

Numbering according to Kabat (VH)	Numbering according to Chotia (VH)	Aho numbering	IMGT
11	11	12	12
14	14	15	15
41	41	48	46
42	42	49	47
87	87	101	99
89	89	103	101
108	108	144	---
110	110	146	---
112	112	148	---
Source: http://www.bioc.uzh.ch/plueckthun/antibody/Numbering/NumFrame.html			

FIG.1

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SEQ ID NO	Description	Sequence
1	WO 2008/071447, SEQ ID NO:348 (102C12)	EVQLVESGGGLVQAGGSLRLSCAASGSIASIHAMGWFRQAPGKREFVAVITWSGGITYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAIYYCAGDKHQSSWYDYWGQGTQVTVSS
2	referenceA	EVQLVESGGGLVQAGGSLRLSCAASGSIASIHAMGWFRQAPGKREFVAVITWSGGITYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAIYYCAGDKHQSSWYDYWGQGTQVTVSS
3	CDR1 (Kabat)	IHAMG
4	CDR2 (Kabat)	VITWSGGITYYADSVKG
5	CDR3 (Kabat/Abm)	DKHQSSWYDY
6	CDR1 (Abm)	GSIASIHAMG
7	CDR2 (Abm)	VITWSGGITY
8	CDR3 (Kabat/Abm)	DKHQSSWYDY
9	Reference A (89T)	EVQLVESGGGLVQAGGSLRLSCAASGSIASIHAMGWFRQAPGKREFVAVITWSGGITYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTATYYCAGDKHQSSWYDYWGQGTQVTVSS
10	Reference A (11V + 110K)	EVQLVESGGGLVQAGGSLRLSCAASGSIASIHAMGWFRQAPGKREFVAVITWSGGITYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTATYYCAGDKHQSSWYDYWGQGTQVTVSS
11	Reference A (11V + 110Q)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAPGKEQEFVADIRTSAGRYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAAEMSGISGWDYWGQGTQVTVSS
12	Reference A (11V + 112K)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAPGKEQEFVADIRTSAGRYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAAEMSGISGWDYWGQGTQVTVSS
13	Reference A (11V + 112Q)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAPGKEQEFVADIRTSAGRYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAAEMSGISGWDYWGQGTQVTVSS

FIG.2-1

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SEQ ID NO	Description	Sequence
14	Reference A (89L + 110K)	EVQLVESGGGLVQAGGSLRLSCAASGSIASIHAMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLVKVSS
15	Reference A (89L + 110Q)	EVQLVESGGGLVQAGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLVQVSS
16	Reference A (89L + 112K)	EVQLVESGGGLVQAGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVKS
17	Reference A (11V + 112Q)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVQS
18	Reference A (11V + 89L)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVSS
19	Reference A (11V + 89L + 110K)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLVKVSS
20	Reference A (11V + 89L + 110Q)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLVQVSS
21	Reference A (11V + 89L + 112K)	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVKS
22	Reference A (11V + 89L + 112Q)	EVQLVESGGGVVQPGGSLRLSCAASGGTFSFYGMGWFRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLRPEDTALYYCAAEMSGISGWDYWGQGTLLTVQS
23	PD1 binder/binding moiety	EVQLVESGGGVVQPGGSLRLSCAASGGTFSFYGMGWFRQAP GKEREVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLRPEDTALYYCAAEMSGISGWDYWGQGTLLTVSS

FIG.2-2

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SEQ ID NO	Description	Sequence
24	PD1 binder/binding moiety	DVQLVESGGGVVQPGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLRPEDTALYYCAAEMSGISGWDYWGQGTLLTVSS
25	Reference A (89T)+ A	DVQLVESGGGVVQPGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEREVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLRPEDTALYYCAAEMSGISGWDYWGQGTLLTVSSA
26	Reference A (11V + 110K)+ A	EVQLVESGGGLVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTATYYCAAEMSGISGWDYWGQGTLLVKVSSA
27	Reference A (11V + 110Q)+ A	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTAVYYCAAEMSGISGWDYWGQGTLLVQVSSA
28	Reference A (11V + 112K)+ A	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTAVYYCAAEMSGISGWDYWGQGTLLTVKSA
29	Reference A (11V + 112Q)+ A	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTAVYYCAAEMSGISGWDYWGQGTLLTVQSA
30	Reference A (89L + 110K)+ A	EVQLVESGGGVVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTAVYYCAAEMSGISGWDYWGQGTLLVKVSSA
31	Reference A (89L + 110Q)+ A	EVQLVESGGGLVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLVQVSSA
32	Reference A (89L + 112K)+ A	EVQLVESGGGLVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVKSA
33	Reference A (89L + 112Q)+A	EVQLVESGGGLVQAGGSLRLSCAASGGTFSFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVQSA

FIG.2-3

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SEQ ID NO	Description	Sequence
34	Reference A (11V + 89L)+A	EVQLVESGGGLVQAGGSLRLSCAASGGTF SFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVSSA
35	Reference A (11V + 89L + 110K)+ A	EVQLVESGGGVVQAGGSLRLSCAASGGTF SFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLVKVSSA
36	Reference A (11V + 89L + 110Q)+ A	EVQLVESGGGVVQAGGSLRLSCAASGGTF SFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLVQVSSA
37	Reference A (11V + 89L + 112K)+ A	EVQLVESGGGVVQAGGSLRLSCAASGGTF SFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVKSA
38	Reference A (11V + 89L + 112Q)+A	EVQLVESGGGVVQAGGSLRLSCAASGGTF SFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVQSA
39	PD1 binder/binding moiety	EVQLVESGGGVVQAGGSLRLSCAASGGTF SFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLKPEDTALYYCAAEMSGISGWDYWGQGTLLTVSSA
40	PD1 binder/binding moiety	EVQLVESGGGVVQPGGSLRLSCAASGGTF SFYGMGWFRRQAP GKEQEFVADIRTSAGRTYYADSVKGRFTISRDNKNTVYLQ MNSLRPEDTALYYCAAEMSGISGWDYWGQGTLLTVSSA

FIG.2-4

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SEQ ID NO	Description	Sequence
41	HIS6-FLAG3 tag	HHHHHHGAADYKDHDGDYKDHDIDYKDDDDKGAA
42	C-terminal end	VTVKS
43	C-terminal end	VTVQS
44	C-terminal end	VKVSS
45	C-terminal end	VQVSS
46	C-terminal end	VTVKSX(n)
47	C-terminal end	VTVQSX(n)
48	C-terminal end	VKVSSX(n)
49	C-terminal end	VQVSSX(n)
50	C-terminal end	VTVKSA
51	C-terminal end	VTVQSA
52	C-terminal end	VKVSSA
53	C-terminal end	VQVSSA
54	C-terminal end	VTVSS
55	C-terminal end	VTVSSX(n)
56	C-terminal end	VTVSSA

FIG.2-5

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		20		40		60	
SEQIDNO:1	EVQLVESGGG	LVQAGGSLRL	SCAASGSIAS	IHAMGWFRQA	PGKEREFVAV	ITWSGGITYY	60
SEQIDNO:2							60
SEQIDNO:9							60
SEQIDNO:10		V.....					60
SEQIDNO:11		V.....					60
SEQIDNO:12		V.....					60
SEQIDNO:13		V.....					60
SEQIDNO:14							60
SEQIDNO:15							60
SEQIDNO:16							60
SEQIDNO:17							60
SEQIDNO:18		V.....					60
SEQIDNO:19		V.....					60
SEQIDNO:20		V.....					60
SEQIDNO:21		V.....					60
SEQIDNO:22		V.....					60
SEQIDNO:23		V..P.....					60
SEQIDNO:24							60
SEQIDNO:25		V.....					60
SEQIDNO:26		V.....					60
SEQIDNO:27		V.....					60
SEQIDNO:28		V.....					60
SEQIDNO:29							60
SEQIDNO:30							60
SEQIDNO:31							60
SEQIDNO:32							60
SEQIDNO:33		V.....					60
SEQIDNO:34		V.....					60
SEQIDNO:35		V.....					60
SEQIDNO:36		V.....					60
SEQIDNO:37		V.....					60
SEQIDNO:38		V..P.....					60

FIG.3A

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		80		100		120	
SEQIDNO:1	ADSVKGRFTI	SRDNAKNTVY	LQMNSLKPED	TAIYYCAGDK	HQSSWYDYWG	QGTQVTVSS-	119
SEQIDNO:2						...L....-	119
SEQIDNO:9				..T.....		...L....-	119
SEQIDNO:10						...L.K...-	119
SEQIDNO:11						...L.Q...-	119
SEQIDNO:12						...L...K.-	119
SEQIDNO:13						...L...Q.-	119
SEQIDNO:14				..V.....		...L.K...-	119
SEQIDNO:15				..V.....		...L.Q...-	119
SEQIDNO:16				..V.....		...L...K.-	119
SEQIDNO:17				..V.....		...L...Q.-	119
SEQIDNO:18				..V.....		...L....-	119
SEQIDNO:19				..V.....		...L.K...-	119
SEQIDNO:20				..V.....		...L.Q...-	119
SEQIDNO:21				..V.....		...L...K.-	119
SEQIDNO:22				..V.....		...L...Q.-	119
SEQIDNO:23		...S....	...R...	..L.....		...L....-	119
SEQIDNO:24				..T.....		...L....A	120
SEQIDNO:25						...L.K...A	120
SEQIDNO:26						...L.Q...A	120
SEQIDNO:27						...L...KA	120
SEQIDNO:28						...L...QA	120
SEQIDNO:29				..V.....		...L.K...A	120
SEQIDNO:30				..V.....		...L.Q...A	120
SEQIDNO:31				..V.....		...L...KA	120
SEQIDNO:32				..V.....		...L...QA	120
SEQIDNO:33				..V.....		...L....A	120
SEQIDNO:34				..V.....		...L.K...A	120
SEQIDNO:35				..V.....		...L.Q...A	120
SEQIDNO:36				..V.....		...L...KA	120
SEQIDNO:37				..V.....		...L...QA	120
SEQIDNO:38		...S....	...R...	..L.....		...L....A	120

FIG.3B

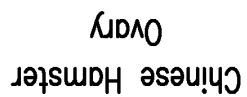


FIG. 4

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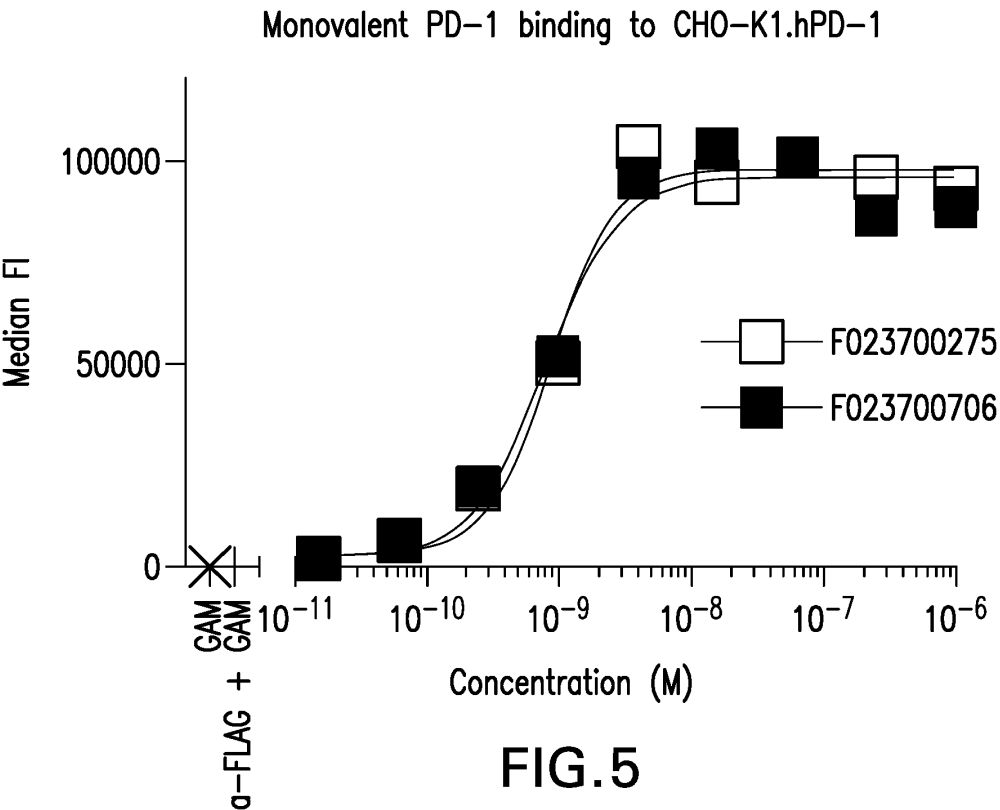


FIG. 5

F023700275: 1PD102C12(A14P,A74S,K83R)–FLAG3–HIS6
F023700706: 1PD102C12(L11V,A14P,A74S,K83R,I89L)–FLAG3–HIS6

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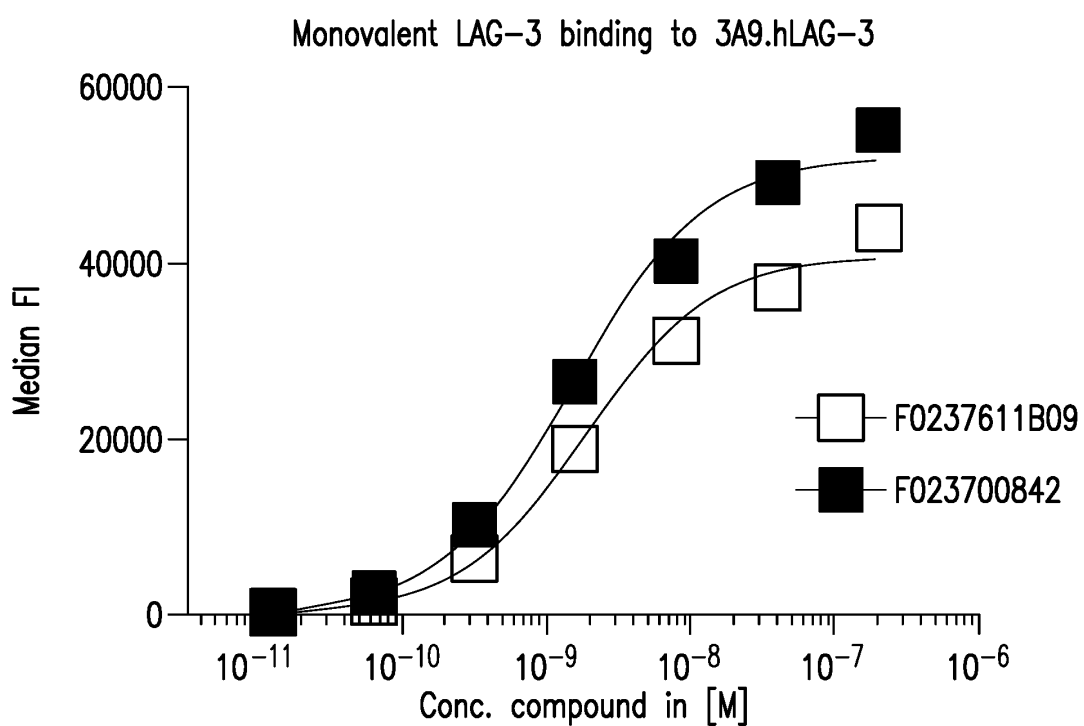


FIG.6

F0237611B09-*FLAG3-HIS6*F023700842: F0237611B09(L11V,A14P,R41P,N43K,A62S,A74S,K83R,V89L)-*FLAG3-HIS6*

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- F023700931
 ■ F023700924
 ♂ Monospecific PD-1 F023700933
 ♀ Monospecific LAG3 F023700962

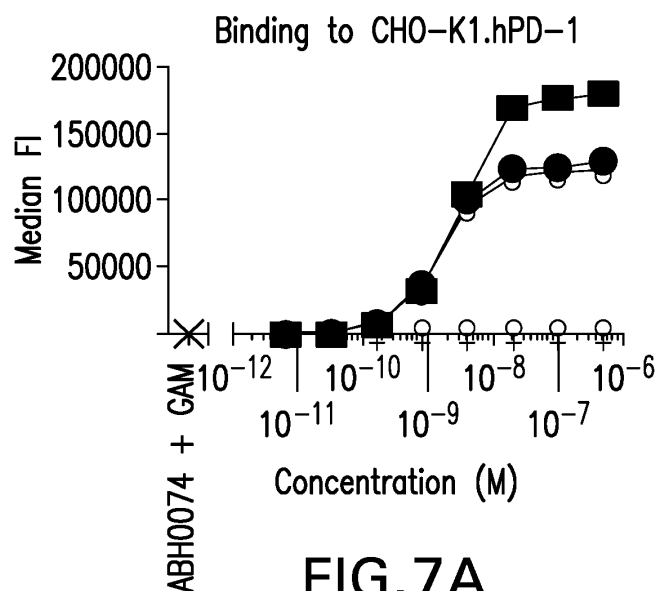


FIG.7A

- F023700924 (Pichia)
 ■ F023700924 (CHO)
 ○ F023700931 (Pichia)
 ● F023700931 (CHO)
 ♂ Monospecific PD-1 F023700933
 ♀ Monospecific LAG-3 F023700962
 ◆ Monospecific/monovalent F023700678
 ◆ Monospecific/monovalent F023701127

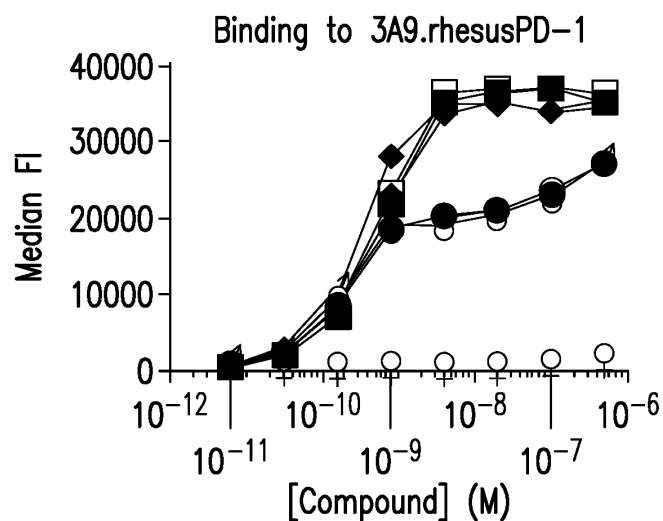


FIG.7B

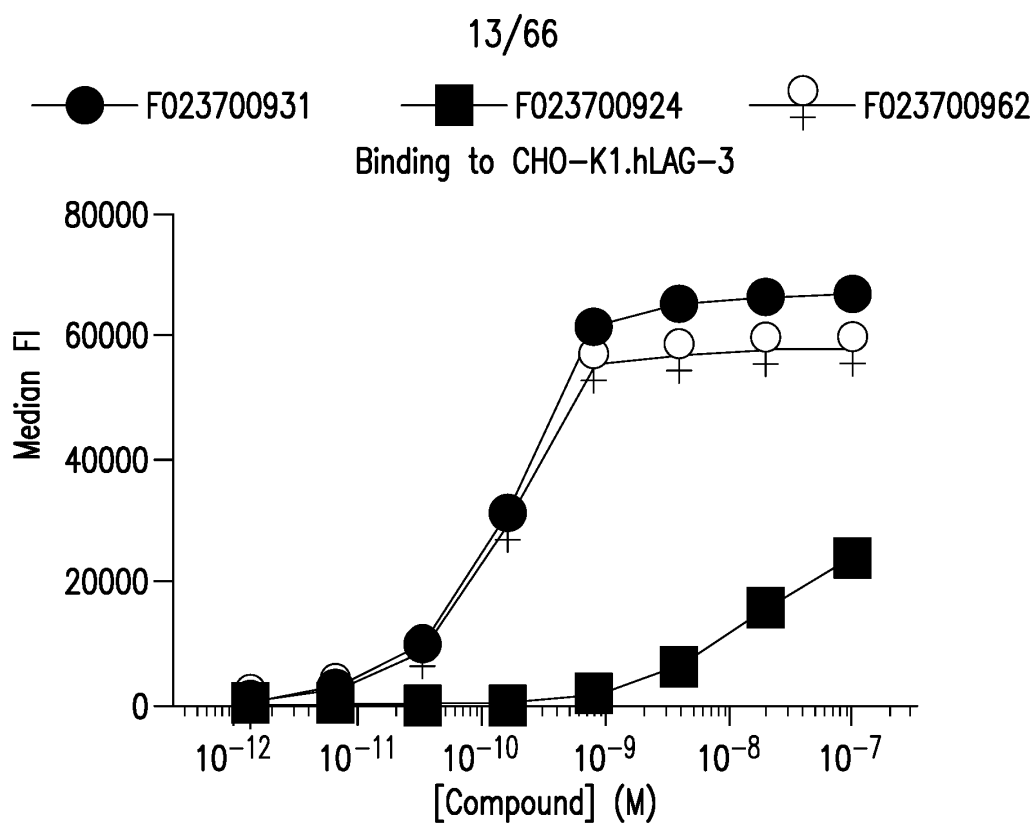


FIG. 8A

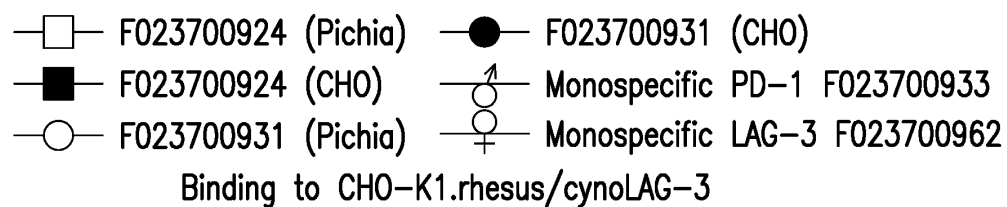
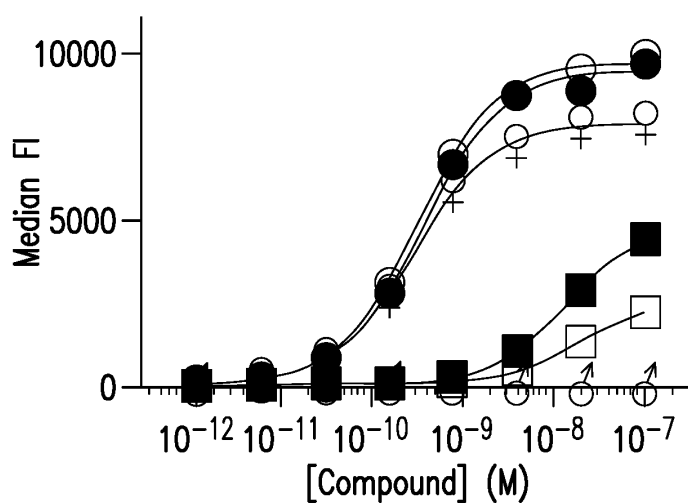


