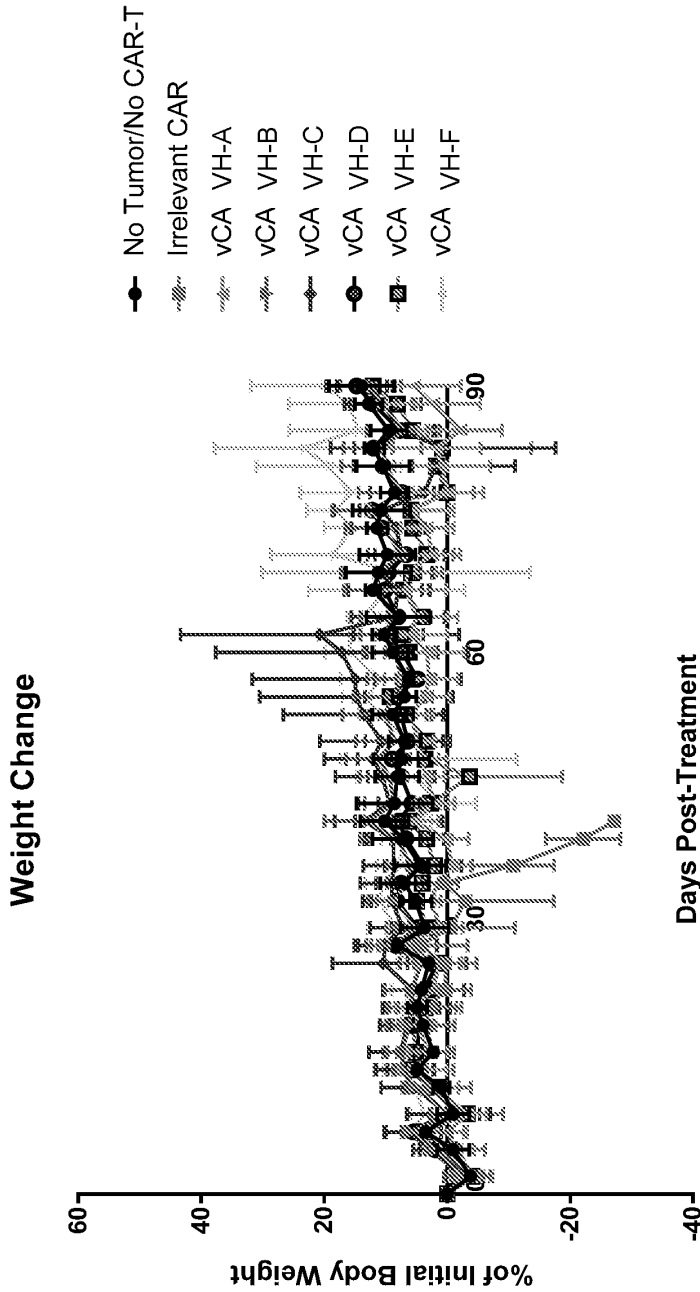


FIGURE 1



Tumor Burden

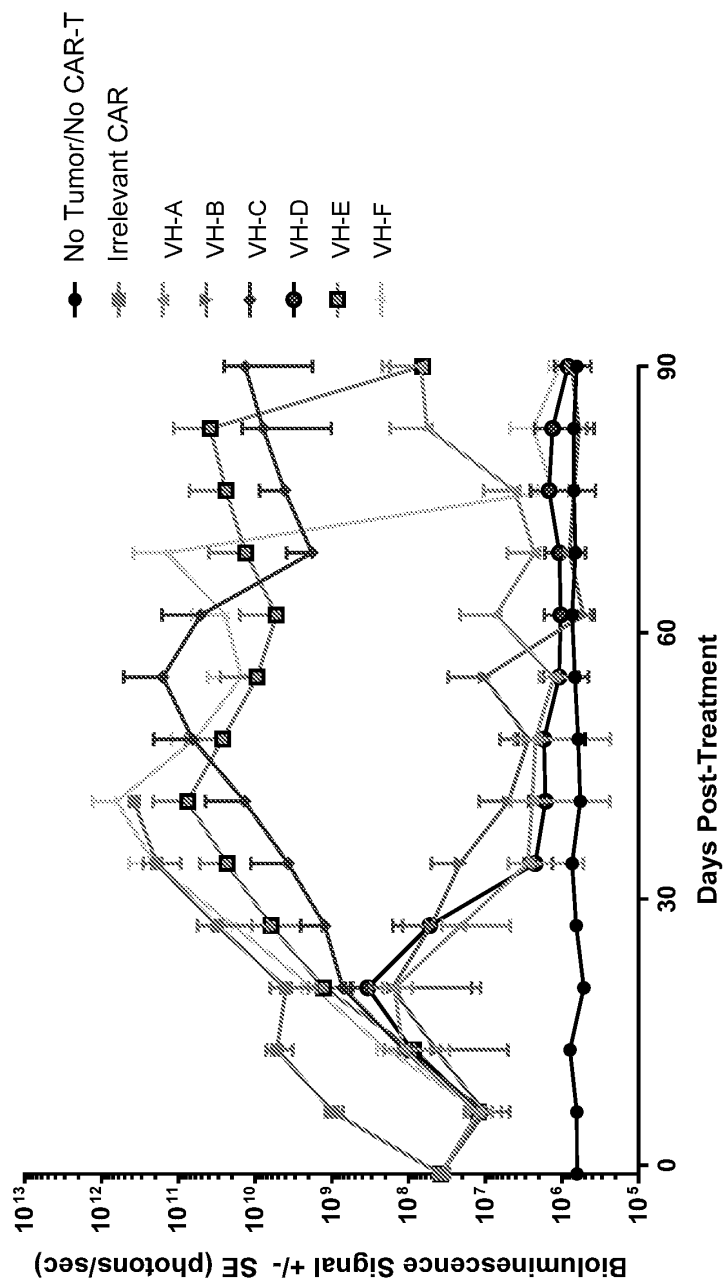


FIGURE 3

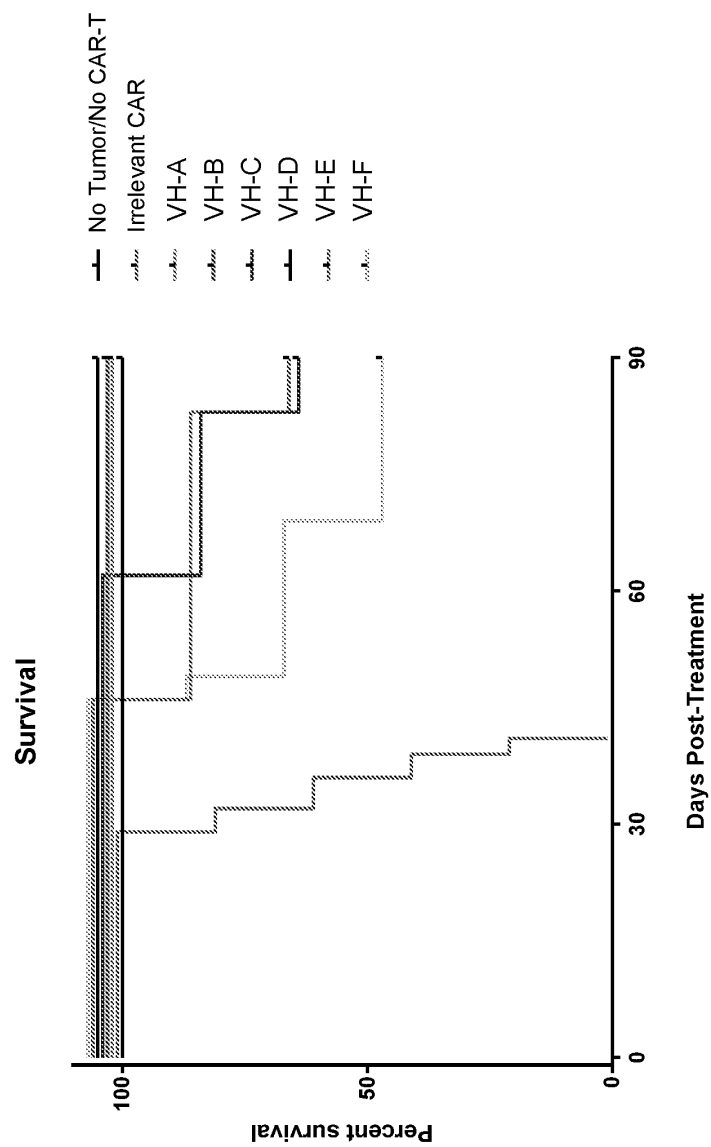


FIGURE 4

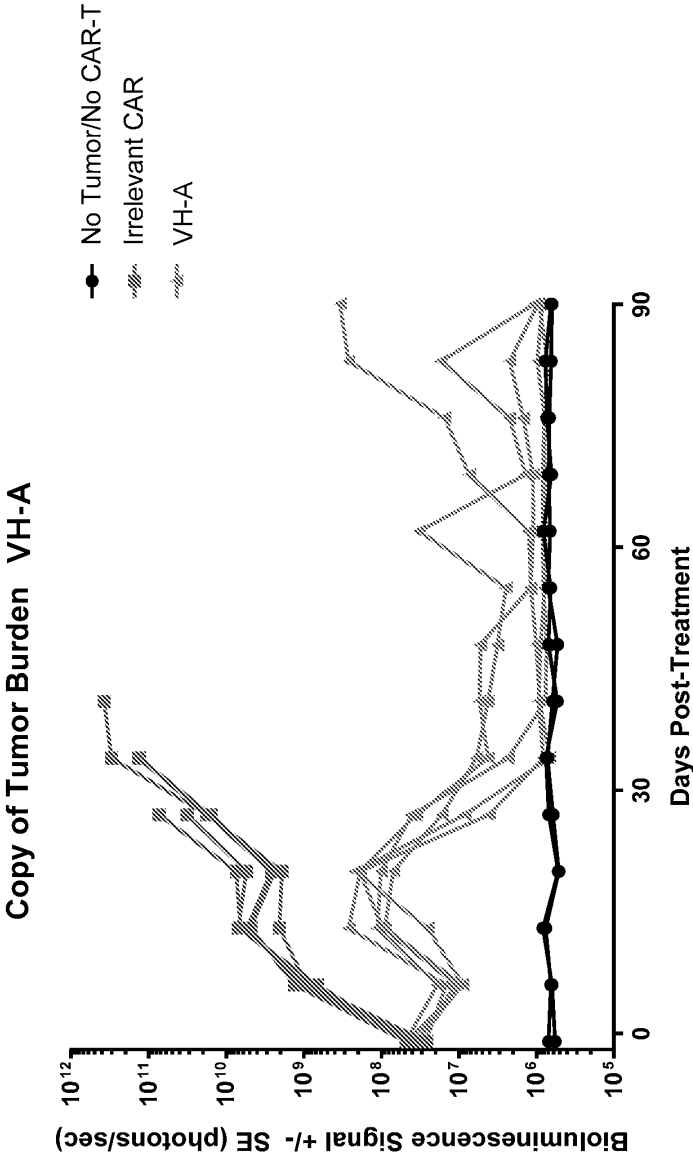


FIGURE 5

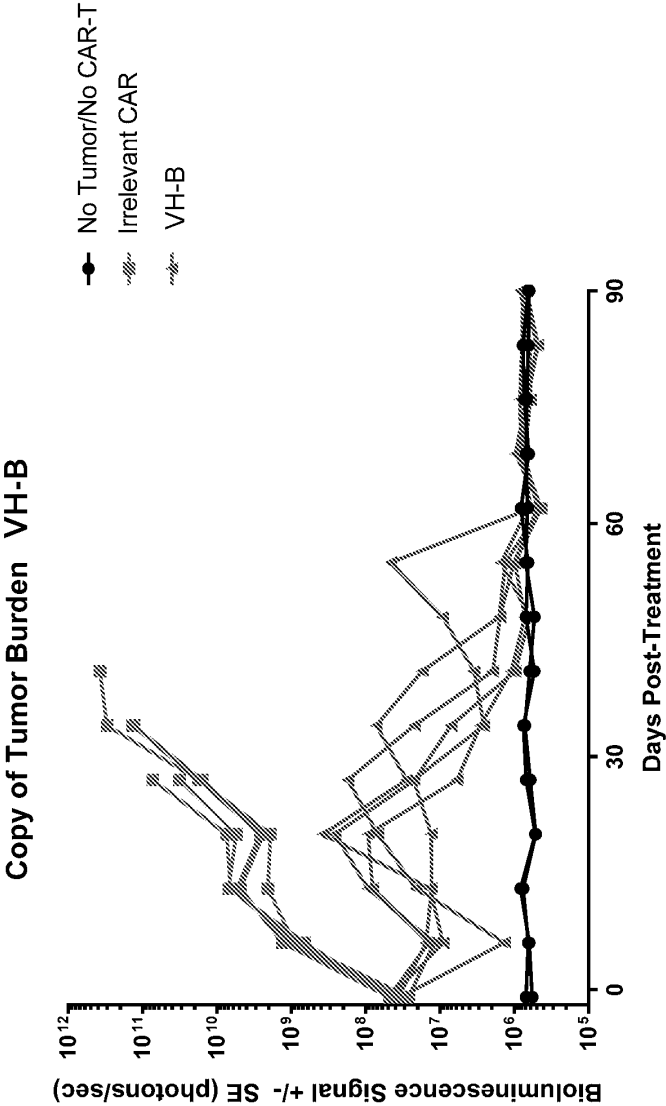


FIGURE 6

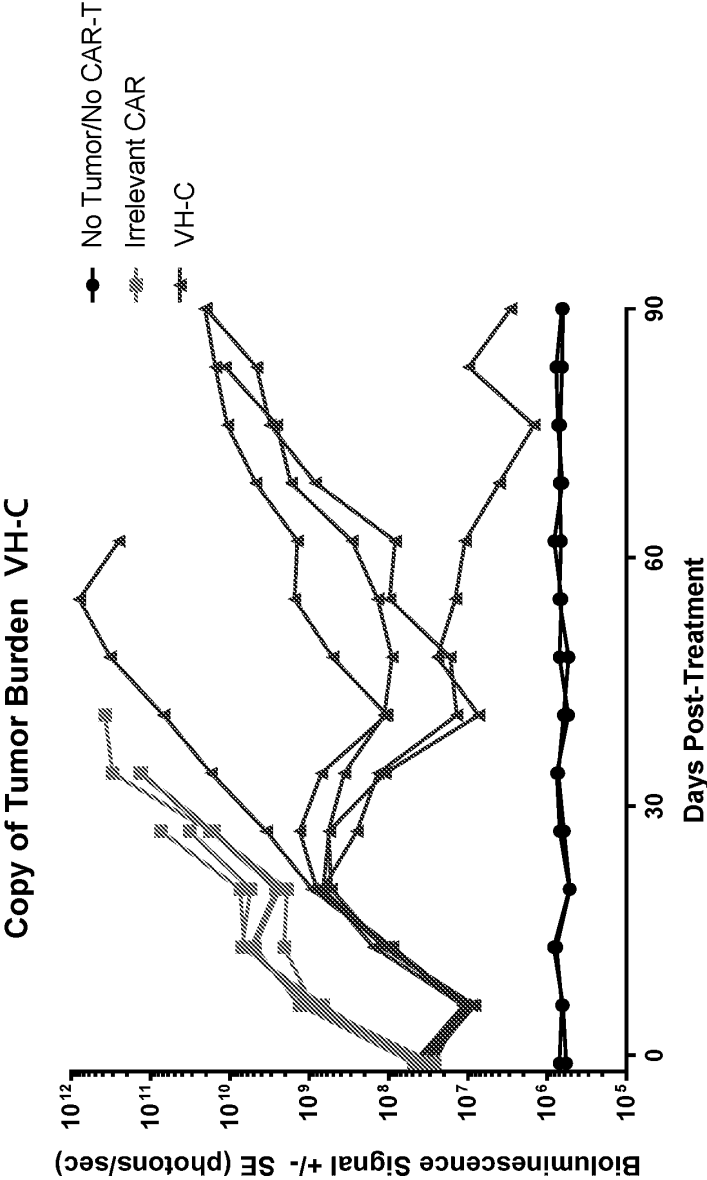


FIGURE 7

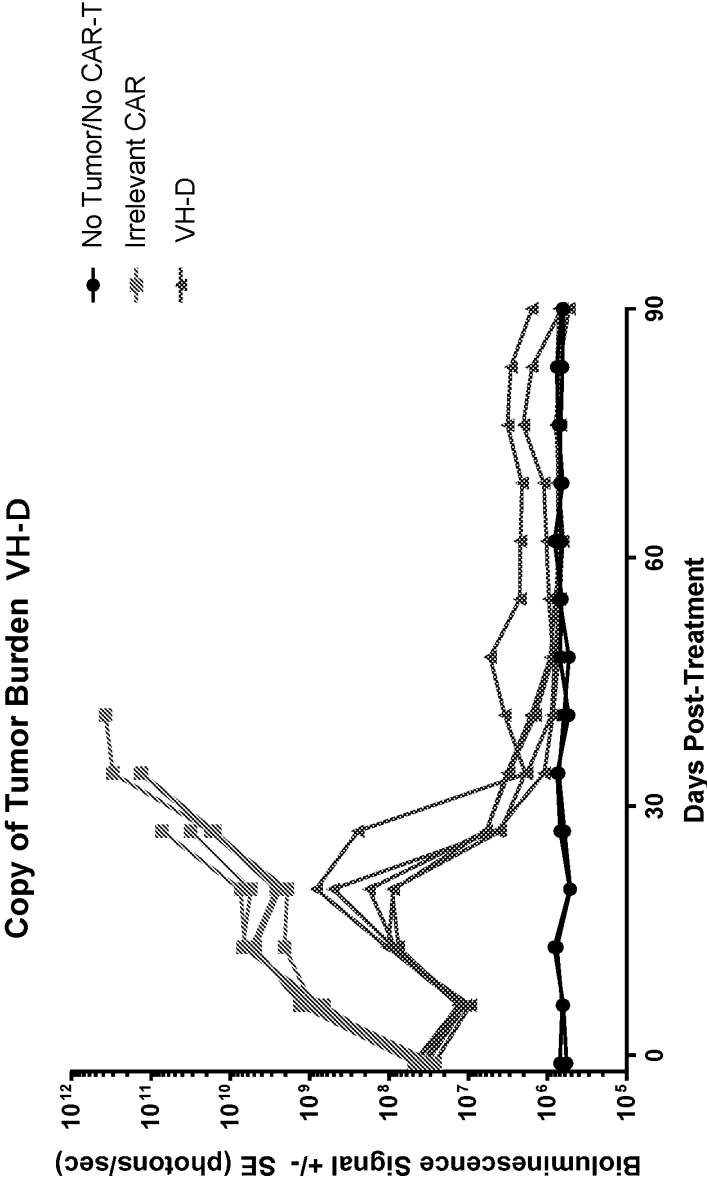


FIGURE 8

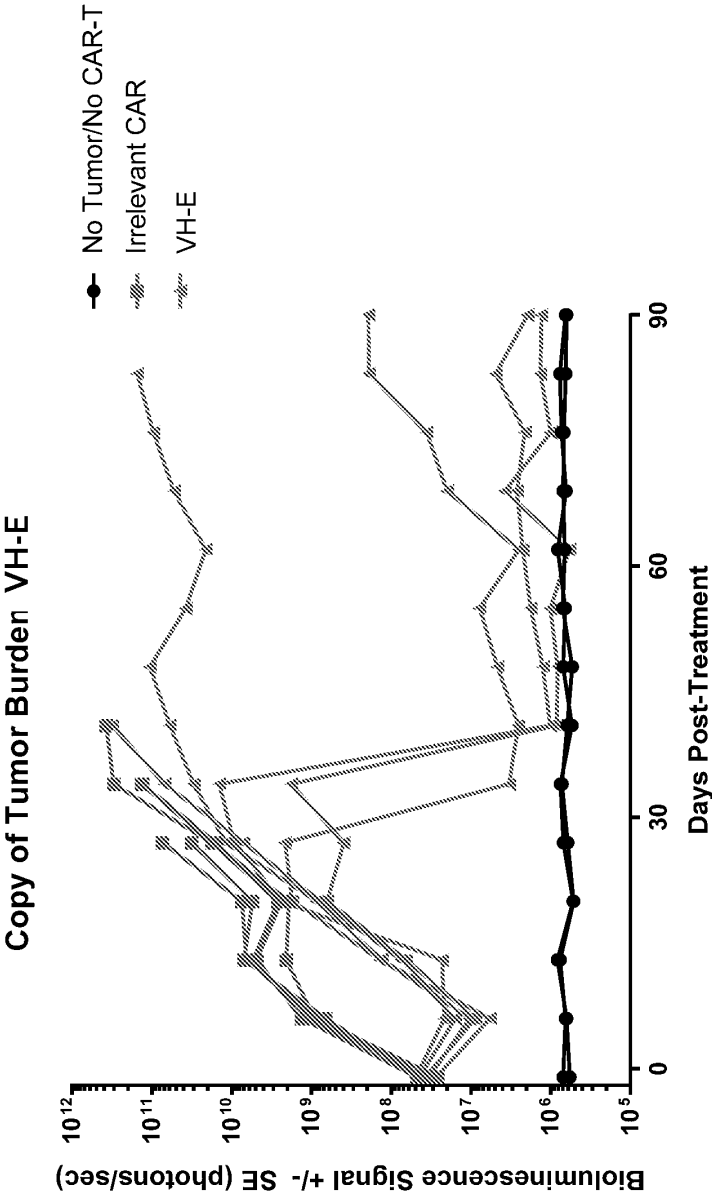


FIGURE 9

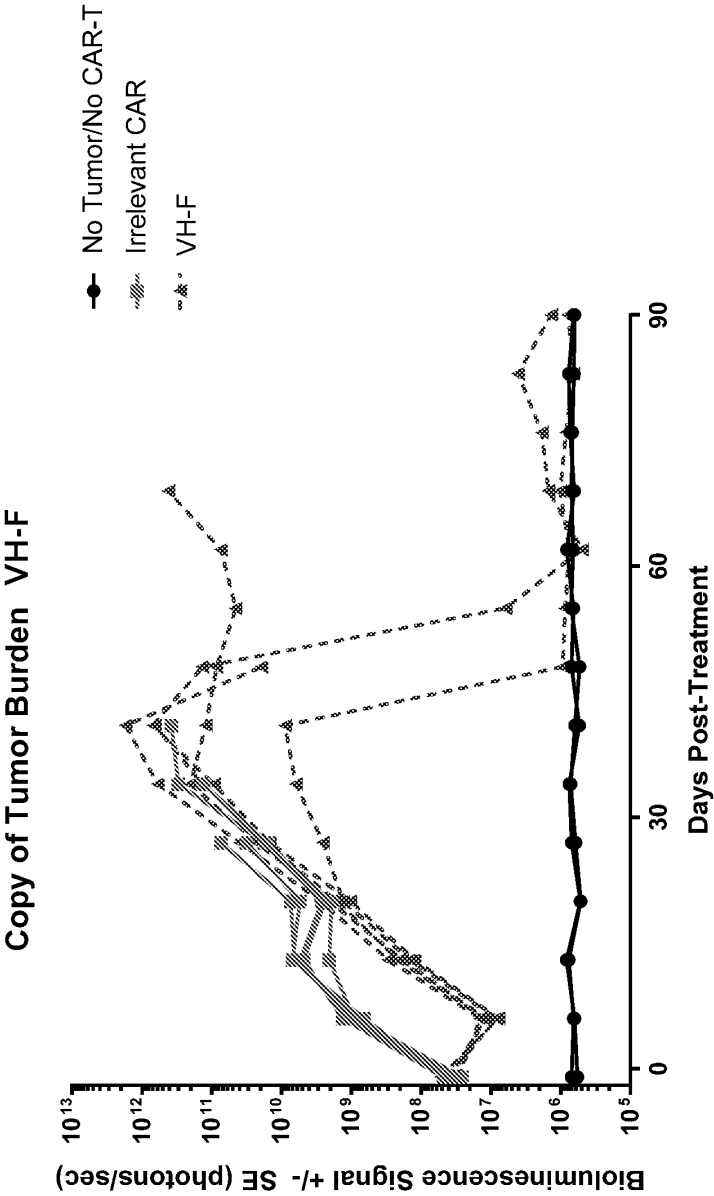


FIGURE 10A

	Consensus_seq_aa_FR1_FR4	FR1	CDR1	FR2	CDR2	FR3	CDR3	FR4
VH-B	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGAT YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18050)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18065)	GFTFSNYA (SEQ ID NO: 18056)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18065)	IIGSGGAT (SEQ ID NO: 18059)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18073)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MTWIRQAPGKGLEWVSG ITDGGST FYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18051)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18066)	GFTFSNYA (SEQ ID NO: 18056)	MTWIRQAPGKGL LEWVSG (SEQ ID NO: 18071)	ITDGGST (SEQ ID NO: 18060)	FYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18074)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
