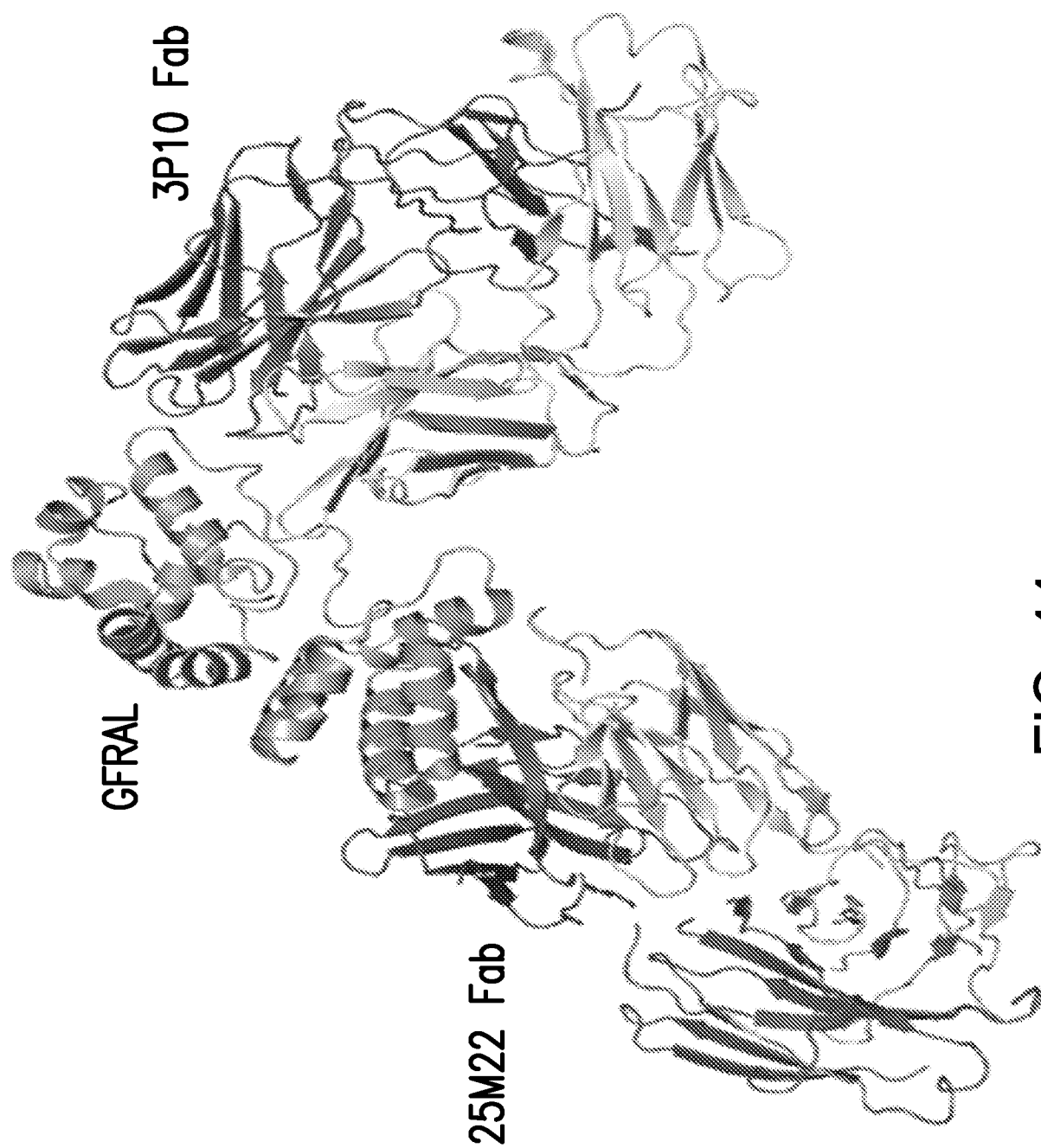


FIG. 44

3P10-Hc_(Chain-H)

10 20 30 40 50 60
 QIQLVQSGPE LKKPGETVKI SCKASGYTFT **DYGV**IWVKQA PGKALKWMGW **INTY**TGEPTY
 297-TC-298 298-QS-299
 70 80 90 100 110 120
ADDLKGRFAF SLETSASSAS LQINNLKNE TATYFCARRY **GPED**IDYWGG GTTLTVSSAS
 297-T RC-295

3P10-Lc_(Chain-L)

10 20 30 40 50 60
 DIVLTQSPVS LAVSLGQRAT ISCRASESVD **NYGIS**FMSWF QQKPGQPPKL LIYAASHQGS
 308-QHC-310 214-CVPP-217
 70 80 90 100 110 120
 GVPARFSGSG SGTDFSLNIH PMEEDDSAMY FCLQSKEVPW TFGGGTKLEI KRTVAAPSVF

25M22-Hc_(Chain-M)

10 20 30 40 50 60
 QVQLQQSGPD LVKPGASVKI SCKASGYTFT **SYW**NWMKQR PGKGLEWIGR **IYPGD**GDNTY
 150-SN-145 K-153
 70 80 90 100 110 120
NGKFKGKATL TADKSSSTAY MQLSSLTSED SAVYFCARAY **LLRL**RTIGYY **AMDY**WGQGTS
 145-N 201-SQ-202

FIG. 45

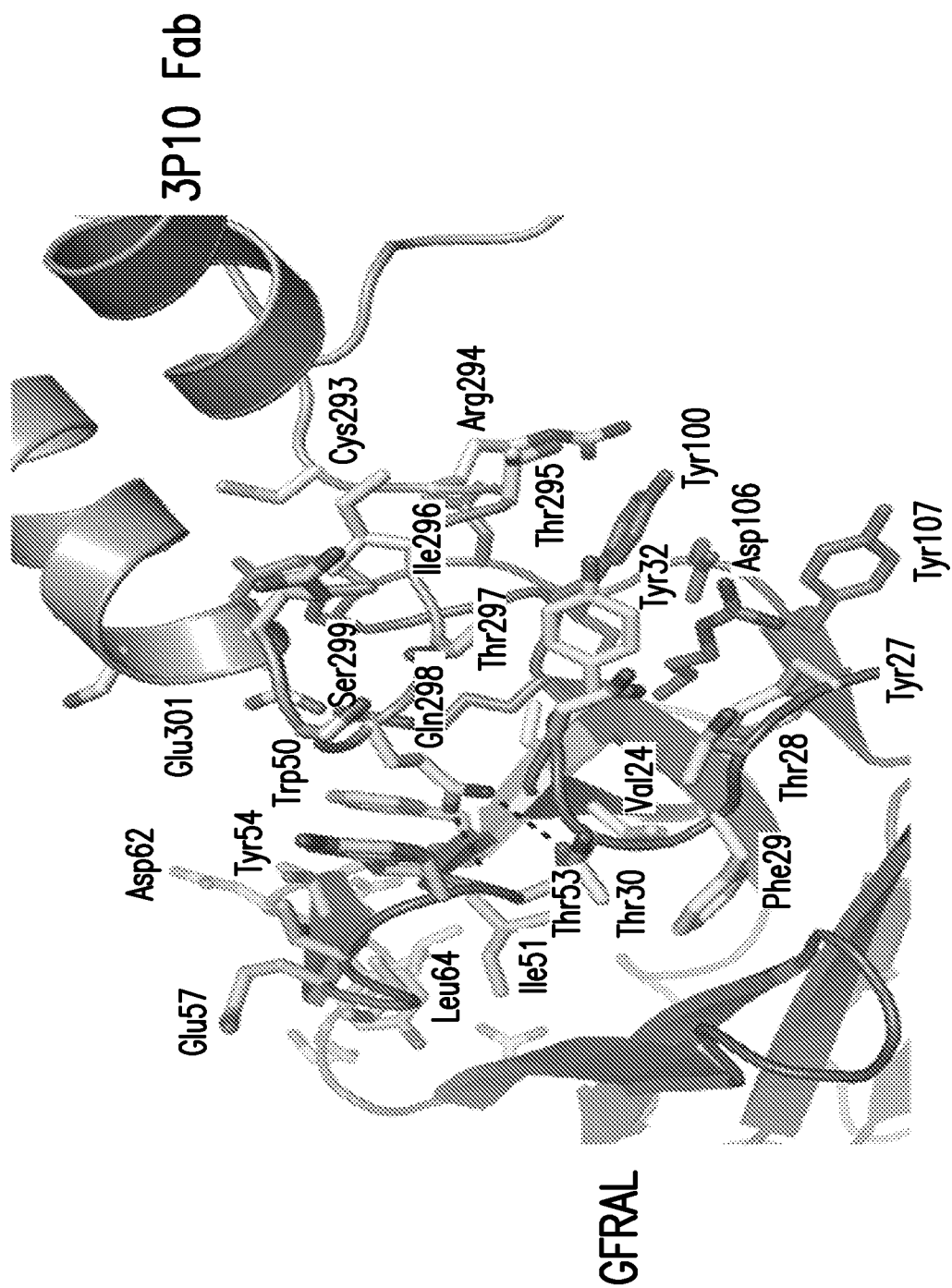


FIG. 46

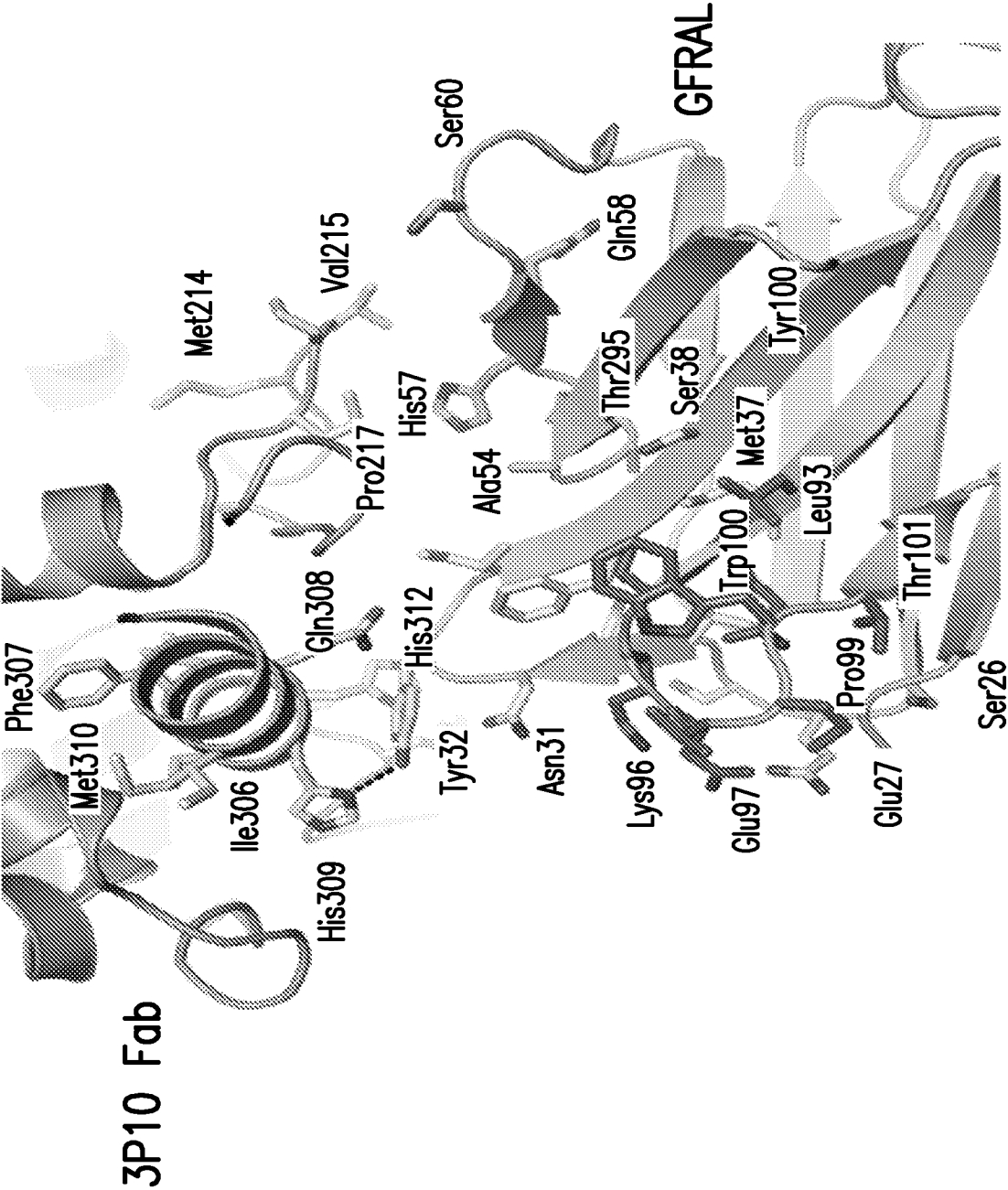


FIG. 47

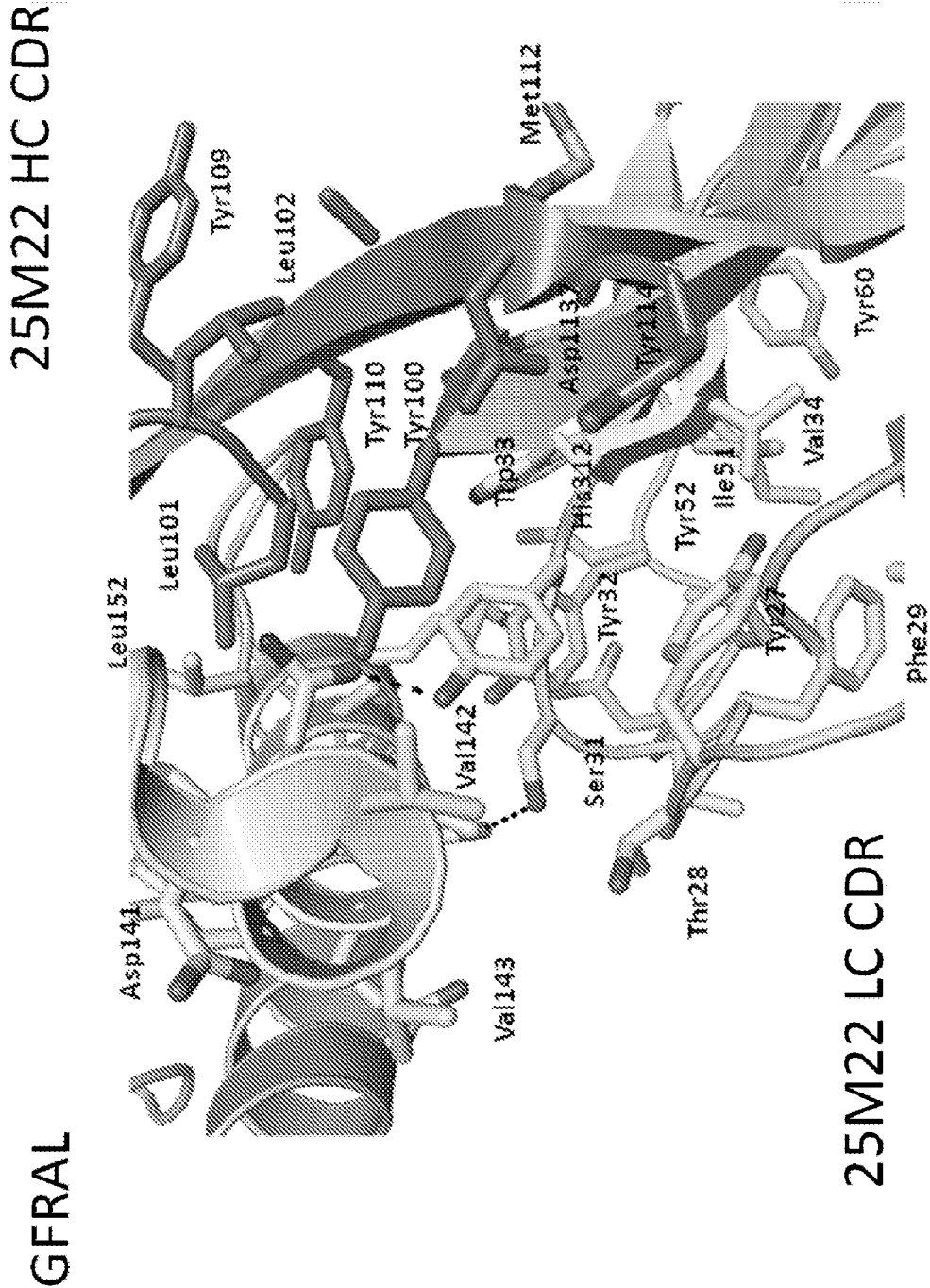


FIG. 48

CHAIN		1	5	10	15	20	25	30	35	40	45
GFRAL	*	S	C	E	V	A	E	A	C	G	D
25M22 HC	*	Q	V	Q	L	Q	S	G	P	D	L
25M22 LC	*	D	V	V	L	T	Q	T	P	L	S
CHAIN		46	50	55	60	65	70	75	80	85	90
GFRAL	*	Y	Q	N	I	P	F	N	I	A	Q
25M22 HC	*	E	W	I	G	R	I	P	C	D	G
25M22 LC	*	G	Q	S	P	Q	L	L	I	F	
CHAIN		91	95	100	105	110	115	120	125	130	135
GFRAL	*	C	L	S	V	I	R	S	C	Q	N
25M22 HC	*	S	A	V	Y	F	C	A	R	A	Y
25M22 LC	*	Y	Y	C							
CHAIN		136	140	145	150	155	160	165	170	175	180
GFRAL	*	Q	D	L	T	C	S	G	S	D	D
25M22 HC	*	L	A	P	G	T	A	A	L	G	C
25M22 LC	*	S	V	V	C	L	L	N	F	Y	P
CHAIN		181	185	190	195	200	205	210	215	218	
GFRAL	*	M	L	H	R	K	S	C	F	N	
25M22 HC	*	Y	S	L	S	S	V	T	V	P	S
25M22 LC	*	S	S	T	L	T	S	K	A	D	Y

FIG. 49

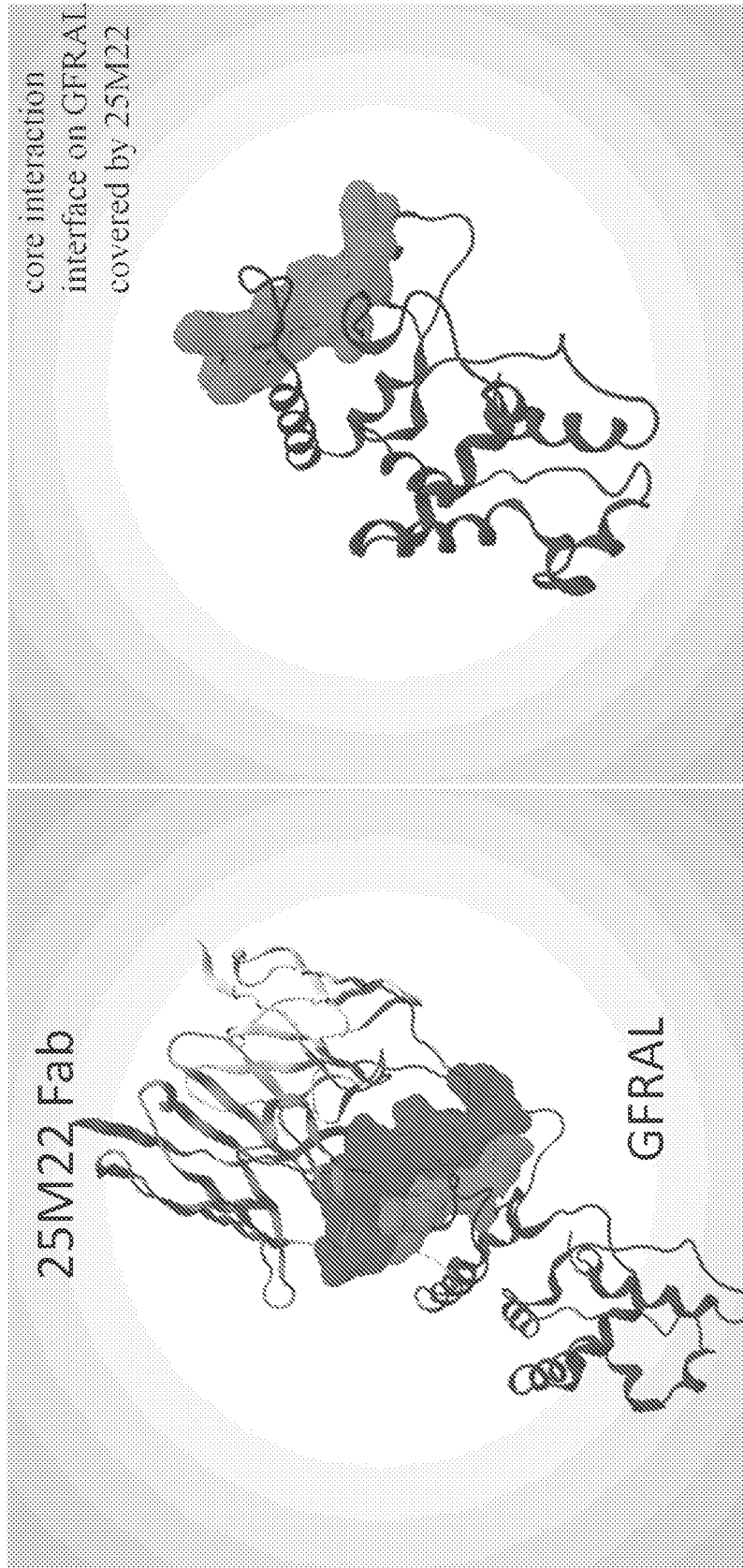
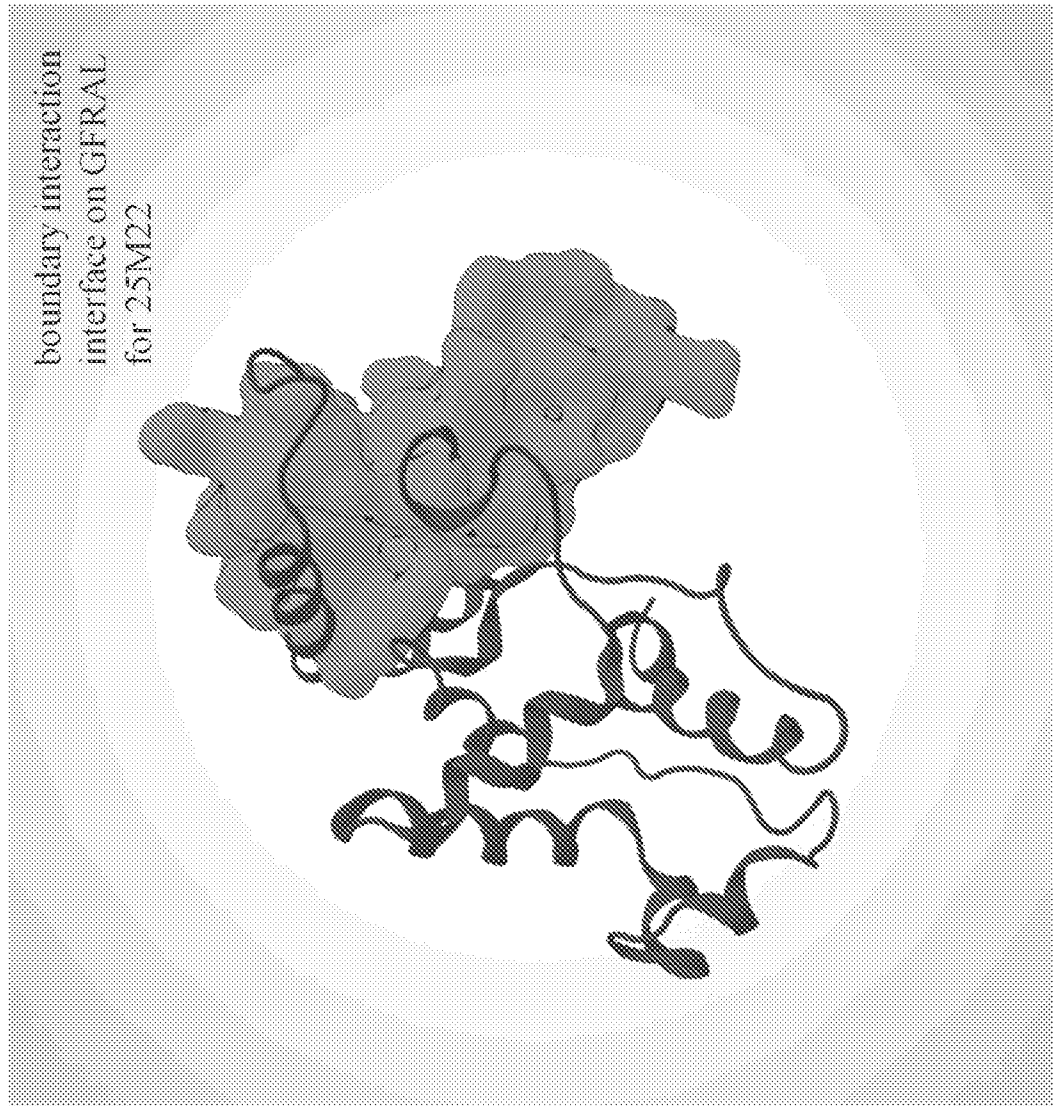