FIG. 8B

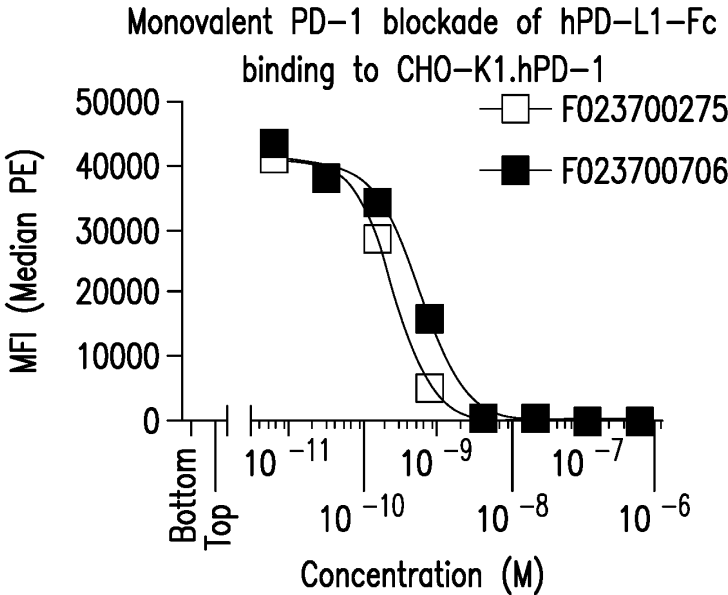


FIG.9A

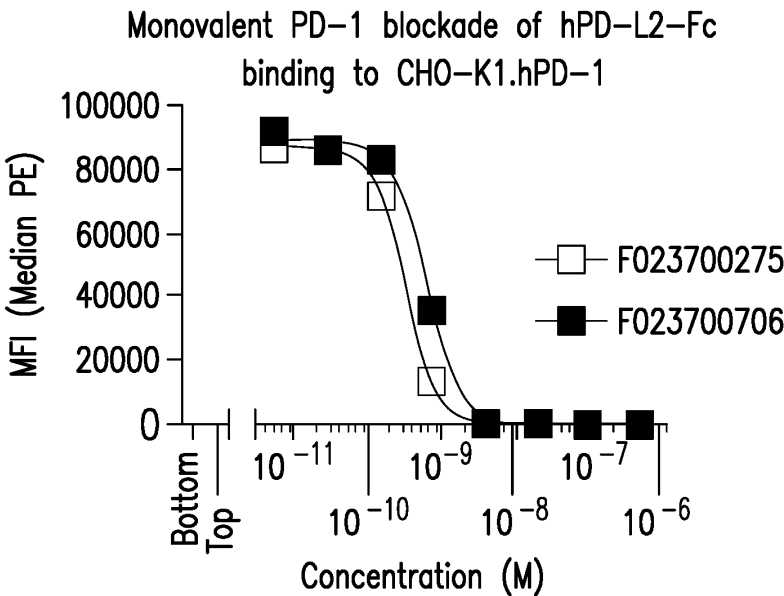


FIG.9B

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- | | |
|-----------------------|---------------------------------|
| □ F023700924 (Pichia) | ♂ Monospecific PD-1 F023700933 |
| ■ F023700924 (CHO) | ♀ Monospecific LAG-3 F023700962 |
| ○ F023700931 (Pichia) | × US |
| ● F023700931 (CHO) | * hPD-L1 @EC30 |

Blockade of hPD-L1-Fc binding to
CHO-K1.hPD-1

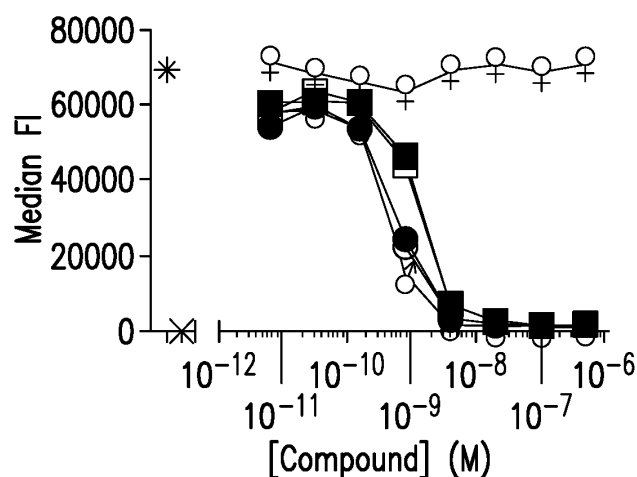


FIG. 9C

- | | |
|-----------------------|---------------------------------|
| □ F023700924 (Pichia) | ♂ Monospecific PD-1 F023700933 |
| ■ F023700924 (CHO) | ♀ Monospecific LAG-3 F023700962 |
| ○ F023700931 (Pichia) | × US |
| ● F023700931 (CHO) | * hPD-L1 @EC30 |

Blockade of hPD-L2-Fc binding to
CHO-K1.hPD-1

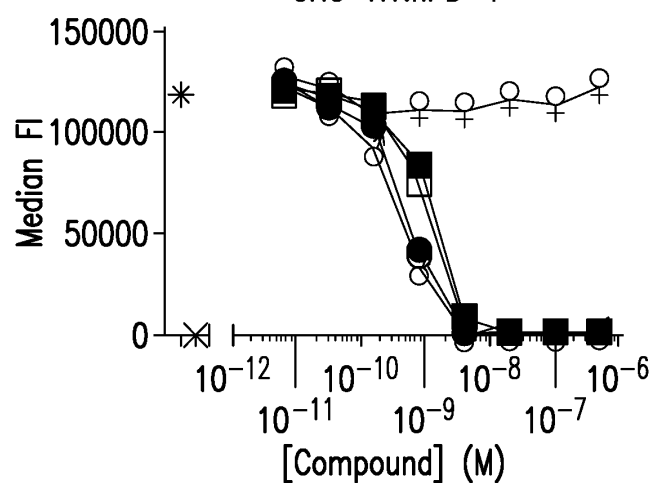
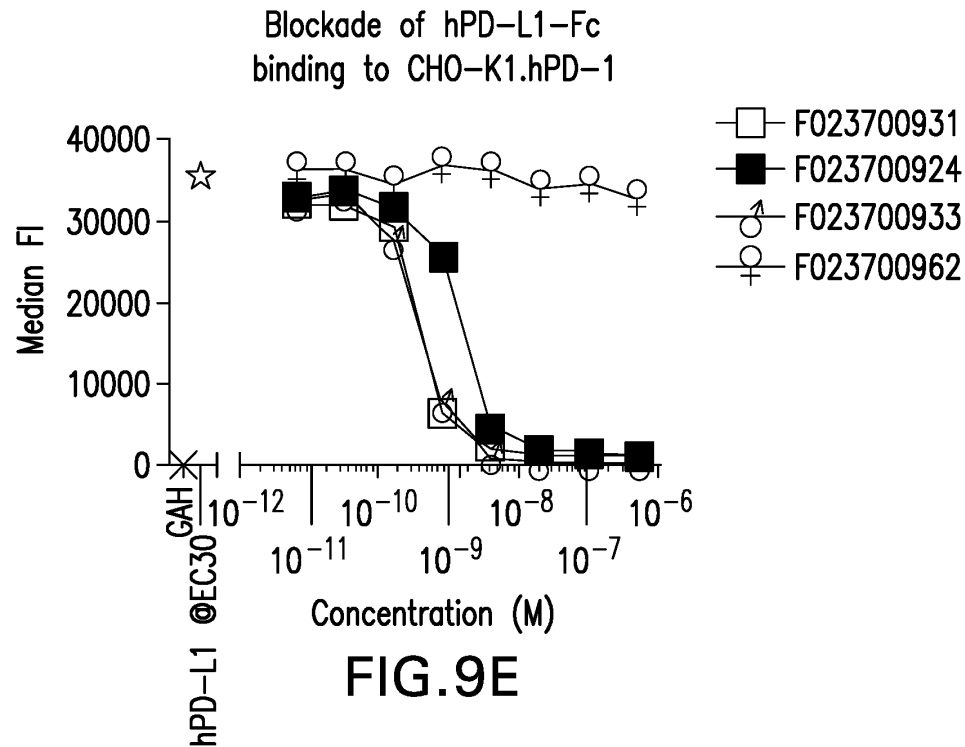
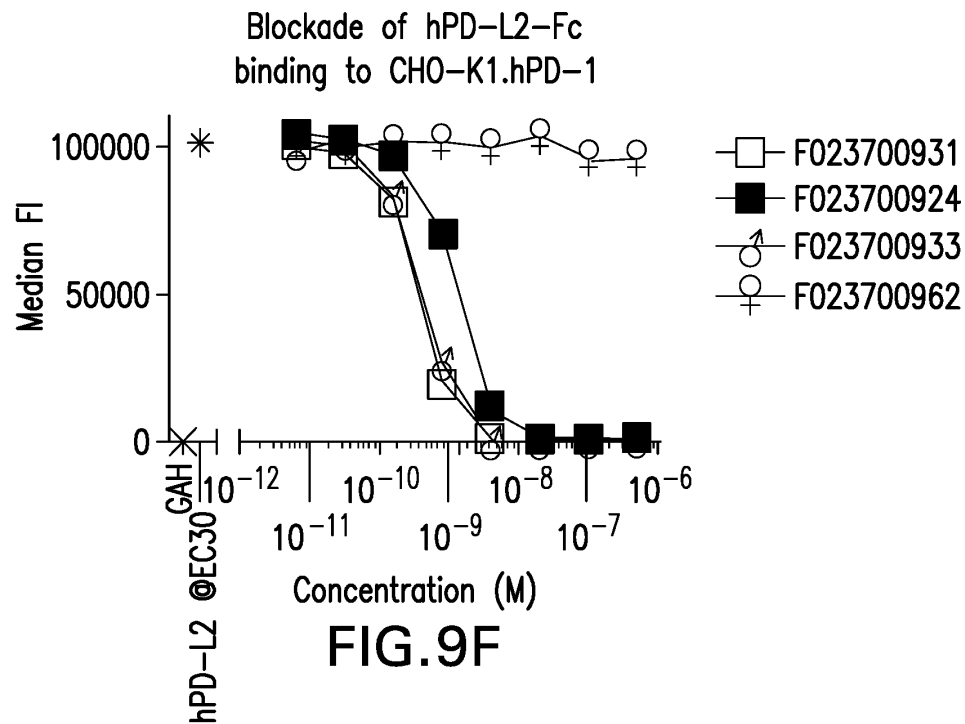


FIG. 9D

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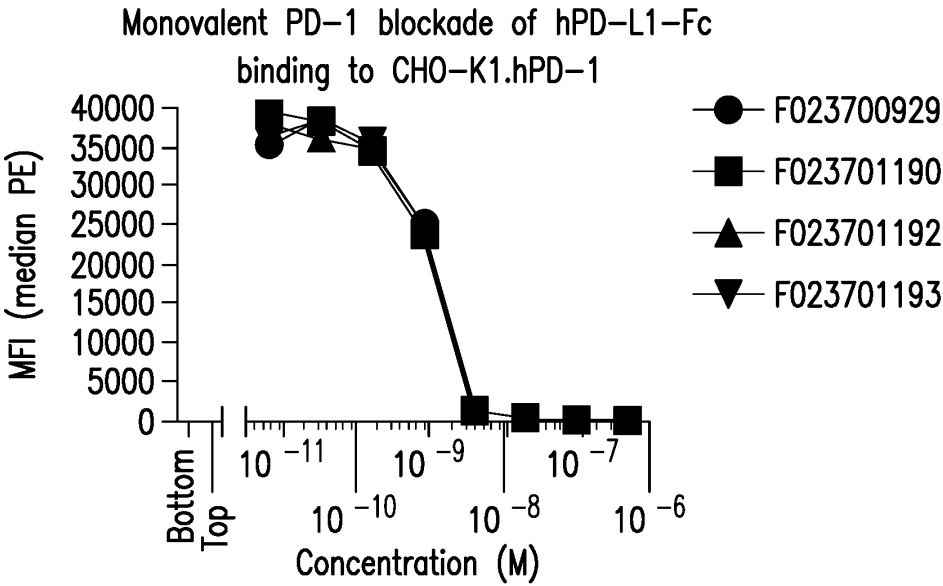


FIG.9G

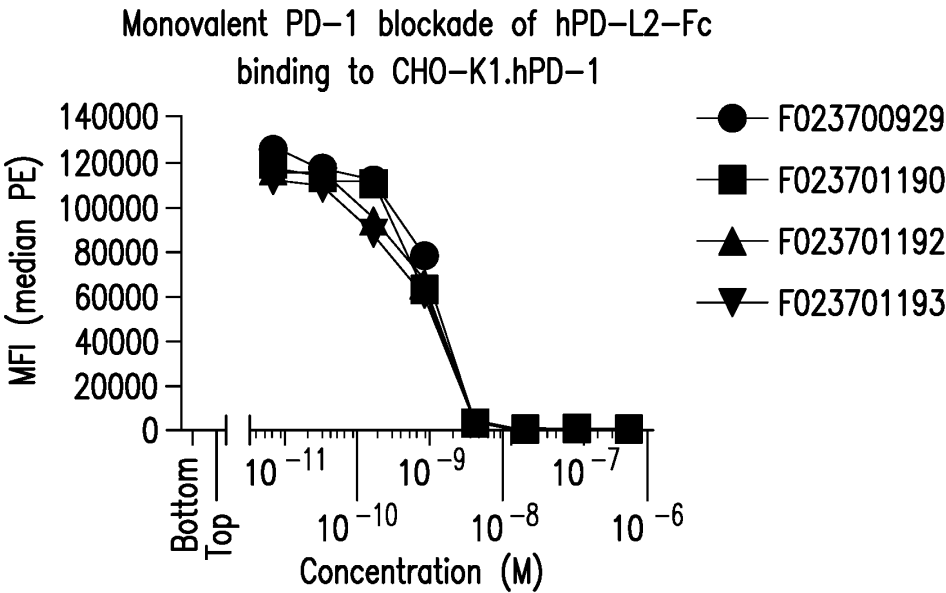


FIG.9H

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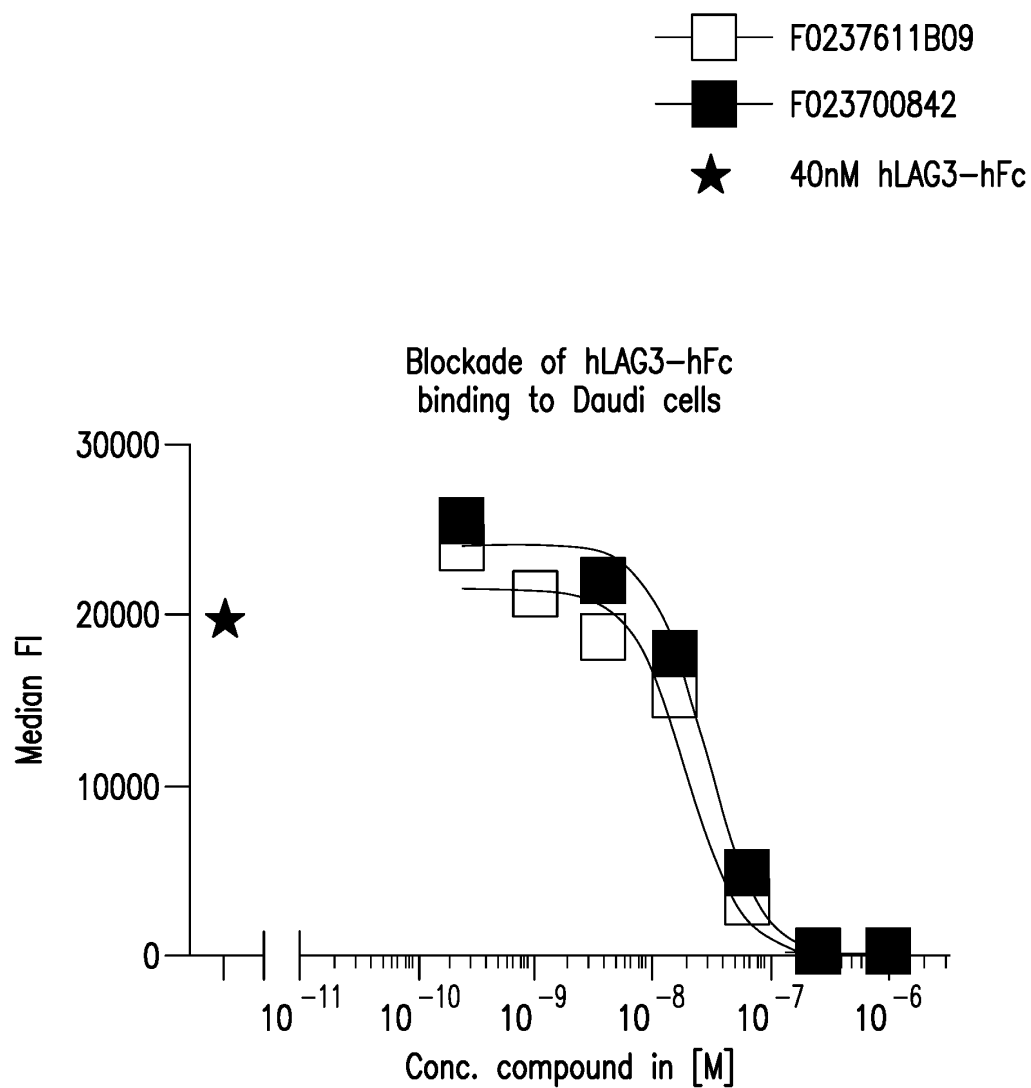


FIG. 10A

F0237611B09-*FLAG3-HIS6*F023700842: F0237611B09(L11V,A14P,R41P,N43K,A62S,A74S,K83R,V89L)-*FLAG3-HIS6*

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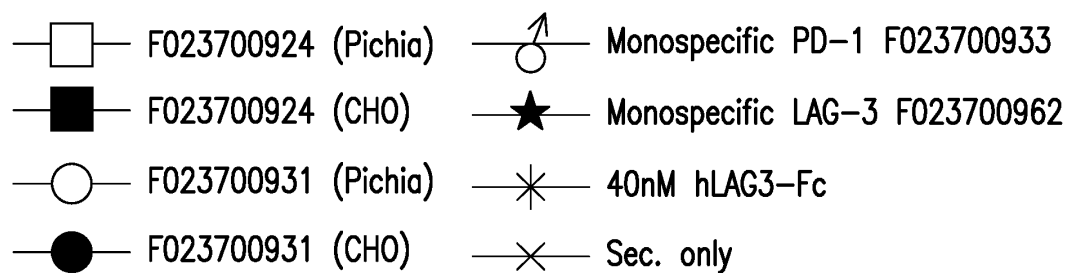
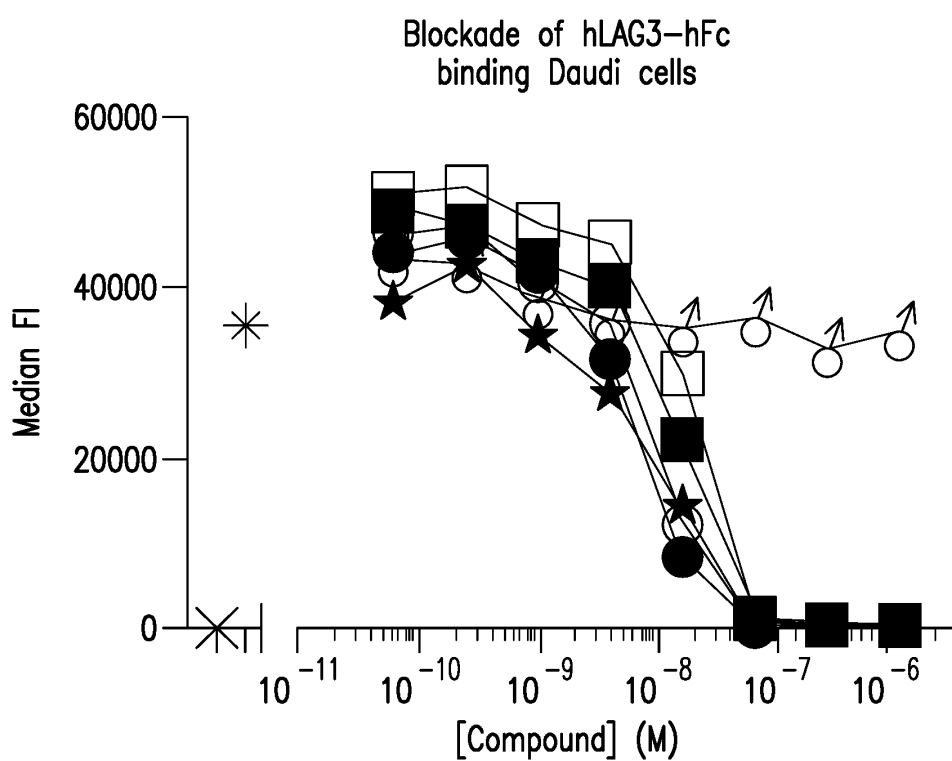


FIG. 10B

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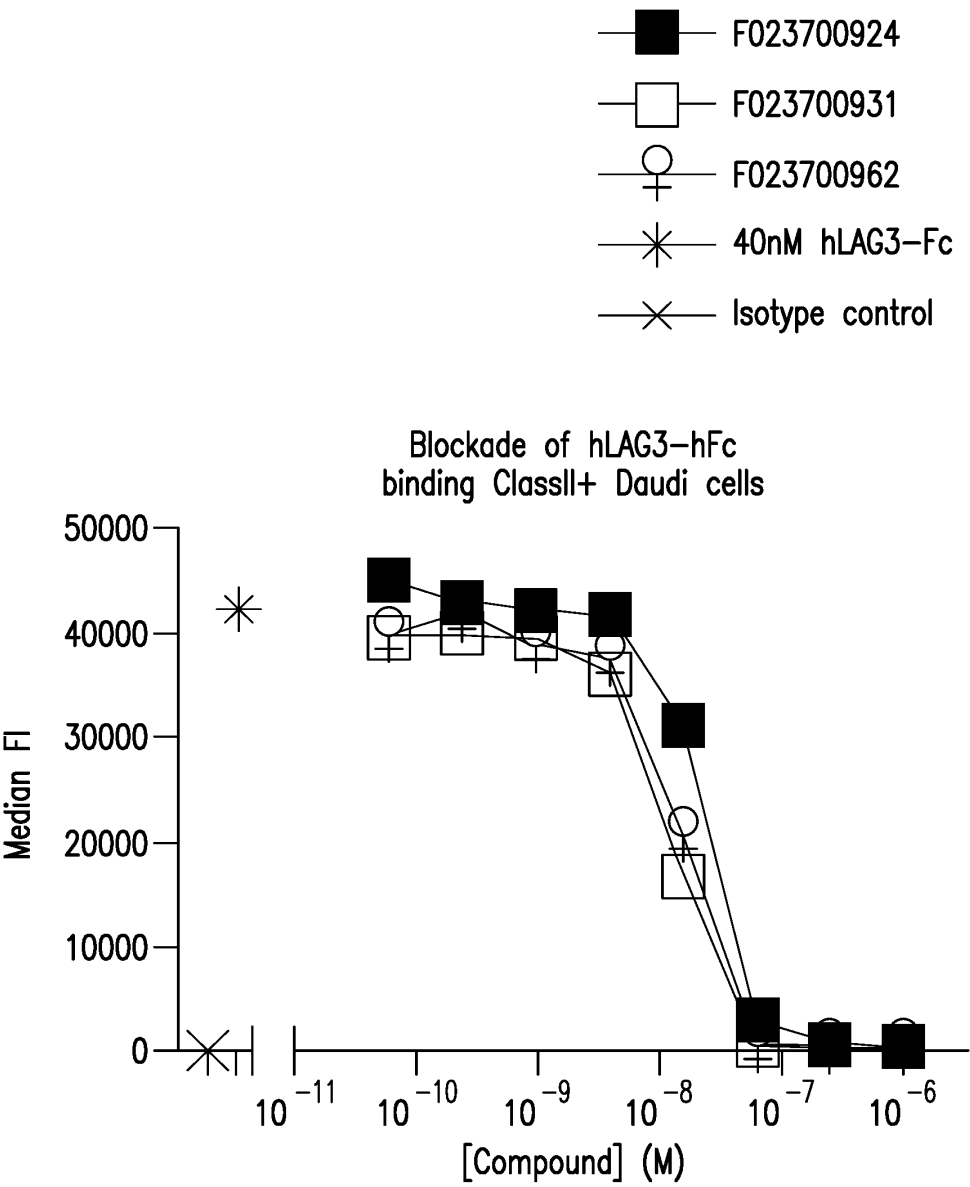


FIG.10C

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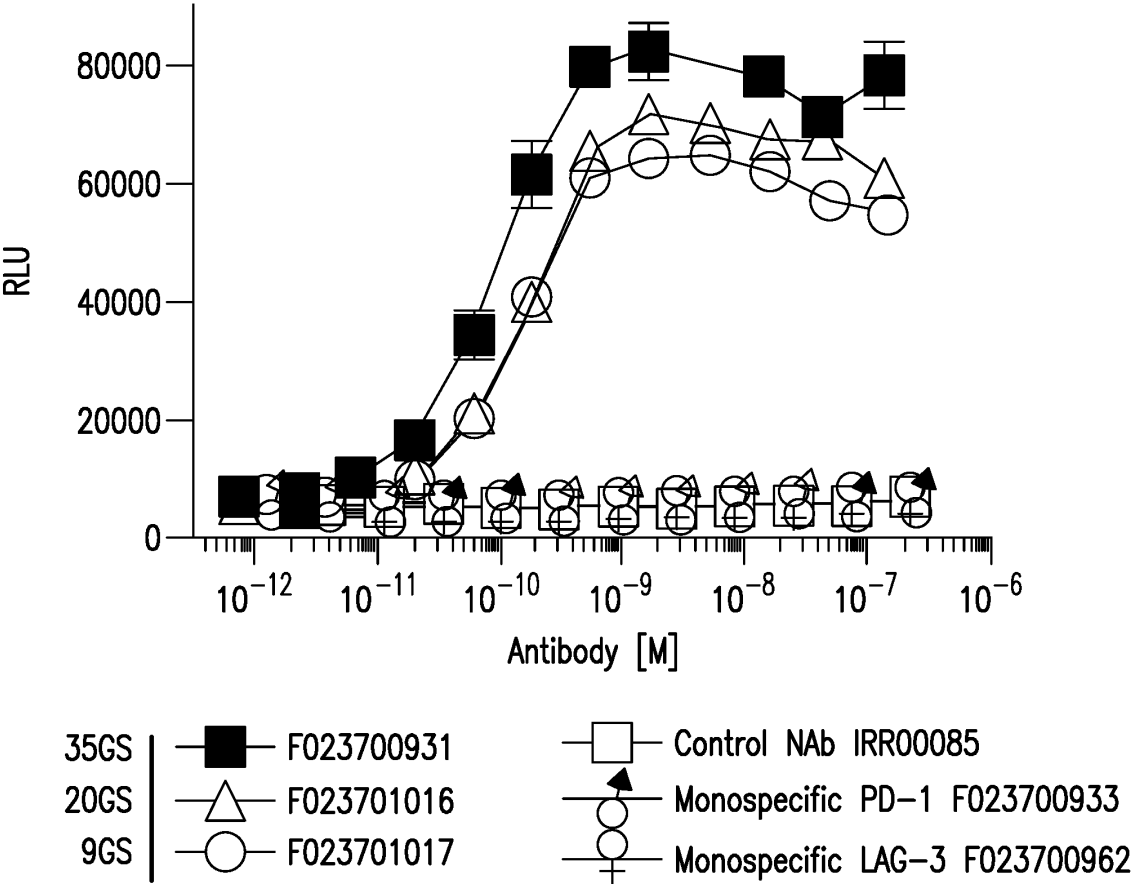


FIG.11A

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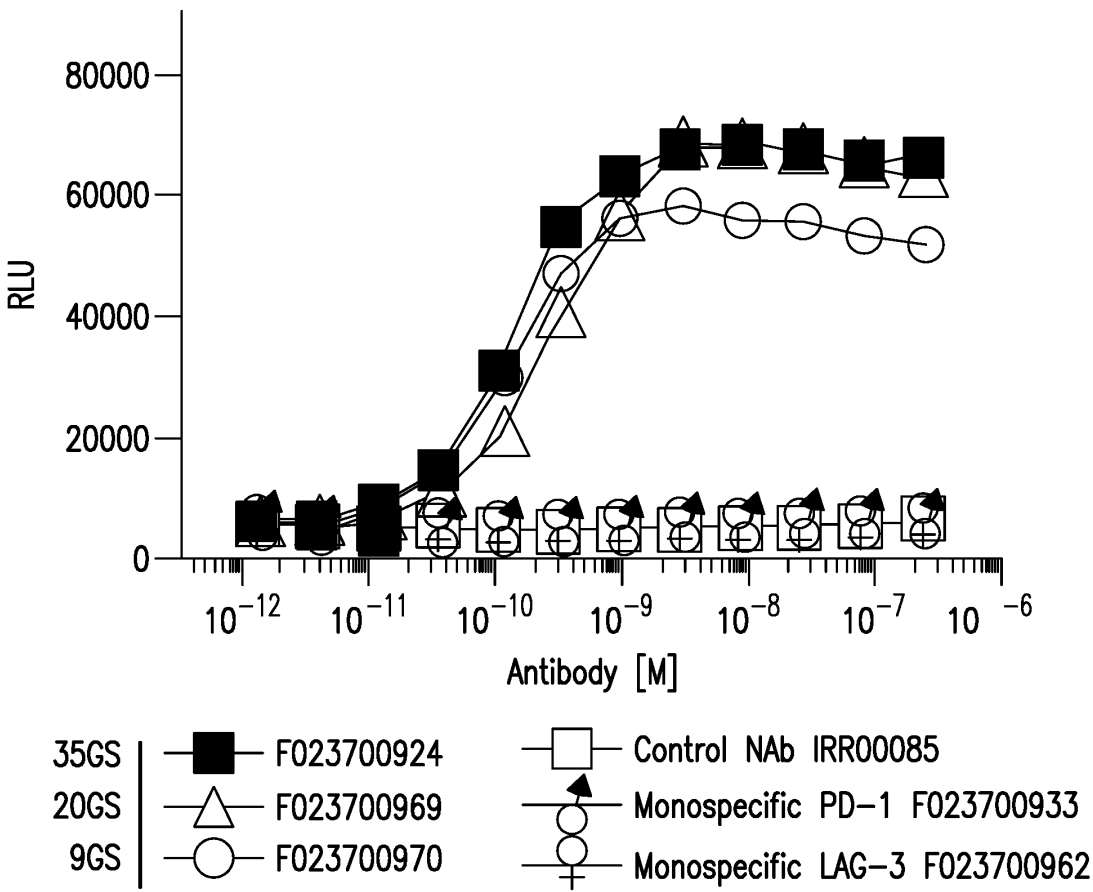


FIG.1 1 B

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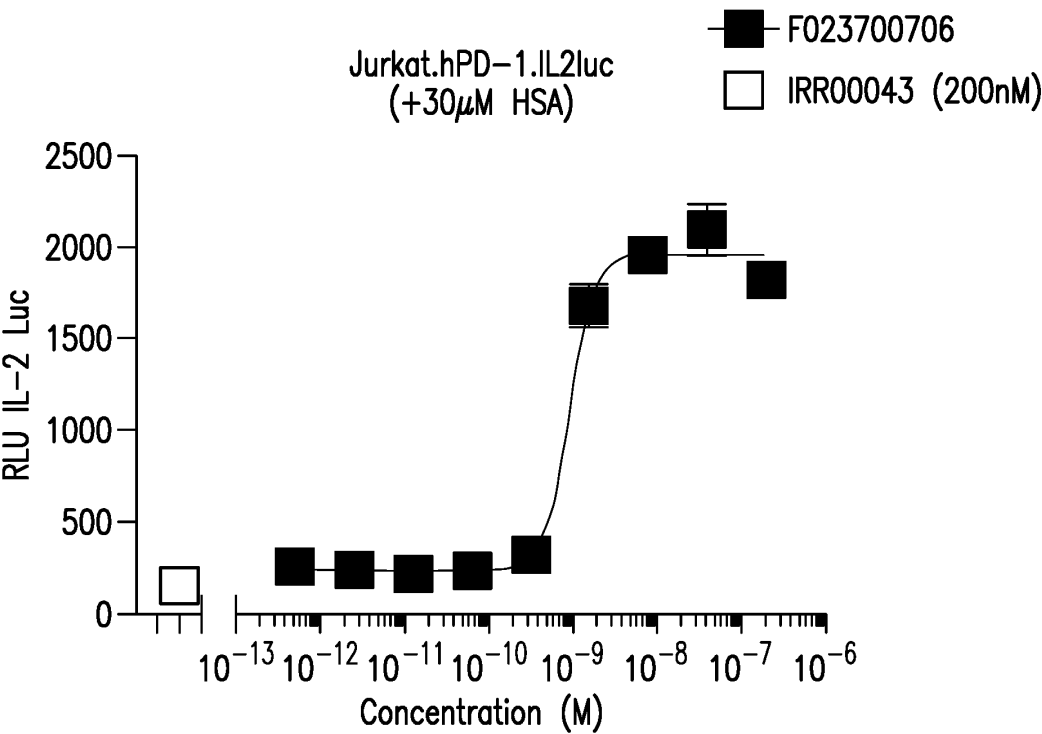


FIG.12A

F023700706: 1PD102C12(L11V,A14P,A74S,K83R,I89L)-FLAG3-HIS6

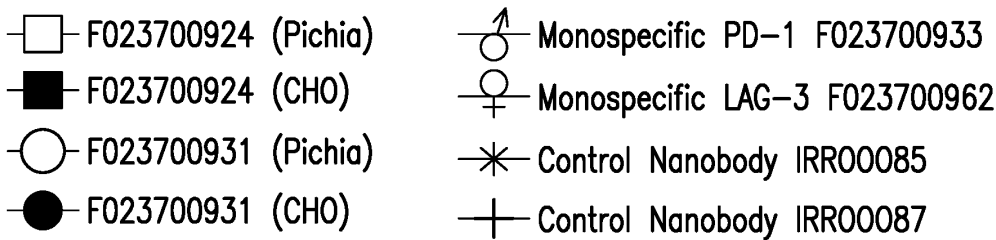
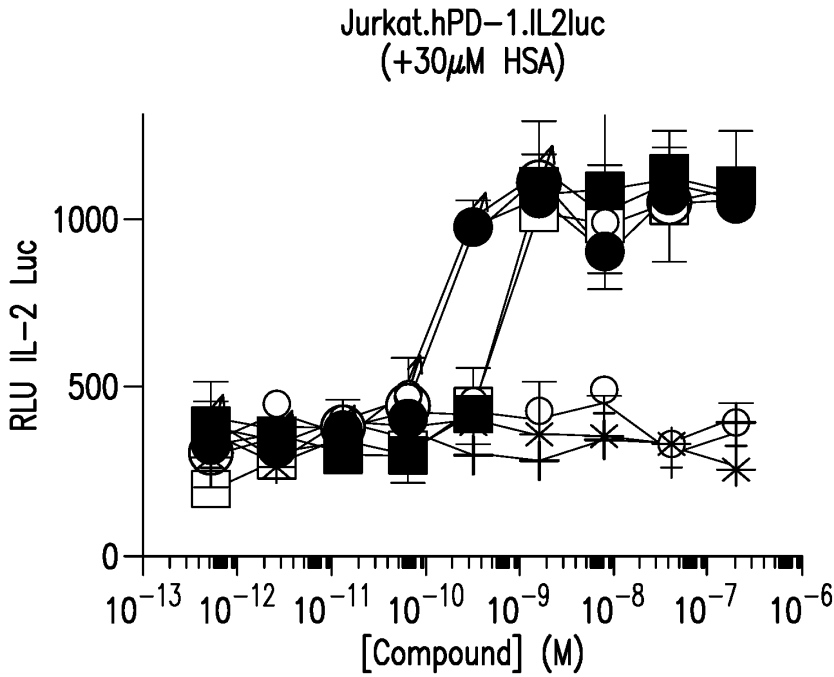


FIG. 12B

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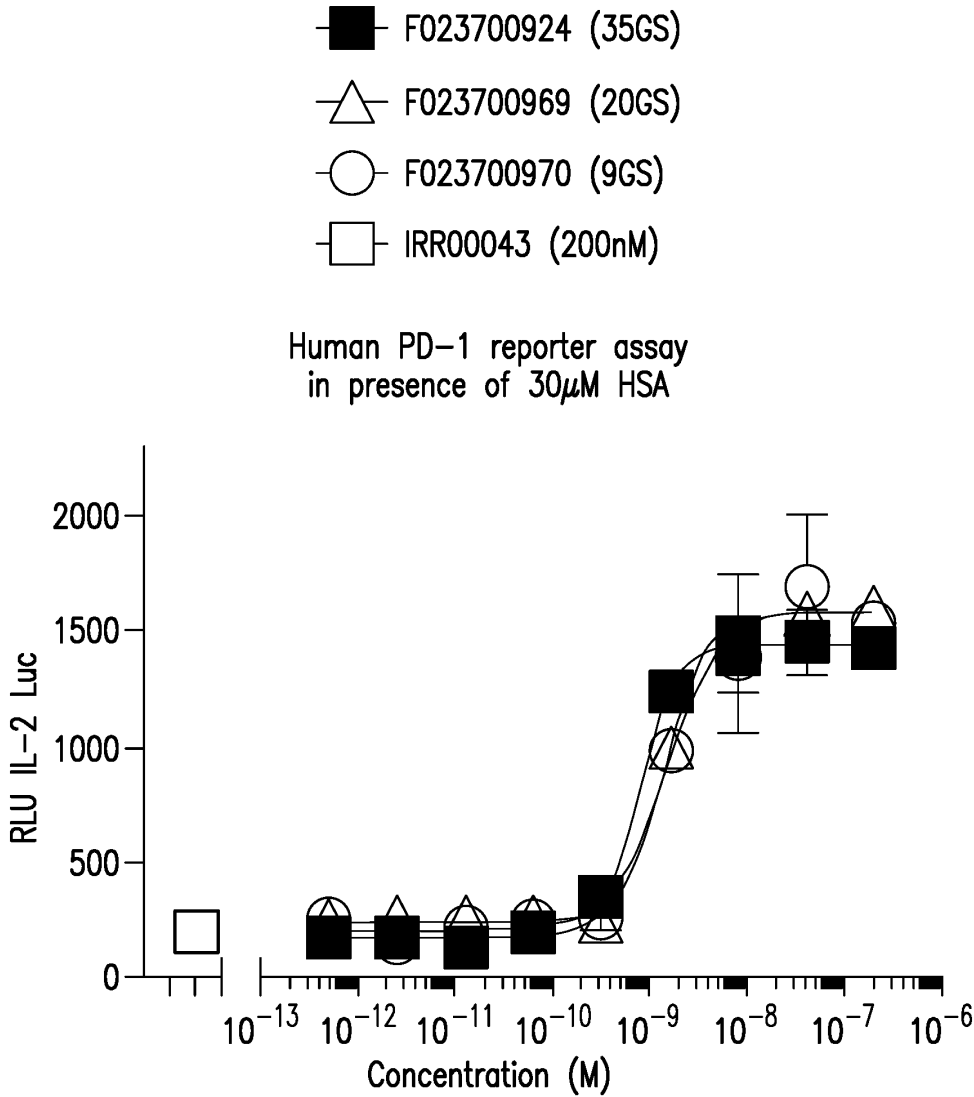


FIG.12C

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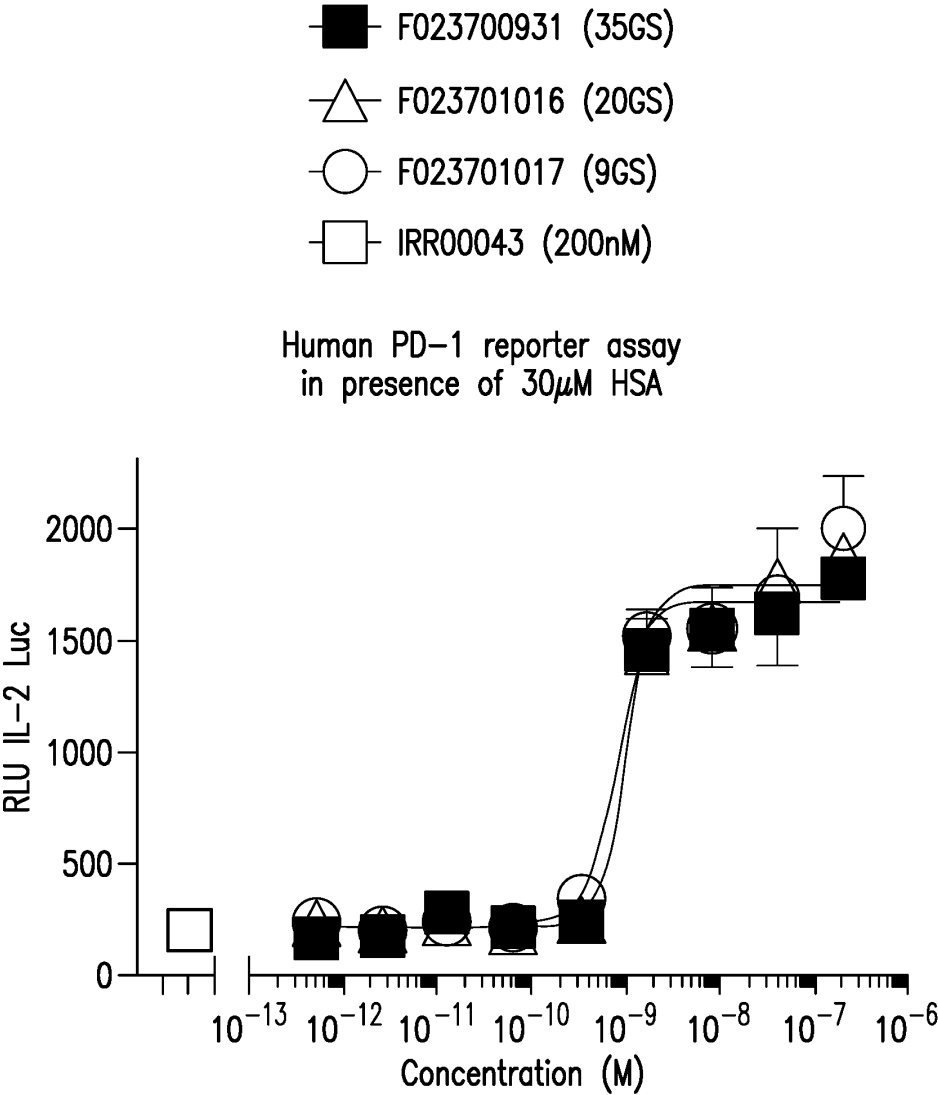


FIG.12D

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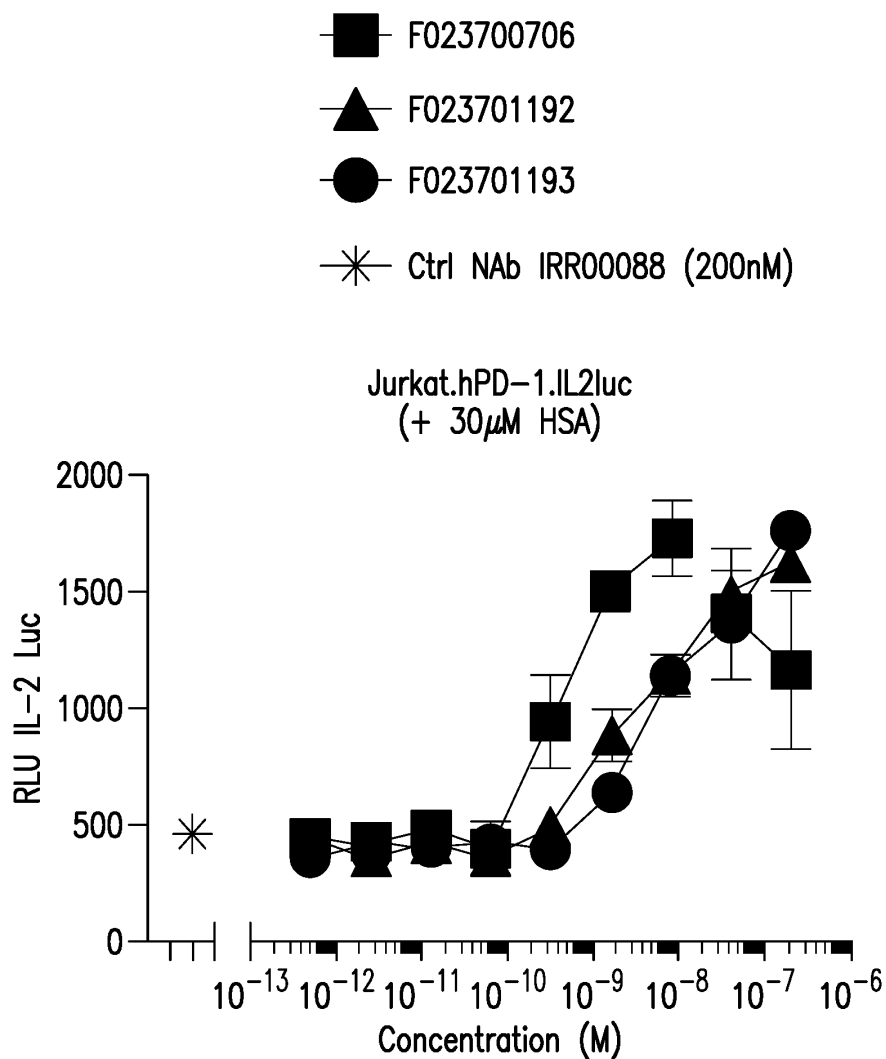