VH-D	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVAG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18052)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18066)	GFTFSNYA (SEQ ID NO: 18057)	MNWVRQAPGKGL LEWVAG (SEQ ID NO: 18072)	IIGSGGST (SEQ ID NO: 18061)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18075)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18053)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18067)	GFTFSNYA (SEQ ID NO: 18057)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18071)	ISGSGGST (SEQ ID NO: 18061)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18076)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
VH-E	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18054)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18068)	GFTFSNYA (SEQ ID NO: 18058)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18070)	ISGSGGST (SEQ ID NO: 18062)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18077)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18055)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18069)	GFTFSNYA (SEQ ID NO: 18056)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18070)	IVGGGGS (SEQ ID NO: 18063)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18078)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
VH-F	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18056)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18070)	GFTFSNYA (SEQ ID NO: 18058)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18070)	ISGSGGST (SEQ ID NO: 18062)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18077)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18057)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18071)	GFTFSNYA (SEQ ID NO: 18058)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18070)	ISGSGGST (SEQ ID NO: 18062)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18077)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
VH-C	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18058)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18072)	GFTFSNYA (SEQ ID NO: 18058)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18070)	ISGSGGST (SEQ ID NO: 18062)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18077)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)
	EVQLLESGGGLVQPGGSLRLTISCAAS GFTFSNYA MNWVRQAPGKGLEWVSG IIGSGGST YYADSVKG RFTISRDN SKNTLYLQMNSLRAEDTA VYCYC KD WNTTMITETE RGQGTIVTVSS (SEQ ID NO: 18059)	EVQLLESGGGLV QPGGSLRLSCAA S (SEQ ID NO: 18073)	GFTFSNYA (SEQ ID NO: 18058)	MNWVRQAPGKGL LEWVSG (SEQ ID NO: 18070)	ISGSGGST (SEQ ID NO: 18062)	YYADSVKGRFTISRDN SKNTLYLQMNSLRAEDTA VYCYC (SEQ ID NO: 18077)	VKDNWNTTMI TE (SEQ ID NO: 18064)	RGQGTIVTVSS (SEQ ID NO: 18079)

