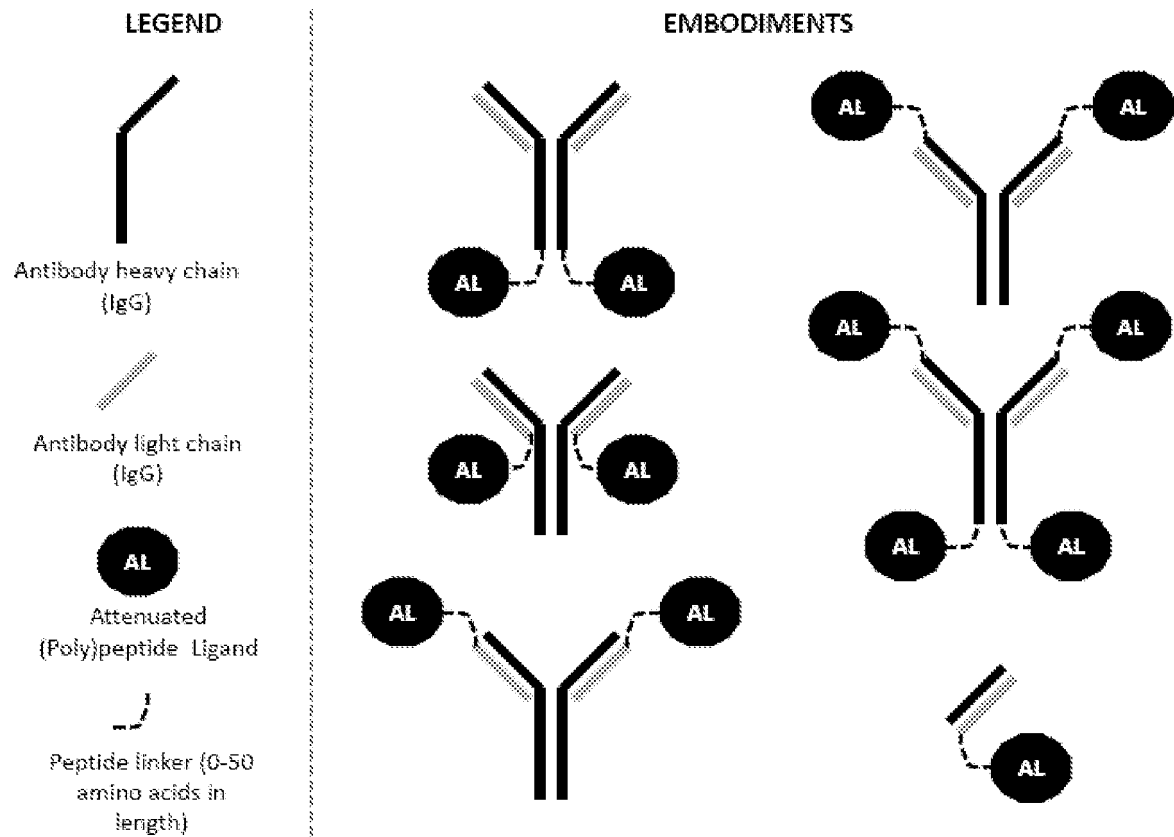
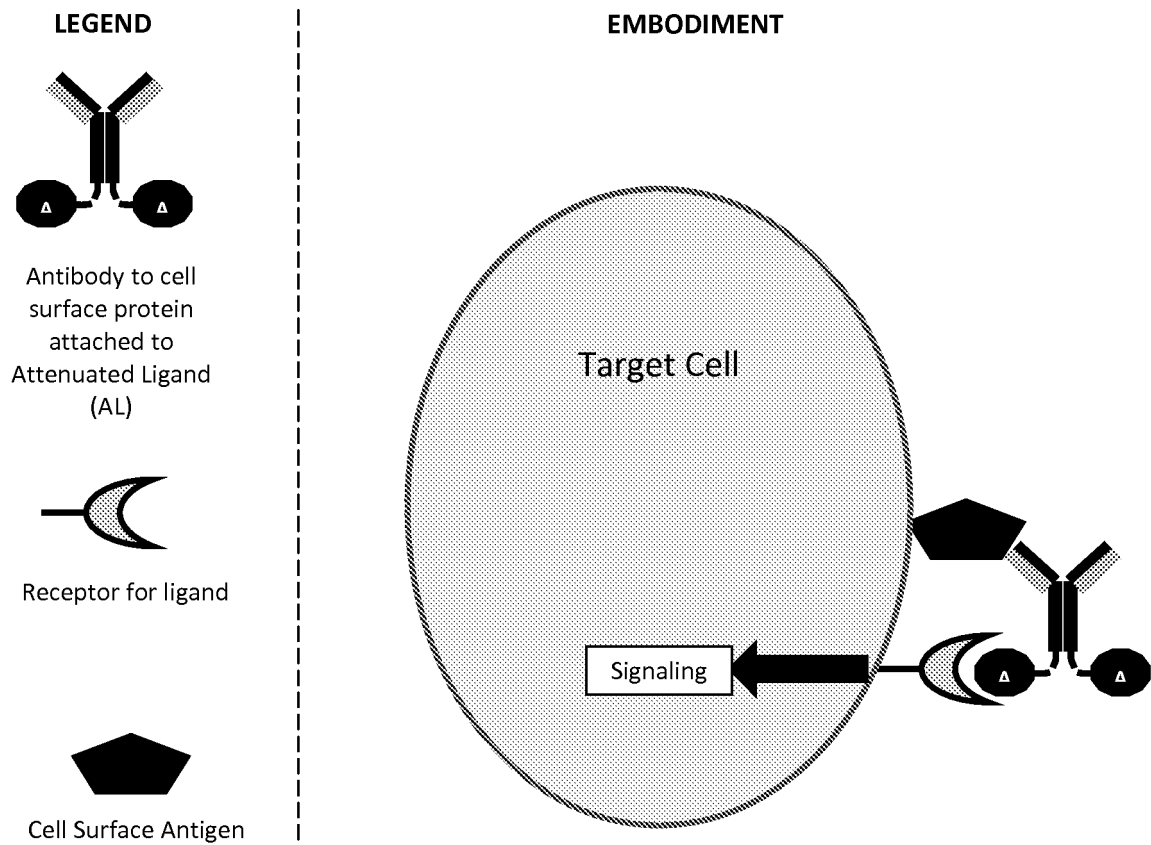


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FIGURE 1:

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FIGURE 2:

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FIGURE 3:**Human CD38 (SEQ ID NO:131) :**

```
1  MANCEFSPVSGDKPCCRLSRRACLGLGVSLVLVLVVLAVVVRWRQQWSGPGTTKRFP 60
61  ETVLARCVKYTEIHPEMRHVDCQSVWDAFKGAFISKHPCNITEEDYQPLMKLGTQTVPCN 120
121 KILLWSRIKDLAHQFTQVQORDMFTLEDTLGLYADDLTWCGEFNTSKINYQSCPDWRKDC 180
181 SNNPVSVFWKTVSRRFAEAAACDVHVMLNGSRSKIFDKNSTFGSVEVHNLQPEKVQTL 240
241 EAWVIHGGREDSRDLCDPTIKELESIIISKRNIIQFSCKNIYRPDKFLQCVKNPEDSSCTSEI 300
```

underlined: extracellular domain

italic: transmembrane domain

FIGURE 4a:

Sequence of IFN α 2b (SEQ ID NO:3)

human IFN α 2b
(SEQ ID NO:3)

1	CDLPQTHSLG	SRRTLMLLAQ	MRRISLFSC	L	KDRHDFGFPQ	EEFGNQFQKA	ETIPVLHEMI	QQIFNLFSTK	DSSAAWDETL	80
81	LDKFYTELYQ	QLNDLEACVI	QGVGVTTETPL	MKEDSILAVR	KYFQRITLYL	KEKKYSPCAW	EVVRAEIMRS	FSLSTNLQES		160
161	LRSKE									165

Sequence of IFN β 1 (SEQ ID NO:91)

human IFN β 1
(SEQ ID NO:91)

1	MSYNLLGFLQ	RSSNFQCQKL	LWQLNGRLEY	CLKDRMNFDI	PEEIKQLQQF	QKEDAALTIY	EMLQNIFAIF	RQDSSSTGWN	80
81	ETIVENLLAN	VYHQINHLKT	VLEEKLEKED	FTRGKLMSSL	HLKRYYGRIL	HYLKAKEYSH	CAWTIVRVEI	LRNFYFINRL	160
161	TGYLRN								166

Sequence of IFN β 1b (SEQ ID NO:103)

human IFN β 1b
(SEQ ID NO:103)

1	MSYNLLGFLQ	RSSNFQCQKL	LWQLNGRLEY	CLKDRMNFDI	PEEIKQLQQF	QKEDAALTIY	EMLQNIFAIF	RQDSSSTGWN	80
81	ETIVENLLAN	VYHQINHLKT	VLEEKLEKED	FTRGKLMSSL	HLKRYYGRIL	HYLKAKEYSH	CAWTIVRVEI	LRNFYFINRL	160
161	TGYLRN								166

Sequence of IFN γ (SEQ ID NO:106)

human IFN γ
(SEQ ID NO:106)

1	QDPYVKEAEN	LKKYFNAGHS	DVADNGTLFL	GILKNWKEES	DRKIMQSQIV	SFYFKLFKNF	KDDQSIQKSV	ETIKEDMNVK	80
81	FFNSNKKKRD	DFEKLTYNSV	TDLNVQRKAI	HELIQVMAEL	SPAAKTGKRK	RSQMLFRGRR	ASQ		143

FIGURE 4b:

Sequence of IL-4 (SEQ ID NO:119)

human IL-4
(SEQ ID NO:119)

1	HKCDITLQEI	IKTLNSLTEQ	KTLCTELTVT	DIFAASKNTT	EKETFCRAAT	VLRQFYSHHE	KDTRCLGATA	QQFHRHKQLI	80
81	RFLKRLDRNL	WGLAGLNSCP	VKEANQSTLE	NFLERLKTIM	REKYSKCSS				129

Sequence of IL-6 (SEQ ID NO:123)

human IL-6
(SEQ ID NO:123)

1	PVPPGEDSKD	VAAPHRQPLT	SSEIDKQIR	YILDGISALR	KETCNKSNMC	ESSKEALAEH	NLNLPRMAEK	DGCFQSGFNE	80
81	ETCLVKIITG	LLEFEVYLEY	LQNRFESSEE	QARAVQMSTK	VLIQFLQKKA	KNLDAITTPD	PTTNASLLTK	LQAQNQWLQD	160
161	MTTHLILRSF	KEFLQSSLRA	LRQM						184

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FIGURE 5a:**Heavy chain (SEQ ID NO:180):**

```

1  EVQLLESGGGLVQPGGSLRLSCAVSGFTFNSFAMSWVRQAPGKLEWVSAISGSGGGTYY 60
61  ADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYFCAKDKILWFGEPVFDYWGQGLVTV 120
121  SSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTSVWNSGALTSGVHTFPAVLQ 180
181  SSGLYSLSSVTVPSSSLGTKTYTCNVDKPSNTKVDKRVESKYGPPCPPCPAPEFLGGP 240
241  SVFLFPPKPKDTLMISRTPEVTCVVDVVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNS 300
301  TYRVVSVLTTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISKAKGQPREPQVYTLPPSQEEM 360
361  TKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSRLTVDKSRWQ 420
421  EGNVFSCSVMHEALHNHYTQKSLSLSLGKCDLPQTHSLGSRRTLMLLAQMRRISLFCLK 480
481  DRHDFGFFPQEEFGNQFQKAETIPVLHEMIQQIFNLFSTKDSSAAWDETLLDKFYTELYQQ 540
541  LNDLEACVIQGVGTETPLMKEDSILAVRKYFORITLYLKEKKYSPCAWEVVRDEIMRSE 600
601  SLSTNLQESLRSKE 614

```

Light chain (SEQ ID NO:134):

```

1  EIVLTQSPATLSLSPGERATLSCRASQSVSSYLAWYQQKPGQAPRLLIYDASNRATGIPA 60
61  RFSGSGSGTDFTLTISSLEPEDFAVYYCQQRSNWPPTFGQGTKVEIKRTVAAPSVFIFPP 120
121  SDEQLKSGTPASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLT 180
181  LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC 214

```

double underlined: antibody heavy and light chainssingle underlined: cytokine**single underlined & bold: attenuating mutation****G005-HC-L0-IFN α (A145D) IgG4**

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FIGURE 5b:**Heavy chain (SEQ ID NO:330):**

```

1  QVQLOQSGSELMMPGASVKISCKATGYTFSNYWIEWVKORPGHGLEWIGEILPGTGRTIY 60
61  NEKFKGKATFTADISSNTVQMQLSSLTSEDSAVYYCARRDYYGNFYAMDYWGQGTSTVTV 120
121  SSASTKGFSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQ 180
181  SSGLYSLSSVVTVPSSSLGTKYTCNVDPKPSNTKVDKRVESKYGPCPPCPAPEFLGGP 240
241  SVFLFPPKPKDITLMISRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNS 300
301  TYRVVSVLTITVLHQTDLNKGKEYKCKVSNKGLPSSIEKTISKAKGQPREPQVYTLPPSQEEM 360
361  TKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPPVLDSDGSFFLYSRLTVDKSRWQ 420
421  EGNVFSCSVMHEALHNHYTQKSLSLGLKCDLPQTHSLGSRRTLMMLLAQMRRISLFSCLK 480
481  DRHDEFGFPQEEFGNOFOKAETIPVLHEMIQQIIFNLFSTKDSSAAWDETLLDKFYTELYQQ 540
541  LNDLEACVIQGVGVTEITPLMKEDSILAVRKYFQRITLYLKEKKYSPCAWEVVRDEIMRSF 600
601  SLSTNLQESLRSKE 614

```

Light chain (SEQ ID NO:326):

```

1  DIQMTQSTSSLSASLGDRVITISCSASQGINNYLNWYQOKPDGTVELLIYYTSTLQSGVPS 60
61  RFSGSGSGTDYSLTISNLEPEDIGTYCYCQYSKLPRTFGGGTKLEIKRTVAAPSVFIFPP 120
121  SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKSTYSLSSTLT 180
181  LSKADYEKHKVYACEVTHQGLSPVTKSFNRGEC 214

```

double underlined: antibody heavy and light chains

single underlined: cytokine

single underlined & bold: attenuating mutation

nBT062-HC-L0-IFN α (A145D) IgG4

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FIGURE 5c:**Heavy chain (SEQ ID NO:214):**

```

1  EVQLLES GGG L V Q P G G S L R L S C A V S G F T F N S F A M S W V R Q A P G K G L E W V S A I S G S G G G T Y Y   60
61  A D S V K G R F T I S R D N S K N T L Y L Q M N S L R A E D T A V Y F C A K D K I L W F G E P V F D Y W G Q G T L V T V   120
121 S S A S T K G P S V F P L A P C S R S T S E S T A A L G C L V K D Y F P E P V T V S W N S G A L T S G V H T F P A V L Q   180
181 S S G L Y S L S S V V T V P S S S L G T K T Y T C N V D H K P S N T K V D K R V E S K Y G P P C P P C P A P E F L G G P   240
241 S V F L F P P K P K D T L M I S R T P E V T C V V V D V S Q E D P E V Q F N W Y V D G V E V H N A K T K P R E E Q F N S   300
301 T Y R V V S V L T V L H Q D W L N G K E Y K C K V S N K G L P S S I E K T I S K A K G Q P R E P Q V Y T L P P S Q E E M   360
361 T K N Q V S L T C L V K G F Y P S D I A V E W E S N G Q P E N N Y K T T P P V L D S D G S F F L Y S R L T V D K S R W Q   420
421 E G N V F S C S V M H E A L H N H Y T Q K S L S L S L G K M S Y N L L G F L Q R S S N F Q S Q K L L W Q L N G R L E Y C   480
481 L K D A M N F D I P E E I K Q L Q Q F Q K E D A A L T I Y E M L Q N I F A I F R Q D S S T G W N E T I V E N L L A N V   540
541 Y H Q I N H L K T V L E E K L E K E D F T R G K L M S S L H L K R Y Y G R I L H Y L K A K E Y S H C A W T I V R V E I L   600
601 R N F Y F I N R L T G Y L R N   615