FIG. 12E

F023700706: 1PD102C12(L11V,A14P,A74S,K83R,I89L)-FLAG3-HIS6

F023701192: 1PD102C12(E1D,L11V,A14P,W52aV,N73Q,A74S,K83R,I89L,W100aF)-HIS6

F023701193: 1PD102C12(E1D,L11V,A14P,W52aV,N73P,A74S,K83R,I89L,W100aF)-HIS6

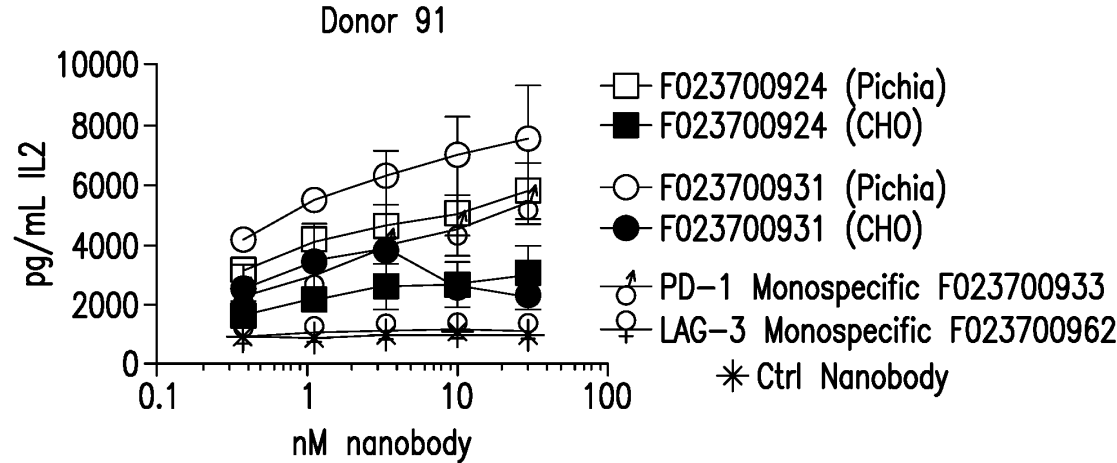


FIG.13A

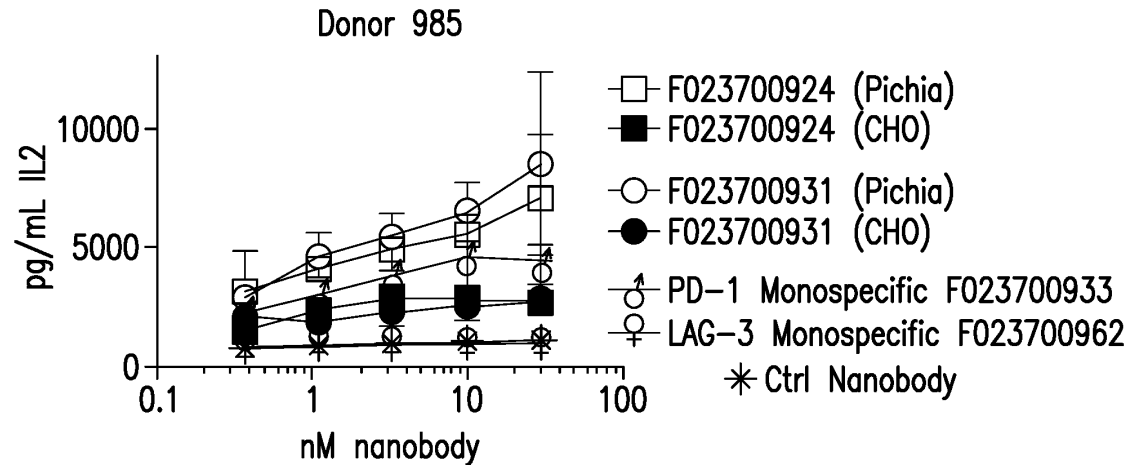


FIG.13B

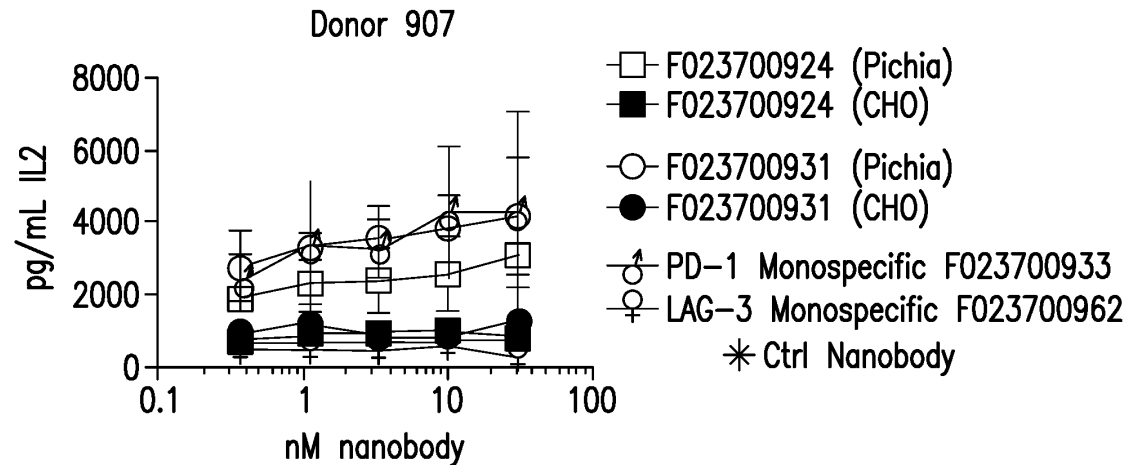


FIG.13C

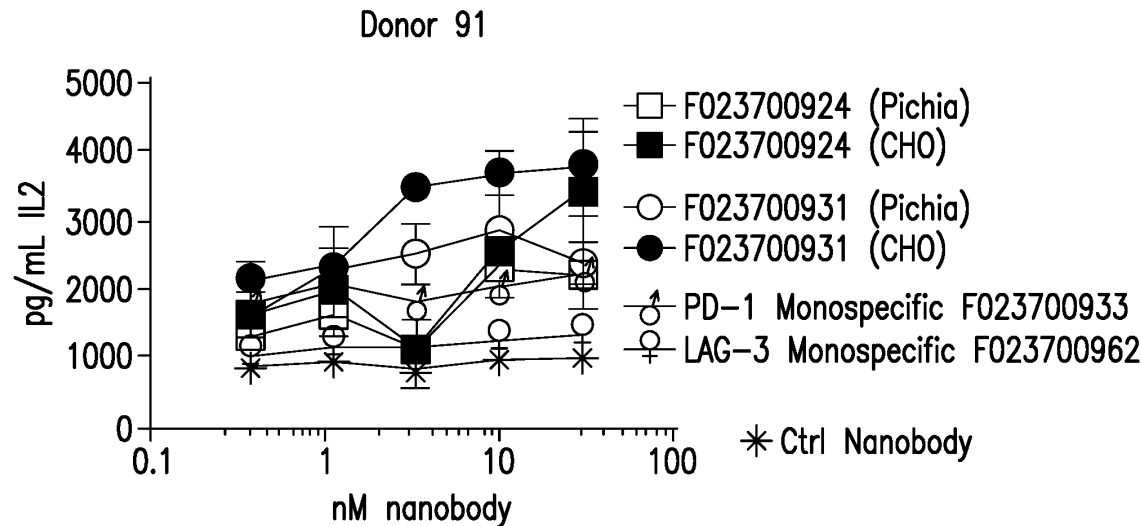


FIG.13D

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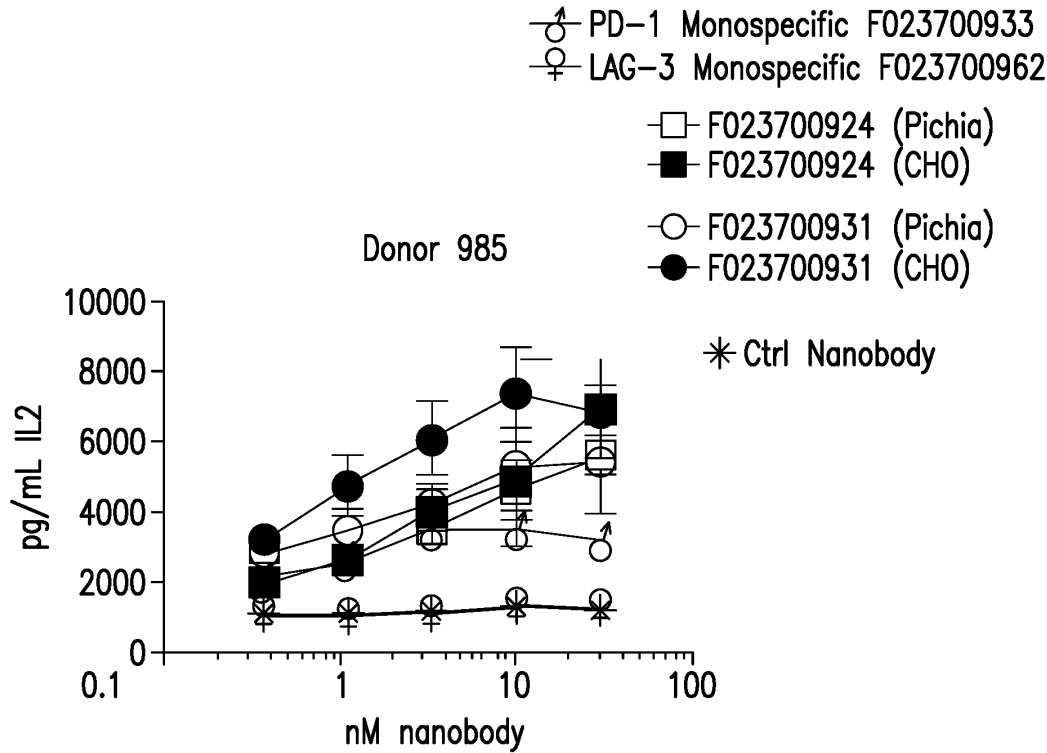


FIG.13E

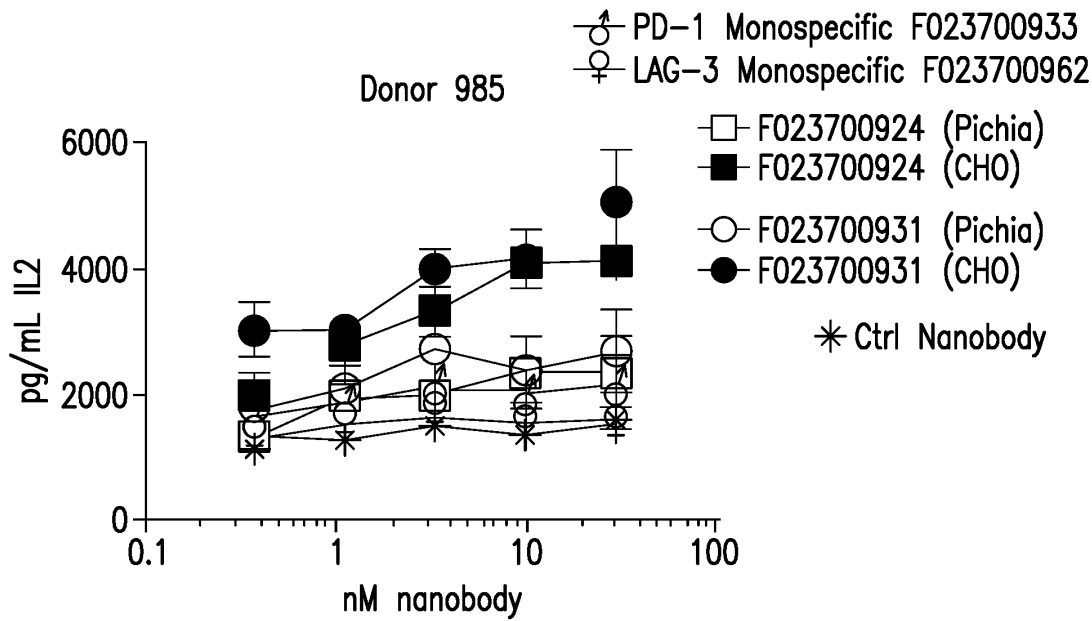


FIG.13F

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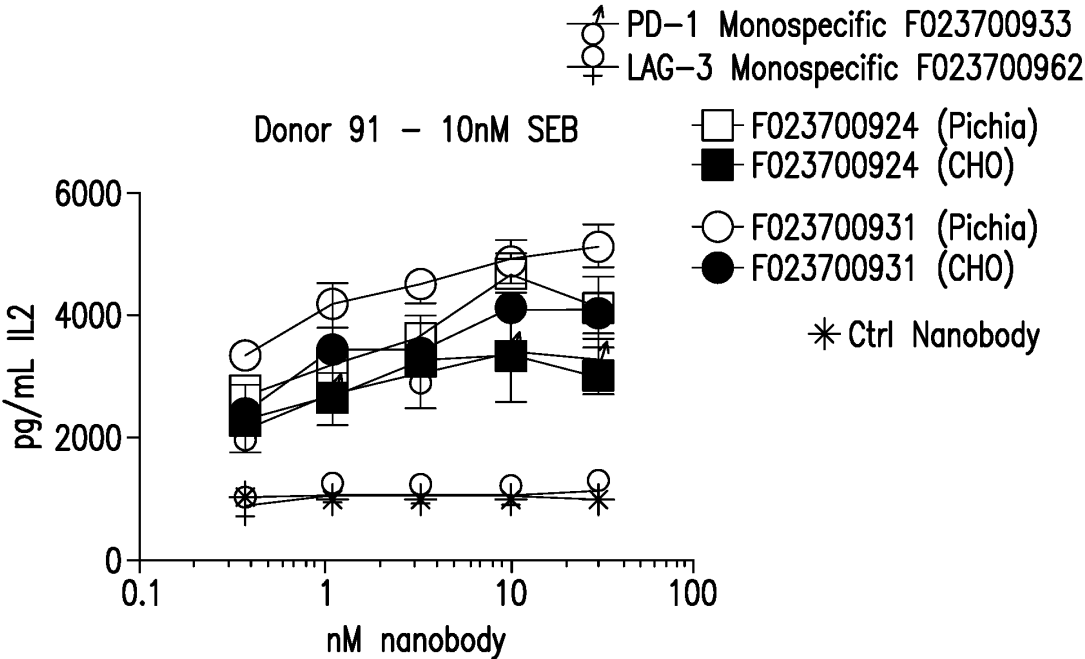


FIG.13G

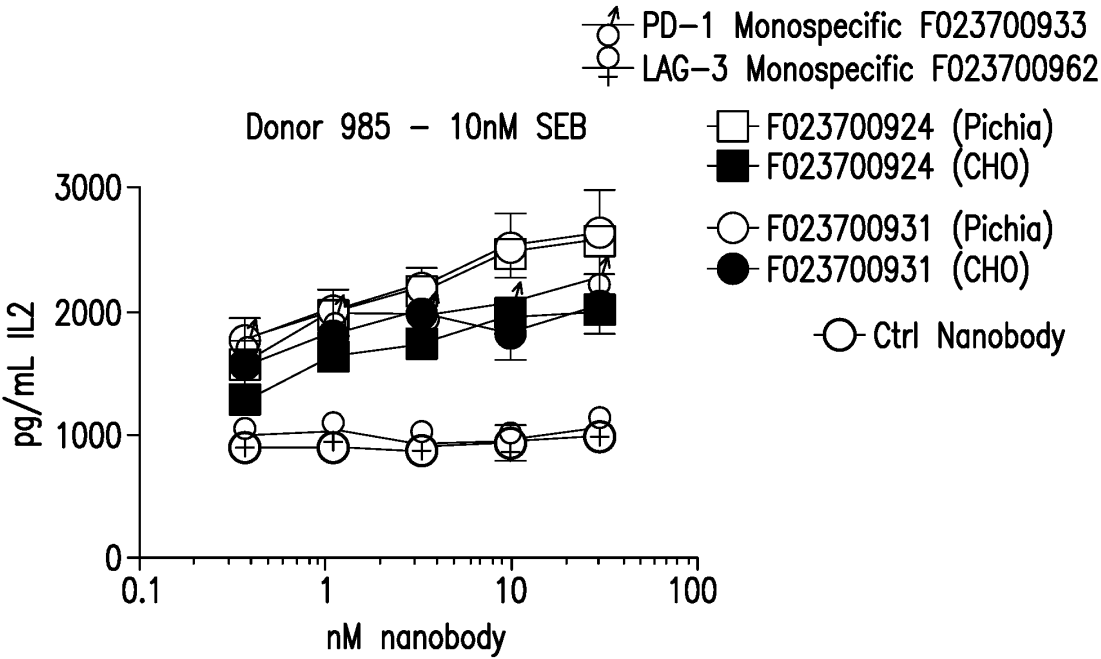


FIG.13H

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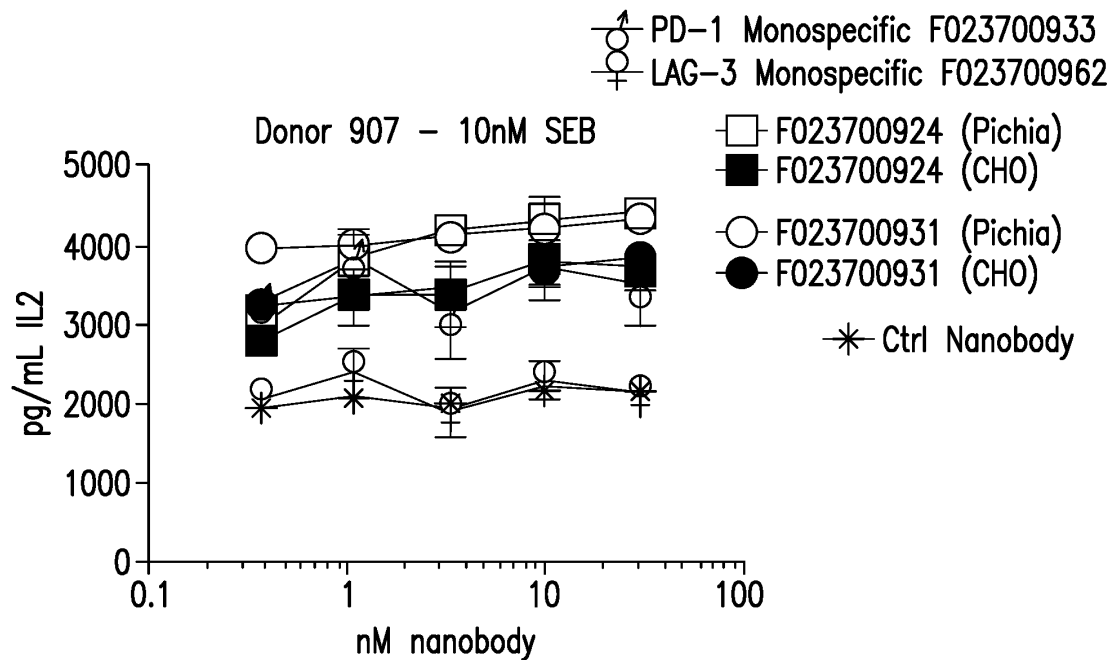