VH-B EVQLLESGGCLQPGASLVLRSCAASGTTFSYAMNMRQAPCKGLEWVSGISGCAITVYADSVNGRTFSRDNSKNTYLNQNSLRAEDTAYCYCKQWNTTMI¹TERQGTIVTVSS¹¹⁰

VH-D EVQLLESGGCLQPGASLVLRSCAASGTTFSYAMNMRQAPCKGLEWVSGITCGGSTVYADSVNGRTFSRDNSKNTYLNQNSLRAEDTAYCYCKQWNTTMI¹TERQGTIVTVSS

VH-A EVQLLESGGCLQPGASLVLRSCAASGTTFSYAMNMRQAPCKGLEWVSGITCGGSTVYADSVNGRTFSRDNSKNTYLNQNSLRAEDTAYCYCKQWNTTMI¹TERQGTIVTVSS

VH-E EVQLLESGGCLQPGASLVLRSCAASGTTFSYAMNMRQAPCKGLEWVSGITCGGSTVYADSVNGRTFSRDNSKNTYLNQNSLRAEDTAYCYCKQWNTTMI¹TERQGTIVTVSS

VH-F EVQLLESGGCLQPGASLVLRSCAASGTTFSYAMNMRQAPCKGLEWVSGITCGGSTVYADSVNGRTFSRDNSKNTYLNQNSLRAEDTAYCYCKQWNTTMI¹TERQGTIVTVSS