```

Light chain (SEQ ID NO:134):

```

1  E I V L T Q S P A T L S L S P G E R A T L S C R A S Q S V S S Y L A W Y Q Q K P G Q A P R L L I Y D A S N R A T G I P A   60
61  R F S G S G S G T D F T L T I S S L E P E D F A V Y Y C Q Q R S N W P P T F G Q G T K V E I K R T V A A P S V F I F P P   120
121 S D E Q L K S G T A S V V C L 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 S T L T   180
181 L 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   214

```

double underlined: antibody heavy and light chainssingle underlined: cytokine**single underlined & bold: attenuating mutation****G005-HC-L0-IFN β (R35A) IgG4**

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FIGURE 5d:**Heavy chain (SEQ ID NO:324):**

```

1  QVQLKQSGPGLVQPSSQLSLTCTVSGFSLTSYGVHWVRQPPGKGLEWLGVIWSGGSTDYN  60
61  AAFISRLSIRKDNSKSQVFFKMNSLQADDTAIYYCARTFTTSTSAWFAYWCQGTLVTVSA  120
121  ASTKGFSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSS  180
181  GLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGG  240
241  PSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN  300
301  STYRVSVLTIVLHODWLNKGKEYCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDE  360
361  LTKNOVSLTCLVKGFYPSDIAVEWESNGOPENNYKTTTPPVLDSDGSFFLYSKLTVDKSRW  420
421  QQGNVFSCSVMHEALHNHYTQKSLSLSPGKSGGGGSGGGGSGGGGSPVPPGEDSKDVAAP  480
481  HRQPLTSSERIDKQIRYILDGISAIRKETCNKSNMCESSKEALAENNLNLPKMAEKDGEF  540
541  QSGFNEETCLVKIITGLLEFEVYLEYLQNRFFESSEEQARAVQMSTKVLIQFLQKKAKNLD  600
601  AITTPDPTTNASLLTKLQAQNQWLQDMTTHLILRSFKEFLQSSLEALROM  650

```

Light chain (SEQ ID NO:312):

```

1  SIVMTQTTPKFLIVSAGDRVITITCKASQSVSNDVAWYQQKPGQSPKLLIYYASNRYTGVPD  60
61  RFTGSGYGTDFTFITISTVQAEDLAVYFCQQDYSSPPWTFGGGTKEIRRTVAAPSVFIFP  120
121  PSDEQLKSGTASVCLLNIFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYSLSSTL  180
181  TLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC  215

```

double underlined: antibody heavy and light chains
single underlined: cytokine
single underlined & bold: attenuating mutation
italic: linker sequence

HB95-HC-LI6-IL-6(R179E) IgG1

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FIGURE 5e:**Heavy chain (SEQ ID NO:306):**

```

1 DVQLQESGPGGLVKPSQSLSLTCTVFGHSITSDYAWNWIQFFPGDKLEWMGYISYSGYTTY 60
61 NPSLKSRVSITRDTSKNQFFLQLNSVTTEDTATYFCARDLDYGPWFAYWGQGLVTVSAA 120
121 STKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSG 180
181 LYSLSVSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGP 240
241 SVELEPPKPKDITLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNS 300
301 TYRVVSVLTVLEQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDEL 360
361 TKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQ 420
421 QGNVFSQSVMEALHNHYTQKSLSLSPGKSGGGGSHKCDITLQEIITLNSLTQKTLCT 480
481 ELTVIDIFAASKNTEKETFCRAATVLRQFYSHHEKDTKCLGATAQOFHRHKQLIRFLKR 540
541 LDQNLWGLAGLNSCPVKEANQSTLENFLERLKTIMREKYSKCSS 584

```

Light chain (SEQ ID NO:300):

```

1 DIQMTQSPASLSASVGETVTLTCSRASENIHNYLAWYQQKQKGKSPQLLVYNVKTLDGVPS 60
61 RFSGSGSGTQYSLKINSIQPEDFGSYQCQHFWSWPWTFGGGTKVEIKRTVAAPSVFIFPP 120
121 SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYSLSSTLT 180
181 LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC 214

```

double underlined: antibody heavy and light chains

single underlined: cytokine

single underlined & bold: attenuating mutation*italic: linker sequence***J110-HC-L6-IL-4(R88Q) IgG1**

FIGURE 6:

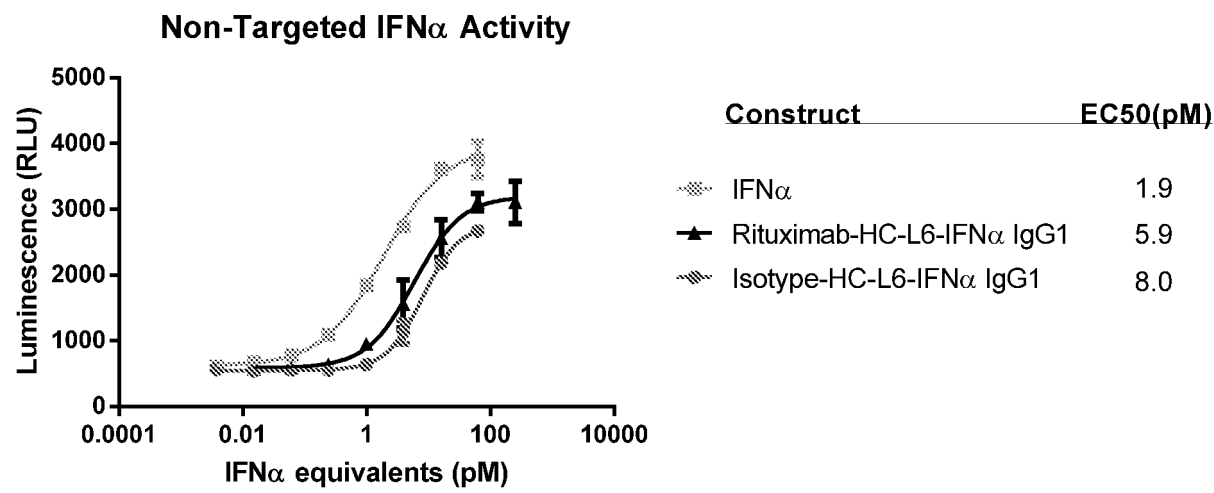


FIGURE 7:

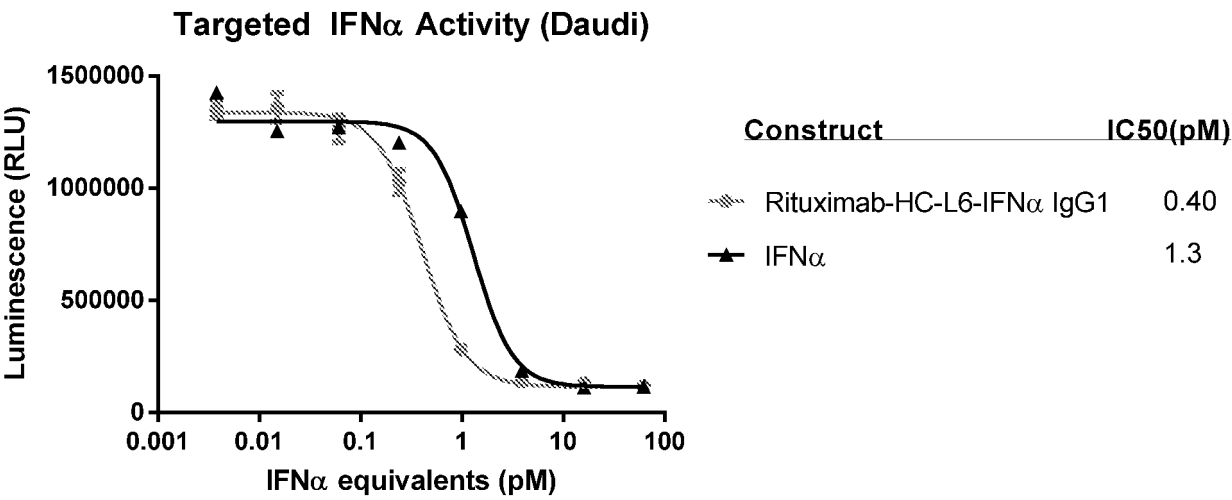


FIGURE 8:

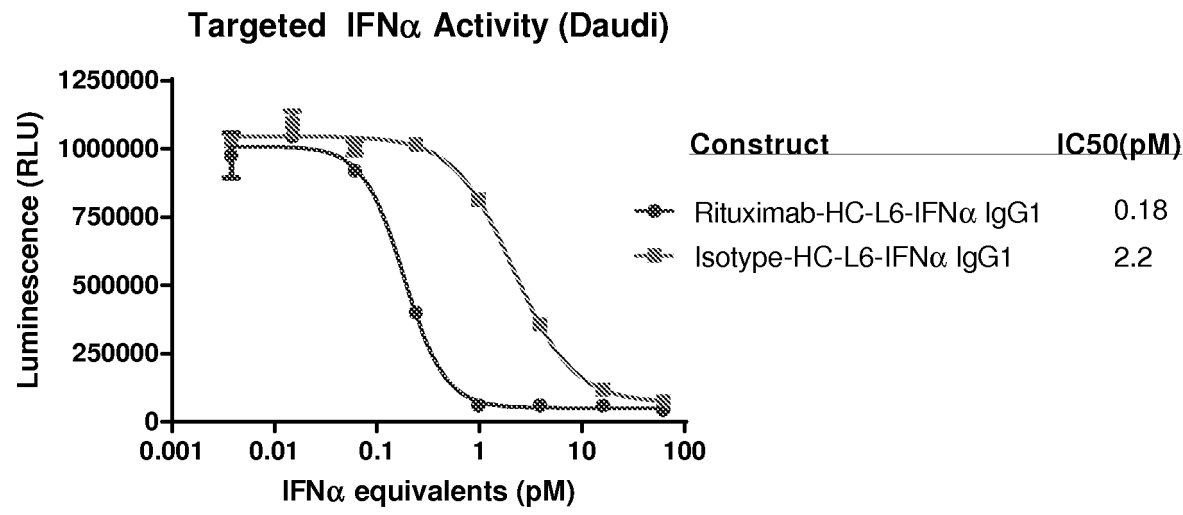


FIGURE 9:

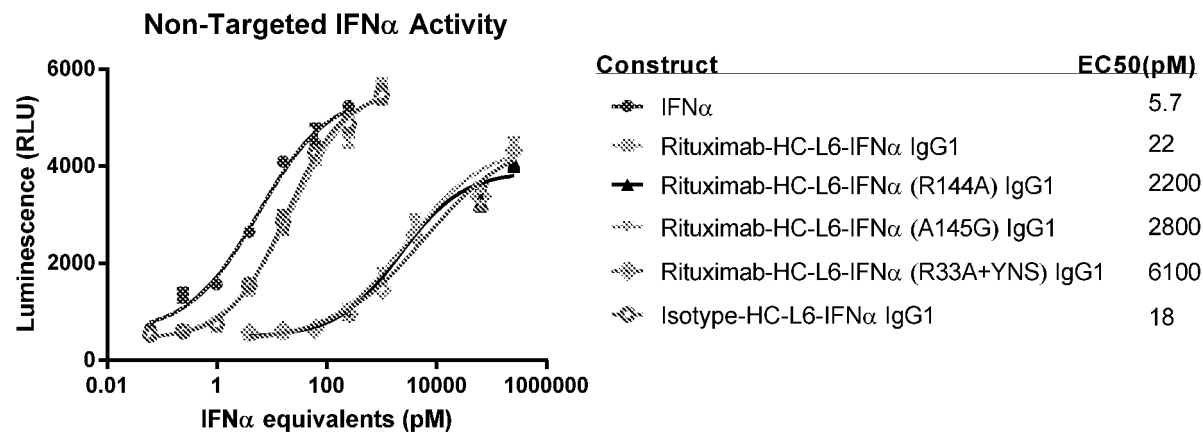
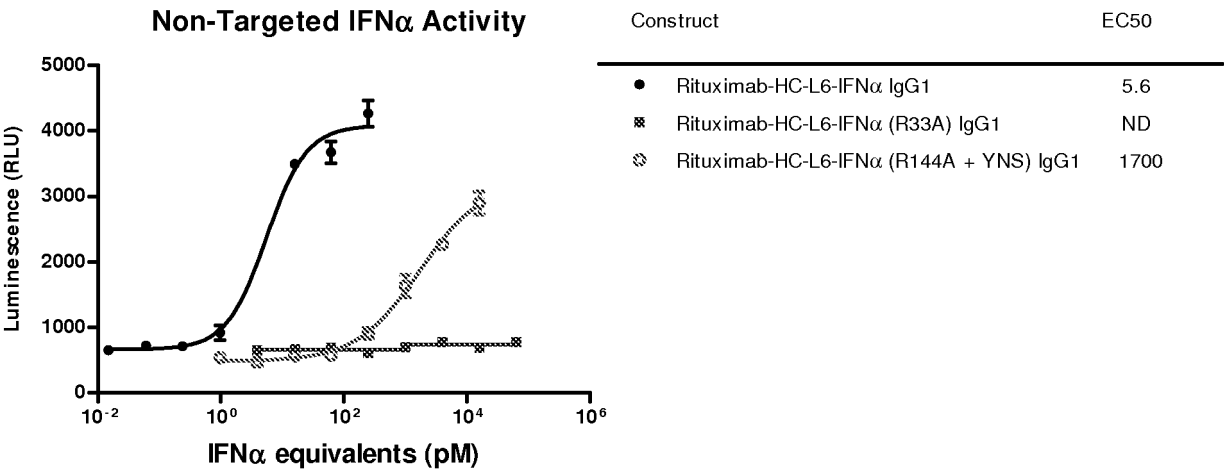


FIGURE 10:



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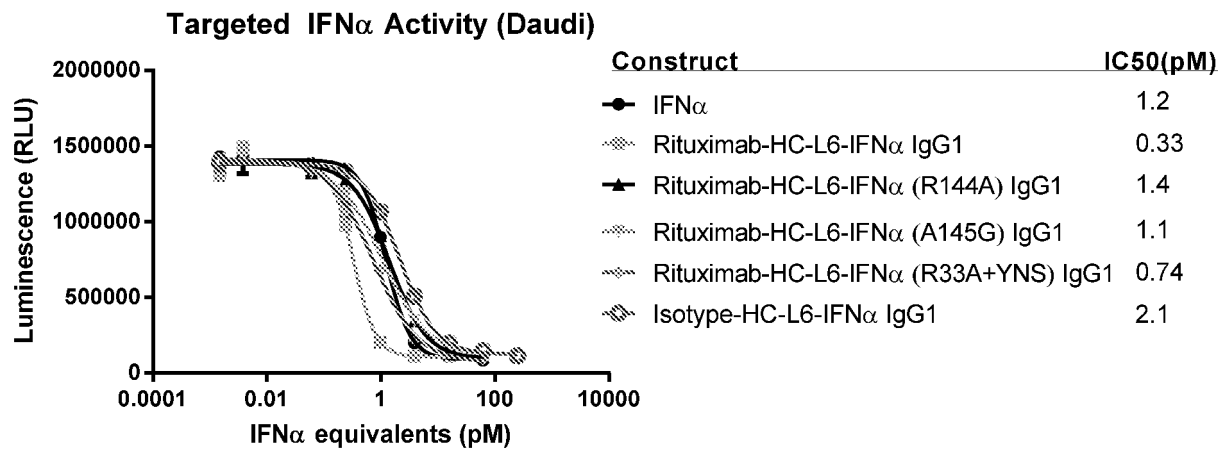
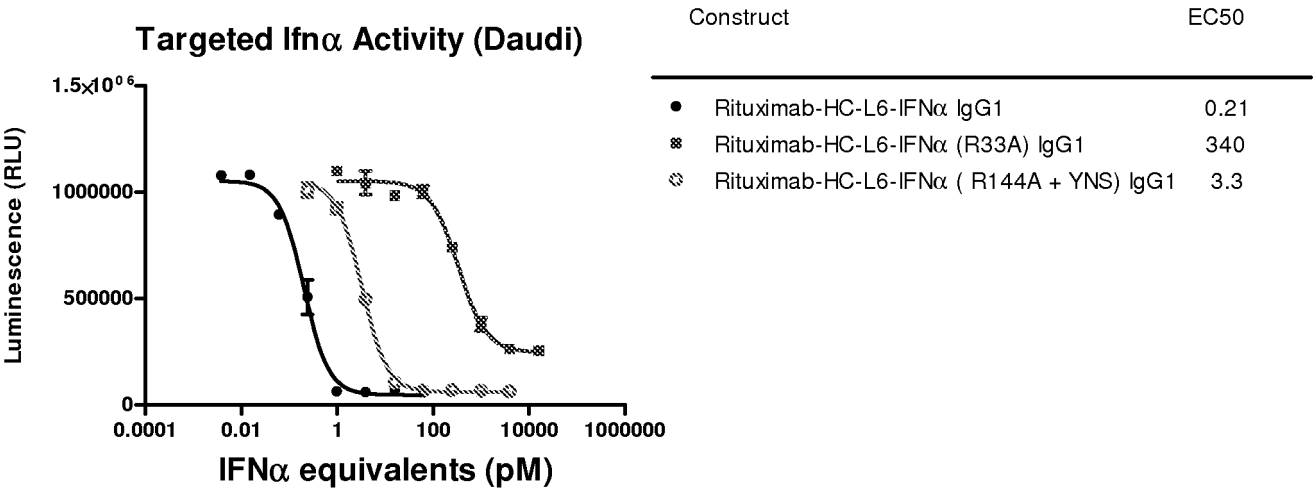
FIGURE 11:

FIGURE 12:



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FIGURE 13:**X355/02 VH (SEQ ID NO:391) :**

1 QLQLQESGPGLVKPSSETLSLTCTVSGGSISSSSYWSWIRQHPGKGLEWIGYIYYSGSTN 60
 61 YNPSLKSRVTISVDTLKNQISLRLTSVTAADTAVYYCARVGGAGGWPMDVWGQGTITVTVS 120
 121 S 121

X355/02 Vλ (SEQ ID NO:390) :

1 QAVLTQPASLSASPGESARLTCTLPDINVRYNYIYWYQQKPGSPPRYLLYYYSDSHKGQ 60
 61 GSGVPSRFSGSKDVSTNSGILLISGLQSEDEADYYCMTWSSNGSGVFGGGTQLTVL 116

X355/07 VH (SEQ ID NO:393) :

1 QVQLQESGPGLVKPSSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGSIYHSGSTYYN 60
 61 PSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCARDLYYYYGMDVWGQGTITVTVSS 118

X355/07 Vκ (SEQ ID NO:392) :

1 AIQMTQSPSSLSASVGDRTITCRASQSISSYLNWYQQKPGKAPKLLIYAASSLQSGVPS 60
 61 RFSGSGSGTDFTLTISLQPEDFATYYCQQSYFTPLYTFGGGTKLEIK 108

X910/12 VH (SEQ ID NO:395) :

1 EVQLVQSGAEVKKSGASVKVSCKASGYTFTDYYIHWRQAPGQGLEWMGWINPNNGGVTF 60
 61 AQKFQGRVTMTTRDTSISTAYMDLSSLRSDDTAVYFCARDIRMSGWLAPFDYWGQGTILTV 120
 121 SS 122

X910/12 Vλ (SEQ ID NO:394) :

1 QAVLTQPASLSASPGESARLTCTLPDINVRYNYIYWYQQKPGSPPRYLLYYYSDSHKDQ 60
 61 GSGVPSRFSGSKDTSANTGILLISGLQSEDEADYYCMIWASNGSGVLGGGTQLTVL 116

X913/15 VH (SEQ ID NO:397) :

1 QVQLVESGGGVVQGGGSLRLSCAASGFTVRSNYMSWVRQAPGKGLEWVSAISGSGDSTYY 60
 61 ADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCAKVAVTTGWYFDLWGRGTLTVSS 120

X913/15 Vλ (SEQ ID NO:396) :

1 QAVLTQPASLSASPGESARLTCTLPDINVRYHNIYWYQEKPGSPPRYLLYYYSDS SKGQ 60
 61 GSGVPSRFSGSKDVSTNTGILVISGLQSEDEAEYYCMTWSSNGSGVFGGGTQLTVL 116

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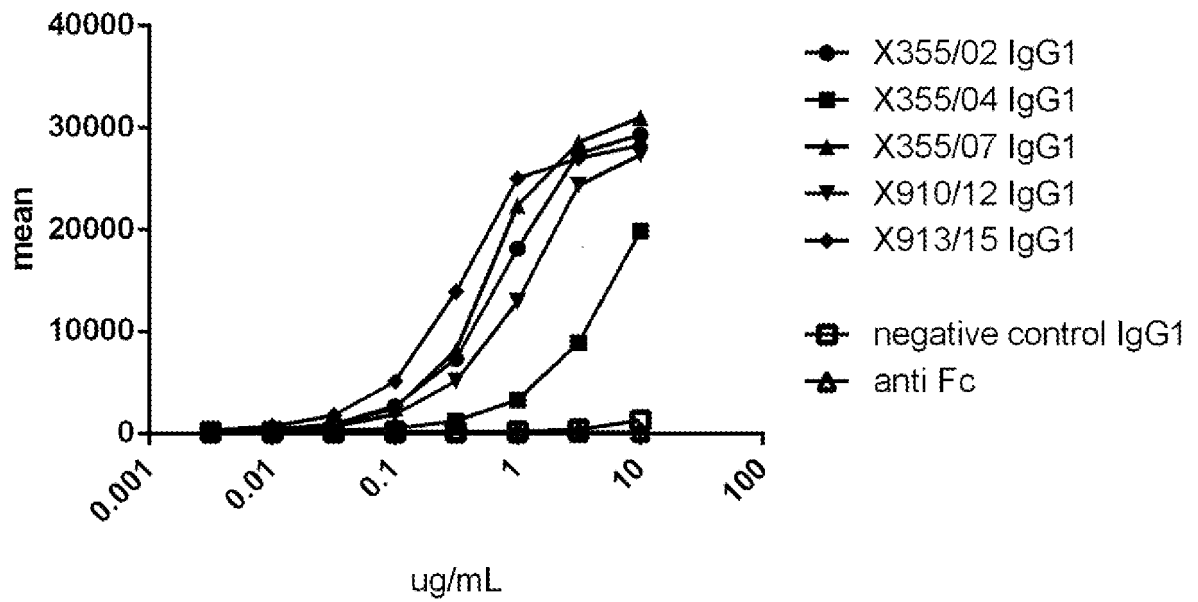
FIGURE 14:

FIGURE 15:

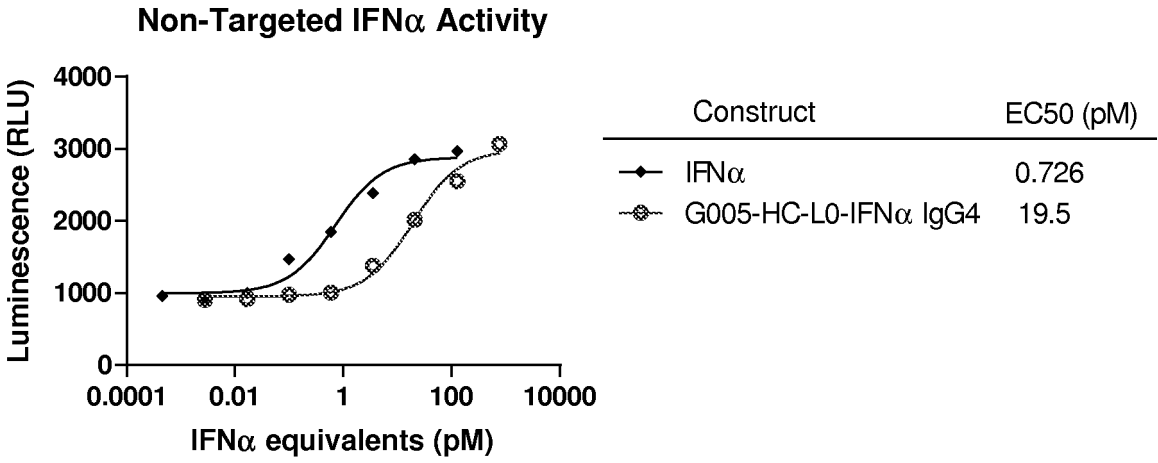


FIGURE 16:

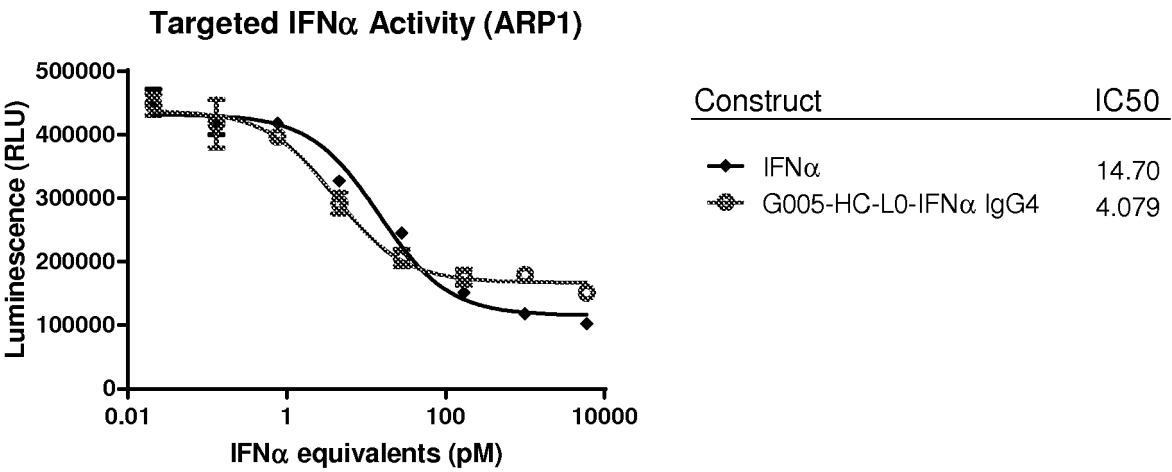


FIGURE 17:

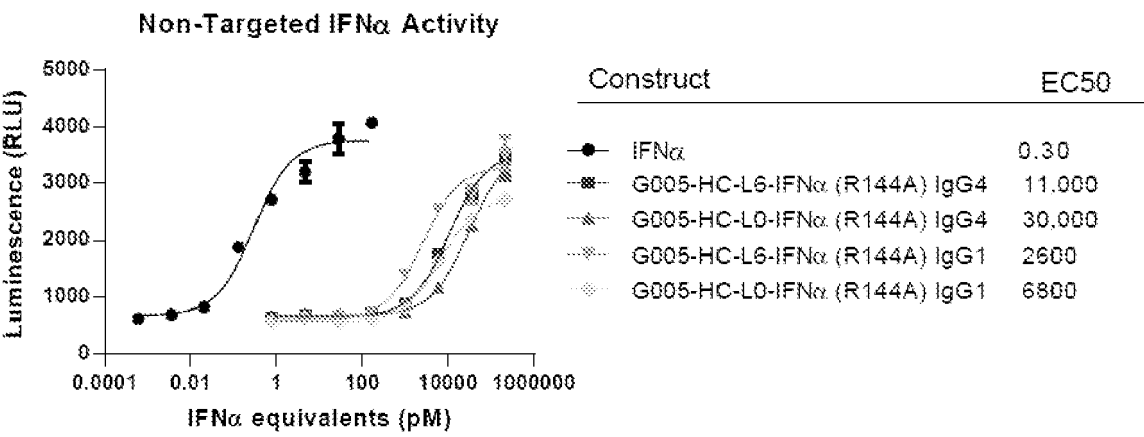


FIGURE 18:

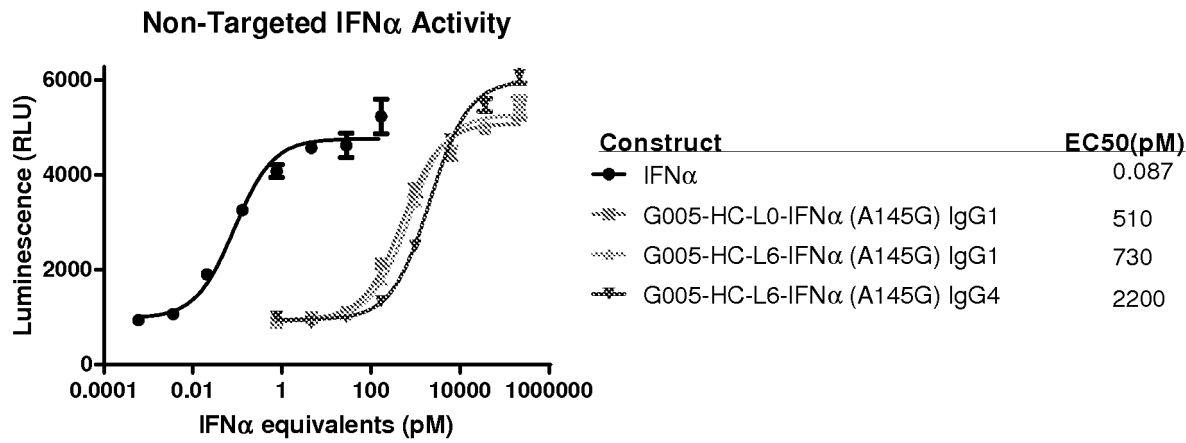


FIGURE 19:

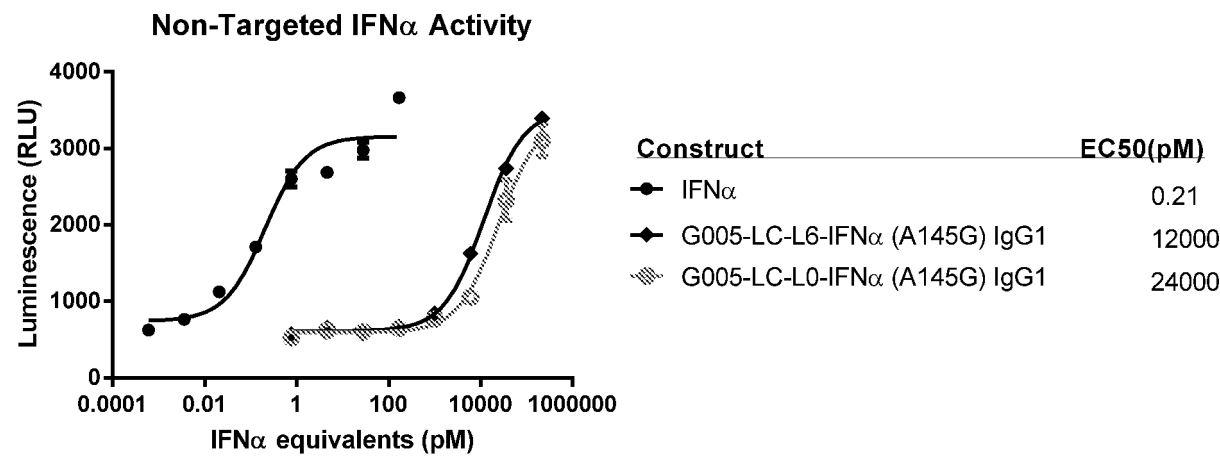


FIGURE 20:

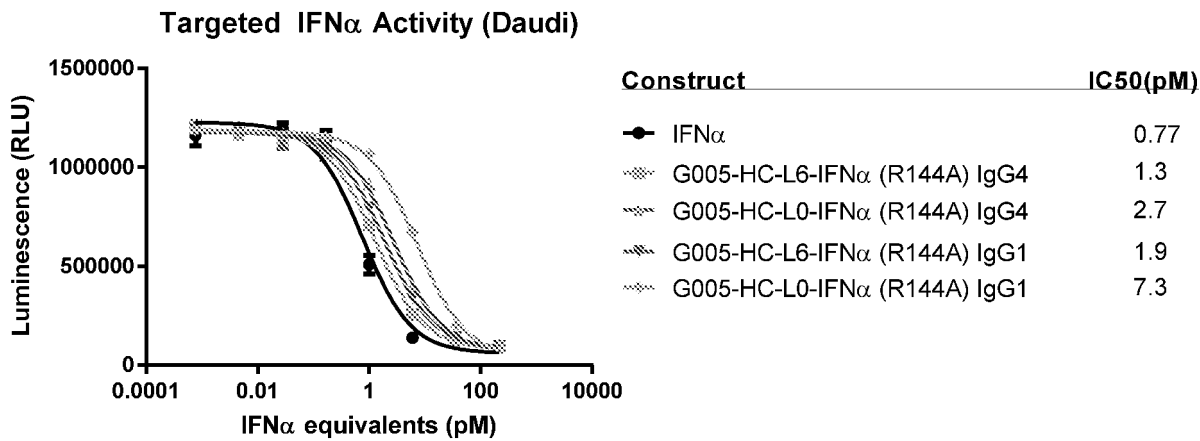


FIGURE 21:

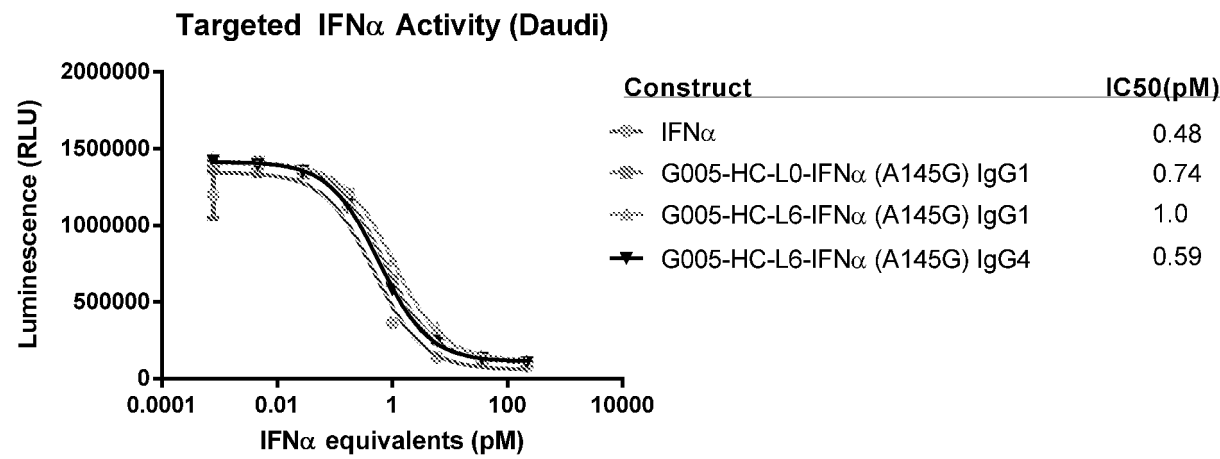


FIGURE 22:

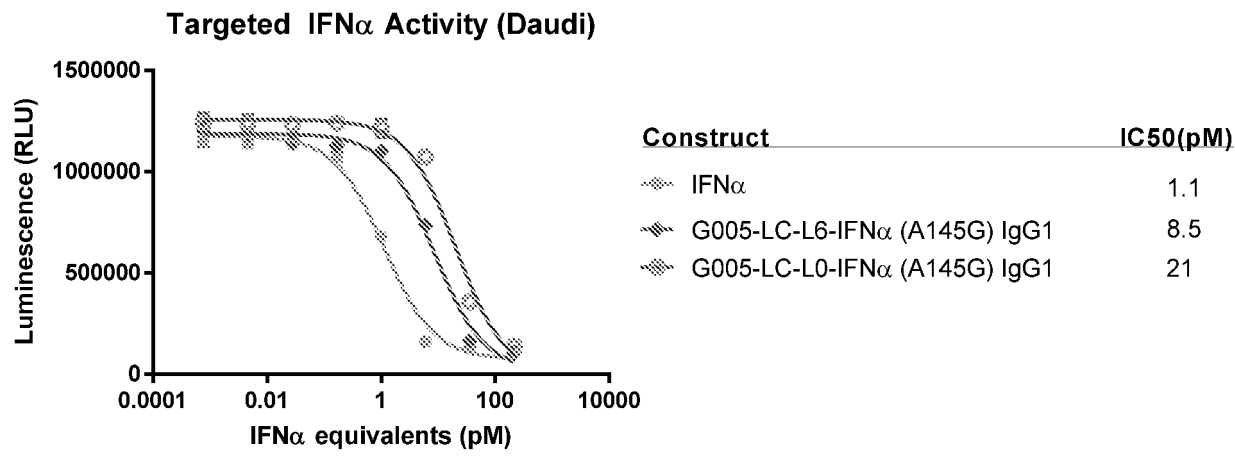
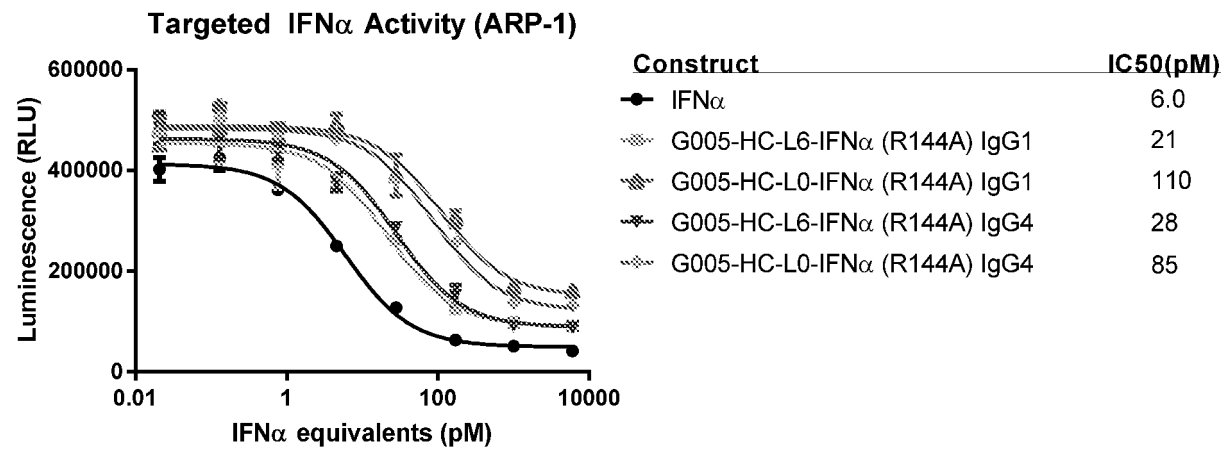
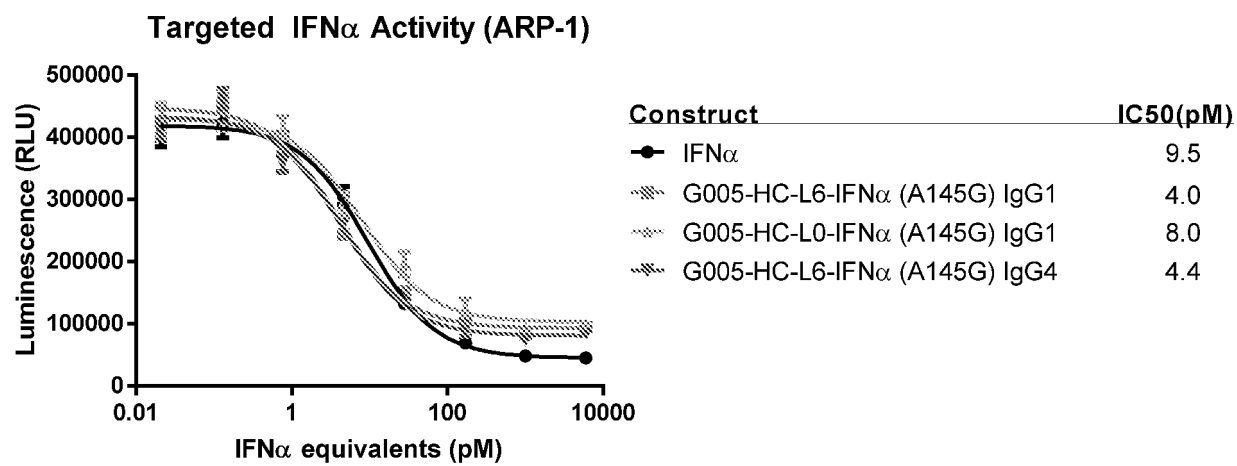


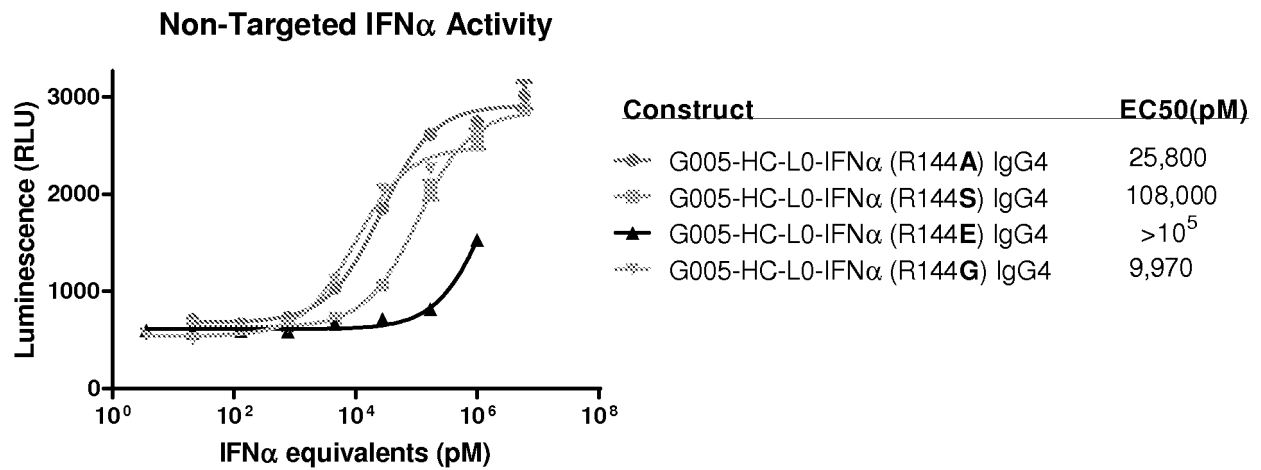
FIGURE 23:



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FIGURE 24:

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FIGURE 25:

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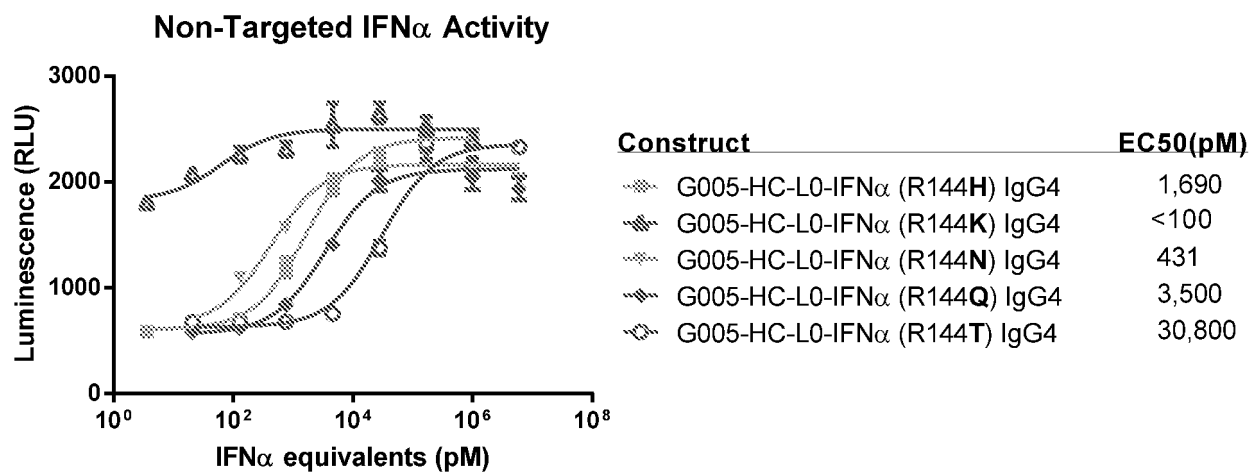
FIGURE 26:

FIGURE 27:

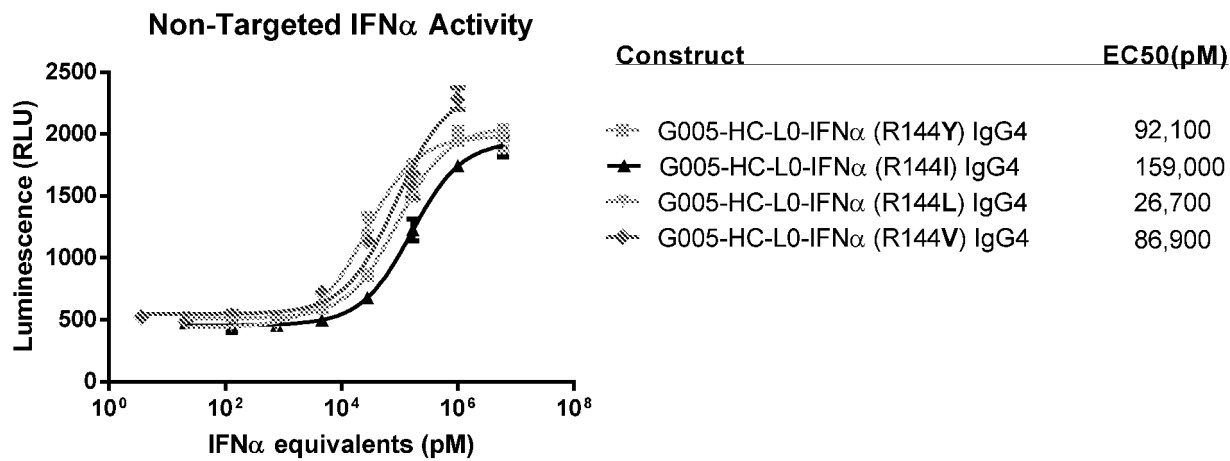


FIGURE 28:

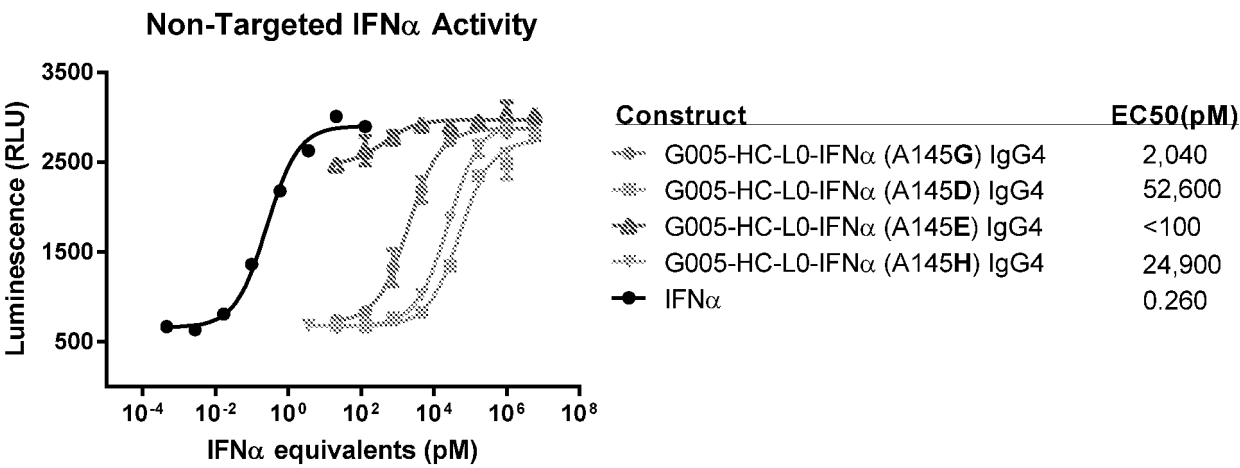


FIGURE 29:

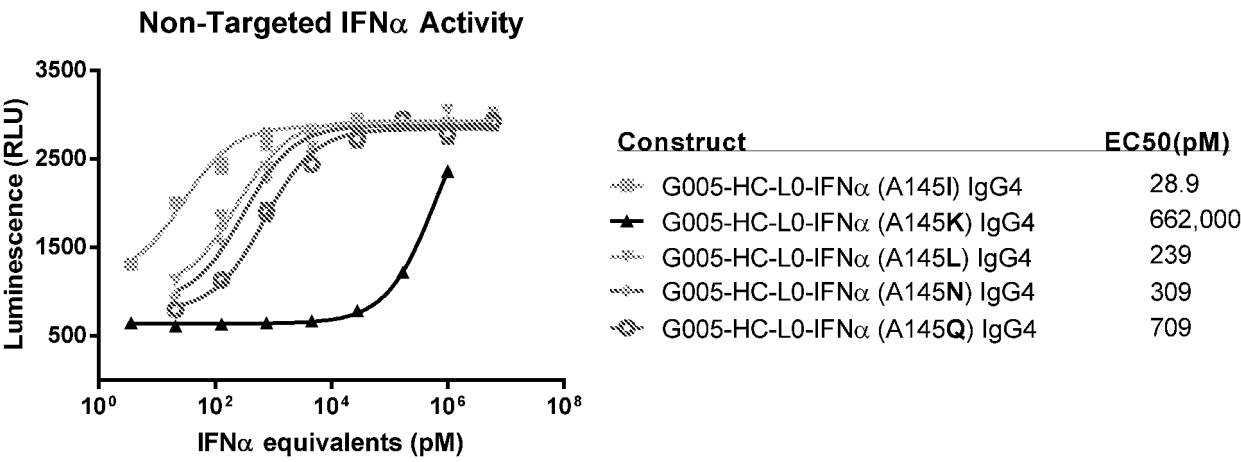
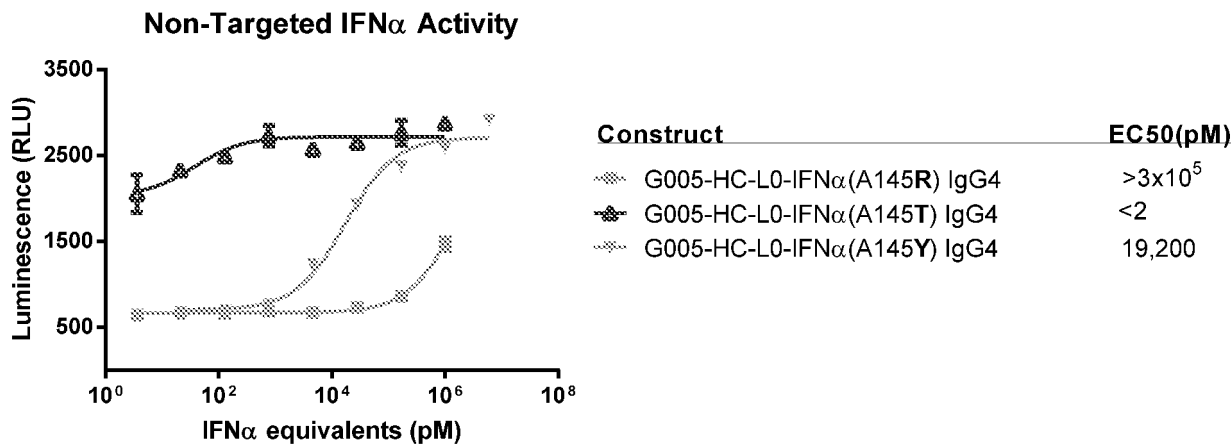
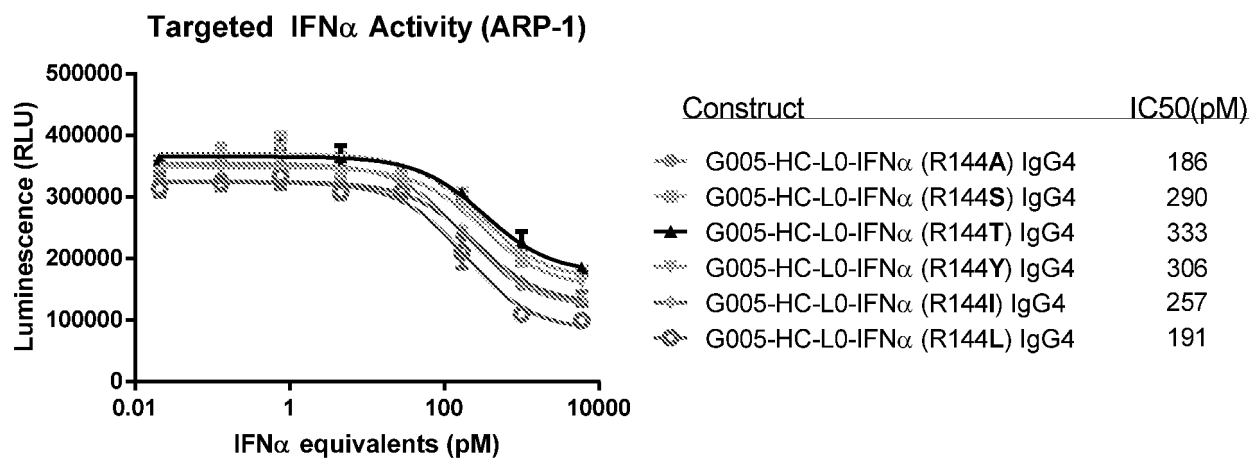


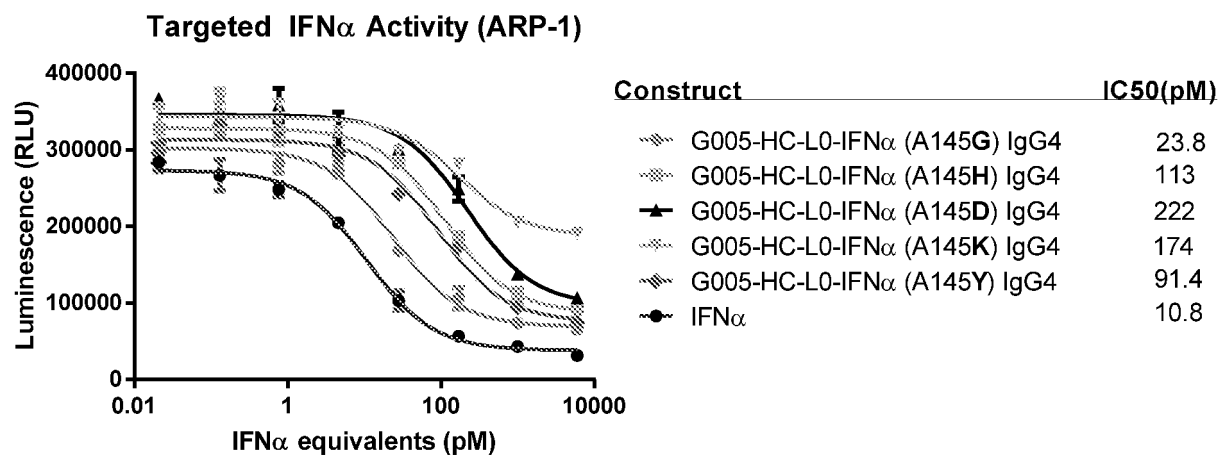
FIGURE 30:



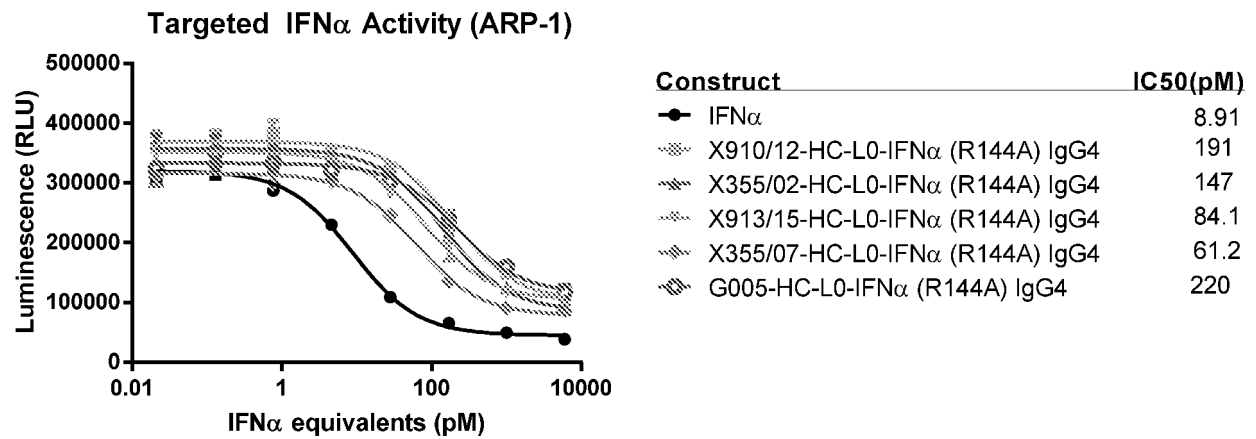
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FIGURE 31:

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FIGURE 32:

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FIGURE 33:

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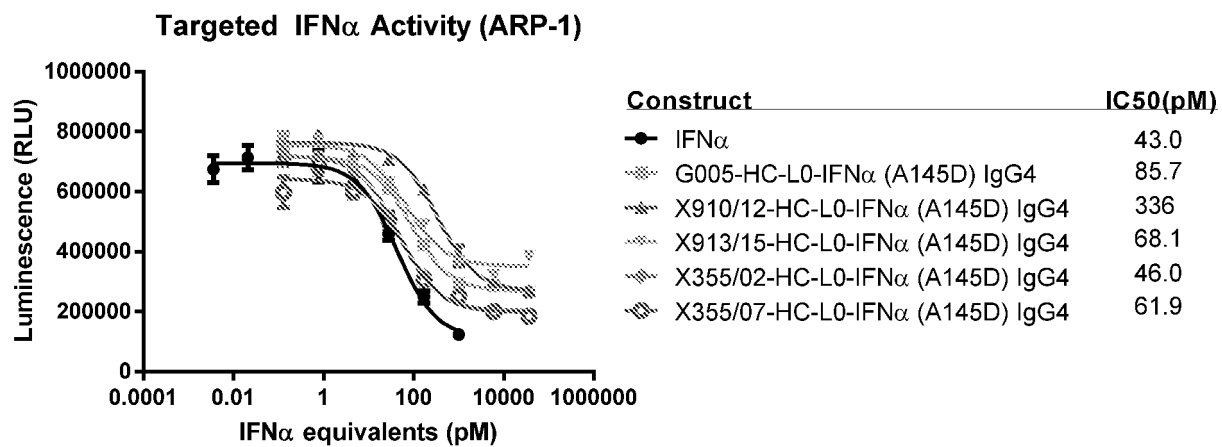
FIGURE 34:

FIGURE 35:

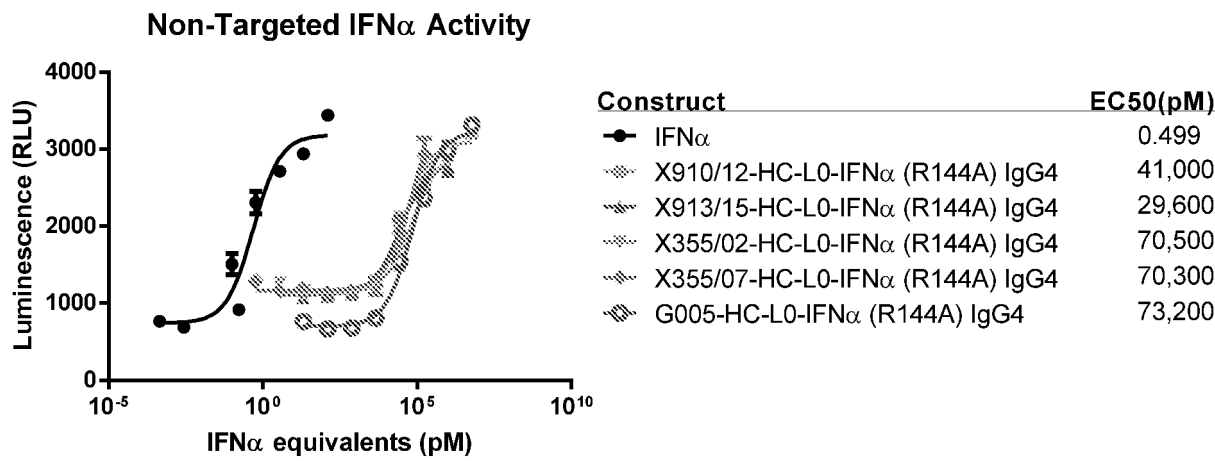


FIGURE 36:

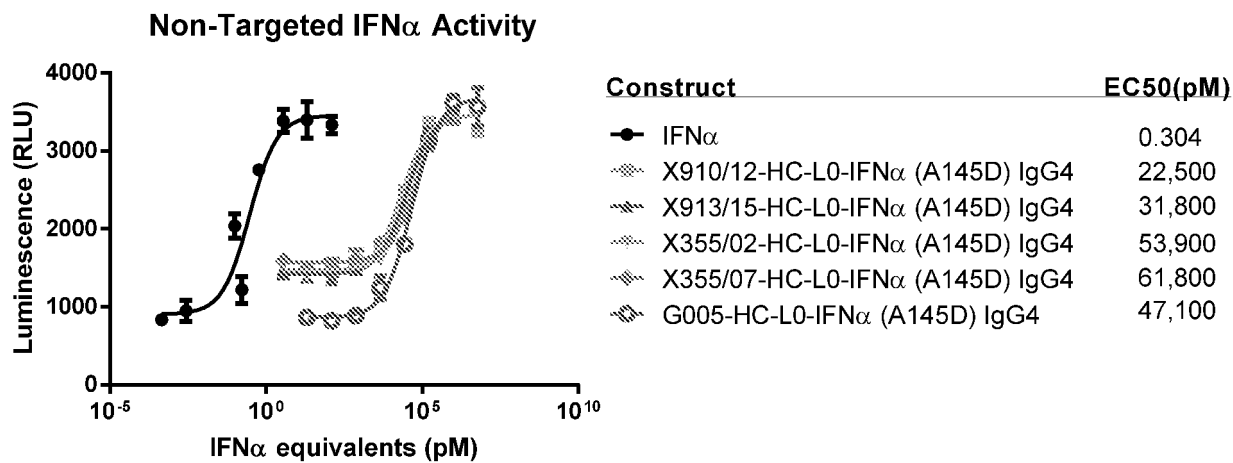


FIGURE 37:

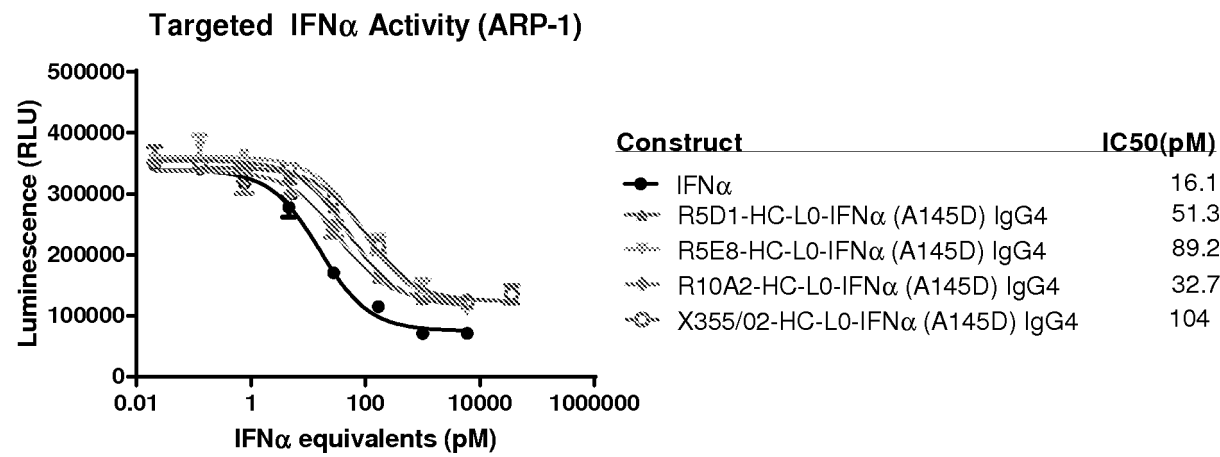
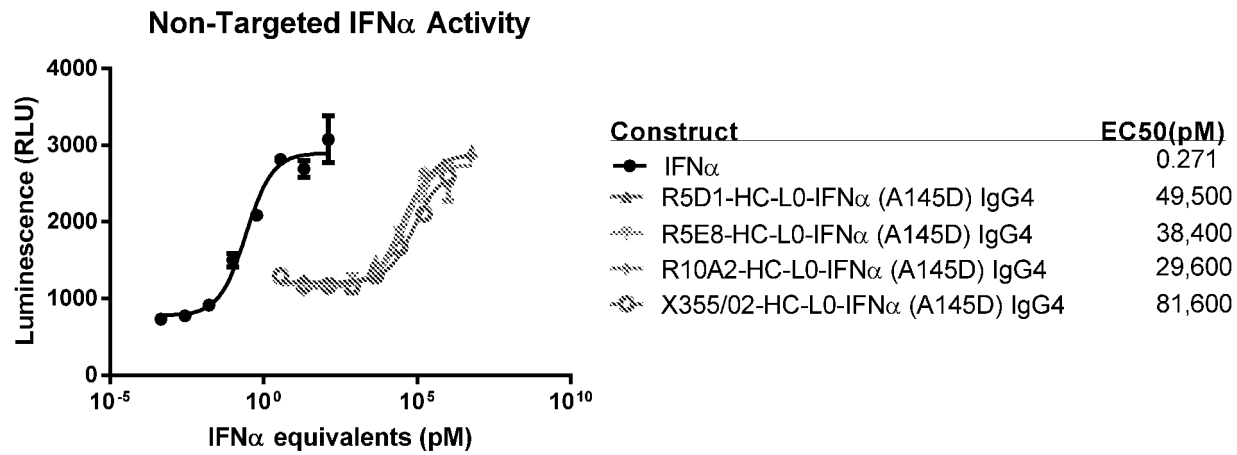


FIGURE 38:



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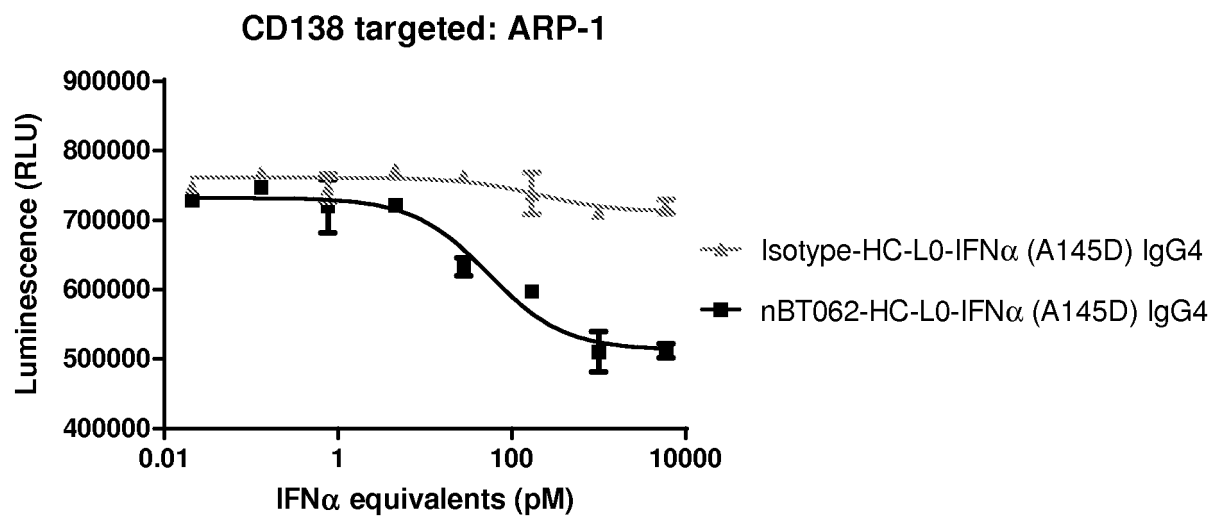
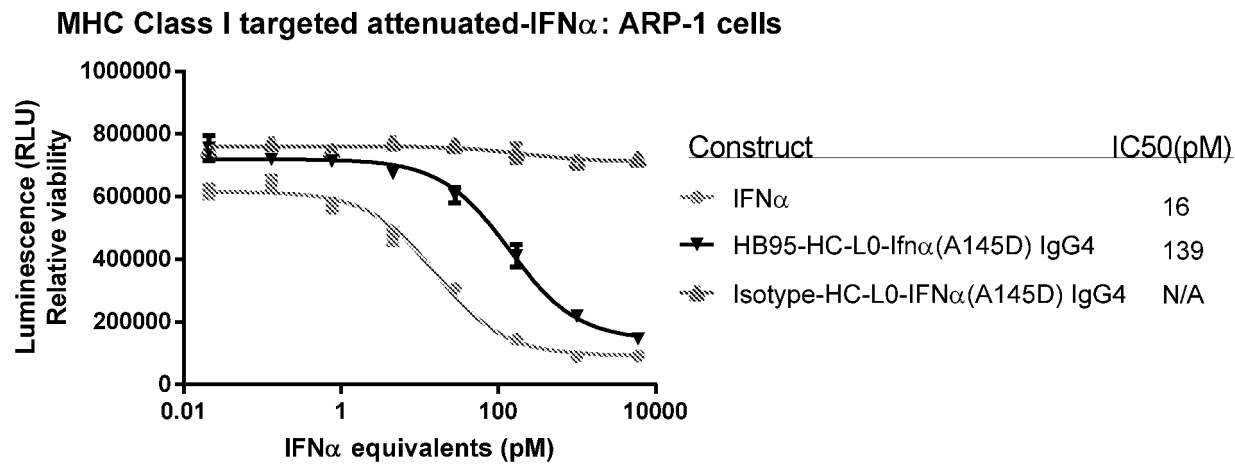
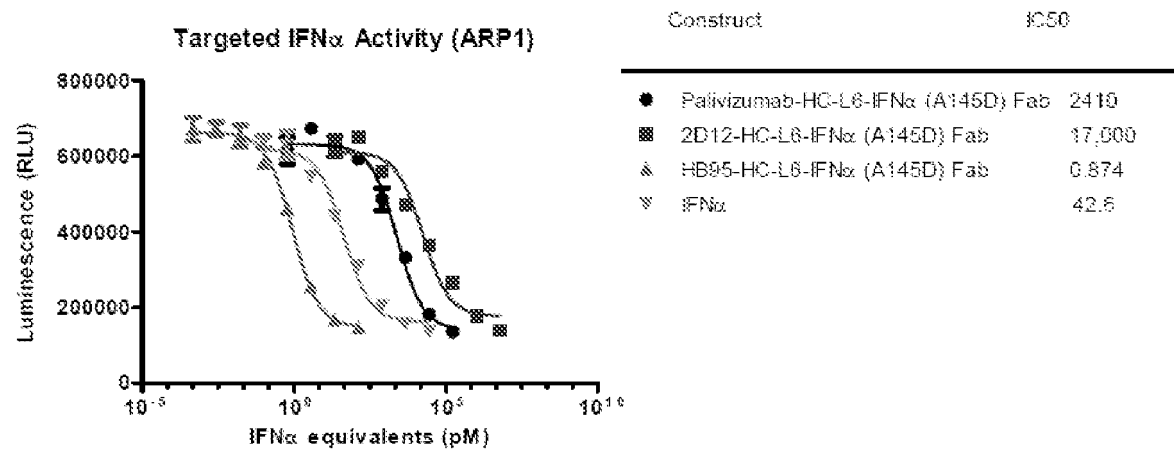
FIGURE 39:

FIGURE 40:

(a)



(b)



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FIGURE 41:

Anti-MHC class I-IFN: Efficacy of targeted IFN in virus infected cells

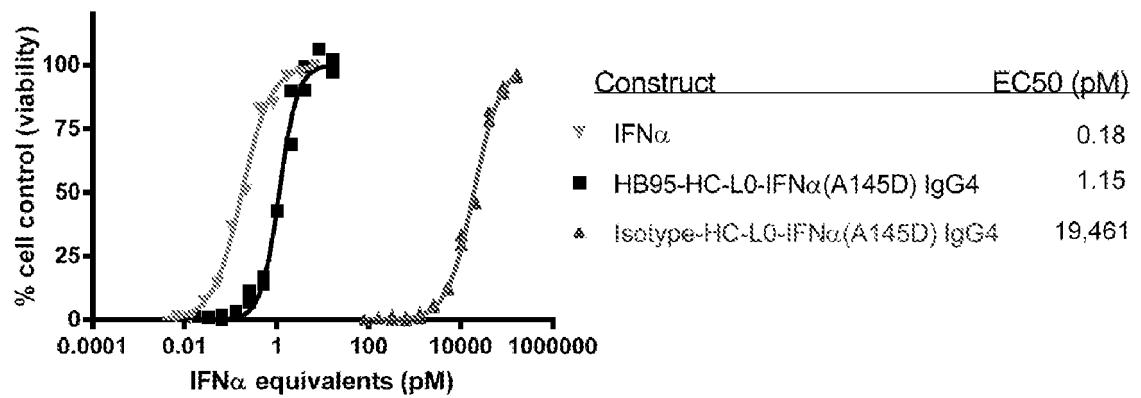


FIGURE 42:

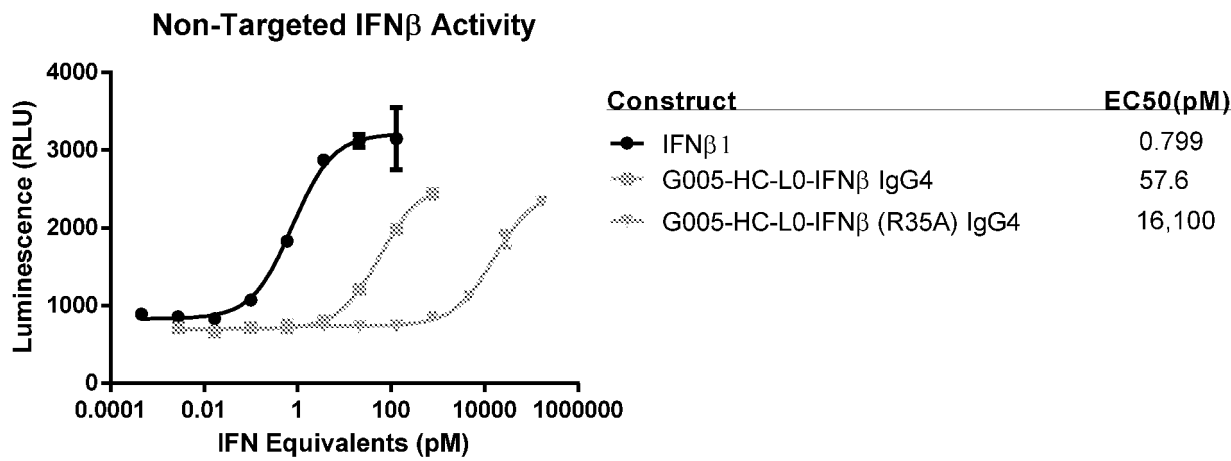


FIGURE 43:

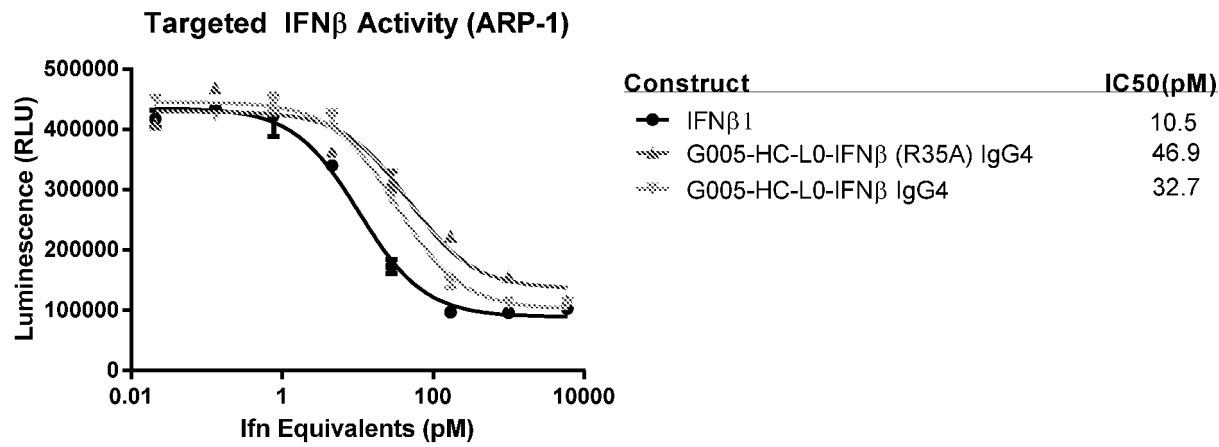
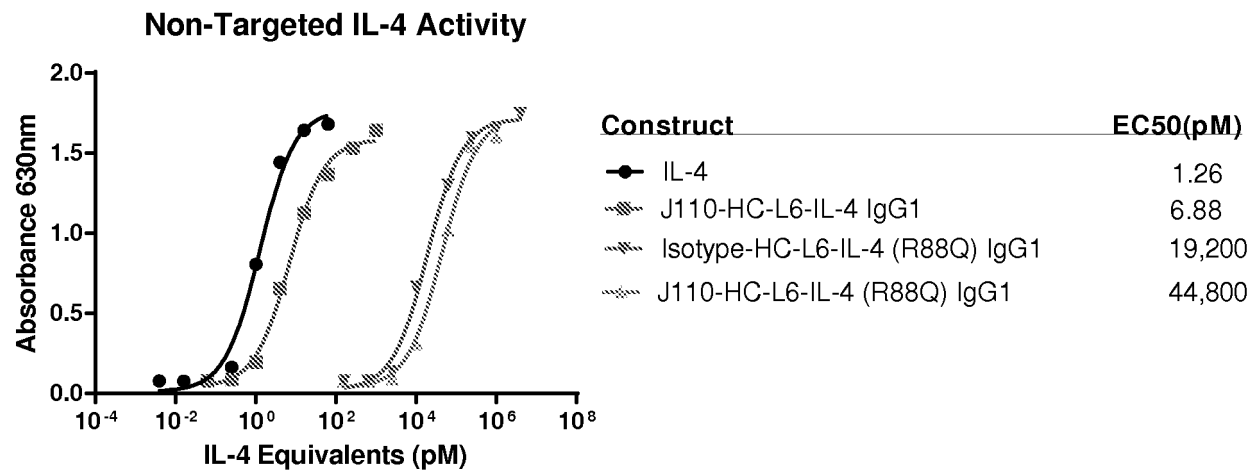