FIG.13I

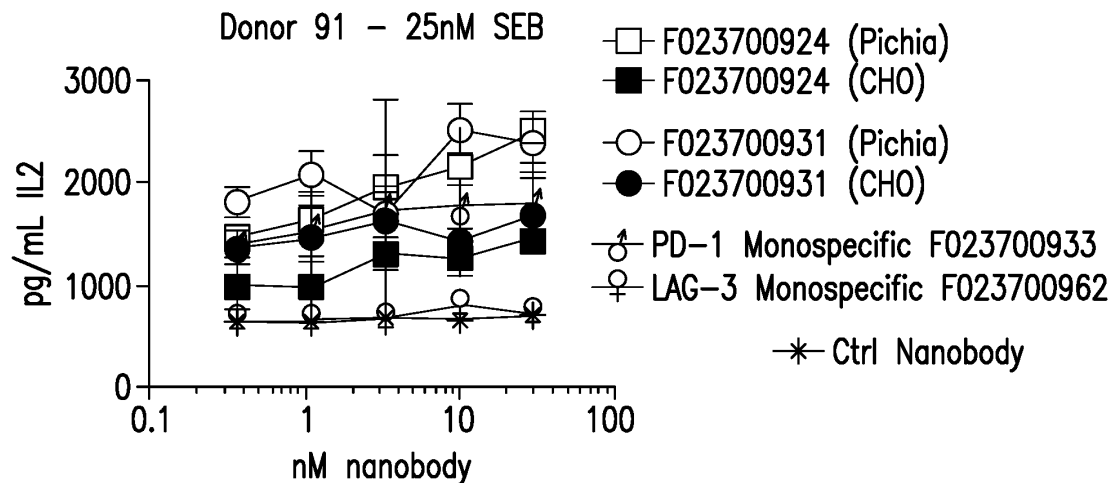


FIG.13J

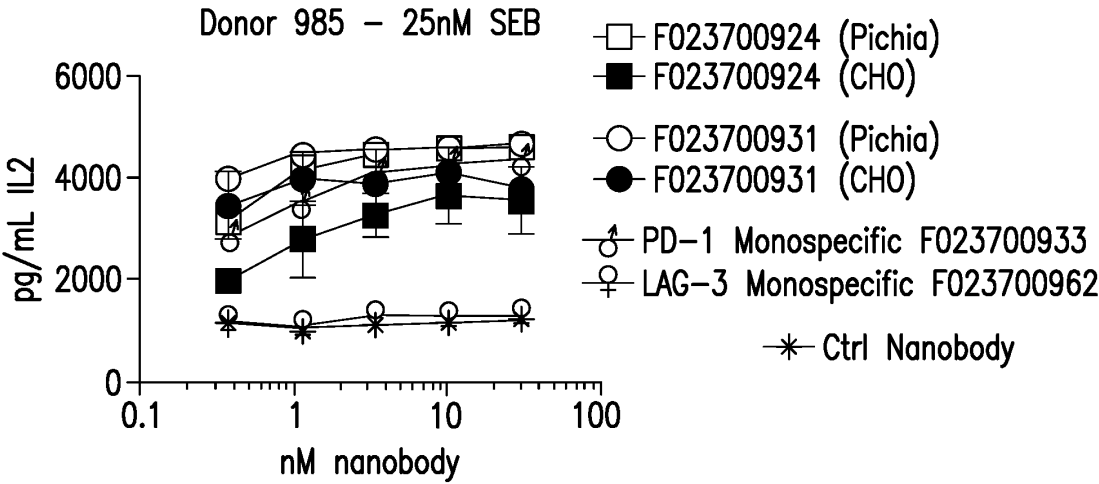


FIG.13K

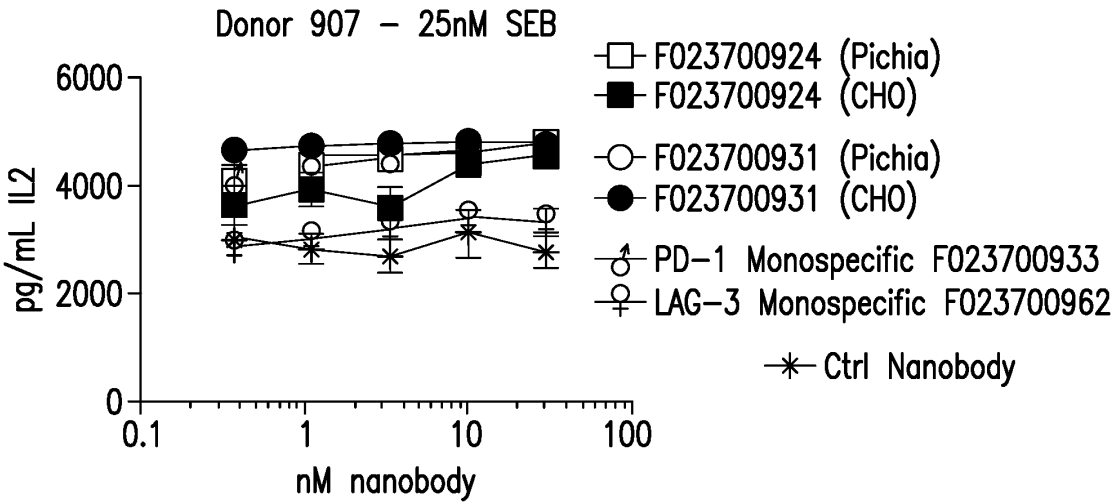


FIG.13L

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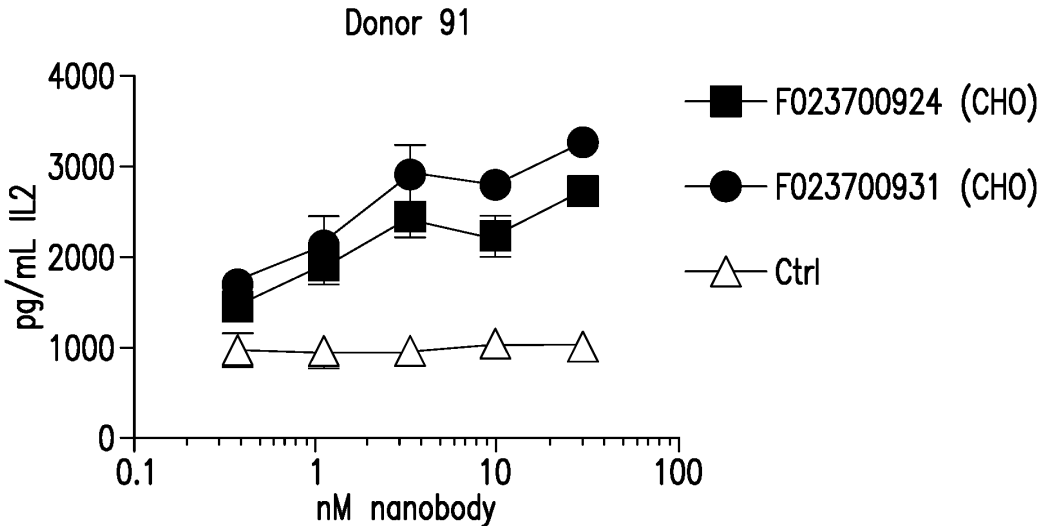


FIG.13M

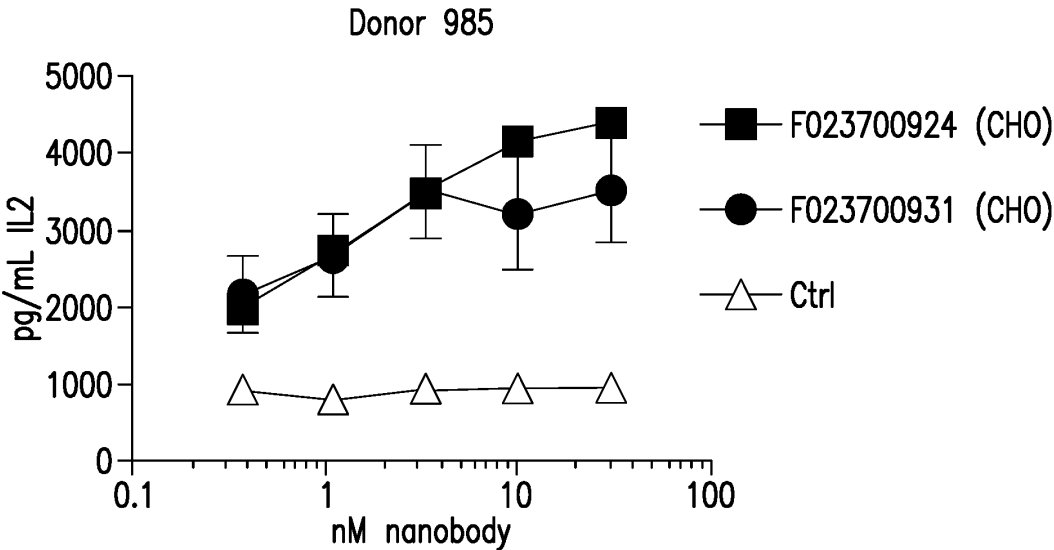


FIG.13N

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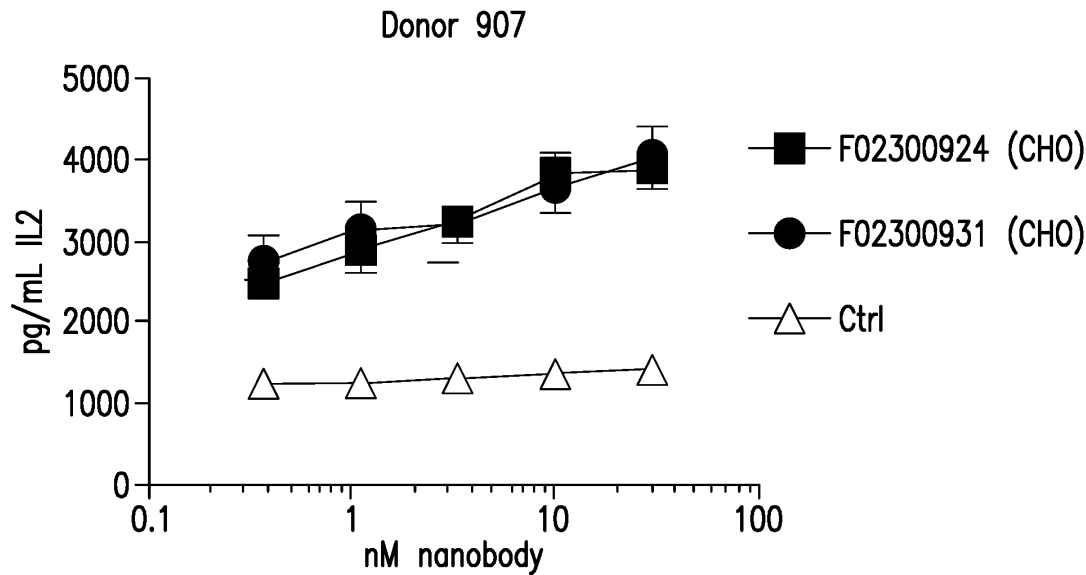


FIG.13O

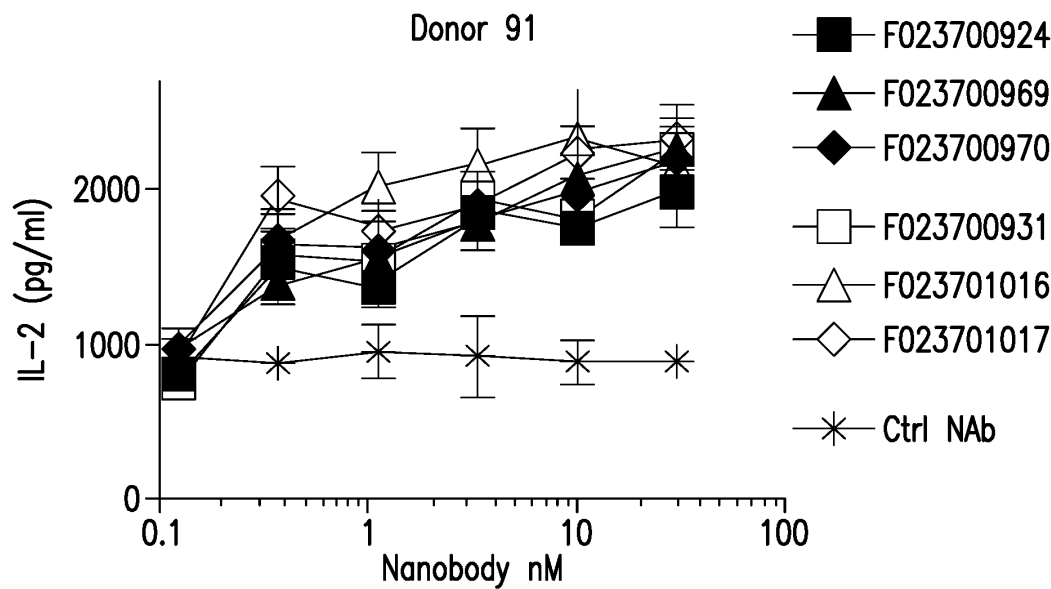


FIG.13P

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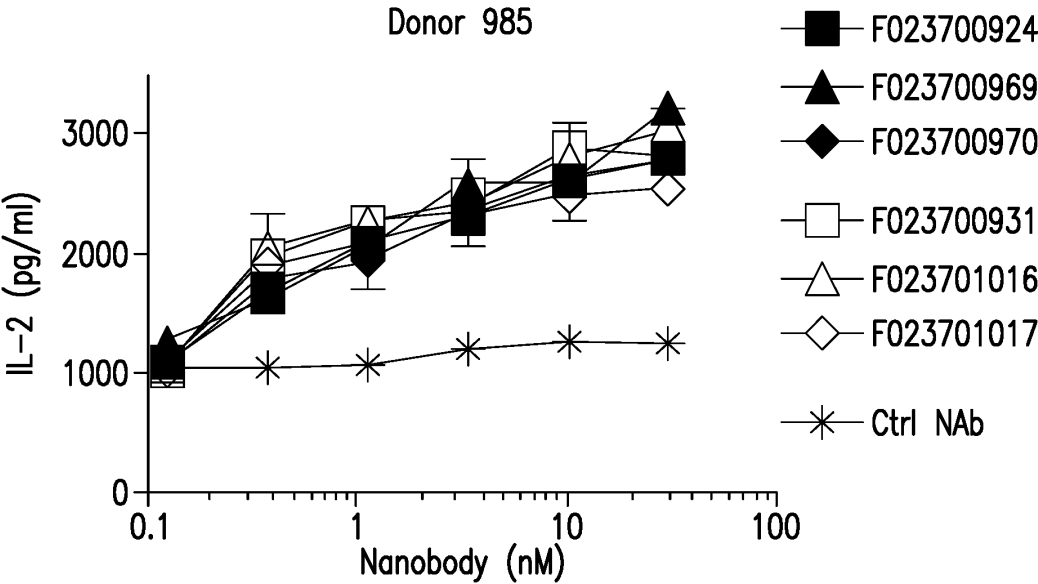


FIG.13Q

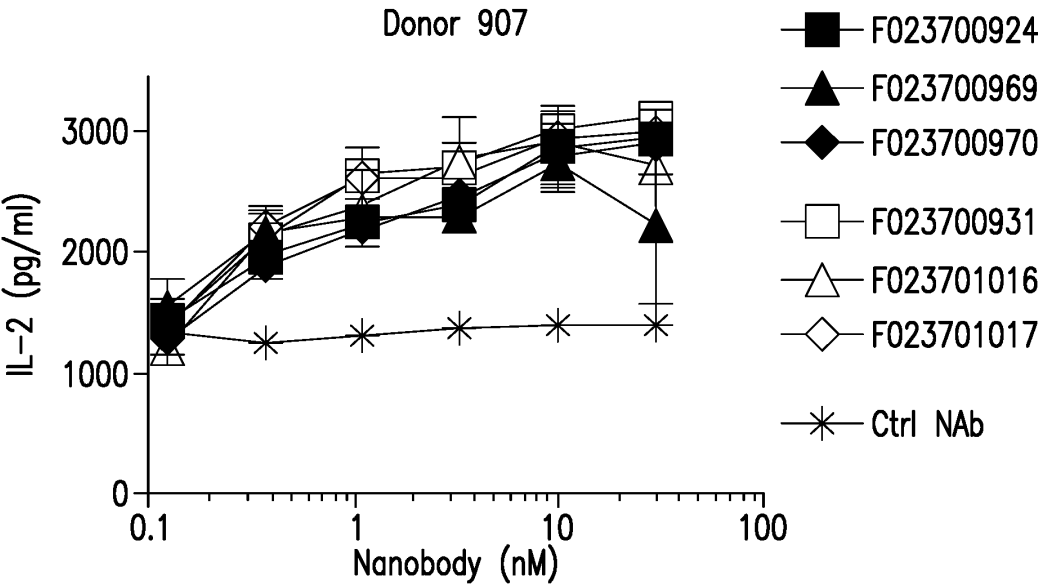


FIG.13R

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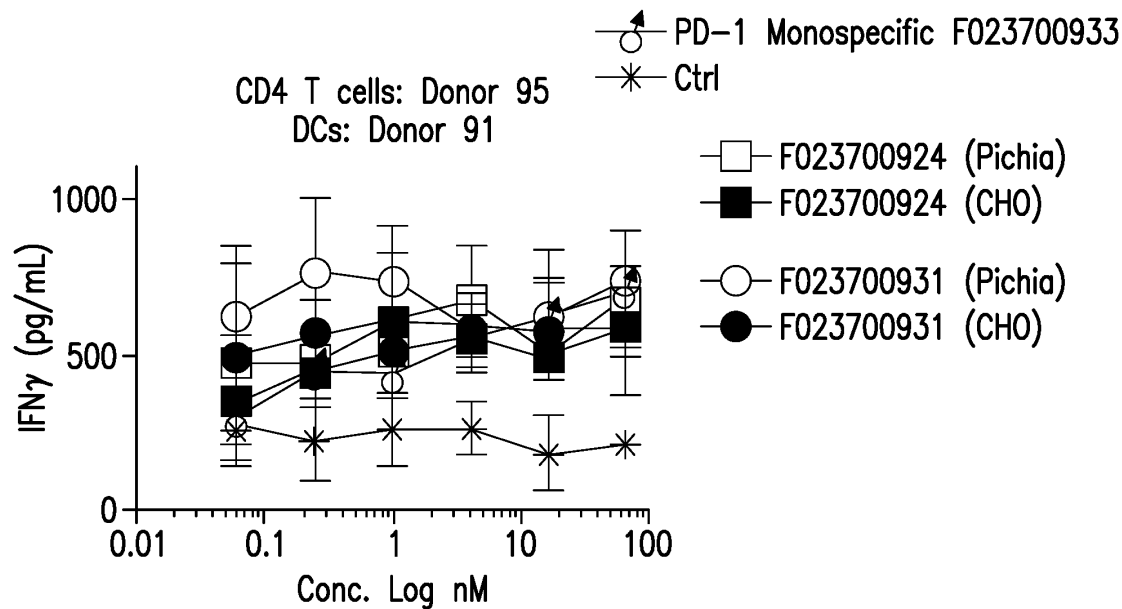


FIG.14A

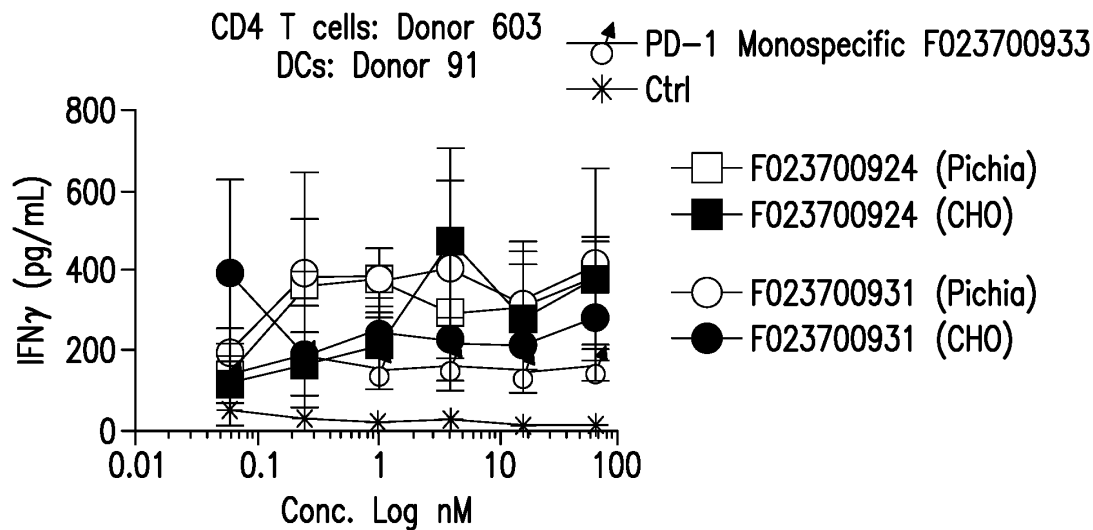
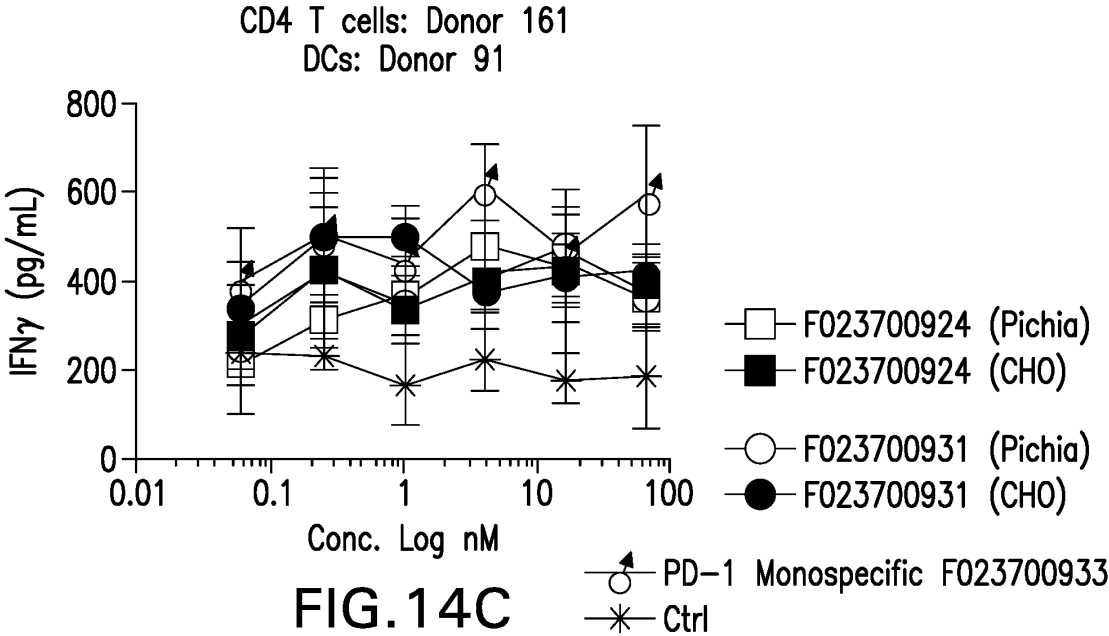
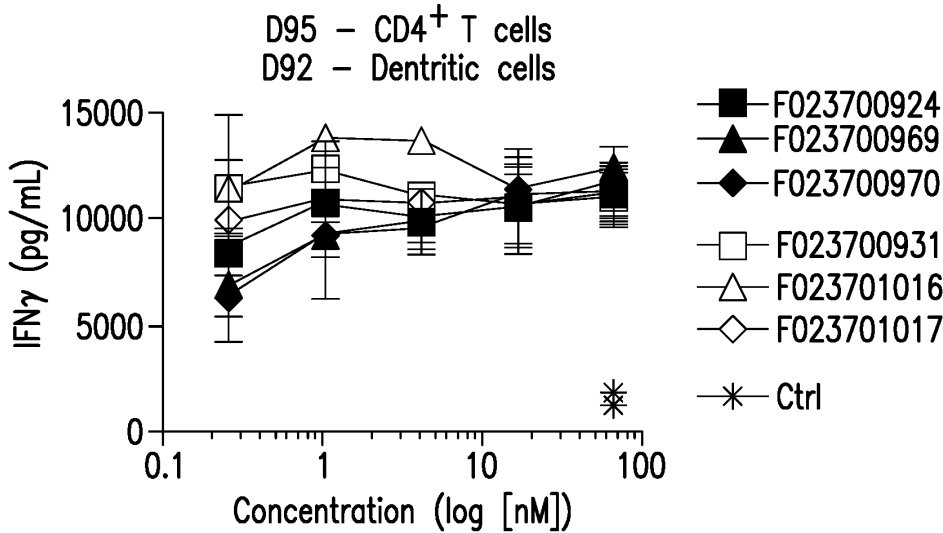