VH-C EVQLLESGGCLQPGASLVLRSCAASGTTFSYAMNMRQAPCKGLEWVSGITCGGSTVYADSVNGRTFSRDNSKNTYLNQNSLRAEDTAYCYCKQWNTTMI¹TERQGTIVTVSS

FIGURE 10B

FIGURE 11

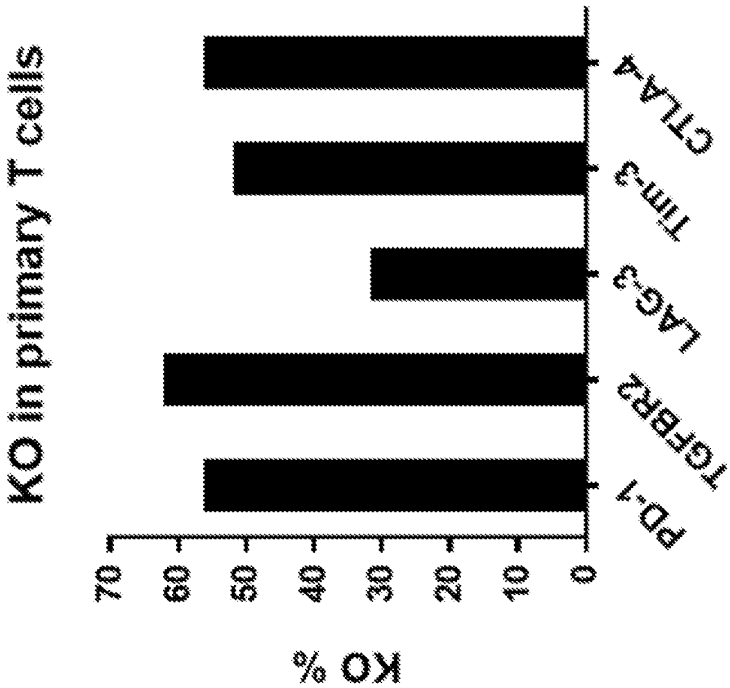


FIGURE 12

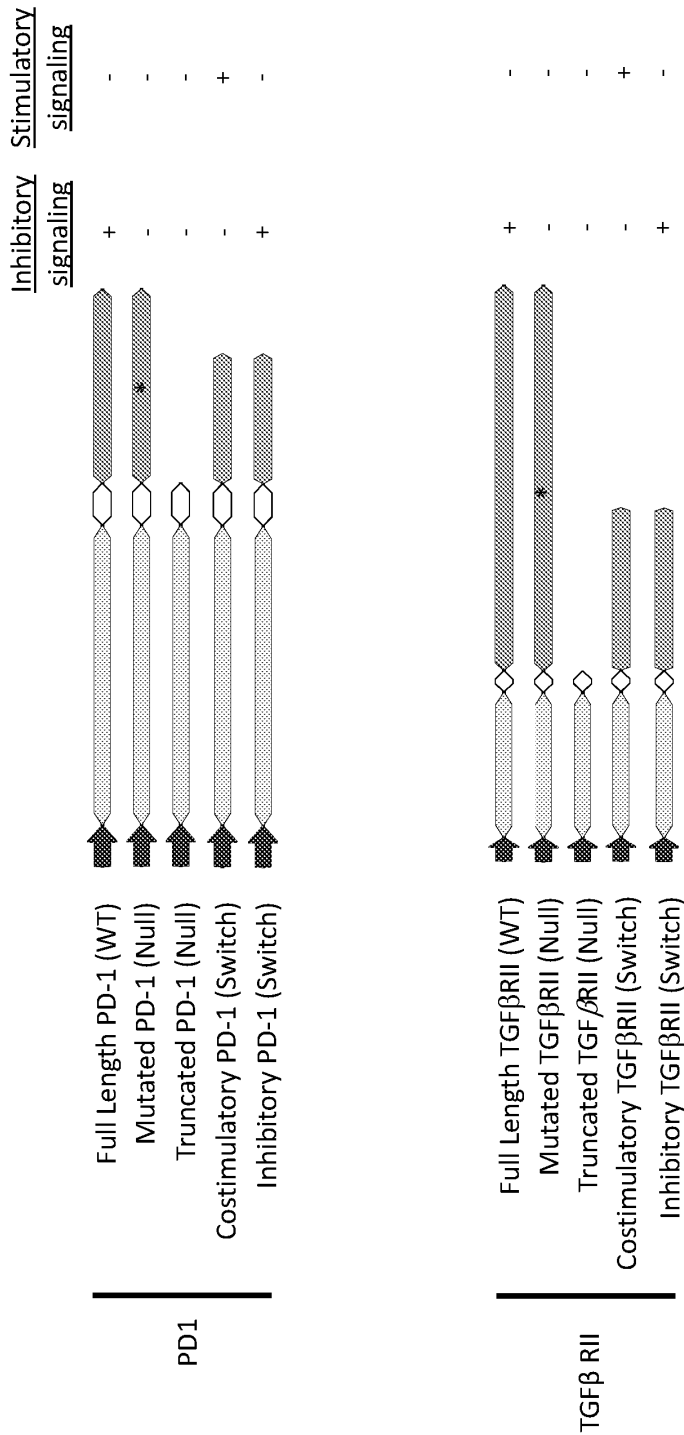


FIGURE I3

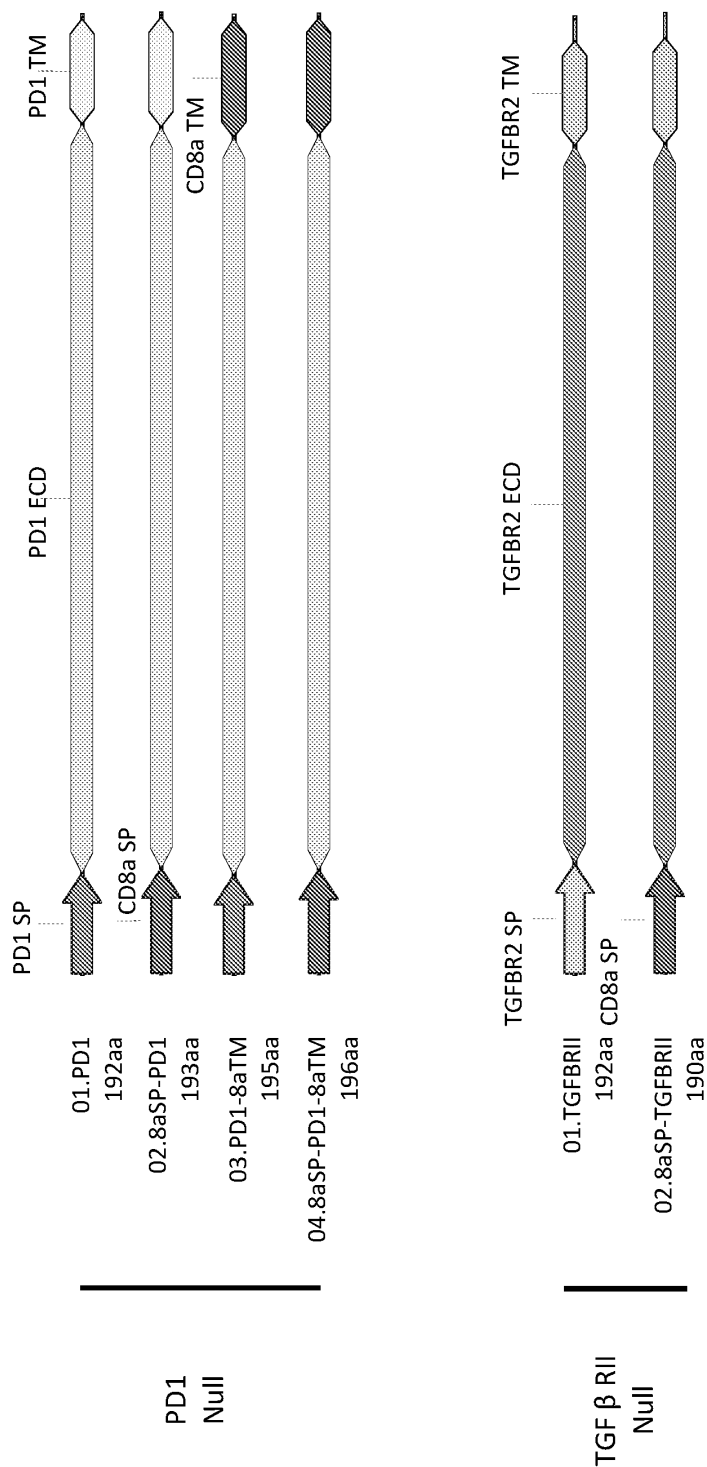


FIGURE 14

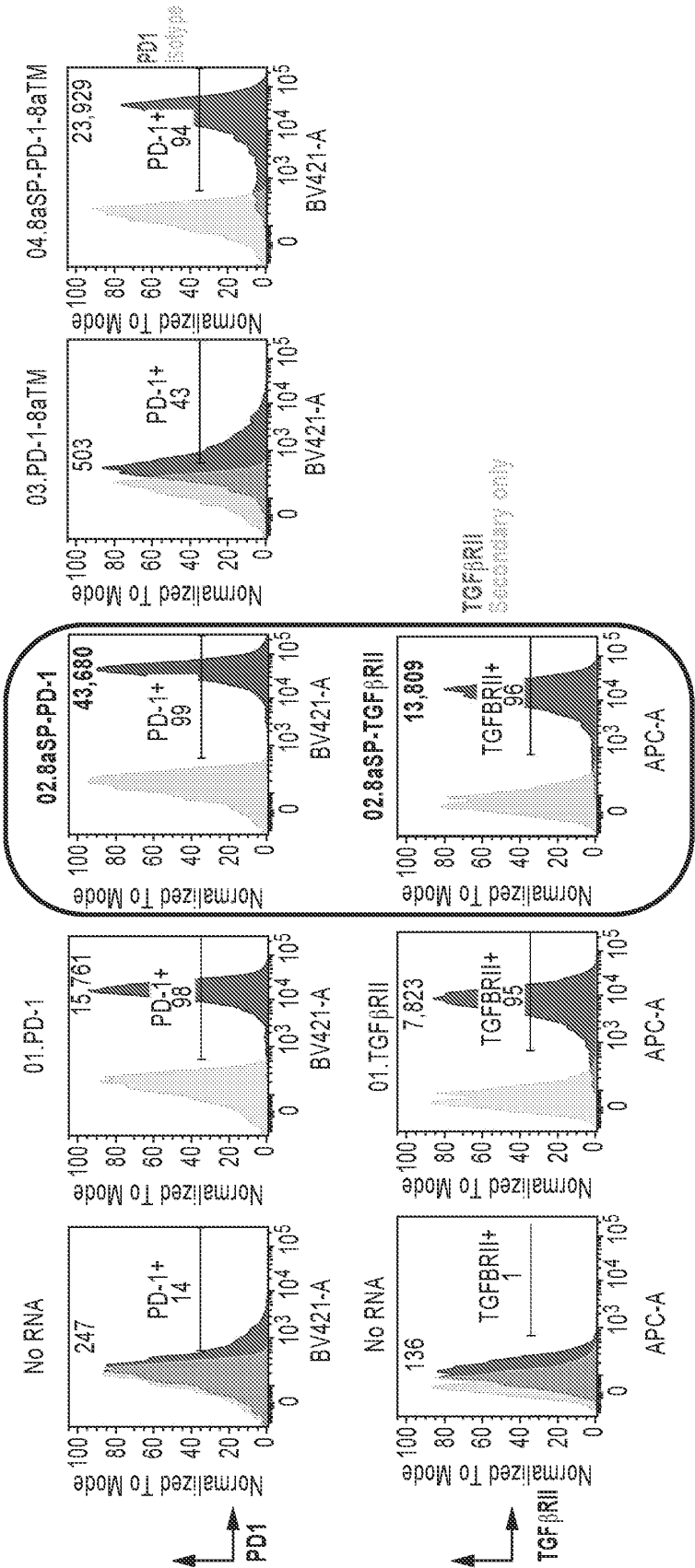
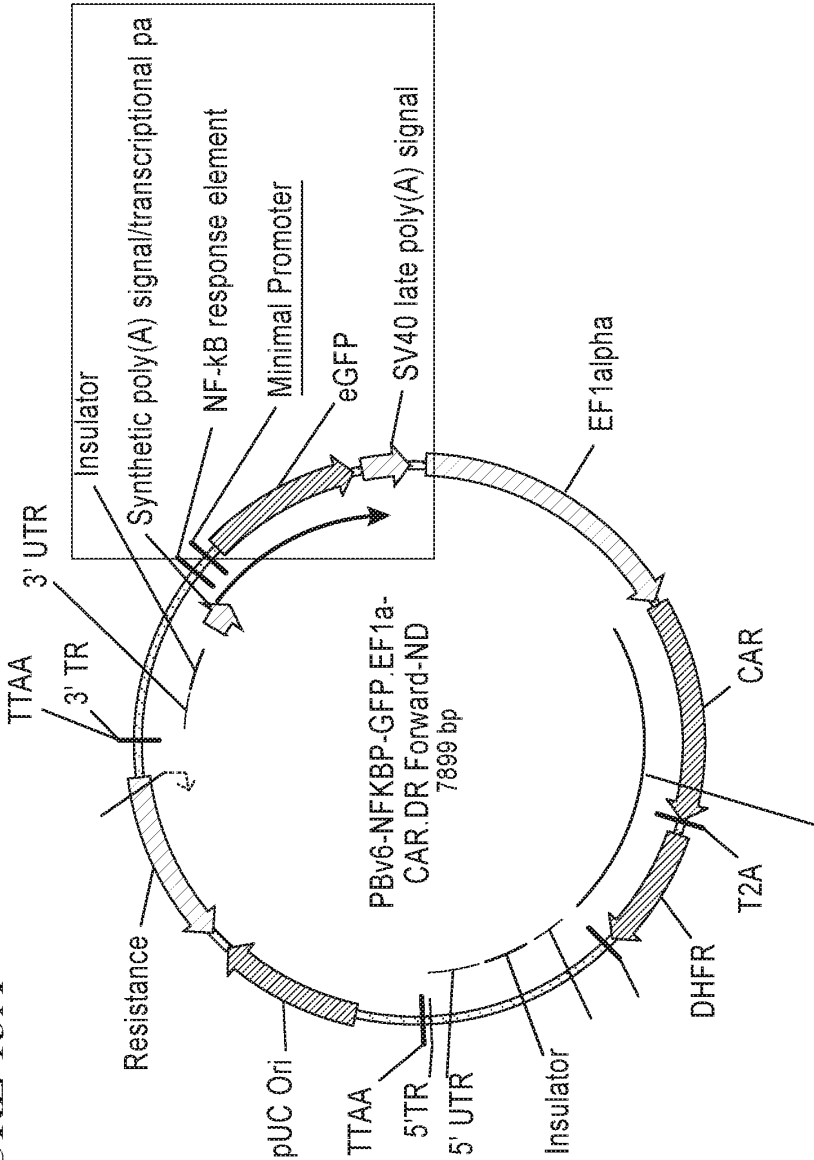


FIGURE 15A



pNFKB-GFP & EF1a-CAR in the same direction

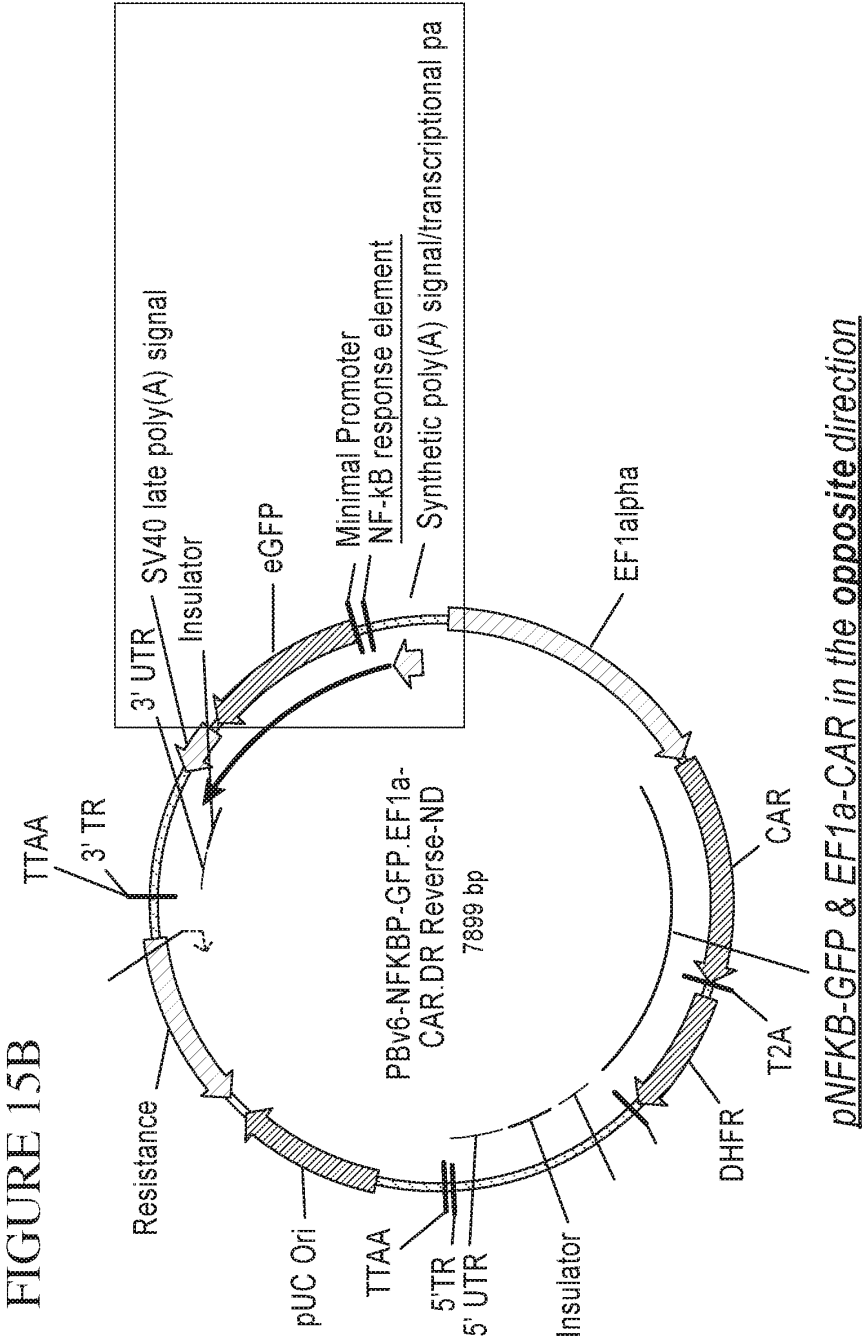
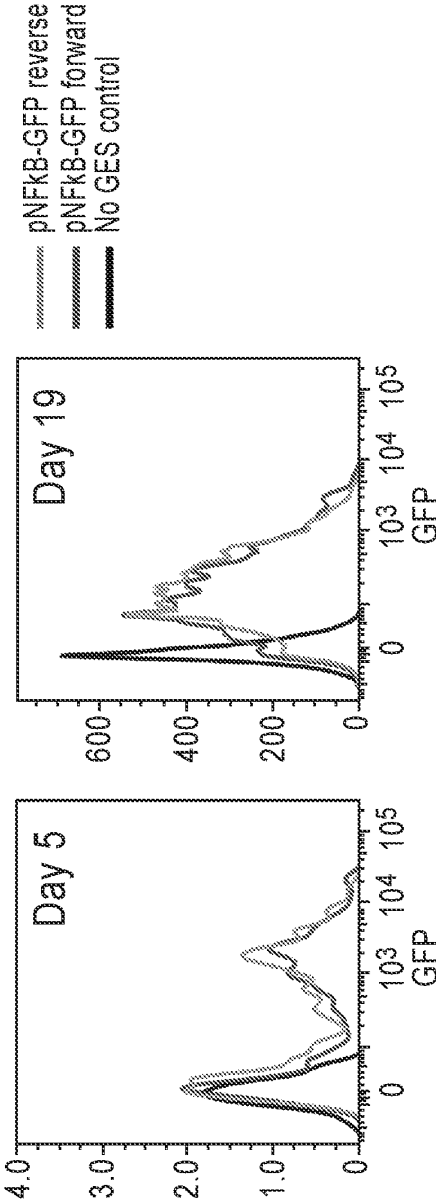
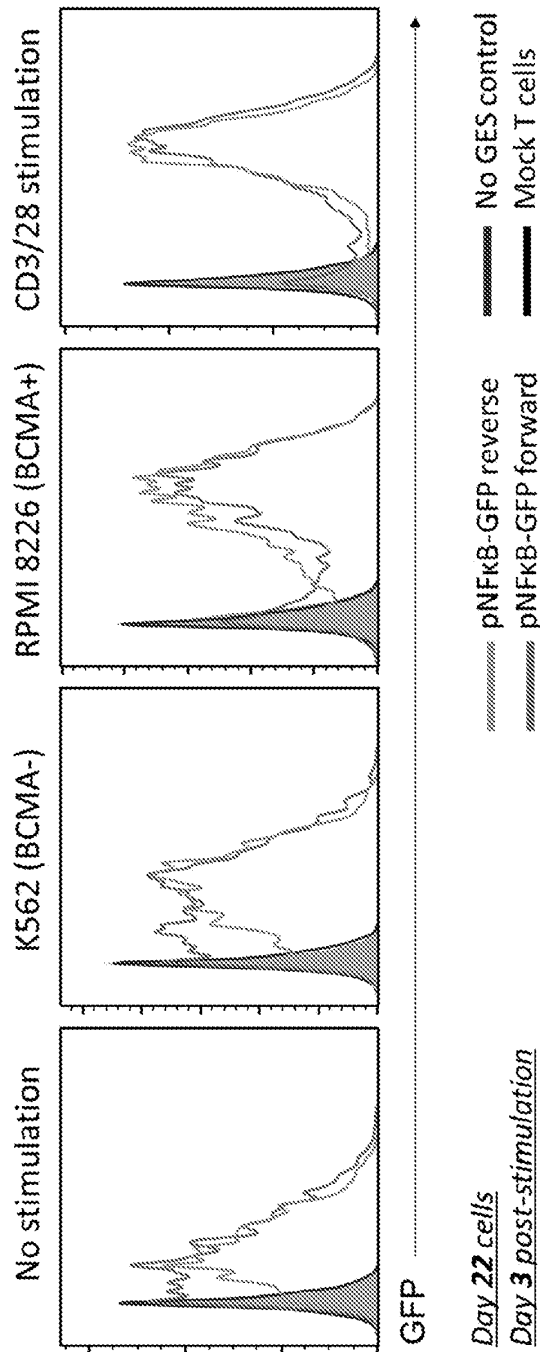