FIG. 50A

FIG. 50B

**FIG. 51**

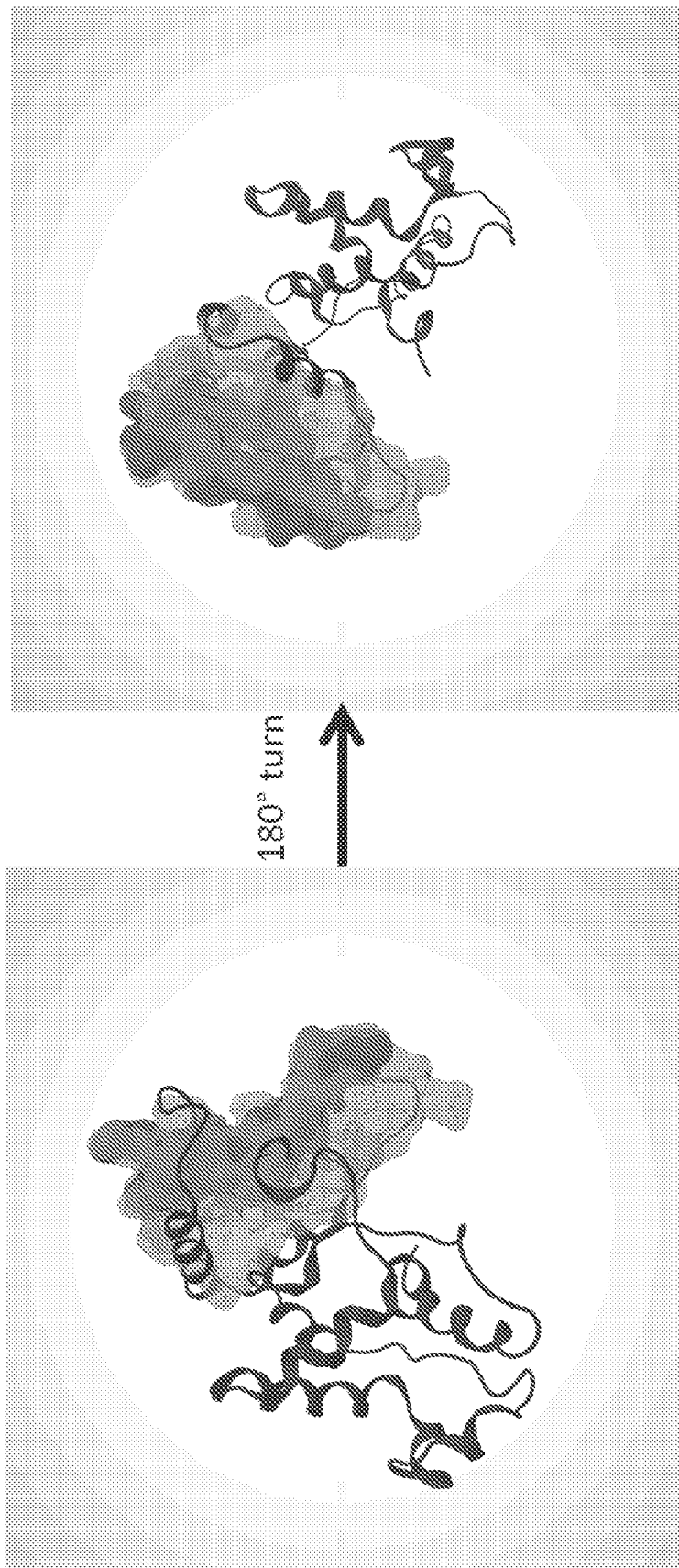


FIG. 52

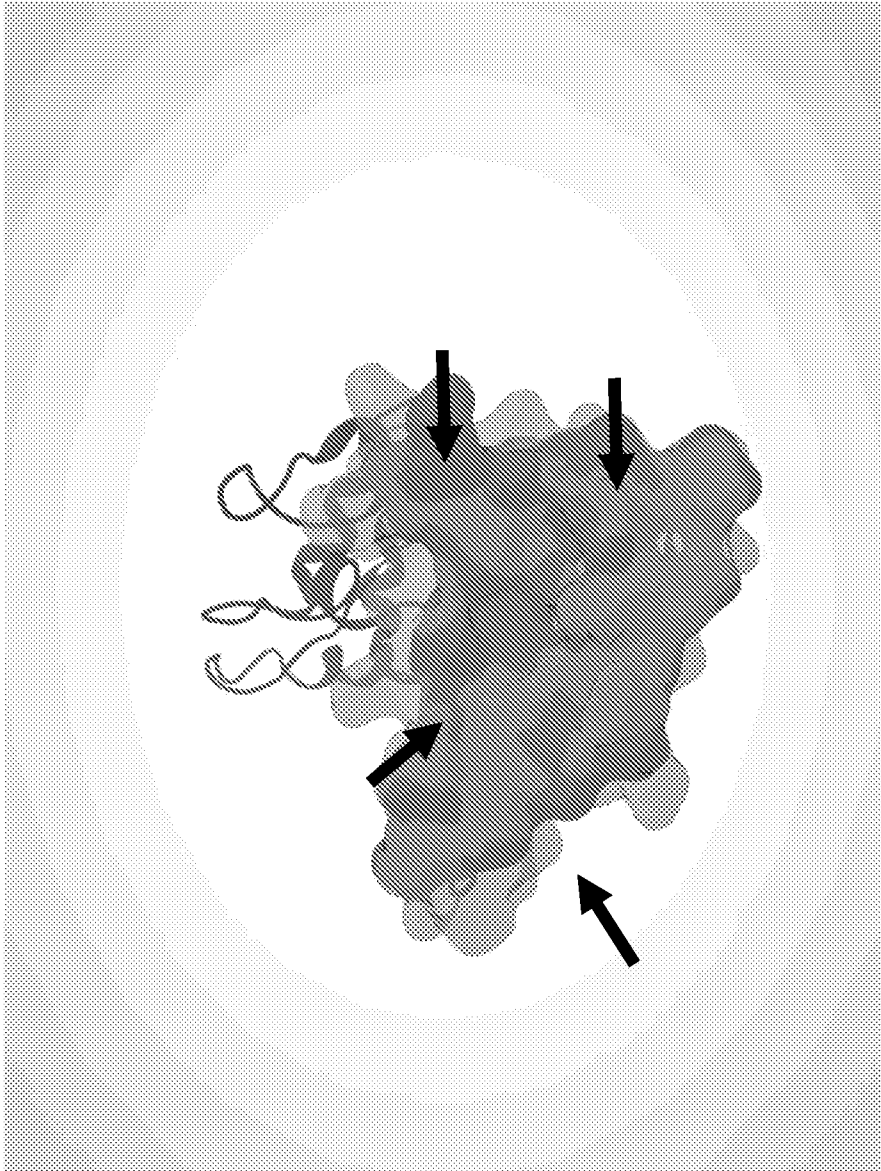


FIG. 53

CHAIN		1	5	10	15	20	25	30	35	40	45																																			
GFRAL	*	S	L	E	V	A	E	A	V	G	D	V	C	N	A	Q	L	A	S	Y	L	K	A	C	S	A	N	G	N	P	C	D	L	K	Q	C	Q	A	A	I	R	F	F			
3P10 HC	*	Q	I	Q	L	V	Q	S	G	P	E	L	K	K	P	G	E	T	V	K	I	S	C	K	A	S	G	Y	T	F	I	D	Y	G	V	I	W	V	K	Q	A	P	G	K	A	L
3P10 LC	*	D	I	V	L	T	Q	S	P	V	S	L	A	V	S	L	G	Q	R	A	T	I	S	C	R	A	S	E	S	V	D	N	Y	C	I	S	F	H	S	W	F	Q	K	P	G	

CHAIN		46	50	55	60	65	70	75	80	85	90																																		
GFRAL	*	Y	Q	N	I	P	F	N	I	A	Q	M	L	A	F	C	D	C	A	Q	S	D	I	P	C	Q	Q	S	K	E	A	L	H	S	K	T	C	A	V	N	V	P	P	T	
3P10 HC	*	K	W	M	G	W	I	N	I	Y	T	G	E	P	T	Y	A	D	D	L	K	G	R	F	A	F	S	L	E	T	S	A	S	A	S	L	Q	I	N	N	L	K	N	E	D
3P10 LC	*	Q	P	P	K	L	I	Y	A	A	S	H	G	S	G	V	P	A	R	F	S	G	S	G	T	D	F	S	L	N	I	H	P	M	E	E	D	D	S	A	M	Y			

CHAIN		91	95	100	105	110	115	120	125	130	135																																			
GFRAL	*	C	L	S	V	I	R	S	C	Q	N	D	E	L	C	R	R	H	Y	R	T	F	Q	S	K	C	W	Q	R	V	T	R	K	C	H	E	D	E	N	C	I	S	T	L	S	K
3P10 HC	*	T	A	T	Y	F	C	A	R	Y	G	P	E	D	I	D	Y	W	G	Q	G	T	T	L	T	V	S	S	A	S	T	K	G	P	S	V	F	P	L	A	G	G	T	A		
3P10 LC	*	F	C	D	S	K	E	V	P	N	F	C	G	G	T	K	L	E	I	K	R	T	V	A	A	P	S	V	I	F	P	P	S	D	E	Q	L	K	S	G	T	A	S			

CHAIN		136	140	145	150	155	160	165	170	175	180																																			
GFRAL	*	Q	D	L	T	C	S	G	S	D	D	C	K	A	A	Y	I	D	I	L	G	T	V	L	Q	V	D	C	R	I	I	O	S	E	S	L	C	K	I	F	O	H				
3P10 HC	*	L	G	C	L	V	K	D	Y	F	P	E	P	V	T	V	S	N	S	G	A	L	T	S	G	V	H	T	F	P	A	V	L	Q	S	S	G	L	Y	S	L	S	S	V		
3P10 LC	*	V	V	C	L	L	N	N	F	P	P	R	E	A	K	V	Q	W	K	V	D	N	A	L	Q	S	G	N	S	Q	E	S	V	T	E	Q	D	S	K	D	S	T	Y	S	L	S

CHAIN		181	185	190	195	200	205	210	215	218																												
GFRAL	*	M	L	I	R	K	S	C	F	N																												
3P10 HC	*	T	V	P	S	S	L	G	T	Q	T	Y	I	C	N	V	N	H	K	P	S	N	T	K	V	D	K	K	V	E	P	K	S	C				
3P10 LC	*	S	T	L	T	S	K	A	D	Y	E	K	H	K	V	Y	A	C	E	V	T	H	Q	G	L	S	S	P	V	T	K	S	F	N	R	G	E	C

FIG. 54

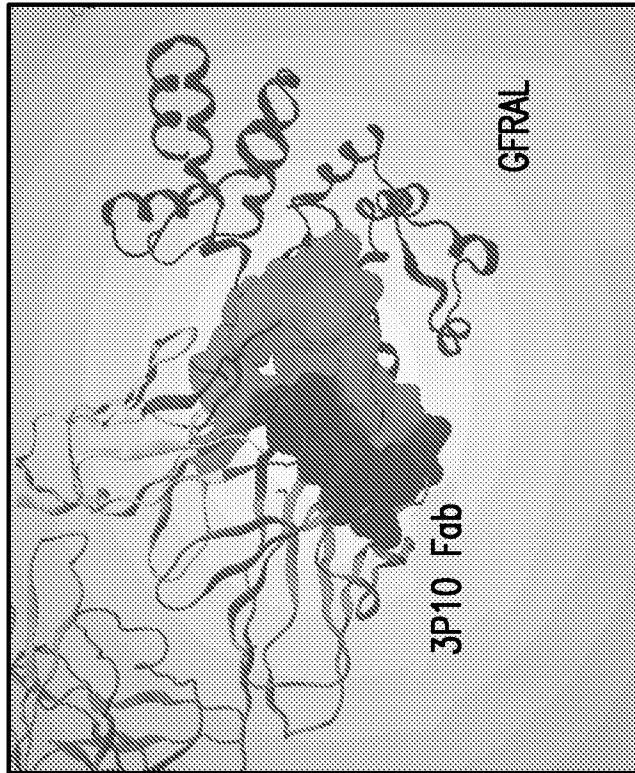


FIG. 55B

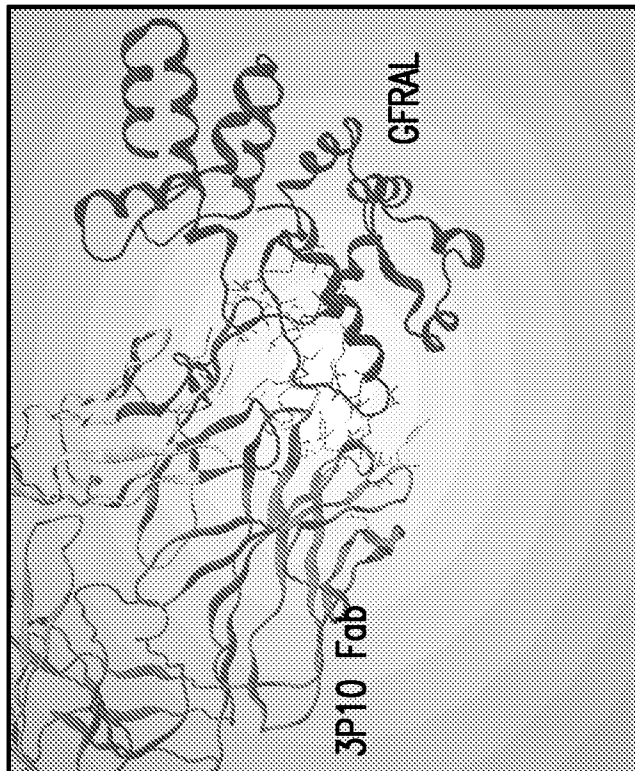


FIG. 55A

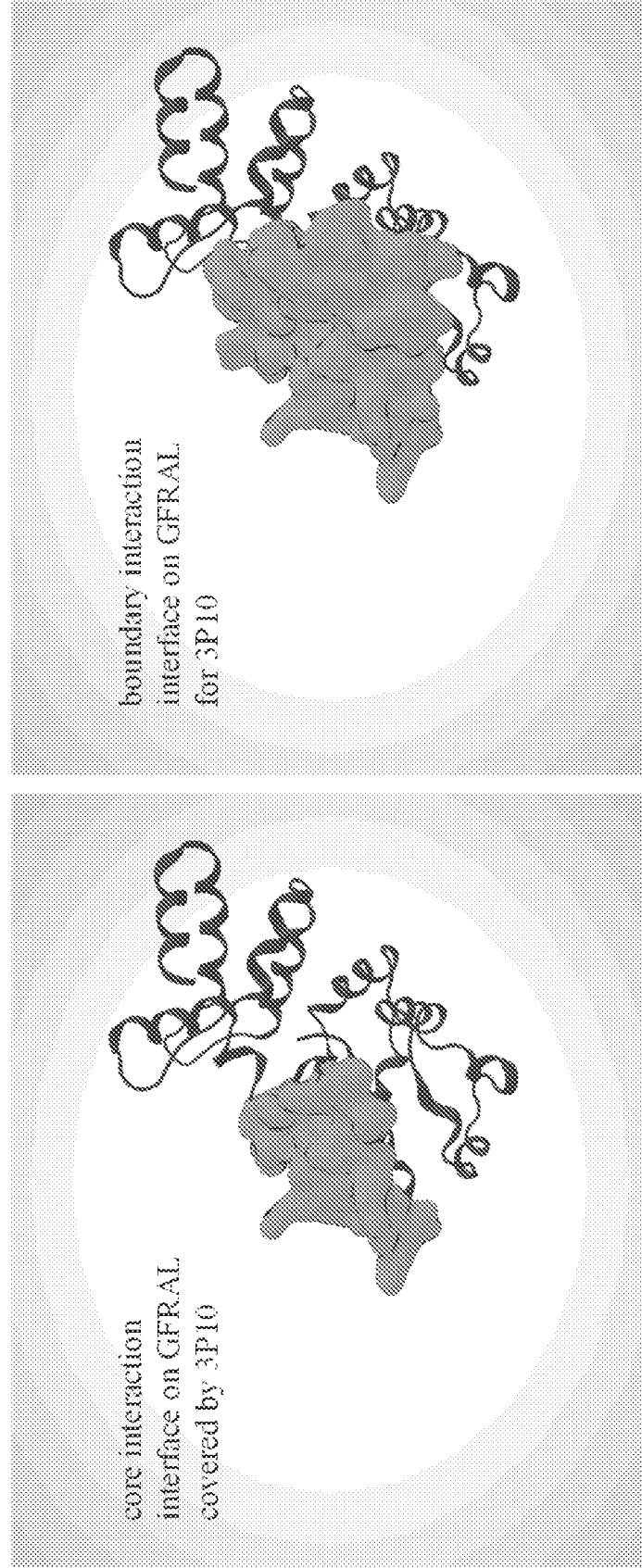


FIG. 56A

FIG. 56B

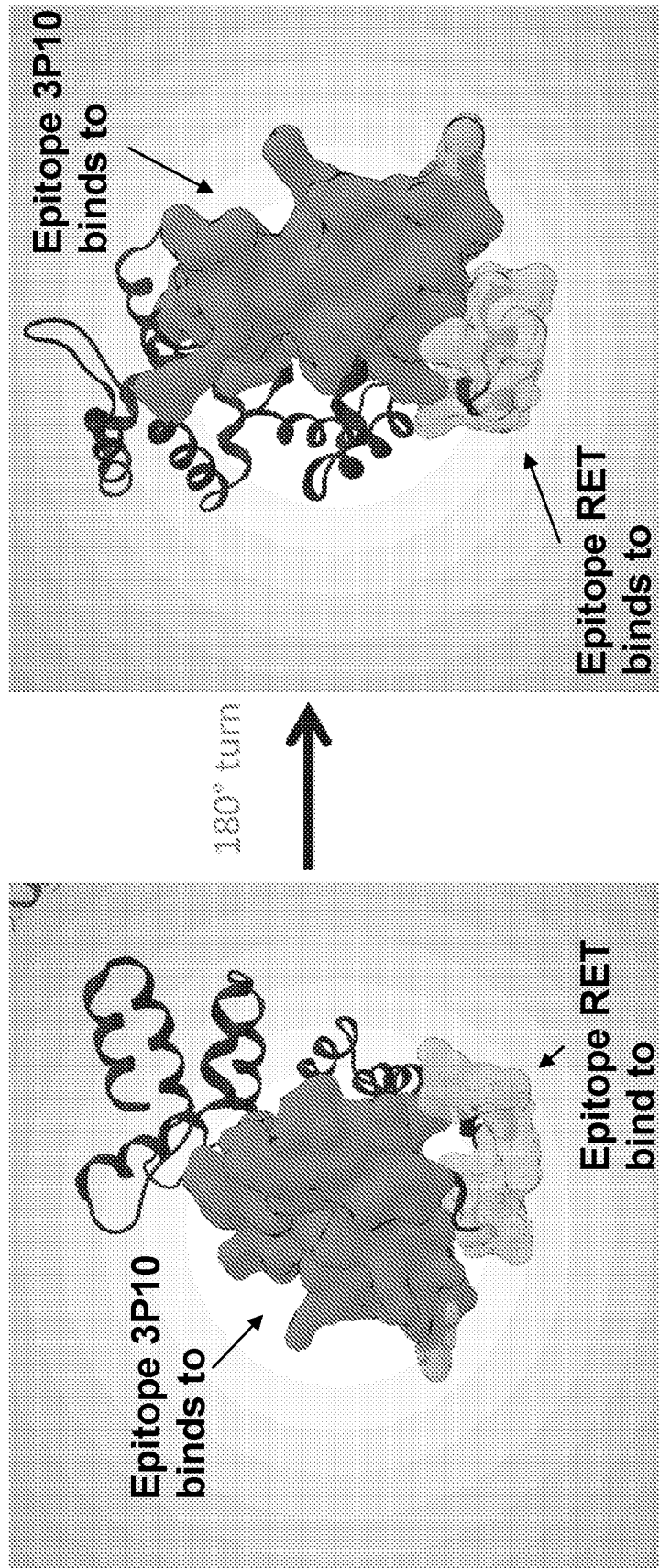


FIG. 57

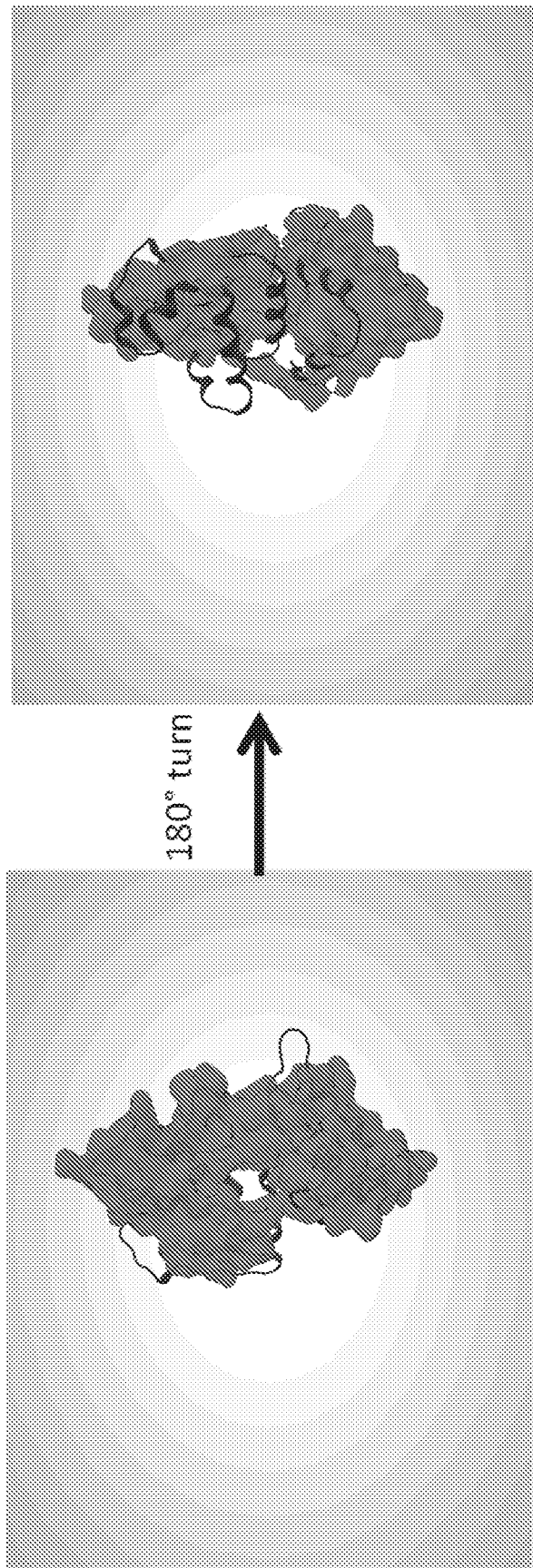


FIG. 58

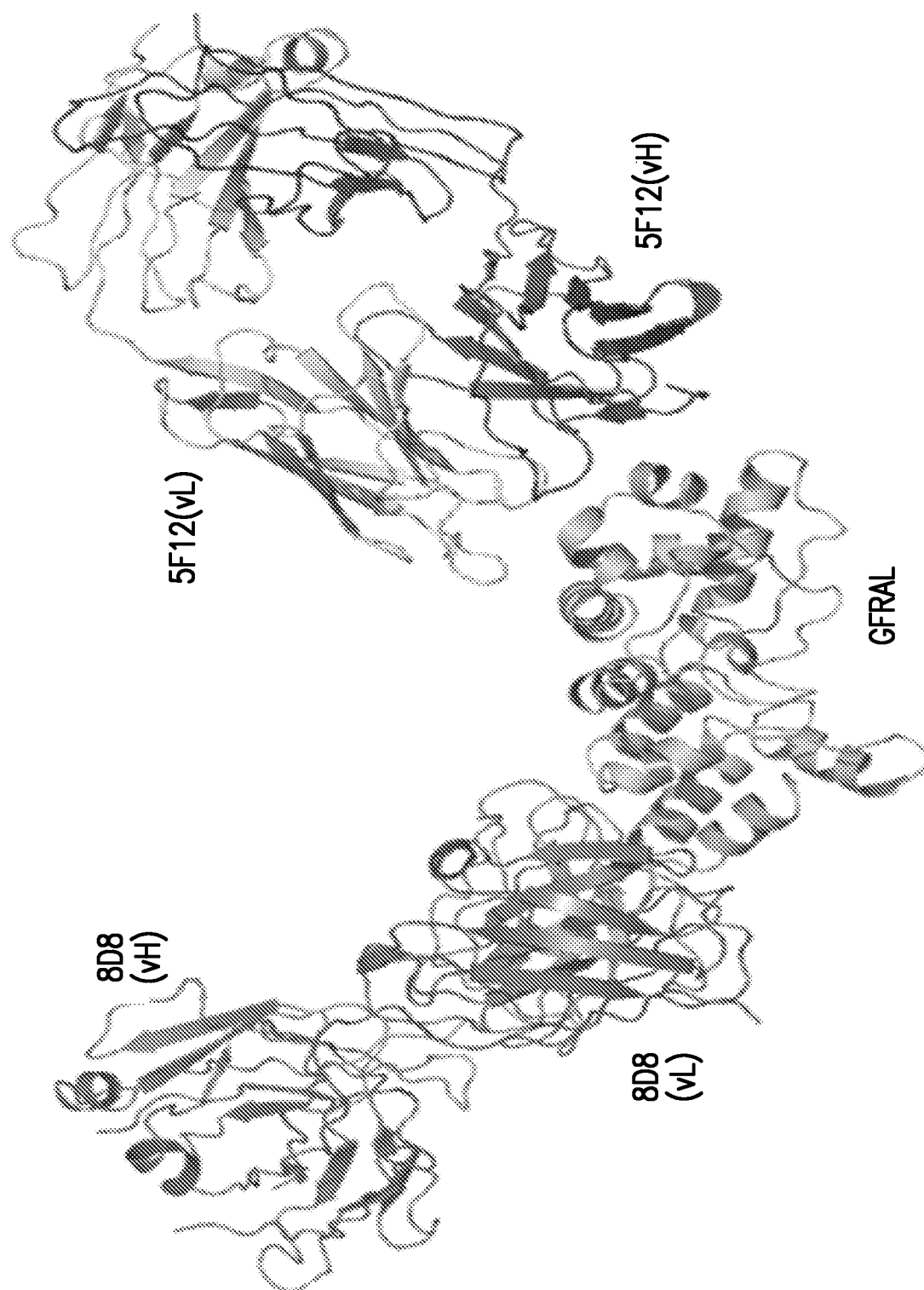


FIG. 59

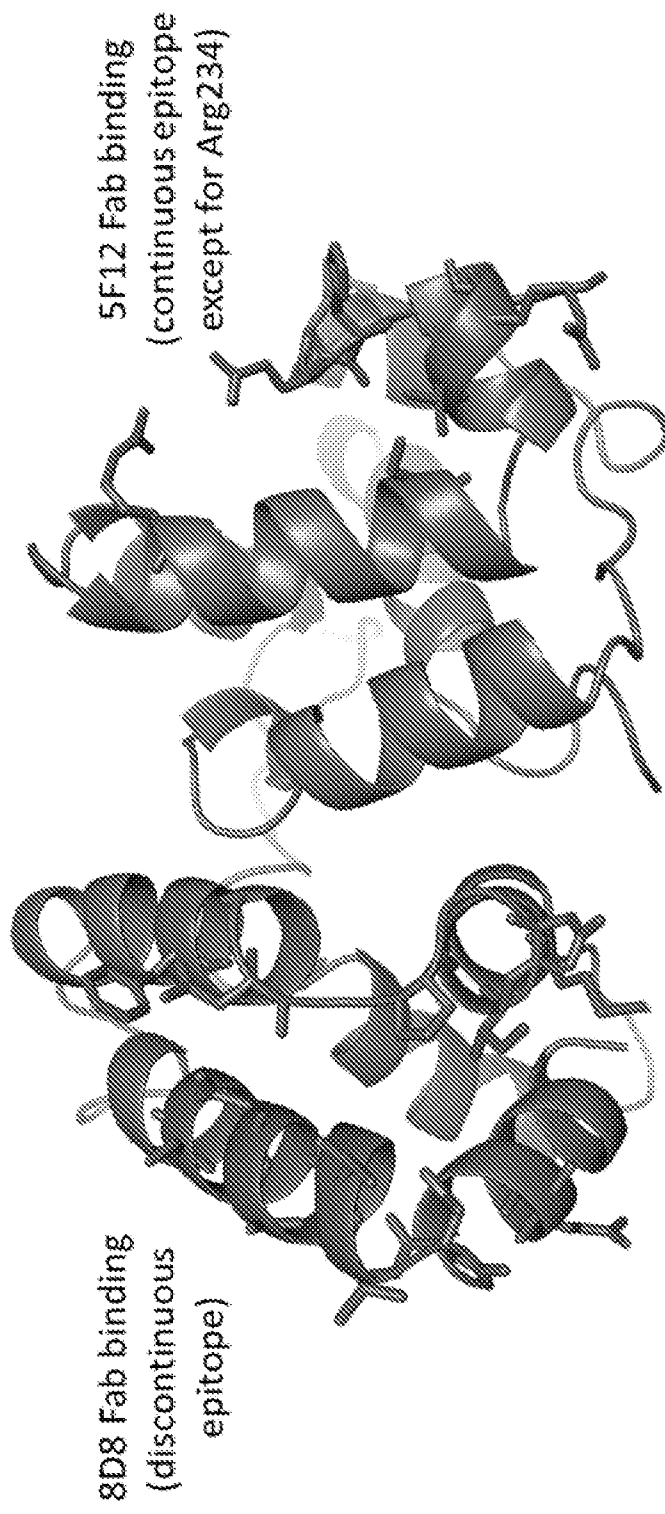


FIG. 60

CHAIN	1	5	10	15	20	25	30	35	40	45																																				
GFRAL	*	S	C	L	E	V	A	E	A	C	G	D	V	C	N	A	Q	L	A	S	Y	L	K	A	C	S	A	N	G	N	P	C	D	L	K	Q	C	Q	A	A	I	R	F			
8D8 HC	*	Q	V	Q	L	K	E	S	G	P	L	V	A	P	S	Q	S	L	S	I	T	C	T	V	S	C	F	S	L	S	R	Y	S	V	H	W	V	R	Q	P	P	K	G	L		
8D8 LC	*	D	I	V	M	T	Q	S	Q	K	F	M	S	T	S	I	G	D	R	V	S	V	T	C	K	A	S	O	N	G	N	V	A	W	Y	Q	Q	K	P	G	Q	S	P	K		
CHAIN	46	50	55	60	65	70	75	80	85	90																																				
GFRAL	*	Y	Q	N	I	P	F	N	I	A	Q	L	A	F	C	D	C	A	Q	S	D	I	P	C	Q	Q	S	K	E	A	L	H	S	K	T	C	A	V	N	M	V	P	P	T		
8D8 HC	*	E	W	L	G	N	I	W	C	F	C	S	D	Y	N	S	A	L	K	S	R	L	S	I	T	K	D	N	S	K	S	Q	F	F	L	K	M	N	S	L	Q	T	D	T		
8D8 LC	*	A	L	V	Y	S	I	S	T	R	Y	S	G	V	P	D	R	F	T	G	S	G	S	G	T	D	F	T	L	T	I	S	N	V	Q	S	E	D	L	A	E	Y	F	C	H	G