FIG.14B

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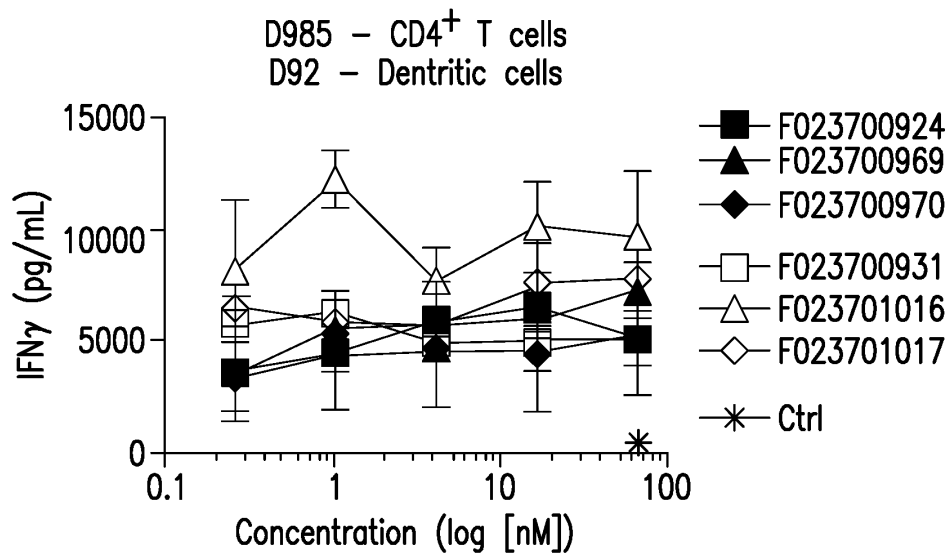


FIG.14E

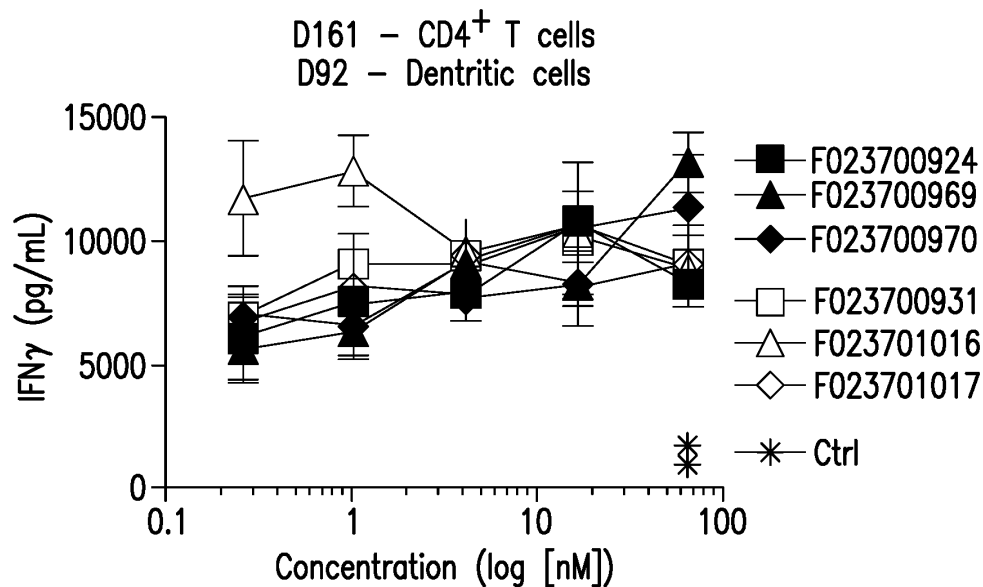


FIG.14F

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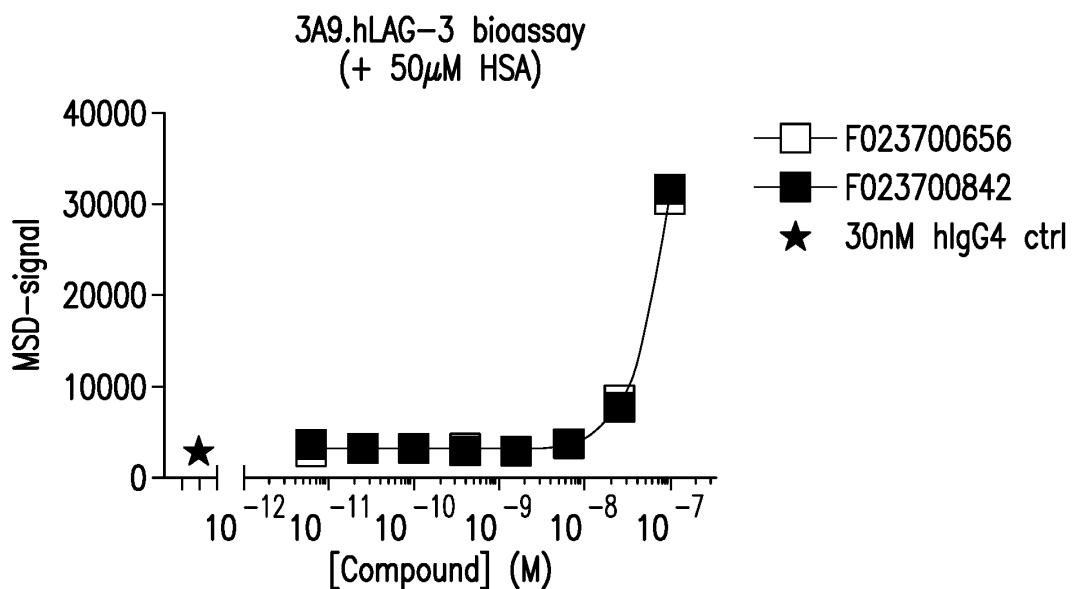


FIG.15A

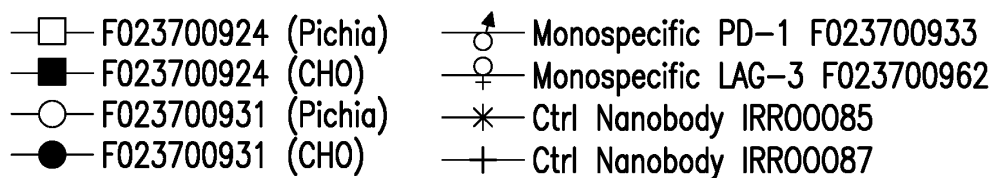
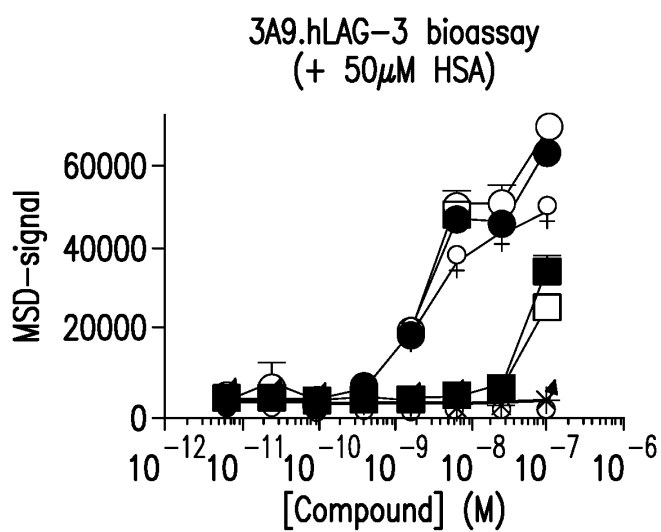


FIG.15B

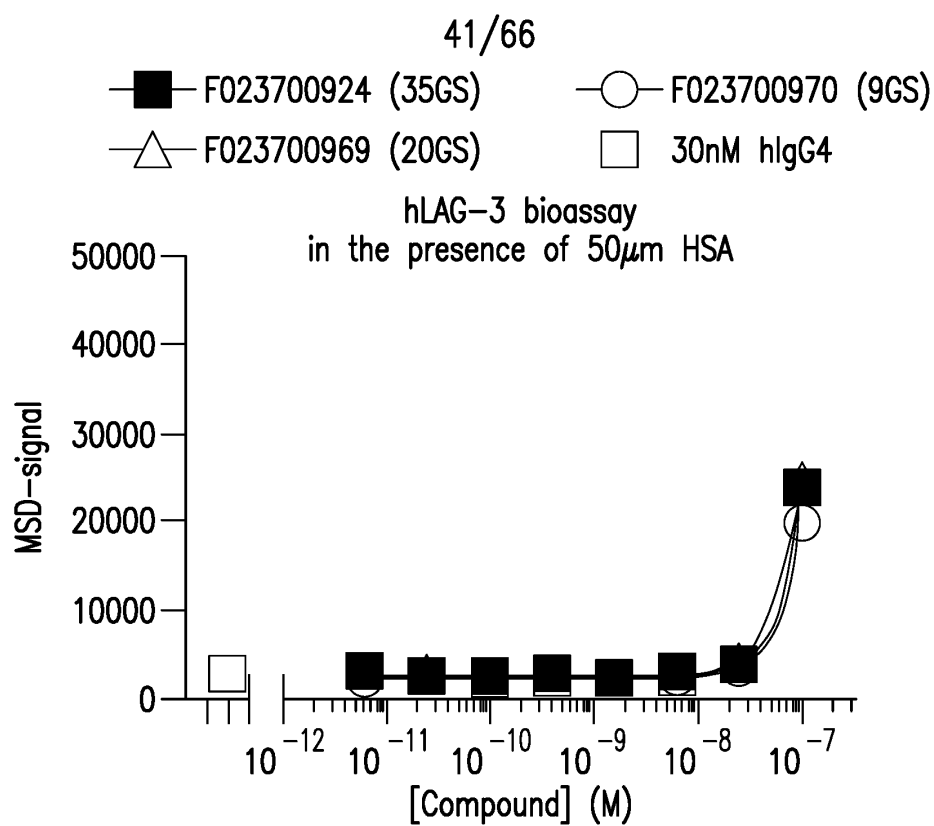


FIG.15C

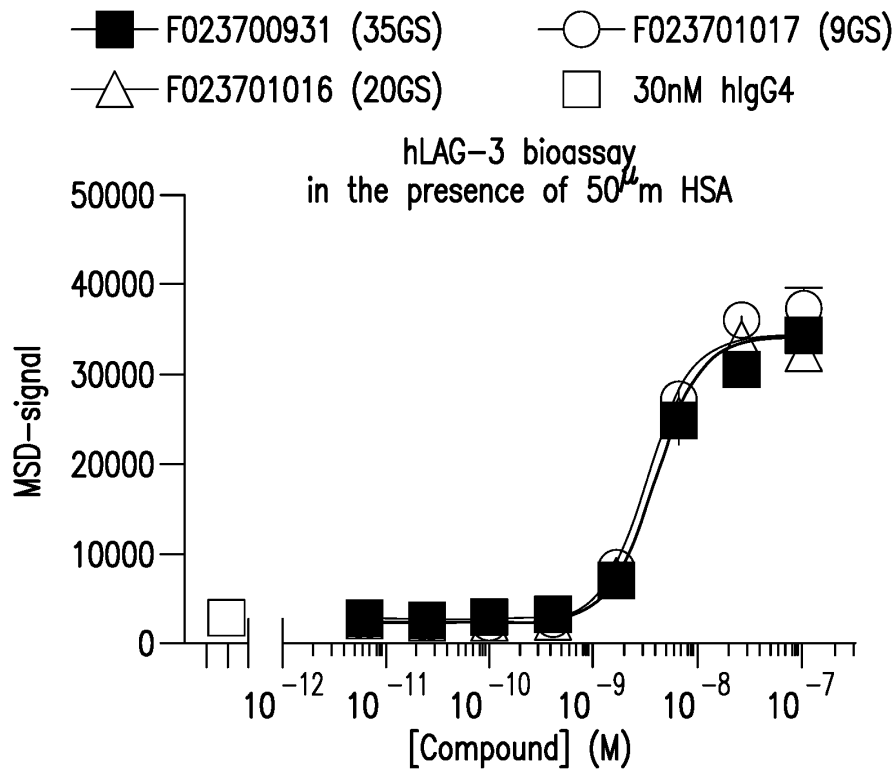


FIG.15D

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- F023700924 (Pichia)
- F023700924 (CHO)
- F023700931 (Pichia)
- F023700931 (CHO)
- ↗ Monospecific PD-1 F023700933
- + Monospecific LAG-3 F023700862

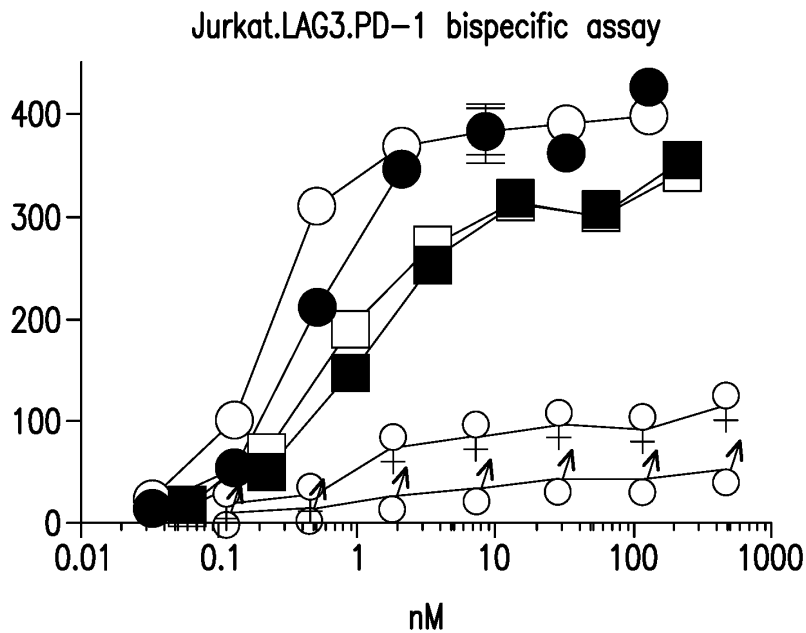


FIG.16A

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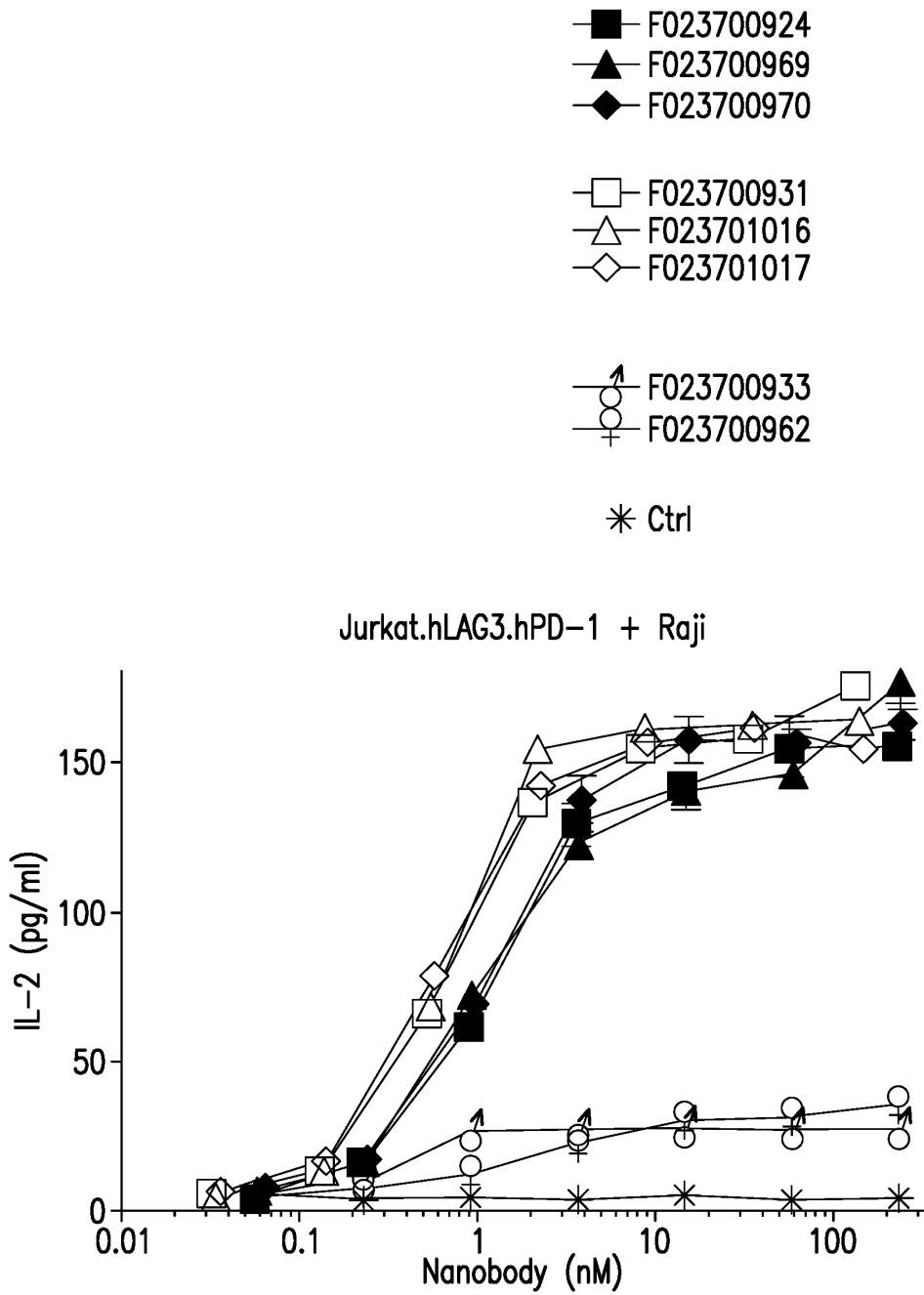


FIG.16B

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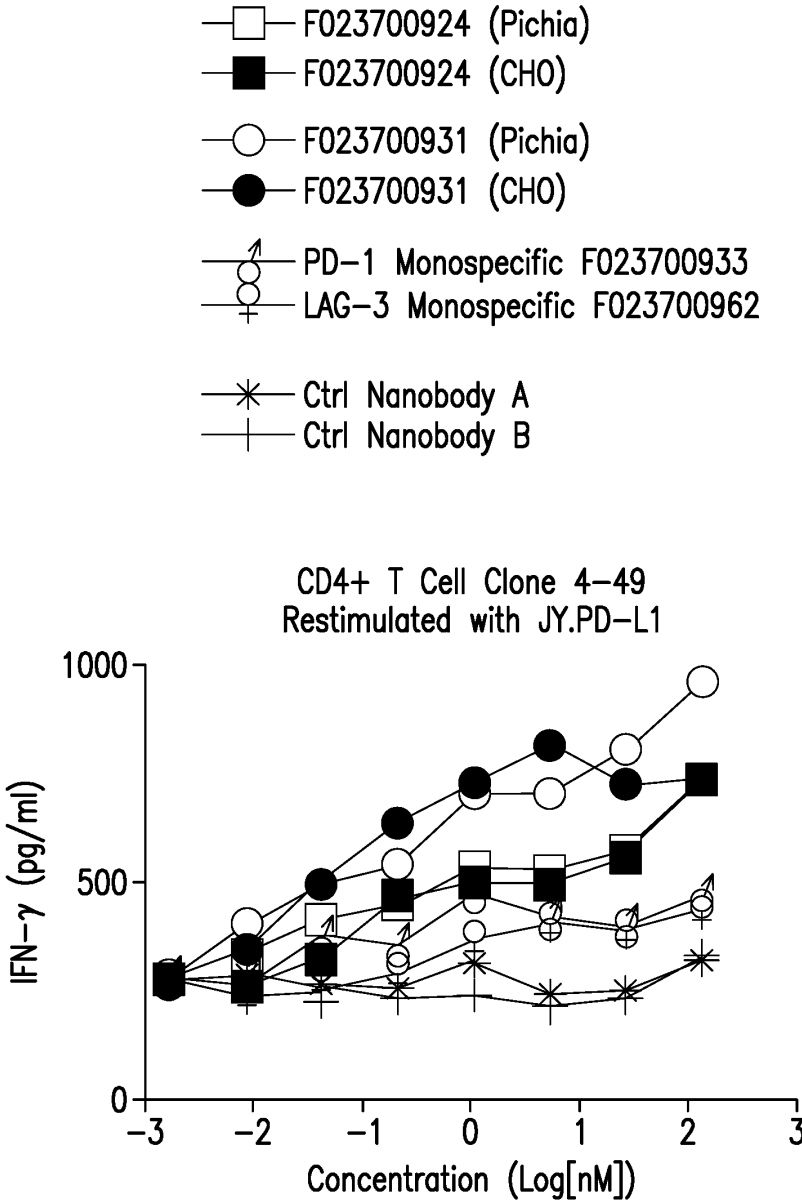