FIGURE 16



- At Day 5-post T cell activation (Day 5), T cells are proliferating and are highly stimulated; GFP expression is strong since NFκB activity is high
- By Day 19, T cells are almost fully resting; GFP expression is significantly lower than Day 5 (~1/8 MFI), since NFκB activity is low
- GFP expression is still observed at Day 19, which may be due to the long half life of GFP protein (~30hr), or, basal level of NFκB activity through TCR, CAR, cytokine, growth factor, etc...

FIGURE 17



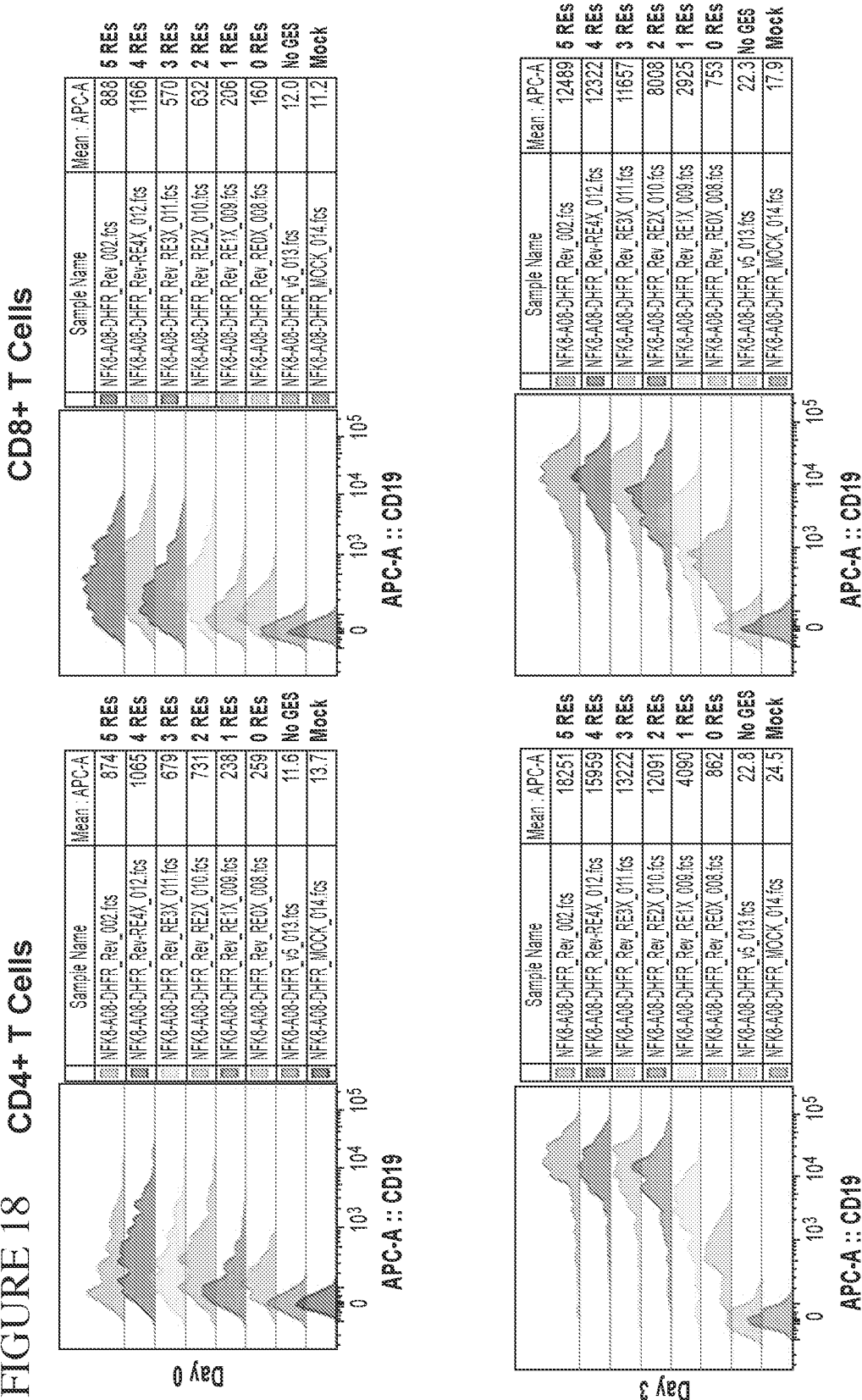


FIGURE 18 (cont.)

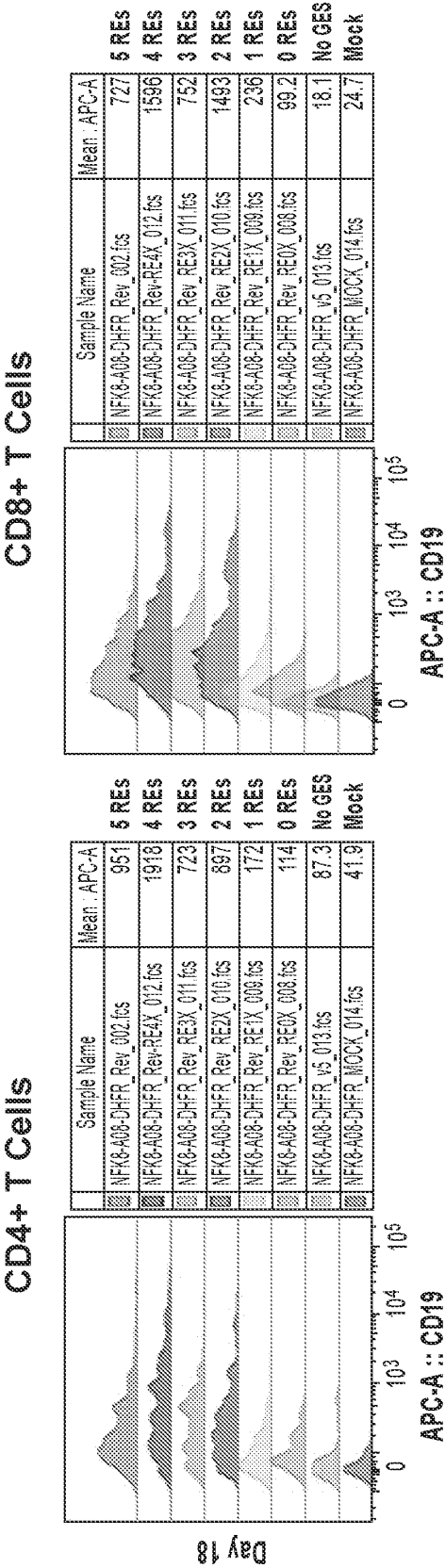


FIGURE 18 (cont.)