CHAIN	91	95	100	105	110	115	120	125	130	135																																				
GFRAL	*	C	L	S	V	I	R	S	C	Q	N	D	E	L	C	R	R	H	Y	R	T	F	Q	S	K	C	W	Q	R	V	T	R	K	C	H	E	D	E	N	C	I	S	T	L	S	K
8D8 HC	*	A	M	Y	Y	C	A	R	T	H	T	A	G	S	W	Q	G	T	L	V	T	S	A	A	S	T	K	G	P	S	V	F	L	A	P	S	S	G	T	A	A					
8D8 LC	*	Y	N	S	I	P	L	E	F	G	A	T	K	L	E	L	K	R	T	V	A	P	S	V	I	F	P	P	S	D	E	Q	L	K	S	G	T	A	S	V	V	C	L			
CHAIN	136	140	145	150	155	160	165	170	175	180																																				
GFRAL	*	Q	D	L	T	C	S	G	S	D	D	C	K	A	A	Y	I	D	I	L	G	T	V	L	Q	V	Q	C	T	C	R	T	I	T	Q	S	E	E	S	L	C	K	I	F	Q	H
8D8 HC	*	L	G	C	L	V	K	D	Y	F	P	E	P	V	T	V	S	N	S	G	A	L	T	S	G	V	H	T	F	P	A	V	L	Q	S	S	G	L	Y	S	L	S	S	V		
8D8 LC	*	L	N	N	F	Y	P	R	E	A	K	V	Q	W	K	V	D	N	A	L	Q	S	G	N	S	Q	E	S	V	T	E	Q	D	S	K	D	S	T	Y	S	L	S	T	L		
CHAIN	181	185	190	195	200	205	210																																							
GFRAL	*	M	L	H	R	K	S	C	F	N																																				
8D8 HC	*	T	V	P	S	S	L	G	T	Q	T	Y	I	C	N	V	N	H	K	P	S	N	T	K	V	D	K	K	V	E	P	K														
8D8 LC	*	L	S	K	A	D	Y	E	K	H	K	V	A	C	E	V	T	H	Q	G	L	S	S	P	V	T	K	S	F	N	R															