FIG.17A

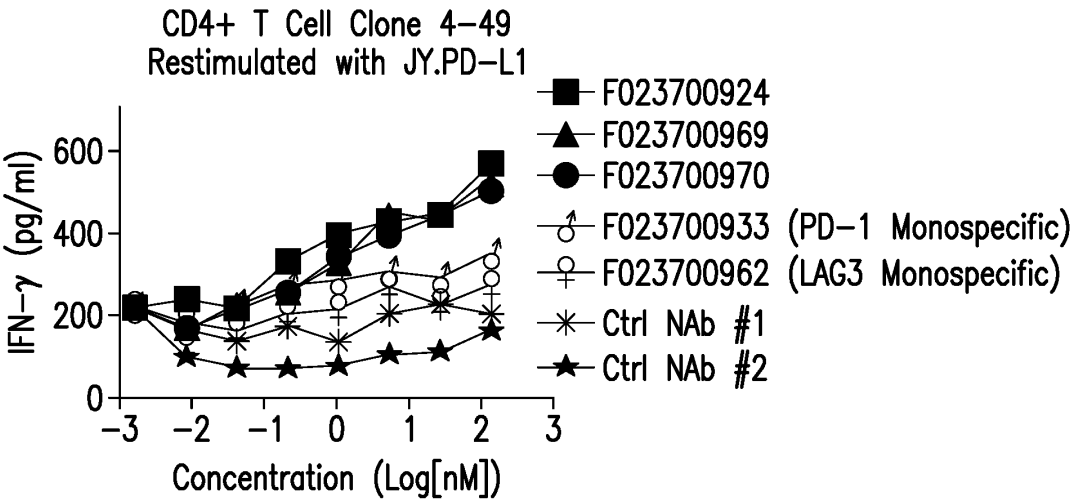


FIG.17B

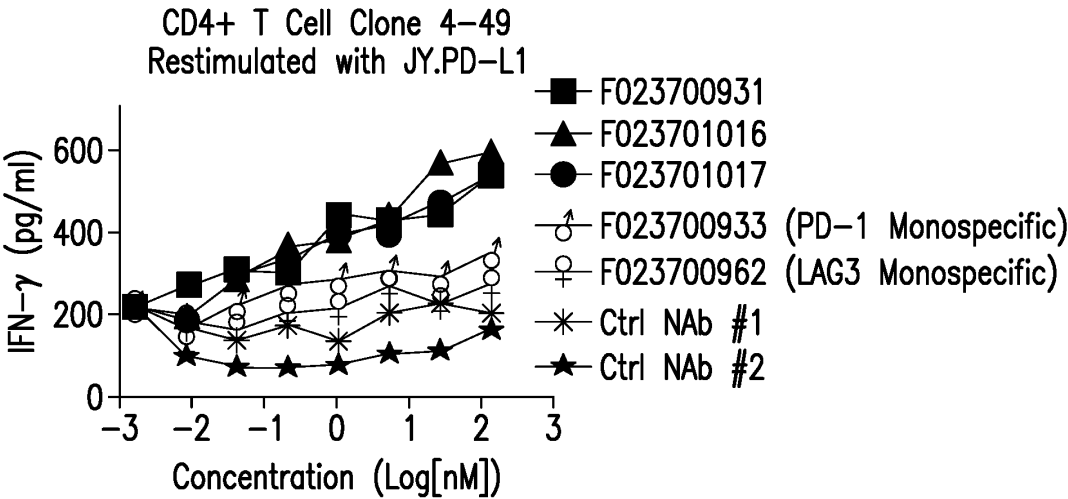


FIG.17C

	Reagent	Description	Target	Sequence
Parent 611B09	F0237611B09	F0237611B09-FLAG3-HIS6 (SEQ ID NO: 128)	hLAG-3	EVQLVESGGGLVQAGGSLRLSCAASGRTFSDYVMGMFRRQARGNEREFVAAISESGGR THYADAVKGRFTISRDNANKNTLYLQMNLSKPEDTAVYYCATITLLWWTSEYAPIKAND YDYWGQGTLVTVSSAAADYKDHGDYKDHIDYKDDDDKGAHHHHHH
611B09 with E1D	F023700656	F0237611B09(E1D)-HIS6 (SEQ ID NO: 129)	hLAG-3	DVQLVESGGGLVQAGGSLRLSCAASGRTFSDYVMGMFRRQARGNEREFVAAISESGGR THYADAVKGRFTISRDNANKNTLYLQMNLSKPEDTAVYYCATITLLWWTSEYAPIKAND YDYWGQGTLVTVSSAAAHHHHHH
S0 611B09 monomer	F023700842	F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R, V89L)-FLAG3-HIS6 (SEQ ID NO: 130)	hLAG-3	EVQLVESGGGVQPGGSLRLSCAASGRTFSDYVMGMFRRQAPGKEREFVAAISESGGR THYADSVKGRFTISRDNANKNTLYLQMNLSRPEDTALYYCATITLLWWTSEYAPIKAND YDYWGQGTLVTVSSAAADYKDHGDYKDHIDYKDDDDKGAHHHHHH
Monovle nt S0 611B09 + ALB201	F023701128	F0237611B09(E1D,L11V,A14 P,R41P,N43K,A62S,A74S,K8 3R,V89L)-35GS-ALB11002-A (SEQ ID NO: 96)	hLAG-3	DVQLVESGGGVQPGGSLRLSCAASGRTFSDYVMGMFRRQAPGKEREFVAAISESGGR THYADSVKGRFTISRDNANKNTLYLQMNLSRPEDTALYYCATITLLWWTSEYAPIKAND YDYWGQGTLVTVSSGGGGSGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESG GGVVPQGNLSRLSCAASGRTFSSFQMSWWRQAPGKLEWSSISGSGSDTLYADSVK GRFTISRDNANKNTLYLQMNLSRPEDTALYYCTIGGSLSRSSQGTIVTVSSA

FIG. 18A

Bivalent S0 611B09 + ALB201	F023700962	F0237611B09(E1D,L11V,A14 P,R41P,N43K,A62S,A74S,K8 3R,V89L)–35GS– F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R, V89L)–35GS–ALB11002–A (SEQ ID NO: 97)	hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGRFTSDYVMGWFRQAPGKEREFVAAI SESGGRT THYADSVKGRFTISRDN SKNTLYLQMNSLRPEDTALYYCATTLTLLWTFSEYAPIKAND YDYWGQGTLLTVSSGGGGSGGGSGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESG GGVQPGGSLRLSCAASGRFTSDYVMGWFRQAPGKEREFVAAI SESGGRTTHYADSVK GRFTISRDN SKNTLYLQMNSLRPEDTALYYCATTLTLLWTFSEYAPIKANDYDYWGQGT LLTVSSGGGGSGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGN SLRLSCAASGRFTSSFGMSWVRQAPGKGLVWSSI SGSGSDTL YADSVKGRFTISR NAKTTLYLQMNSLRPEDTALYYCTIGGSLRSGGTLTVSSA
Partial S0 1PD102C 12	F023700275	1PD102C12(A14P,A74S,K83 R)–FLAG3–HIS6 (SEQ ID NO: 131)	hPD–1	EVQLVESGGGLVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGI TYYADSVKGRFTISRDN SKNTVYLQMNSLRPEDTAYCAGDKHQSSWYDYWGQGTLL VTVSSAAADYKDHGDYKDHDIDYKDDDDKGAHHHHHH
S0 1PD102C 12 monomer	F023700706	1PD102C12(L11V,A14P,A74 S,K83R,I89L)–FLAG3–HIS6 (SEQ ID NO: 132)	hPD–1	EVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGI TYYADSVKGRFTISRDN SKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTLL VTVSSAAADYKDHGDYKDHDIDYKDDDDKGAHHHHHH

FIG. 18B

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S0 1PD102C 12 monomer	F023700929	1PD102C12(L11V,A14P,A74 S,K83R,I89L)-HIS6 (SEQ ID NO: 133)	hPD-1	EVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGI TYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTL VTSSHHHHHH
Monovalent S0 1PD102C 12 + ALB201	F023701127	1PD102C12(E1D,L11V,A14P, A74S,K83R,I89L)-35GS- ALB11002-A (SEQ ID NO: 101)	hPD-1	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGI TYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTL VTSSGGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGG LRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGITYYADSVKGRFTISRDN SKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTLVTSSGGGGSGGGSGG GGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGNSLRSCAASGTFSSFGM SWRQAPGKGLWSSISGSGSDTLYADSVKGRFTISRDNKNTLYLQMNSLRPEDT ALYYCTIGGSLSRSSQGTILVTVSSA
Bivalent S0 1PD102C 12 + ALB201	F023700933	1PD102C12(E1D,L11V,A14P, A74S,K83R,I89L)-35GS- 1PD102C12(L11V,A14P,A74 S,K83R,I89L)-35GS- ALB11002-A (SEQ ID NO: 102)	hPD-1	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGI TYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTL VTSSGGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGG LRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGITYYADSVKGRFTISRDN SKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTLVTSSGGGGSGGGSGG GGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGNSLRSCAASGTFSSFGM SWRQAPGKGLWSSISGSGSDTLYADSVKGRFTISRDNKNTLYLQMNSLRPEDT ALYYCTIGGSLSRSSQGTILVTVSSA

FIG.18C

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Enhanced S0 1PD102C 12 monomer	F023701190	1PD102C12(E1D,L11V,A14P, W52aV,A74S,K83R,I89L,W10 0aF)—HIS6 (SEQ ID NO: 134)	hPD—1	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTL VTVSSAAAHHHHH
Enhanced S0 1PD102C 12 monomer	F023701192	1PD102C12(E1D,L11V,A14P, W52aV,N73Q,A74S,K83R,I89 L,W100aF)—HIS6 (SEQ ID NO: 135)	hPD—1	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTL VTVSSAAAHHHHH
Enhanced S0 1PD102C 12 monomer	F023701193	1PD102C12(E1D,L11V,A14P, W52aV,N73P,A74S,K83R,I89 L,W100aF)—HIS6 (SEQ ID NO: 136)	hPD—1	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDPKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTL VTVSSAAAHHHHH

FIG.18D

Pentamer #1	F023700899	1PD102C12(A14P,A74S,K83 R)–35GS– 1PD102C12(A14P,A74S,K83 R)–35GS–F023611B09– 35GS–F0237611B09–35GS– ALB11 (SEQ ID NO: 106)	hPD– 1/hLAG3	EVQLVESGGGLVQPGGSLRLSCAASGSIASIHANGWFRQAPGKEREFVAVITWSGGI TYYADSVKGRFTISRDNKNTVYLYQMNSLRPEDTAIYYCAGDKHQSSWYDYWGQGT LTVSSGGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGLVQPGGS LRLSCAASGSIASIHANGWFRQAPGKEREFVAVITWSGGITYYADSVKGRFTISRDN SKNTVYLYQMNSLRPEDTAIYYCAGDKHQSSWYDYWGQGT LTVSSGGGGSGGGSGG GGSGGGSGGGSGGGSGGGSEVQLVESGGGLVQAGGSLRLSCAASGRTFSDYVM GWFRQARGNEREFVAAISESGRTHYADAVKGRFTISRDNKNTLYLYQMNSLRKPEDT AVYYCATLLWMTSEYAPIKANDYDYWGQGT LTVSSGGGGSGGGSGGGSGGGGS GGGGSGGGSGGGSEVQLVESGGGLVQAGGSLRLSCAASGRTFSDYVMGWFRQARG NEREFVAAISESGRTHYADAVKGRFTISRDNKNTLYLYQMNSLRKPEDTAVYYCAT LLWMTSEYAPIKANDYDYWGQGT LTVSSGGGGSGGGSGGGSGGGSGGGSGGG GGGGSEVQLVESGGGLVQPGNSLRSCAASGTFSSFGMSWVRQAPGKGLWVSS ISGSGSDTL YADSVKGRFTISRDNKNTLYLYQMNSLRPEDTAVYYCTIGGSLSRSSQ GTLTVSS
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FIG.18E

Pentamer	F023700931	1PD102C12 (E1D,L11V,A14P,A74S,K83R, I89L)–35GS–1PD102C12 (L11V,A14P,A74S,K83R,I89L) –35GS–F0237600B09 (L11V,A14P,R41P,N43K,A62 S,A74S,K83R,V89L)–35GS– F0237611B09 (L11V,A14P,R41P,N43K,A62 S,A74S,K83R,V89L)–35GS– ALB11002–A (SEQ ID NO: 107)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRAQPKEREFVAVITWGGITYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYMGGTLVTVSSGGGGSGGGGGSGGGGGSEVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRAQPKEREFVAVITWGGITYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYMGGTLVTVSSGGGGSGGGGGSGGGGGSEVQLVESGGGVQPGGSLRLSCAASGRTFSDYVMGMFRQAPGKEREFVAAISESGRTHYADSVKGRFTISRDNKNTL YLQMNSLRPEDTALYYCATLLWMTSEYAPIKANDYDYMGGTLVTVSSGGGGSGGGGGSGGGGGSEVQLVESGGGVQPGGSLRLSCAASGRTFSDYVMGMFRQAPGKEREFVAAISESGRTHYADSVKGRFTISRDNKNTL YLQMNSLRPEDTALYYCATLLWMTSEYAPIKANDYDYMGGTLVTVSSGGGGSGGGGGSGGGGGSEVQLVESGGGVQPGNSLRLSCAASGRTFSSFGMSWVRQAPGKGLEWVSSI SGGSDTL YADSVKGRFTISRDNKNTL YLQMNSLRPEDTALYYCTIGGSLSRSSQGTLLTVSSA
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FIG. 18F

Pentamer with 20GS	F023701016	102C12(E1D,L11V,A14P,A74 S,K83R,I89L)–20GS– 102C12(L11V,A14P,A74S,K8 3R,I89L)–20GS– F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R, 89L)–20GS– F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R,I89L –20GS–ALB11002–A (SEQ ID NO: 108)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRAQPKGEREFVAVITWSGGI TYYADSVKGRFTISRDN SKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYGQGT LVTVSSGGGSGGGGSGGGGSEVQLVESGGGVQPGGSLRLSCAASGSIASIH AMGWFRAQPKGEREFVAVITWSGGITYYADSVKGRFTISRDN SKNTVYLQMNSLRPE DTALYYCAGDKHQSSWYDYGQGT LVTVSSGGGSGGGGSGGGGSEVQLVES GGGVQPGGSLRLSCAASGRFTSDYVMGWFRAQPKGEREFVAAISESGRTHYADSV KGRFTISRDN SKNTL YLQMNSLRPEDTALYYCATTL L WMTSEYAPIKANDYDYGQG TLVTVSSGGGSGGGGSGGGGSEVQLVESGGGVQPGGSLRLSCAASGRFTS DYVMGWFRAQPKGEREFVAAISESGRTHYADSVKGRFTISRDN SKNTL YLQMNSLR PEDTALYYCATTL L WMTSEYAPIKANDYDYGQGT LVTVSSGGGSGGGGSGGGSG GGSEVQLVESGGGVQPGNSLRLSCAASGFTSFSGMSWVRQAPGKGLEWVSSI SG SGSDTL YADSVKGRFTISRDN AKTTL YLQMNSLRPEDTALYYCTIGGSLSRSSQGT L VTVSSA
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FIG. 18G

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Pentamer with 9GS	F023701017	102C12(E1D,L11V,A14P,A74 S,K83R,I89L)–9GS– 102C12(L11V,A14P,A74S,K8 3R,I89L)–9GS– F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R, V89L)–9GS– F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R, 89L)–9GS–ALB11002–A (SEQ ID NO: 109)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGI TYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYGQGT LVTSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGK EREFVAVITWGGITYYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDK HQSSWYDYGQGT LVTSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRFT SDYVMGWFRQAPGKEREFVAAISEGGRTHYADSVKGRFTISRDNKNTL YLQMN SLRPEDTALYYCATTLWWTSEYAPIKANDYDYGQGT LVTSSGGGSGGGSEVQL VE SGGVQPGGSLRLSCAASGRFTSDYVMGWFRQAPGKEREFVAAISEGGRTHYAD SVKGRFTISRDNKNTL YLQMNSLRPEDTALYYCATTLWWTSEYAPIKANDYDYGQ GTLVTSSGGGSGGGSEVQLVESGGGVQPGNSLRLSCAASGFTFSSFGMSWRQA PGKGLEWVSSI SGGSDTL YADSVKGRFTISRDNKNTL YLQMNSLRPEDTALYYCT IGGSLSRSSQGTLVTSSA
Trimer	F023700924	1PD102C12 (E1D,L11V,A14P,A74S,K83R, I89L)–35GS–F0237611B09 (L11V,A14P,R41P,N43K,A62 S,A74S,K83R,V89L)–35GS– ALB11002–A (SEQ ID NO: 110)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITWGGI TYADSVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAGDKHQSSWYDYGQGT LVTSSGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGS LRLSCAASGRFTSDYVMGWFRQAPGKEREFVAAISEGGRTHYADSVKGRFTISRDN SKNTL YLQMNSLRPEDTALYYCATTLWWTSEYAPIKANDYDYGQGT LVTSSGGG GSGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGNSLRLSCAAS GFTFSSFGMSWRQAPGKLEWVSSI SGGSDTL YADSVKGRFTISRDNKNTL YLQ MNSLRPEDTALYYCTIGGSLSRSSQGTLVTSSA

FIG. 18H

Trimer with 20GS	F023700969	102C12(E1D,L11V,A14P,A74 S,K83R,I89L)–20GS– F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R,V 89L)–20GS–ALB11002–A (SEQ ID NO: 111)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHMGWFRQAPGKEREFVAVITWSGGI TYYADSVKGRFTISRDNKNTIYVLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTL VTVSSGGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRITFSDY VMGWFRQAPGKEREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPE DTALYYCATTLWMWTSYAPIKANDYDYGQGTLVTVSSGGGGSGGGSGGGSGGG GSEVQLVESGGGVQPGNSLRSCAASGTFSSFGMSWVRQAPGKLEWVSSISGSG SDTLYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCTIGGSLSRSSQGTLLVT VSSA
Trimer with 9GS	F023700970	102C12(E1D,L11V,A14P,A74 S,K83R,I89L)–9GS– F0237611B09(L11V,A14P,R4 1P,N43K,A62S,A74S,K83R,V 89L)–9GS–ALB11002–A (SEQ ID NO: 112)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHMGWFRQAPGKEREFVAVITWSGGI TYYADSVKGRFTISRDNKNTIYVLQMNSLRPEDTALYYCAGDKHQSSWYDYWGQGTL VTVSSGGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRITFSDYVMGWFRQAPGK EREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCATTL LWMWTSYAPIKANDYDYGQGTLVTVSSGGGGSGGGSEVQLVESGGGVQPGNSLR SCAASGTFSSFGMSWVRQAPGKLEWVSSISGSGSDTLYADSVKGRFTISRDNKNT TLYLQMNSLRPEDTALYYCTIGGSLSRSSQGTLLVTSSA

FIG.18I

Pentamer /35GS	F023701163	1PD102C12 (E1D, L11V, A14P, W52aV, N73P, A74S, K83R, I89L, W100aF)–35GS– 1PD102C12 (L11V, A14P, W52aV, N73P, A74S, K83R, I89L, W100aF)–35GS– F023700842–35GS– F023700842–35GS– ALB11002–A (SEQ ID NO: 113)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYADSVKGRFTISRDPKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYMGGTIL VTVSSGGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGS LRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGITYYADSVKGRFTISRDP SKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYMGGTILVTVSSGGGGSGGGSGG GGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRTFSDYVM GWFRQAPGKEREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDT ALYYCATLLWWTSEYAPIKANDYDYMGGTILVTVSSGGGGSGGGSGGGSGGGGS GGGGSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRTFSDYVMGWFRQAPG KEREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCAT LLWWTSEYAPIKANDYDYMGGTILVTVSSGGGGSGGGSGGGSGGGSGGGSGGG GGGGSEVQLVESGGGVQPGNSLRLSCAASGFTFSFGMSWVRQAPGKGLEWVSS ISGSGSDTLYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCTIGGSLSRSSQ GTLVTVSSA
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FIG. 18J

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Pentamer /9GS	F023701168	1PD102C12 (E1D, L11V, A14P, W52aV, N73P, A74S, K83R, I89L, W100aF) -9GS- 1PD102C12 (L11V, A14P, W52aV, N73P, A74S, K83R, I89L, W100aF) -9GS- F023700842 -9GS- F023700842 -9GS-ALB11002-A (SEQ ID NO: 114)	hPD- 1/hLAG-3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDPKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGT LVTSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGK EREFVAVITVSGGIYYADSVKGRFTISRDPKNTVYLQMNSLRPEDTALYYCAGDK HQSSFYDYWGQGT LVTSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRFT SDYMGWFRQAPGKEREFVAAISESGGRTHYADSVKGRFTISRDNKNTLYLQMNSL RPEDTALYYCATTLLWMTSEYAPIKANDYDYWGQGT LVTSSGGGSGGGSEVQLVE SGGVQPGGSLRLSCAASGRFTSDYMGWFRQAPGKEREFVAAISESGGRTHYADS VKGRFTISRDNKNTLYLQMNSLRPEDTALYYCATTLLWMTSEYAPIKANDYDYWGQ GT LVTSSGGGSGGGSEVQLVESGGGVQPGNSLRLSCAASGFTSSFGMSWVRQA PGKLEWVSSISGSGDTLYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCT IGGSLSRSSQGTLVTVSSA
Trimer/ 35GS	F023701173	1PD102C12 (E1D, L11V, A14P, W52aV, N73P, A74S, K83R, I89L, W100aF) -35GS- F023700842 -35GS- ALB11002-A (SEQ ID NO: 115)	hPD- 1/hLAG-3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDPKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGT LVTSSGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGS LRLSCAASGRFTSDYMGWFRQAPGKEREFVAAISESGGRTHYADSVKGRFTISRDN SKNTLYLQMNSLRPEDTALYYCATTLLWMTSEYAPIKANDYDYWGQGT LVTSSGGG SGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGNSLRLSCAAS GFTSSFGMSWVRQAPKLEWSSISGSGDTLYADSVKGRFTISRDNKNTLYLQ MNSLRPEDTALYYCTIGGSLSRSSQGTLVTVSSA

FIG. 18K

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Trimer /9GS	F023701178	1PD102C12 (E1D, L11V, A14P, W52aV, N73P, A74S, K83R, I89L, W100aF)–9GS– F023700842–9GS–ALB11002–A (SEQ ID NO: 116)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDPKNTVYLVQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTL VTVSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRTFSDYVMGWFRQAPGK EREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCATTL LWWTSEYAPIKANDYDYGQGTLLVTVSSGGGSGGGSEVQLVESGGGVQPGNSLR SCAASGRTFSSFGMSWVRQAPGKLEWVSSI SGGSDTL YADSVKGRFTISRDNKNT TLYLQMNSLRPEDTALYYCTIGGSLSRSSGGTLVTVSSA
Pentamer /35GS	F023701161	1PD102C12 (E1D, L11V, A14P, W52aV, N73Q, A74S, K83R, I89L, W100aF)–35GS– 1PD102C12 (L11V, A14P, W52aV, N73Q, A74S, K83R, I89L, W100aF)–35GS– F023700842–35GS– F023700842–35GS– ALB11002–A (SEQ ID NO: 117)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDPKNTVYLVQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTL VTVSSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGS LRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGITYYADSVKGRFTISRDPQ SKNTVYLVQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTLLVTVSSGGGSGGGSGGG GGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRTFSDYVM GWFRQAPGKEREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDT ALYYCATTLWWTSEYAPIKANDYDYGQGTLLVTVSSGGGSGGGSGGGSGGGSGGGGS GGGSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRTFSDYVMGWFRQAPG KEREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCATT LLWWTSEYAPIKANDYDYGQGTLLVTVSSGGGSGGGSGGGSGGGSGGGSGGG GGSGGGSEVQLVESGGGVQPGNSLRSCAASGRTFSSFGMSWVRQAPGKLEWVSSI ISGGSDTL YADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCTIGGSLSRSSQ GTLVTVSSA