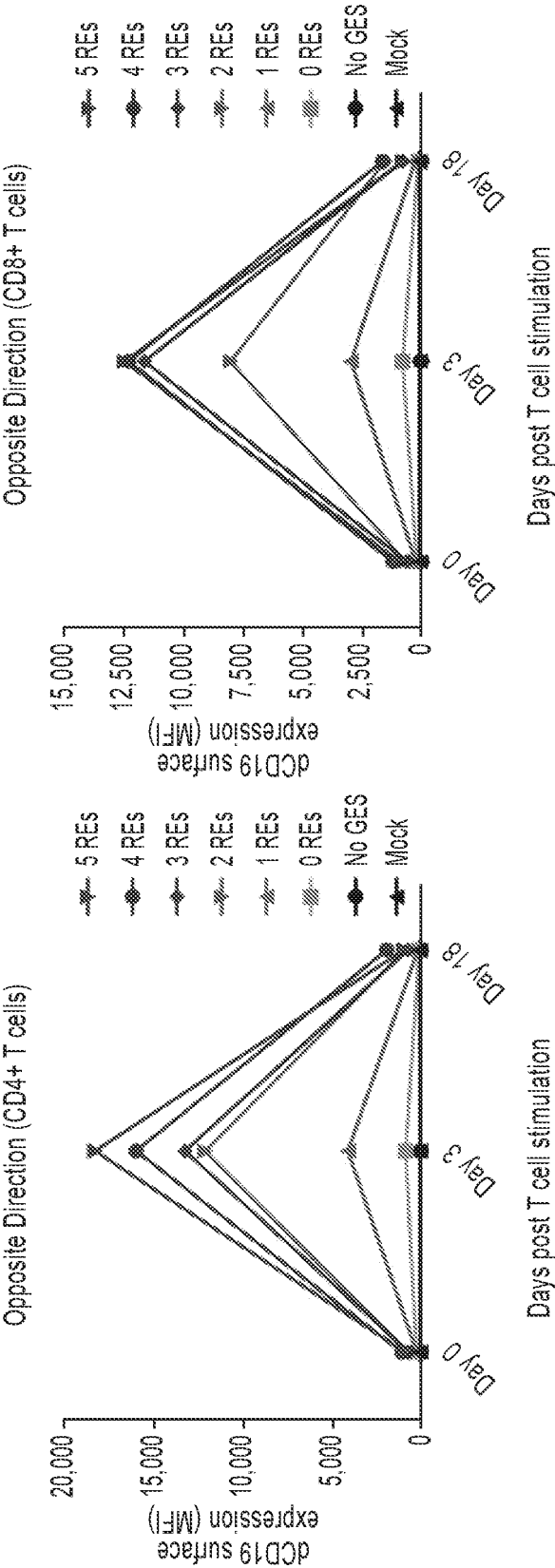


FIGURE 19

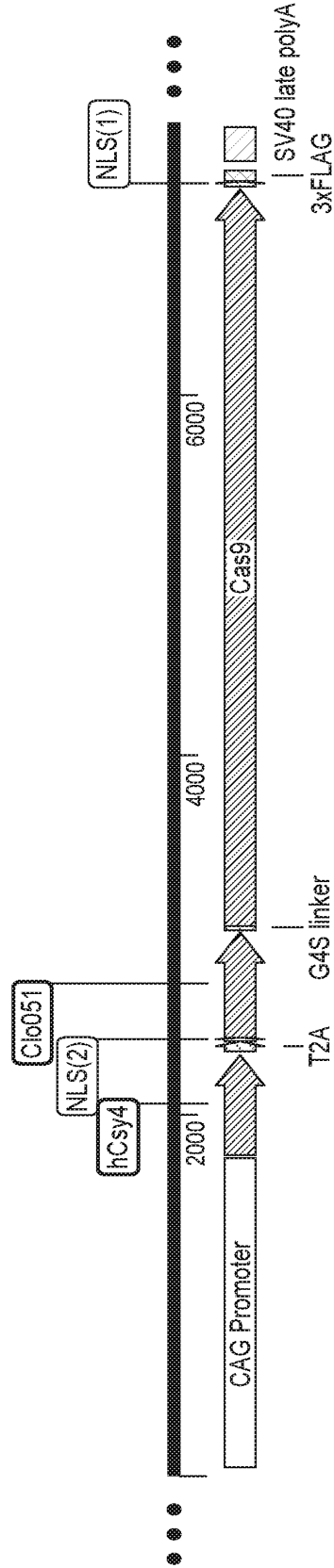
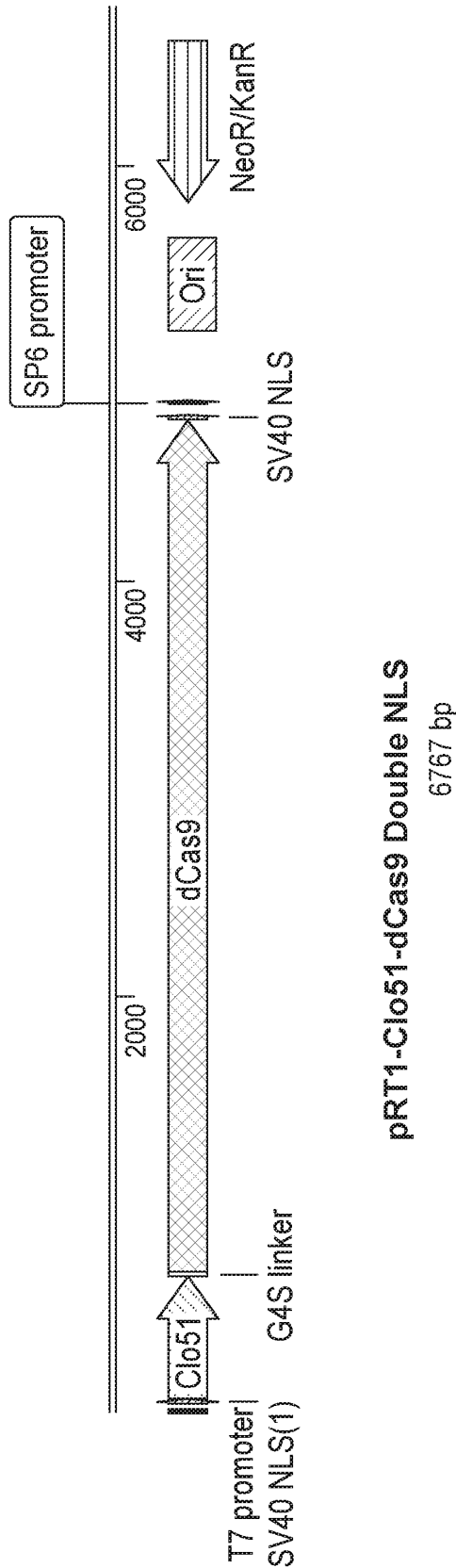