FIG. 61

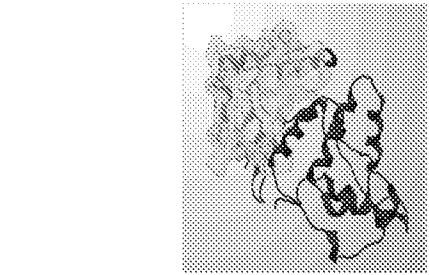


FIG. 62D

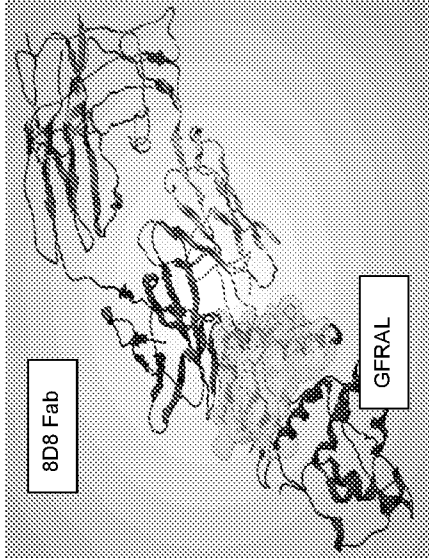


FIG. 62C



FIG. 62B

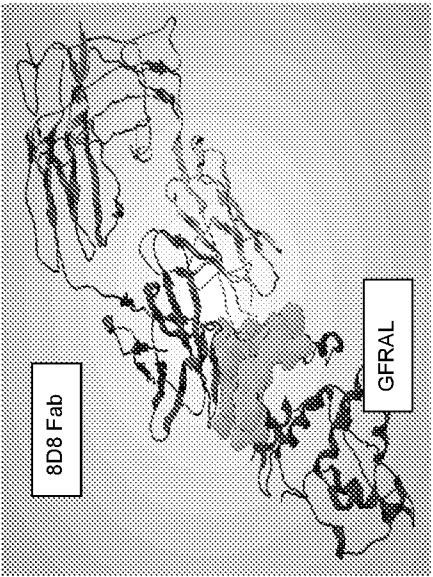


FIG. 62A

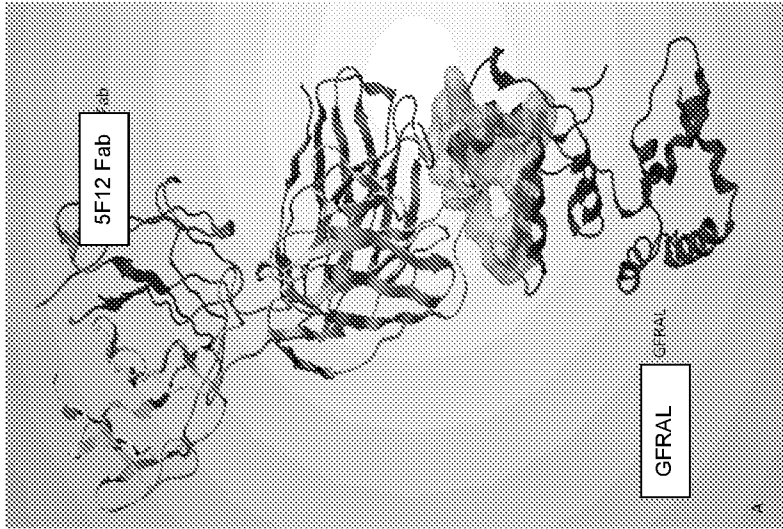


FIG. 63A

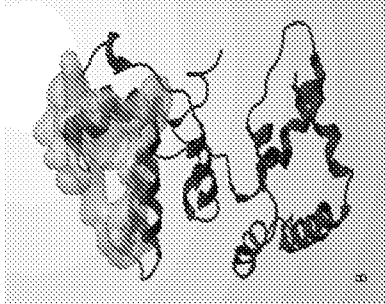


FIG. 63B

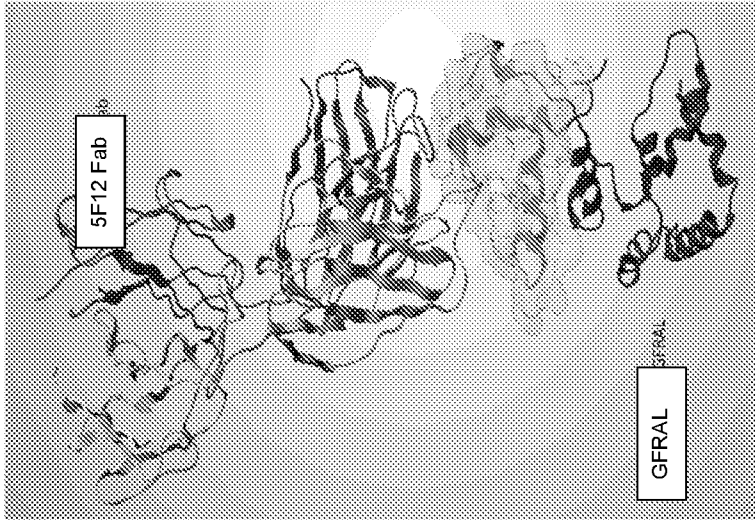


FIG. 63C

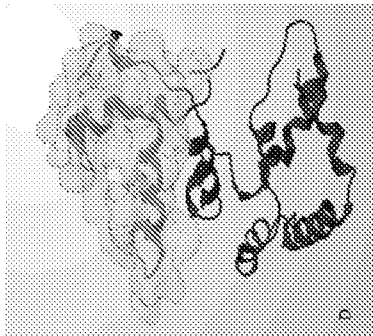


FIG. 63D

CHAIN		1	5	10	15	20	25	30	35	40	45																																		
GFRAL	*	S	C	L	E	V	A	E	A	C	V	G	D	V	C	N	A	Q	L	A	S	Y	L	K	A	C	S	A	N	G	N	P	C	D	L	K	Q	C	Q	A	A	I	R	F	F
5F12 HC	*	Q	V	Q	L	K	Q	S	G	T	E	L	V	R	P	G	A	S	V	K	L	S	C	K	A	S	C	Y	T	I	D	Y	I	N	W	V	K	Q	R	P	G	Q	G	L	
5F12 LC	*	N	I	V	L	T	Q	S	P	A	S	L	A	V	S	L	G	Q	R	A	T	I	S	C	R	A	S	E	S	V	D	I	Y	C	N	S	F	N	W	Y	Q	K	P	G	

CHAIN		46	50	55	60	65	70	75	80	85	90																																		
GFRAL	*	Y	Q	N	I	P	F	N	I	A	Q	M	A	F	C	D	C	A	Q	S	D	I	P	C	Q	Q	S	K	E	A	L	H	S	K	T	C	A	V	N	M	V	P	P	T	
5F12 HC	*	E	W	I	A	R	I	P	C	N	G	N	T	I	Y	H	N	E	K	F	K	C	K	A	T	L	T	A	E	K	S	S	T	A	Y	M	Q	L	S	S	L	T	S	E	D
5F12 LC	*	Q	P	P	K	L	I	Y	A	S	N	E	S	G	V	P	A	R	F	S	G	S	R	T	D	F	T	L	I	D	P	V	E	A	D	D	A	A	T	Y					

CHAIN		91	95	100	105	110	115	120	125	130	135																																	
GFRAL	*	C	L	S	V	I	R	S	C	Q	N	D	E	L	C	R	R	H	Y	R	T	F	Q	S	K	C	Q	R	V	T	R	K	C	H	E	D	E	N	C	I	S	I	S	K
5F12 HC	*	S	A	V	Y	F	C	A	R	C	L	Y	D	R	Y	F	D	W	G	Q	G	T	A	L	T	V	S	S	A	S	T	K	G	P	S	V	F	L	A	P				
5F12 LC	*	Y	C	H	N	E	D	D	P	P	A	F	G	G	T	K	L	E	I	K	R	T	V	A	P	S	V	I	F	P	P	S	D	E	Q	L	K	S	G	T	A	S		

CHAIN		136	140	145	150	155	160	165	170	175	180																																		
GFRAL	*	Q	D	L	T	C	S	G	S	D	D	C	K	A	Y	I	D	I	G	T	V	L	Q	V	Q	C	T	C	R	T	I	T	Q	S	E	E	S	L	C	K	I	F	Q	H	
5F12 HC	*	S	S	K	S	T	S	G	G	T	A	A	L	G	C	L	V	K	D	Y	F	P	E	P	V	T	V	S	N	S	G	A	L	T	S	G	V	H	T	F	P	A	V	L	Q
5F12 LC	*	V	V	C	L	L	N	N	F	P	R	E	A	K	V	Q	W	K	V	D	N	A	L	Q	S	G	N	S	Q	E	S	V	T	E	Q	D	S	K	D	S	T	Y	S	L	

CHAIN		181	185	190	195	200	205	210	215	220	223																															
GFRAL	*	M	L	H	R	K	S	C	F	N																																
5F12 HC	*	S	S	G	L	Y	S	L	S	S	V	T	V	P	S	S	L	G	T	Q	T	Y	I	C	N	V	N	H	K	P	S	N	T	K	V	D	K	K	V	E	P	K
5F12 LC	*	S	T	L	T	S	K	A	D	Y	E	K	H	K	V	Y	A	C	E	V	T	H	Q	G	L	S	S	P	V	T	K	S	F	N	R	G	E					

FIG. 64