FIG. 18L

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Pentamer /9GS	F023701166	1PD102C12 (E1D, L11V, A14P, W52aV, N73Q, A74S, K83R, I89L, W100aF)–9GS– 1PD102C12 (L11V, A14P, W52aV, N73Q, A74S, K83R, I89L, W100aF)–9GS– F023700842–9GS– F023700842–9GS–ALB11002–A (SEQ ID NO: 118)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYADSVKGRFTISRDSKNTVYLGQNSLRPEDTALYYCAGDKHQSSFYDYWGQGTIL VTVSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGK EREFVAVITVSGGIYYADSVKGRFTISRDSKNTVYLGQNSLRPEDTALYYCAGDK HQSSFYDYWGQGTILVTVSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRFT SDYMGWFRQAPGKEREFVAAISESGGRTHYADSVKGRFTISRDNKNTLYLQMSL RPEDTALYYCATTLWWTSEYAPIKANDYDYGQGTILVTVSSGGGSGGGSEVQLVE SGGGVQPGGSLRLSCAASGRFTSDYMGWFRQAPGKEREFVAAISESGGRTHYADS VKGRFTISRDNKNTLYLQMSLRPEDTALYYCATTLWWTSEYAPIKANDYDYGQ GTILVTVSSGGGSGGGSEVQLVESGGGVQPGNSLRSCAASGFTFSFGMSWVRQA PKGLEWSSISGSGSDTLYADSVKGRFTISRDNKNTLYLQMSLRPEDTALYYCT IGGSLSRSSQGTILVTSSA
Trimer /35GS	F023701171	1PD102C12 (E1D, L11V, A14P, W52aV, N73Q, A74S, K83R, I89L, W100aF)–35GS– F023700842–35GS– ALB11002–A (SEQ ID NO: 119)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYADSVKGRFTISRDSKNTVYLGQNSLRPEDTALYYCAGDKHQSSFYDYWGQGTIL VTVSSGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGS LRLSCAASGRFTSDYMGWFRQAPGKEREFVAAISESGGRTHYADSVKGRFTISRDN SKNTLYLQMSLRPEDTALYYCATTLWWTSEYAPIKANDYDYGQGTILVTVSSGGG SGGGSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGNSLRSCAAS GFTFSFGMSWVRQAPGKLEWSSISGSGSDTLYADSVKGRFTISRDNKNTLYLQ MSLRPEDTALYYCTIGGSLSRSSQGTILVTSSA

FIG. 18M

Trimer /9GS	F023701176	1PD102C12 (E1D, L11V, A14P, W52aV, N73Q, A74S, K83R, I89L, W100aF)–9GS– F023700842–9GS–ALB11002–A (SEQ ID NO: 120)	hPD– 1/hLAG–3	DVQLVESGGGVQPGSLRLSCAASGSIASIHAMGWFRAQPKGERFVAVITVSGGI TYYADSVKGRFTISRQSKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTL VTSSGGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRFTSDYMGWFRAQPK EREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCATTL LWWTSEYAPIKANDYDYGQGTTLVTSSGGGGSGGGSEVQLVESGGGVQPGNSLR SCAASGFTFSFGMSWVRQAPGKGLEWSSISGSGSDTLYADSVKGRFTISRDNKT TLYLQMNSLRPEDTALYYCTIGGSLSRSSQGTTLVTVSSA
Pentamer /35GS	F023701162	1PD102C12 (E1D, L11V, A14P, W52aV, N73S, A74S, K83R, I89L, W100aF)–35GS– 1PD102C12 (L11V, A14P, W52aV, N73S, A74S, K83R, I89L, W100aF)–35GS– F023700842–35GS– F023700842–35GS– ALB11002–A (SEQ ID NO: 121)	hPD– 1/hLAG–3	DVQLVESGGGVQPGSLRLSCAASGSIASIHAMGWFRAQPKGERFVAVITVSGGI TYYADSVKGRFTISRQSKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTL VTSSGGGGSGGGSGGGGGSGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG LRLSCAASGSIASIHAMGWFRAQPKGERFVAVITVSGGIYYADSVKGRFTISRDS SKNTVYLQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTTLVTSSGGGGSGGGSGG GGSGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG GMFRAQPKGERFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDT ALYYCATTLWWTSEYAPIKANDYDYGQGTTLVTSSGGGGSGGGGGGGGGGGGGGG GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG KEREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCATT LLWWTSEYAPIKANDYDYGQGTTLVTSSGGGGSGGGGGGGGGGGGGGGGGGGGGGG GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG ISGSGSDTLYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCTIGGSLSRSSQ GTLVTVSSA

FIG. 18N

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Pentamer /9GS	F023701167	1PD102C12 (E1D, L11V, A14P, W52aV, N73S, A74S, K83R, I89L, W100aF)–9GS– 1PD102C12 (L11V, A14P, W52aV, N73S, A74S, K83R, I89L, W100aF)–9GS– F023700842–9GS– F023700842–9GS– ALB11002–A (SEQ ID NO: 122)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDSKNTVYLVQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTLL VTVSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGK EREFVAVITVSGGITYYADSVKGRFTISRDSKNTVYLVQMNSLRPEDTALYYCAGDK HQSSFYDYWGQGTLLVTVSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGRFT SDYVMGWFRQAPGKEREFVAAISESGGRTHYADSVKGRFTISRDSKNTLYLVQMNSL RPEDTALYYCATLLWMTSEYAPIKANDYDYWGQGTLLVTVSSGGGSGGGSEVQLVE SGGVQPGGSLRLSCAASGRFTSDYVMGWFRQAPGKEREFVAAISESGGRTHYADS VKGRFTISRDSKNTLYLVQMNSLRPEDTALYYCATLLWMTSEYAPIKANDYDYWGQ GTLLVTVSSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAASGFTFSFGMSWVRQA PGGLEWVSSISGSGSDTLYADSVKGRFTISRDNAKTLLYLVQMNSLRPEDTALYYCT IGGSLRSSQGTLLVTVSSA
Trimer /35GS	F023701172	1PD102C12 (E1D, L11V, A14P, W52aV, N73S, A74S, K83R, I89L, W100aF)–35GS– F023700842–35GS– ALB11002–A (SEQ ID NO: 123)	hPD– 1/hLAG–3	DVQLVESGGGVQPGGSLRLSCAASGSIASIHAMGWFRQAPGKEREFVAVITVSGGI TYYADSVKGRFTISRDSKNTVYLVQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTLL VTVSSGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGS LRLSCAASGRFTSDYVMGWFRQAPGKEREFVAAISESGGRTHYADSVKGRFTISRDN SKNTLYLVQMNSLRPEDTALYYCATLLWMTSEYAPIKANDYDYWGQGTLLVTVSSGGG SGGGSGGGSGGGSGGGSGGGSGGGSEVQLVESGGGVQPGGSLRLSCAAS GFTFSFGMSWVRQAPGKLEWVSSISGSGSDTLYADSVKGRFTISRDNAKTLLYLQ MNSLRPEDTALYYCTIGGSLRSSQGTLLVTVSSA

FIG.180

Trimer /9GS	F023701177	1PD102C12 (E1D, L11V, A14P, W52aV, N73S, A74S, K83R, I89L, W100aF)-9GS- F023700842-9GS-ALB1102-A (SEQ ID NO: 123)	hPD- 1/hLAG-3	DVQLVESGGGVQPQGSRLSCAASGSIASIHAMGWFRAQPGKEREFVAVITVSGGI TYYADSVKGRFTISRDSKNTVYLYQMNSLRPEDTALYYCAGDKHQSSFYDYWGQGTLL VTVSSGGGGGGGSEVQLVESGGGVQPQGSRLSCAASGRFTSDYVMGWFRQAPGK EREFVAAISESGRTHYADSVKGRFTISRDNKNTLYLQMNSLRPEDTALYYCATTL LWWTSEYAPIKANDYDYWGQGTLLTVSSGGGGGGGSEVQLVESGGGVQPQNSLRLL SCAASGFTSSFGMSWVRQAPGKGLEWVSSI SGSGSDTLYADSVKGRFTISRDNVAKT TLYLQMNSLRPEDTALYYCTIGGSLSRSSQGTLLTVSSA
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FIG. 18P

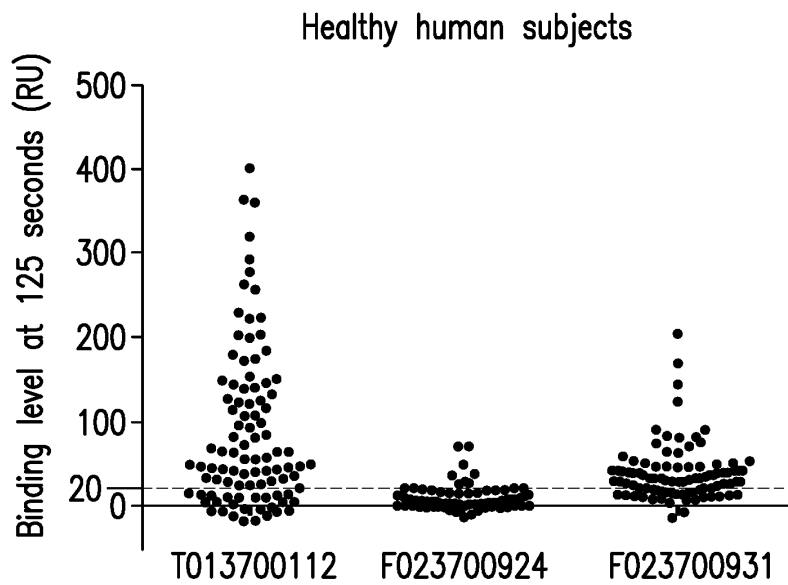


FIG.19A

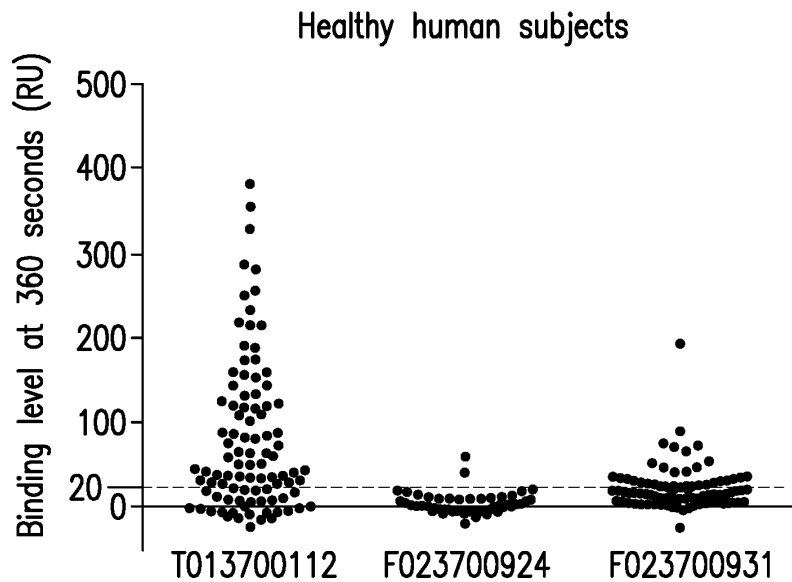


FIG.19B

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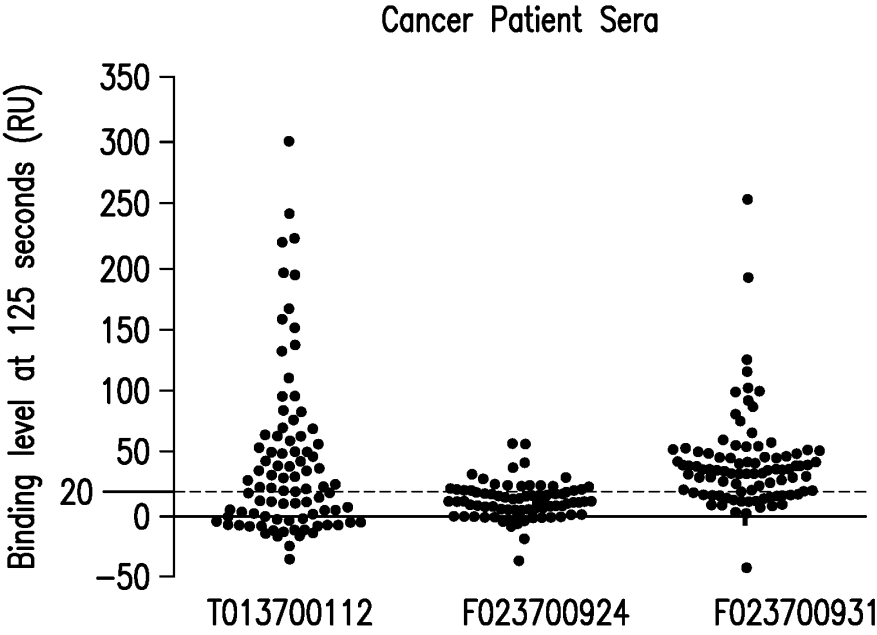


FIG.19C

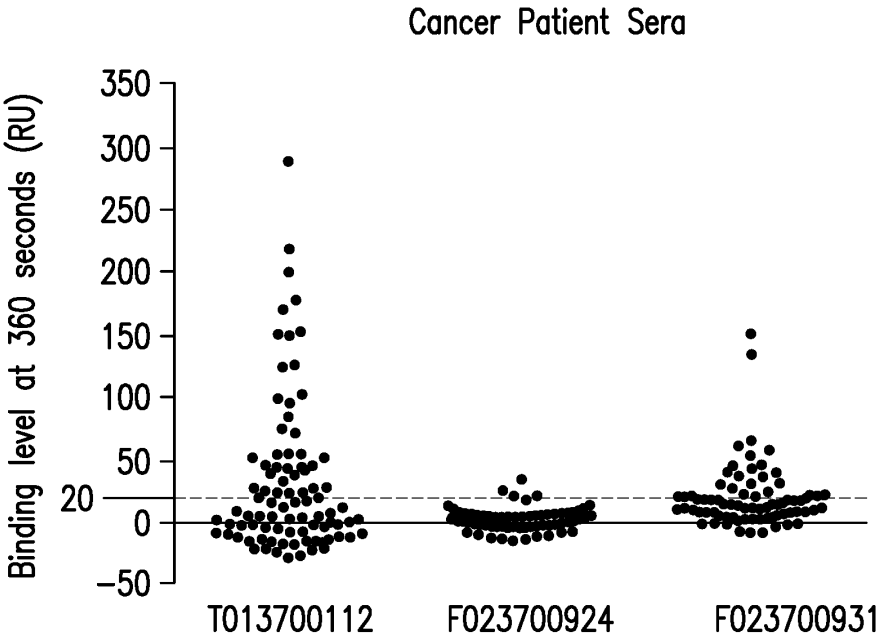


FIG.19D

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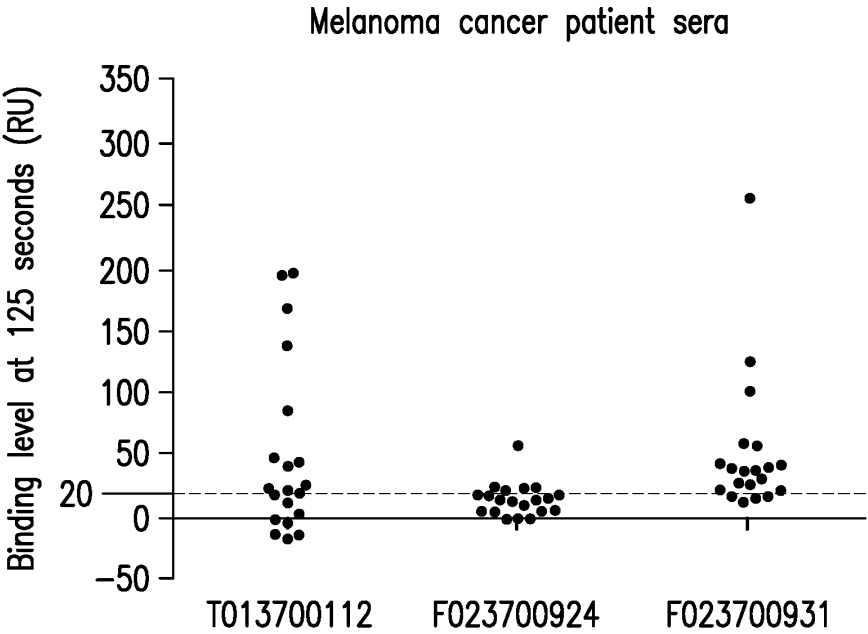


FIG.19E

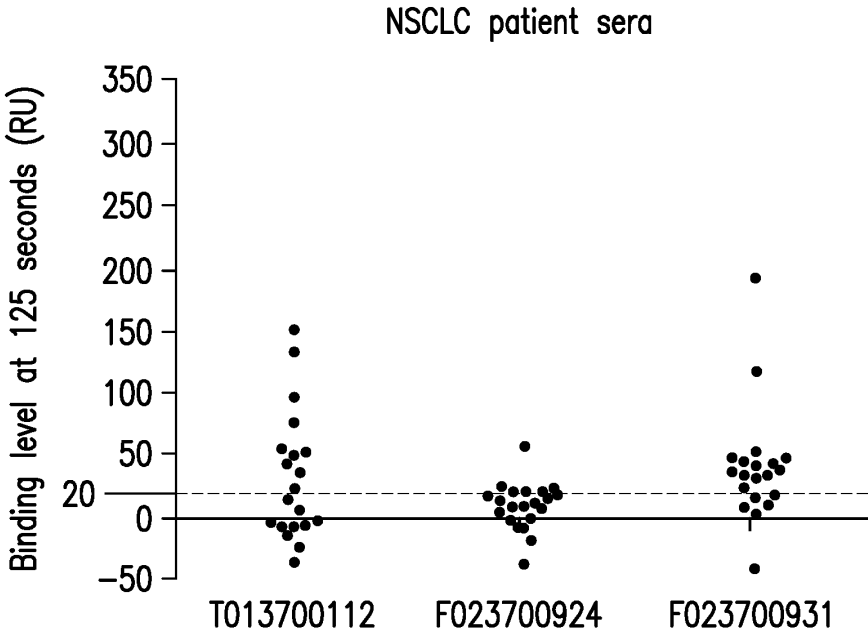


FIG.19F

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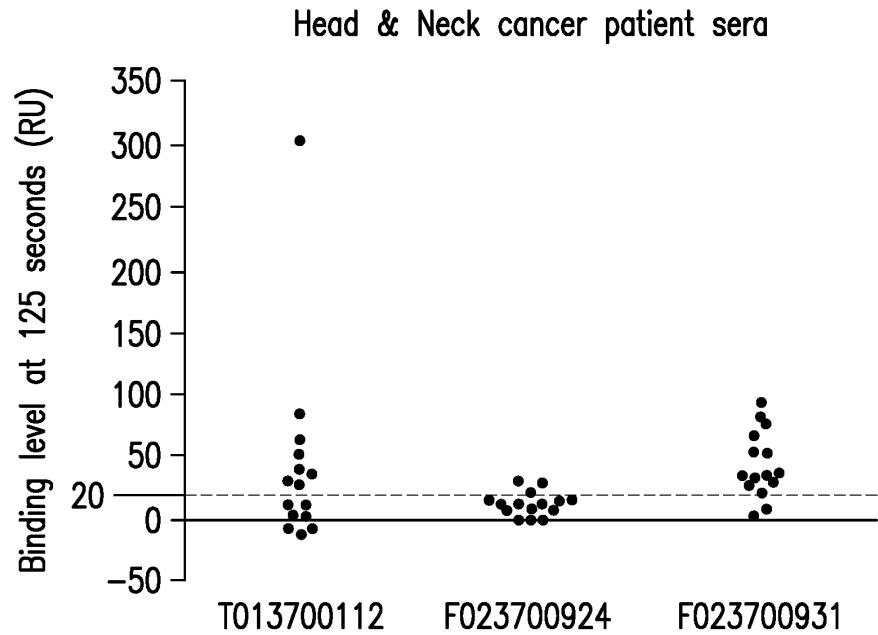


FIG. 19G

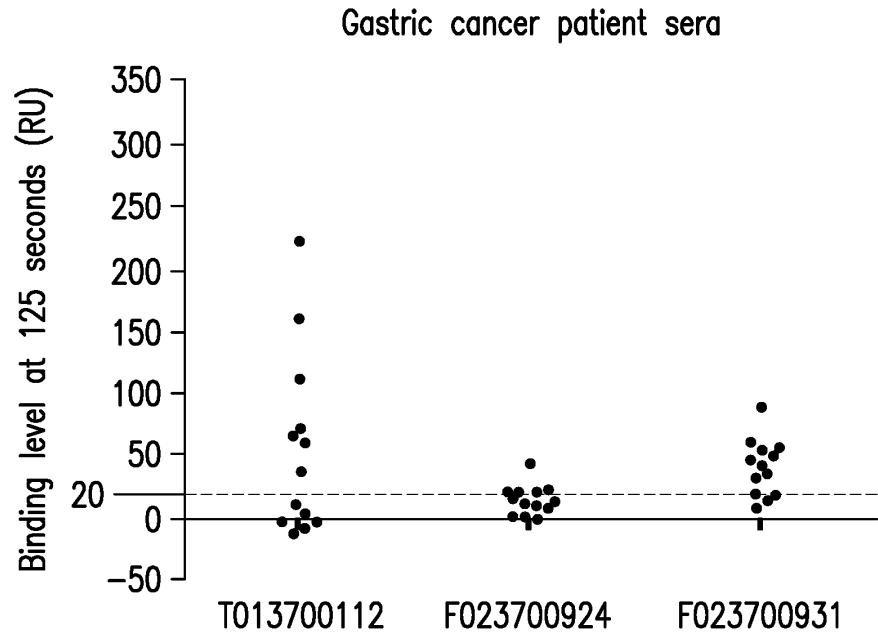


FIG. 19H

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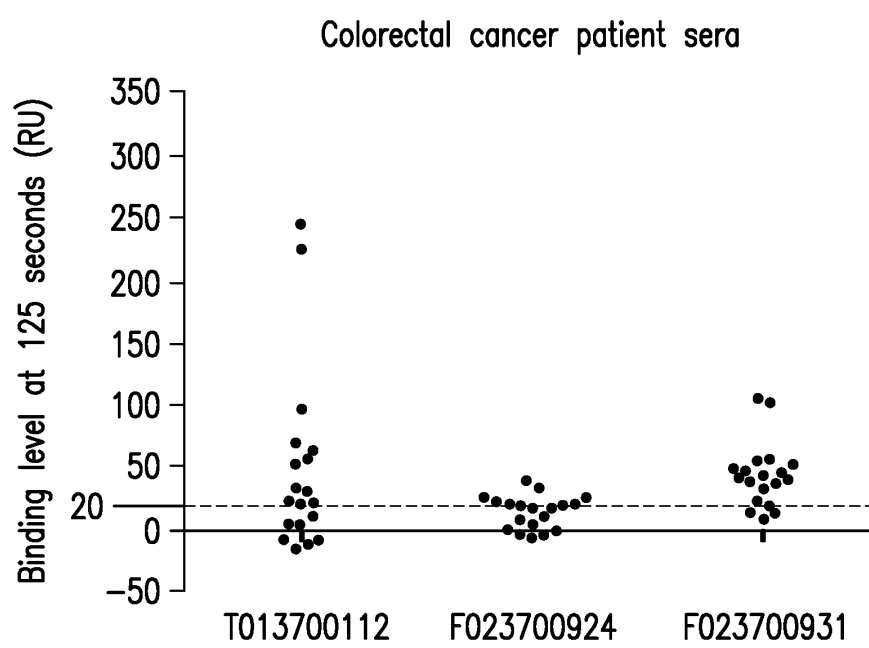


FIG. 19I