FIGURE 20



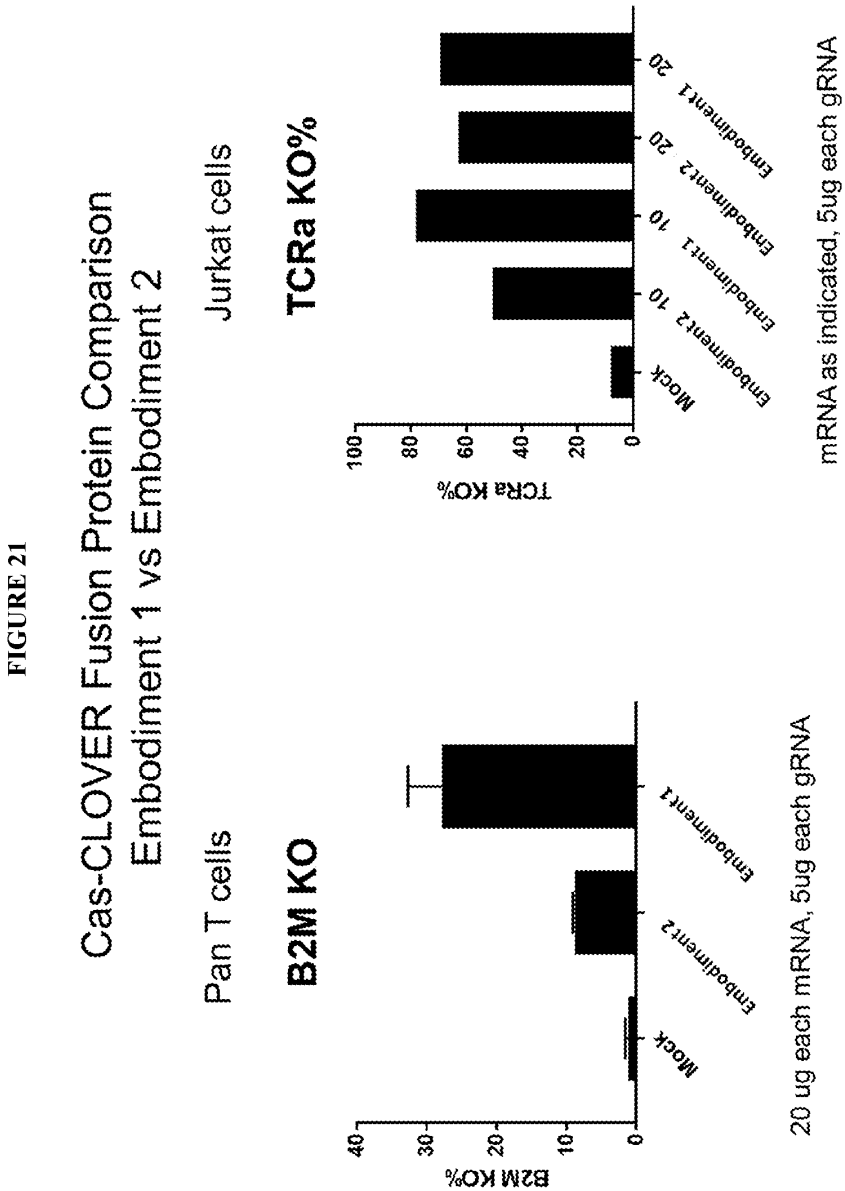


FIGURE 22

Cas-CLOVER Fusion Protein Comparison

Embodiment 1 vs Embodiment 2

mRNA

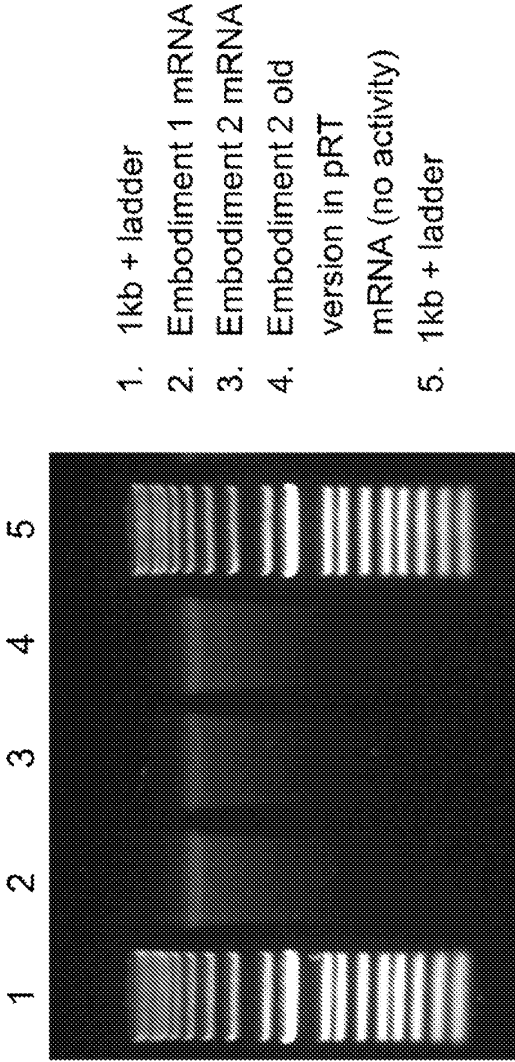


FIGURE 23

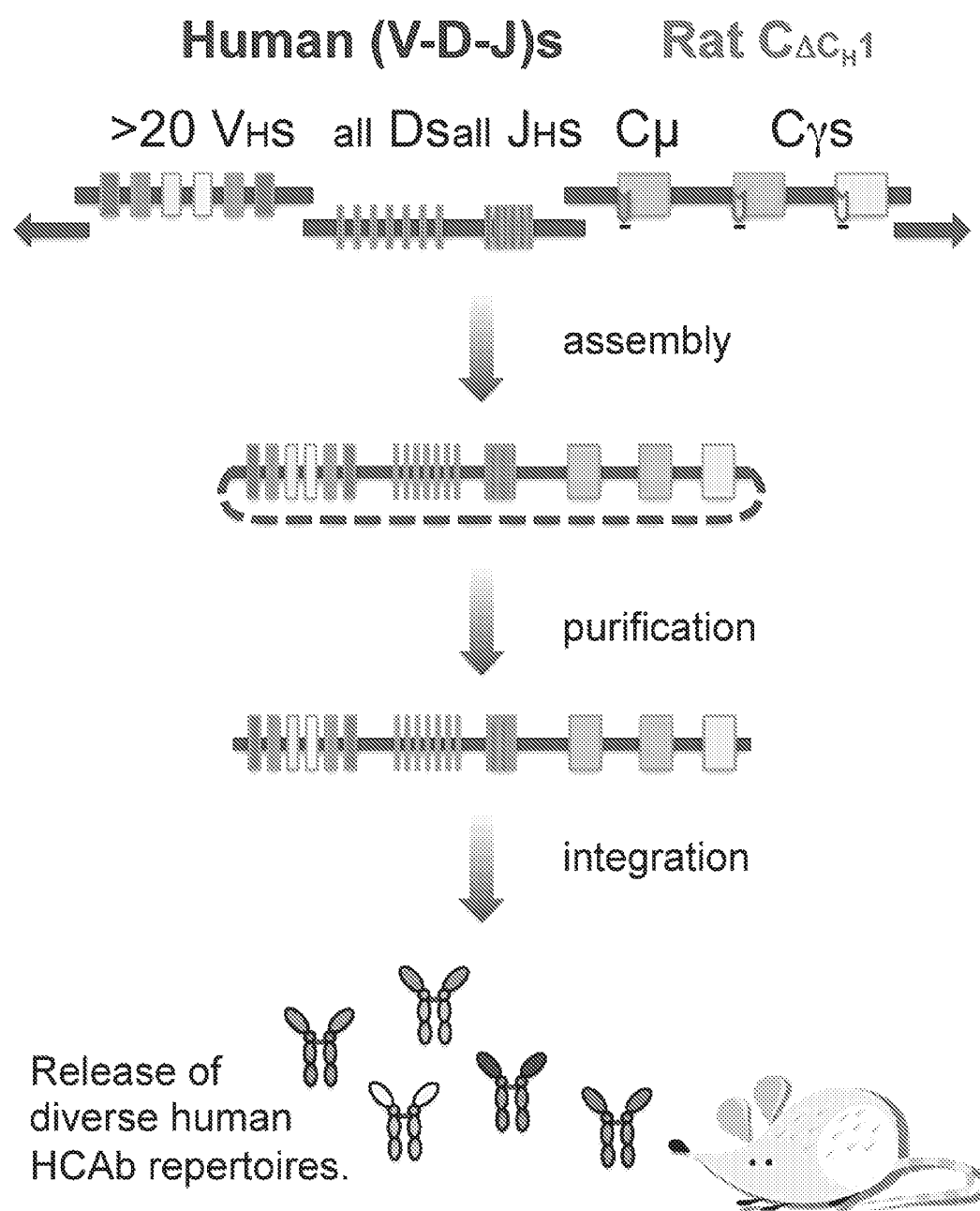
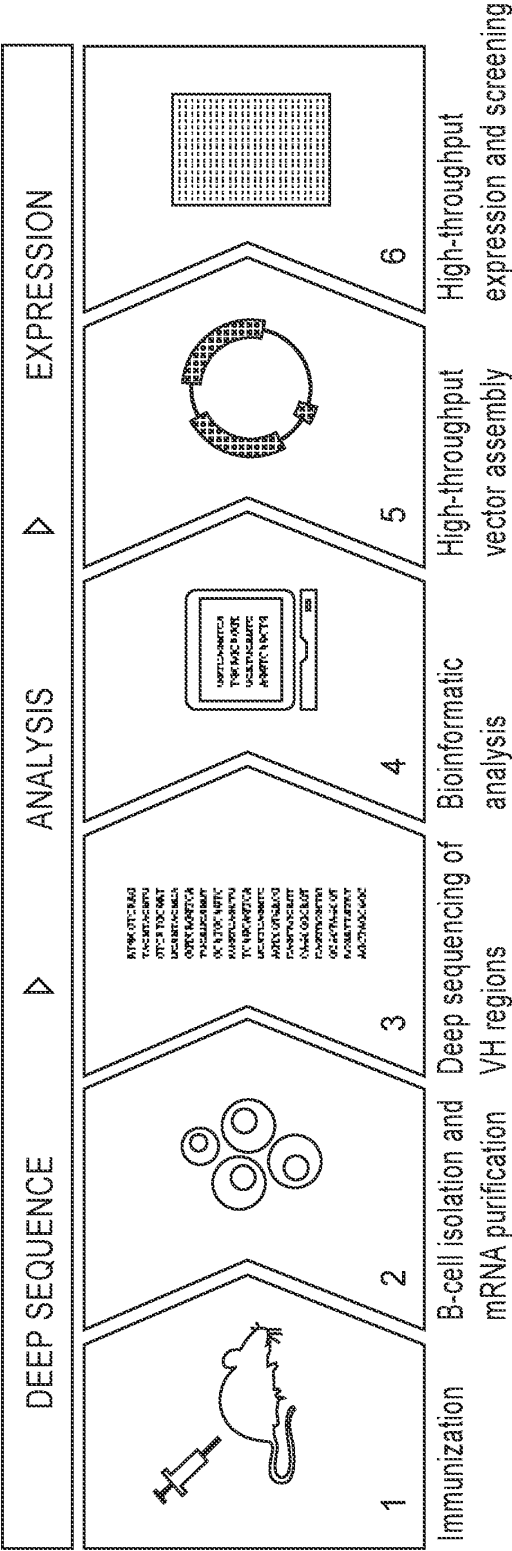


FIGURE 24



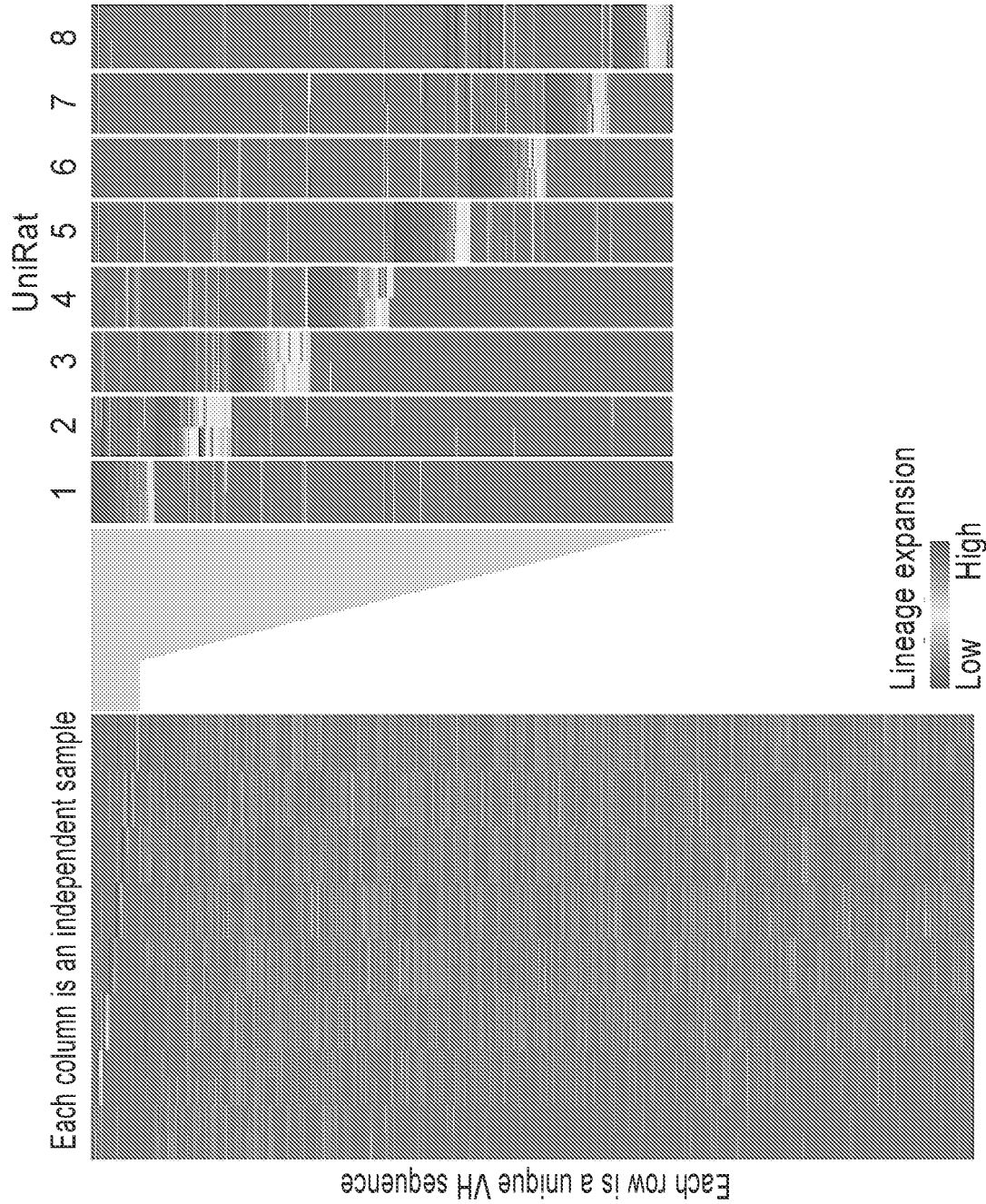


FIGURE 25

FIGURE 26

No tumor by caiper (Day 20-25)