FIGURE 44:



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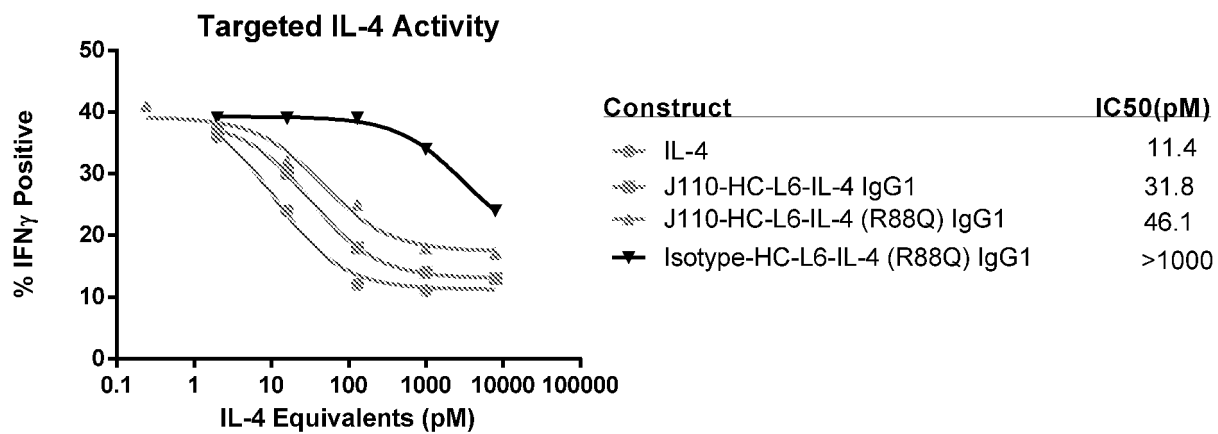
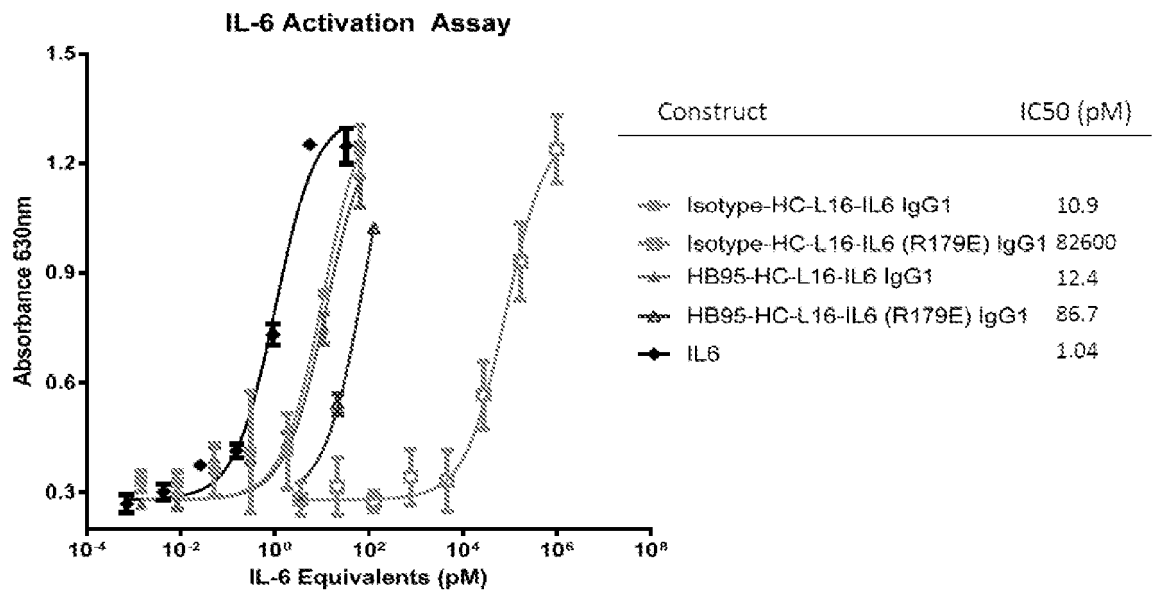
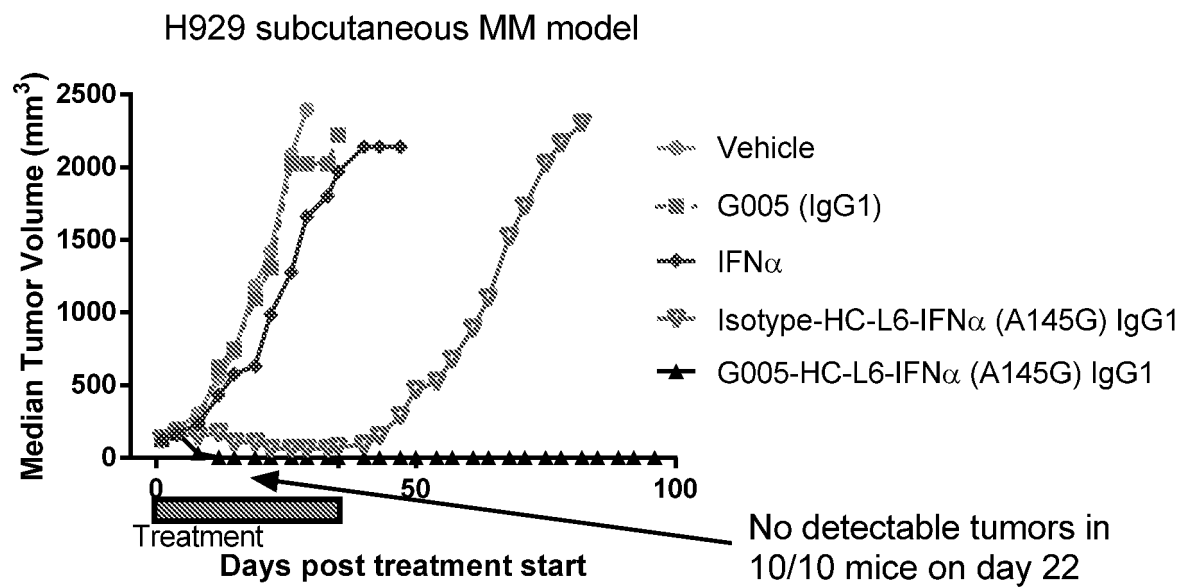
FIGURE 45:

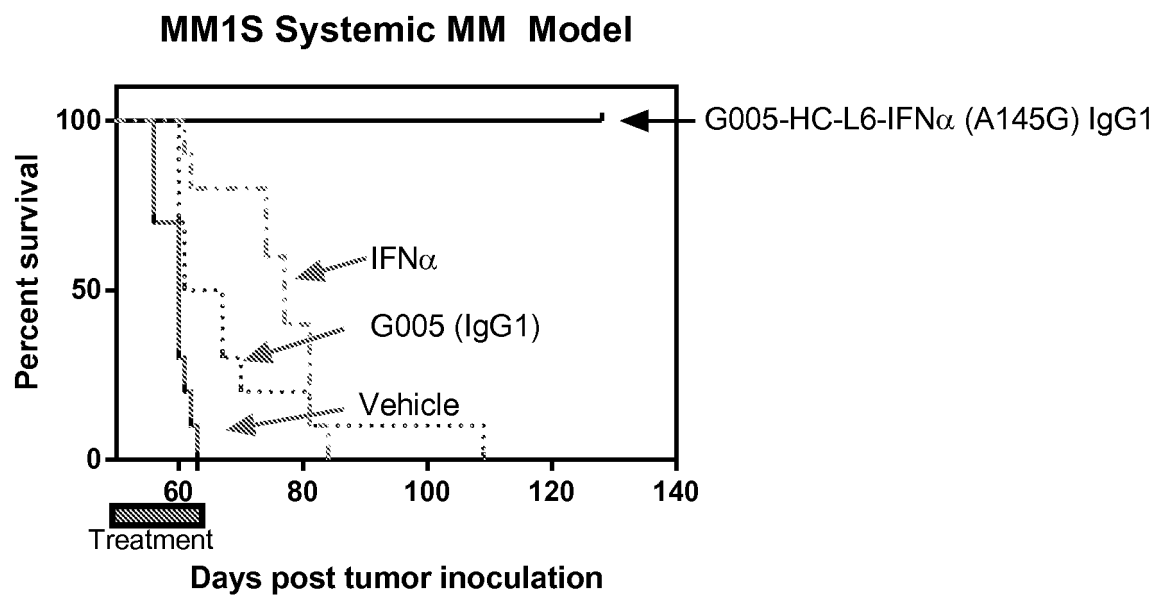
FIGURE 46:



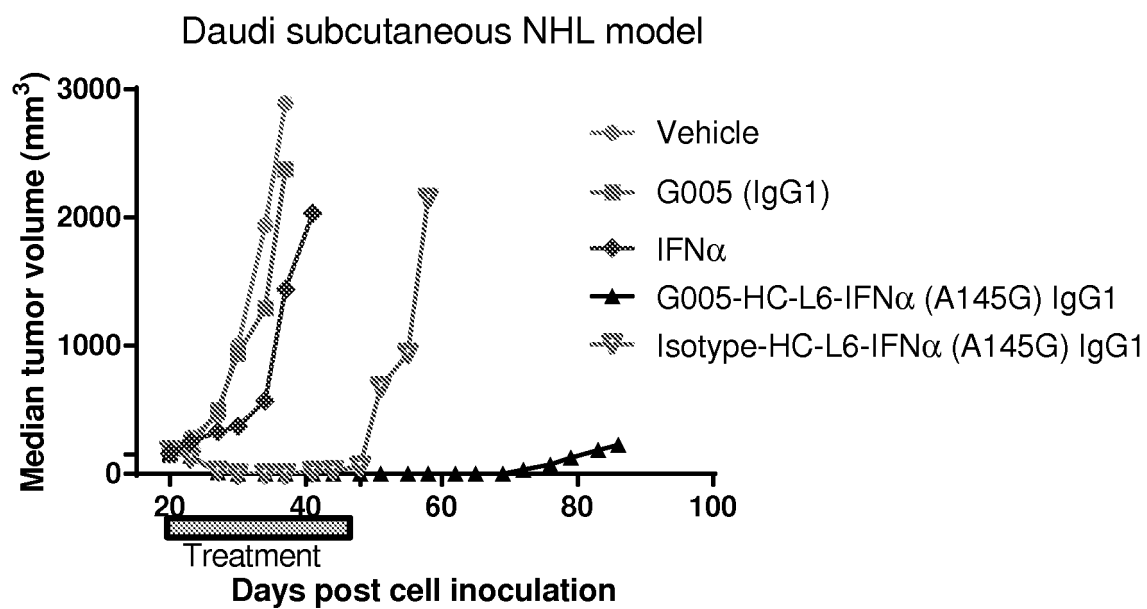
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FIGURE 47:

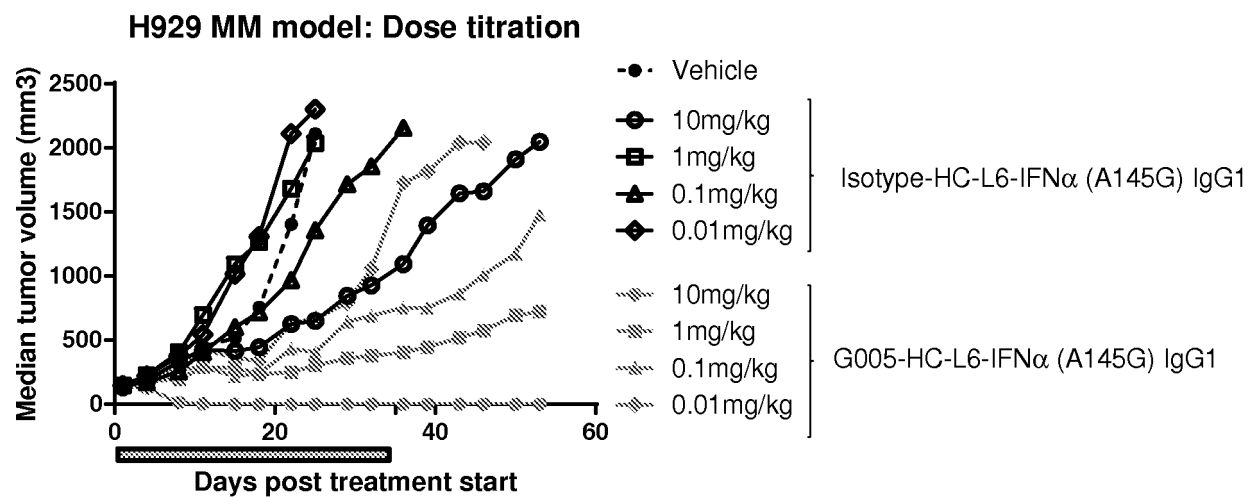
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FIGURE 48:

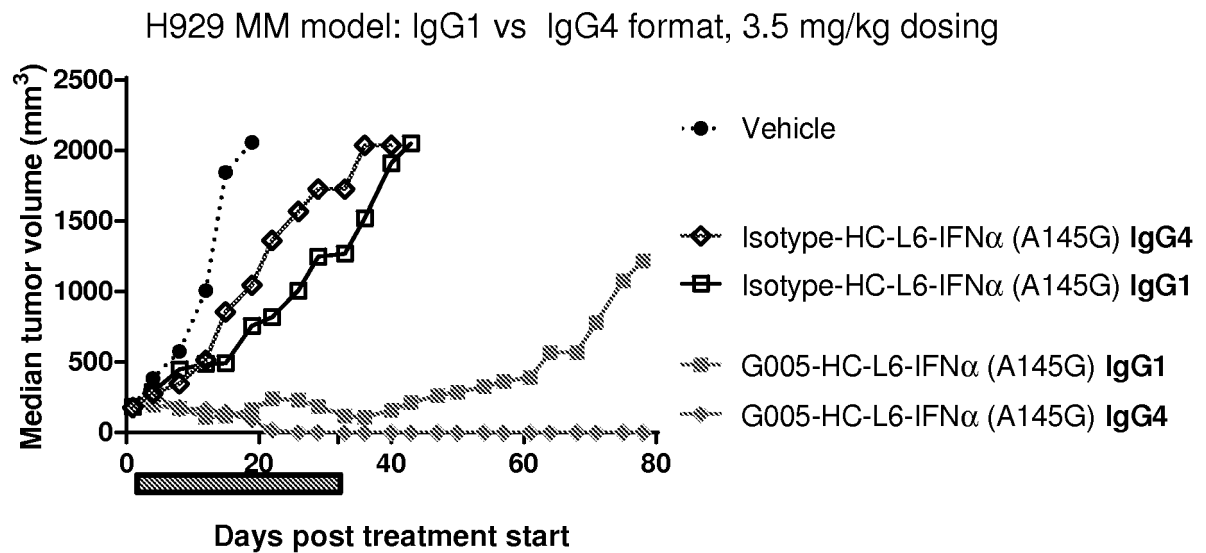
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FIGURE 49:

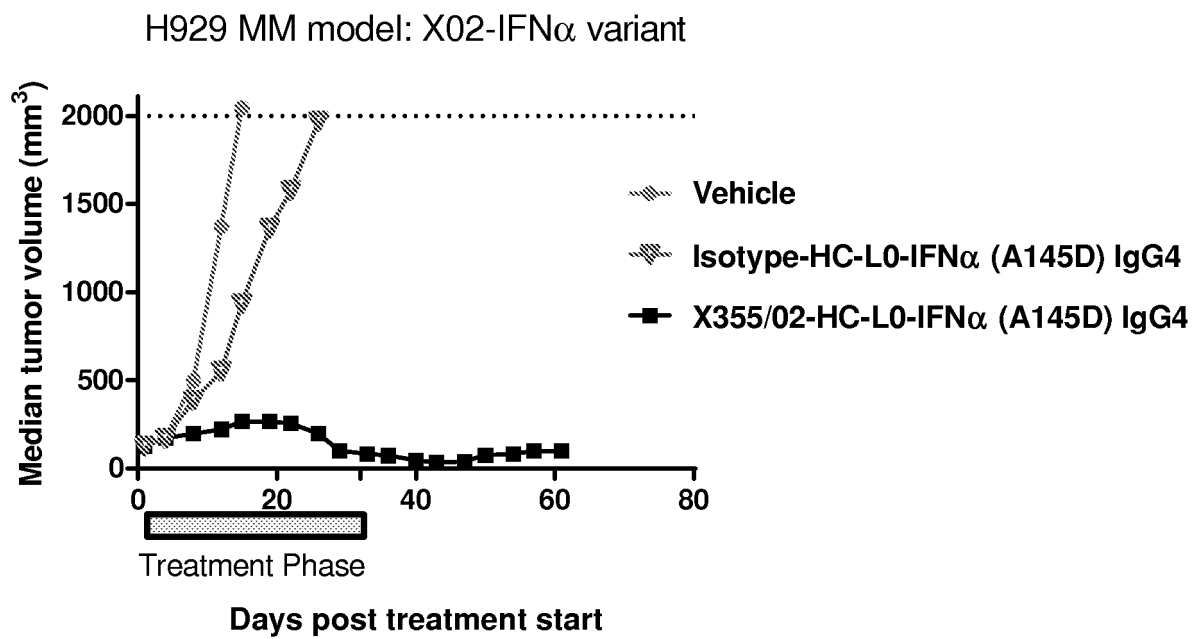
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FIGURE 50:

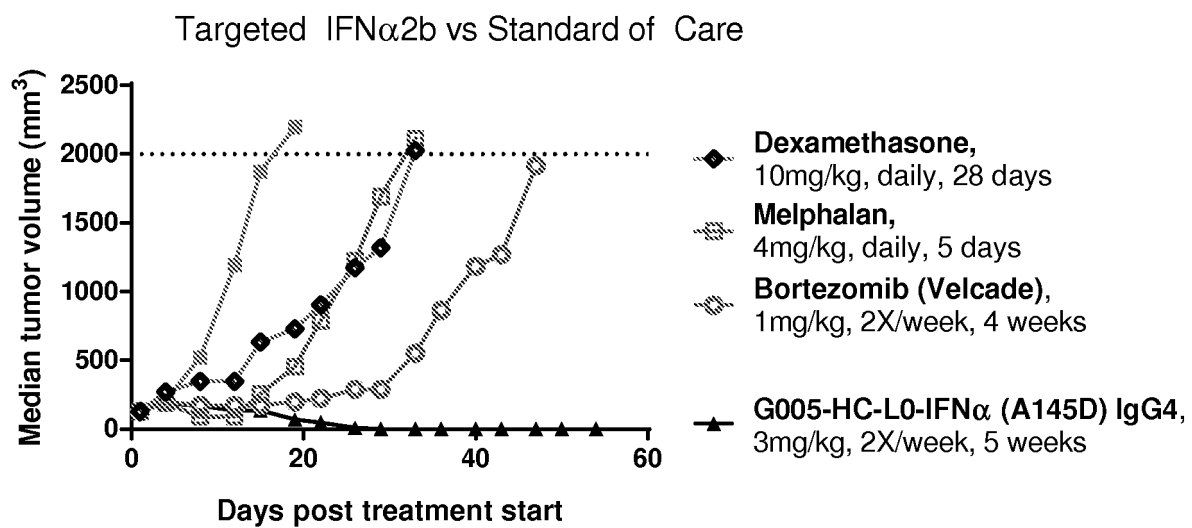
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FIGURE 51:

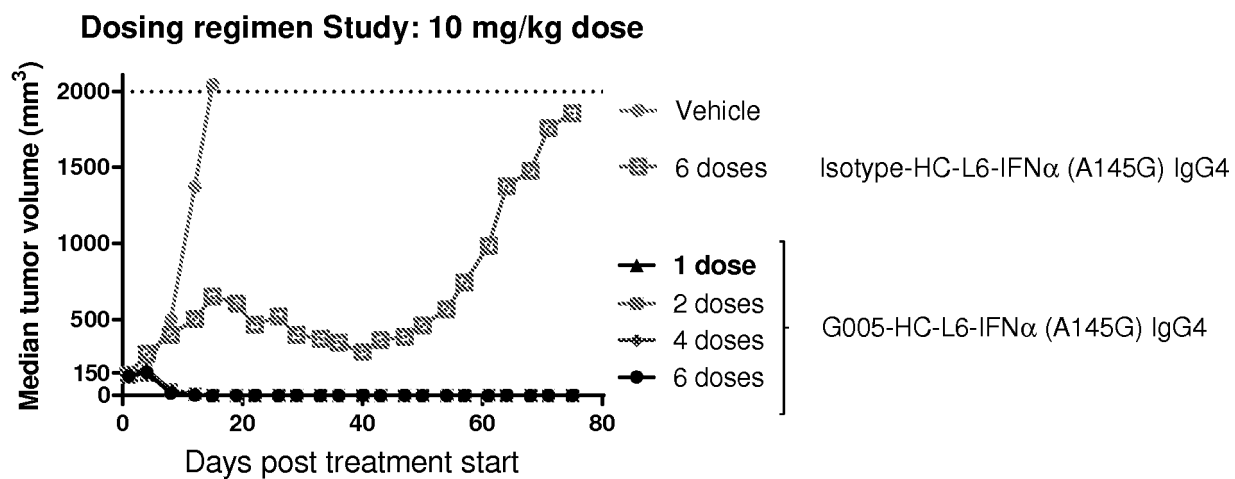
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FIGURE 52:

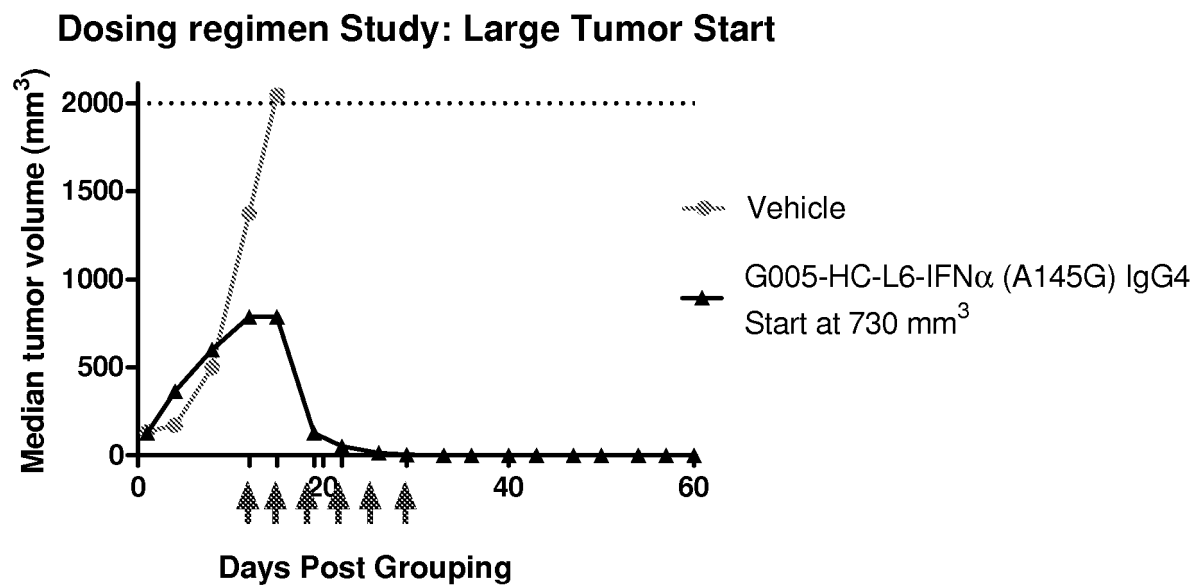
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FIGURE 53:

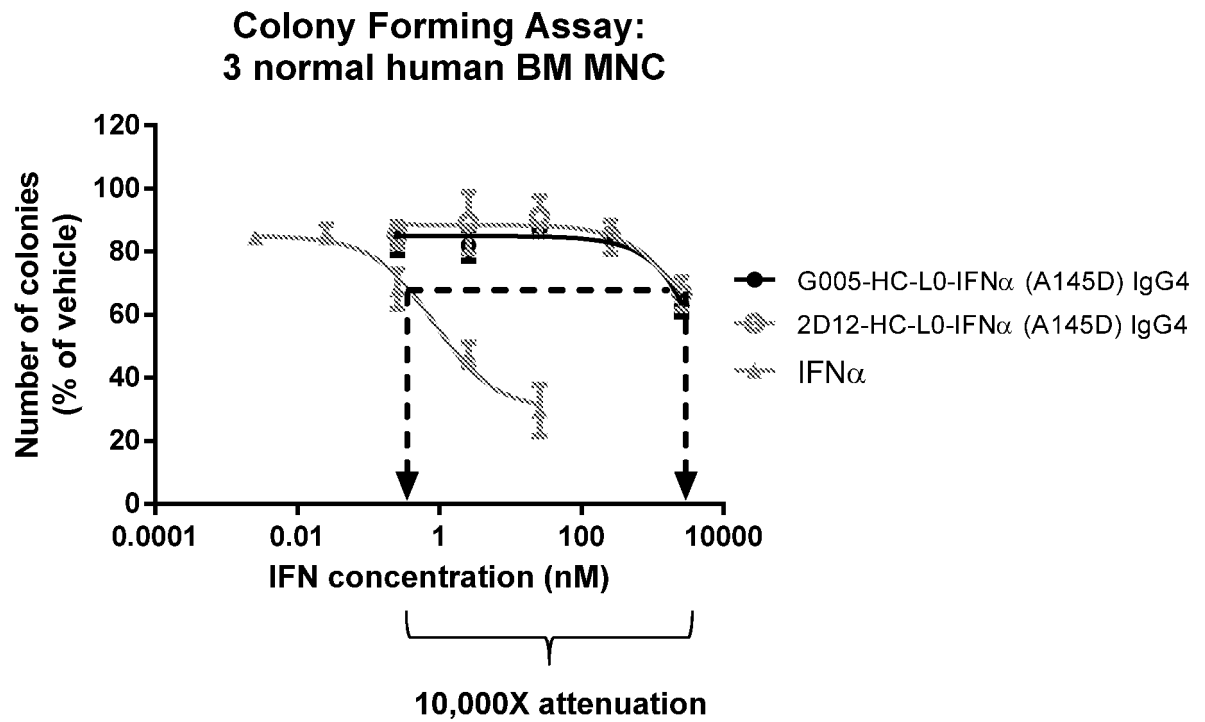
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FIGURE 54:

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FIGURE 55:

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FIGURE 56:

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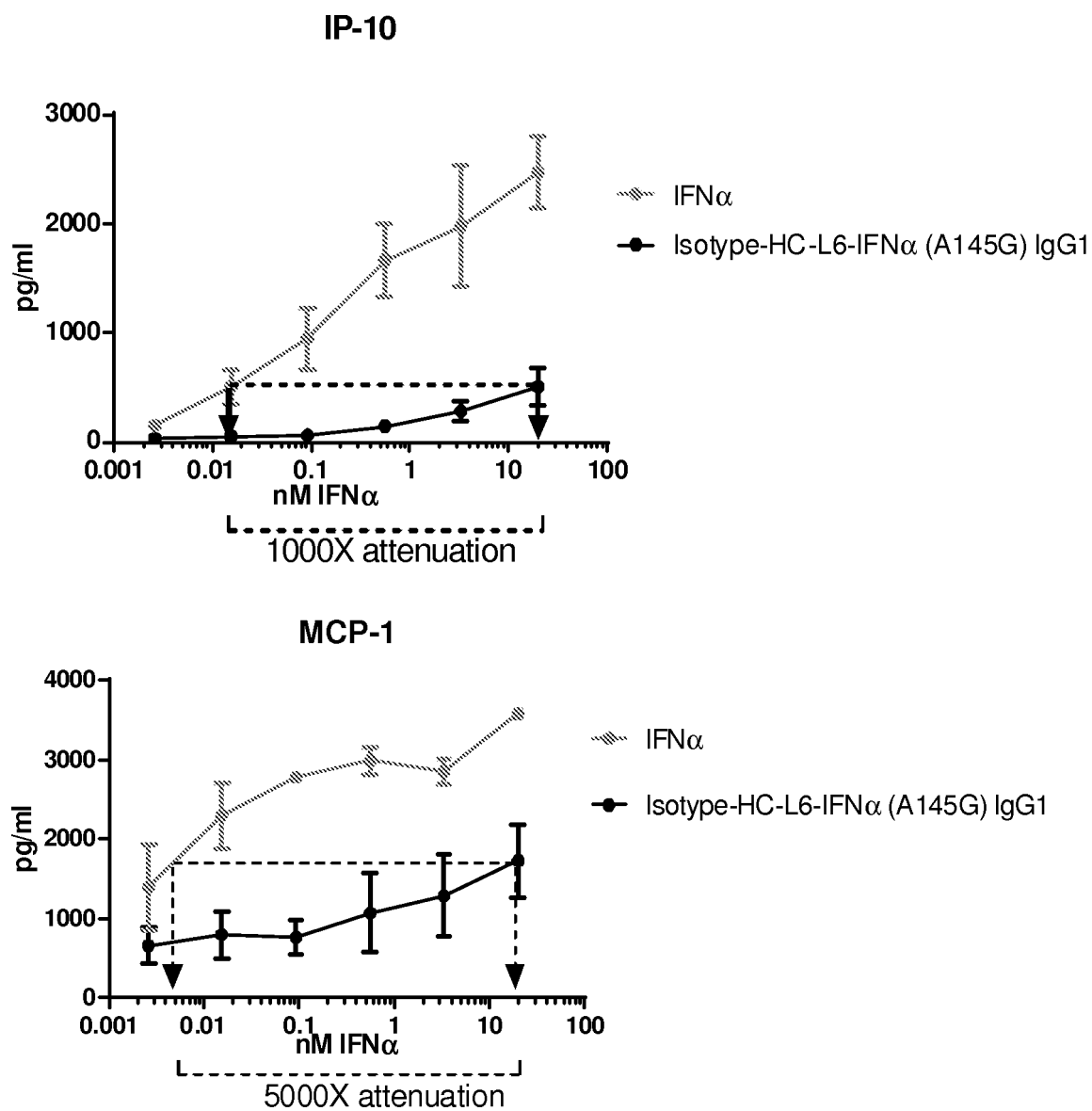
FIGURE 57a:

FIGURE 57b: