

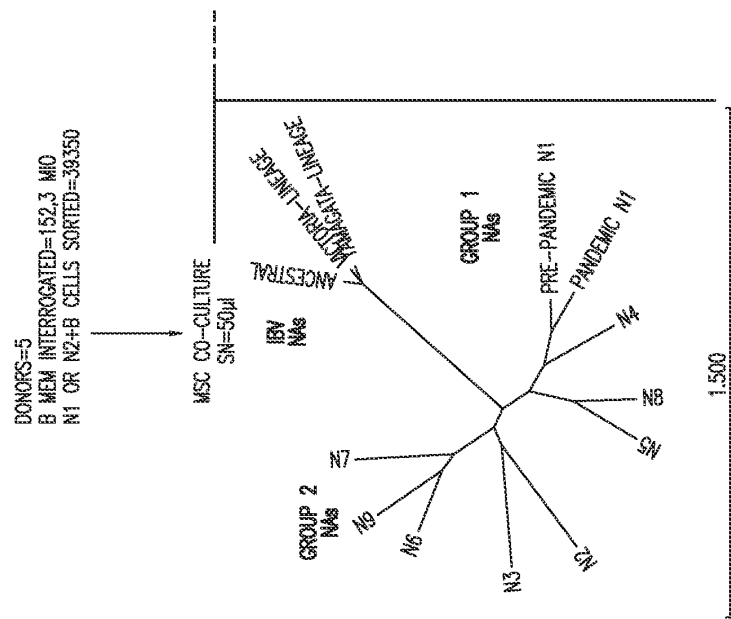


FIG. 1

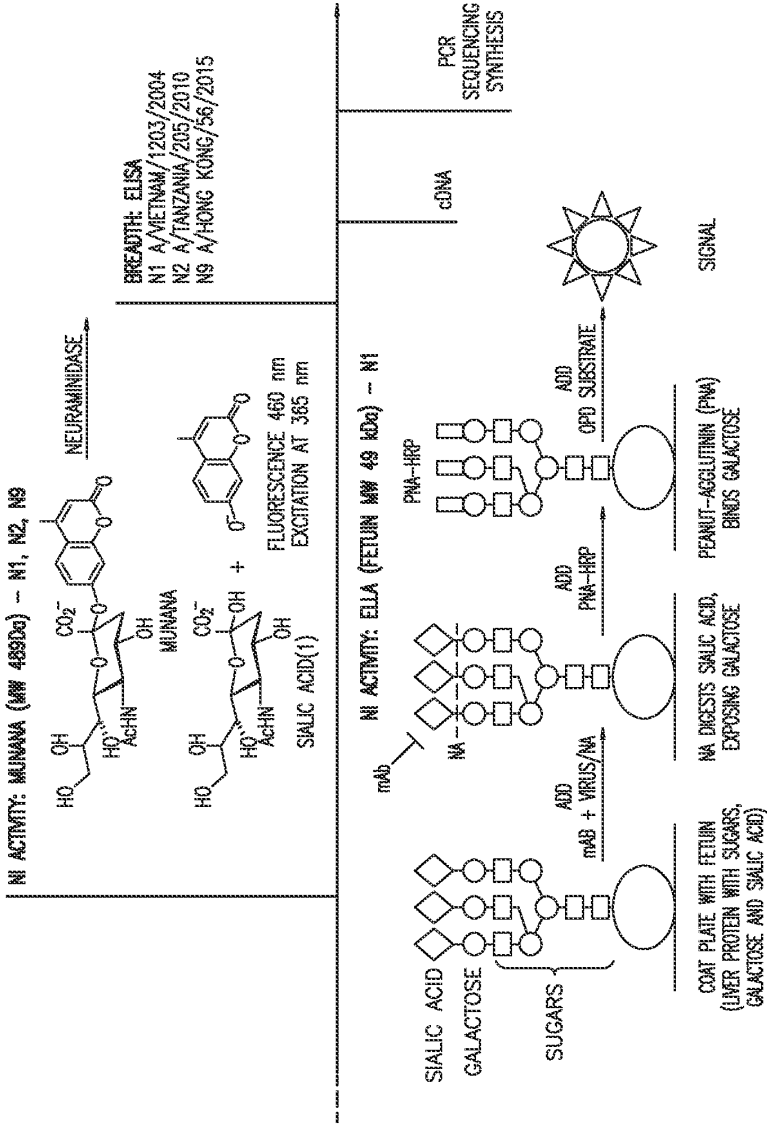


FIG. 1(cont'd)

FIG. 2A

FR1		CDR1	FR2	CDR2
UCAAQVQLVQSGAEVKKPGSSVKVISCKASGQTFFSSVTAISWVRQAPGQGLEWMGGIIPPIFGTIA				
FNI3.....R.....R.....G.D..NN.V.....Q.P				
FNI9..H.....E.....T.....S.NNQ.....F.S..P				

FR3		CDR3	FR4
UCAQVAFQGRVTITTADESTSTAYMELSSLRSEDTAVVYCARAGSDYFNRLGWEINYYFDYWCQGTLVTVSS			
FNI3.....A.....A.....S.I.....N.....ED.....			
FNI9TTT..R.....F.....T.V..D.....D.....AS.....			

FIG. 2B

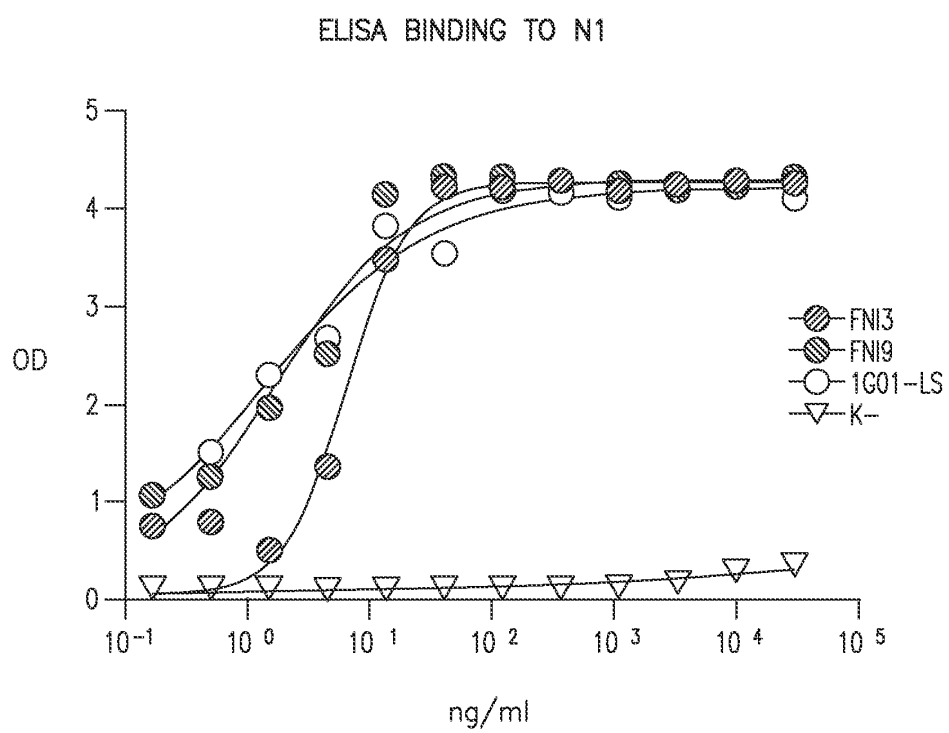


FIG. 3A

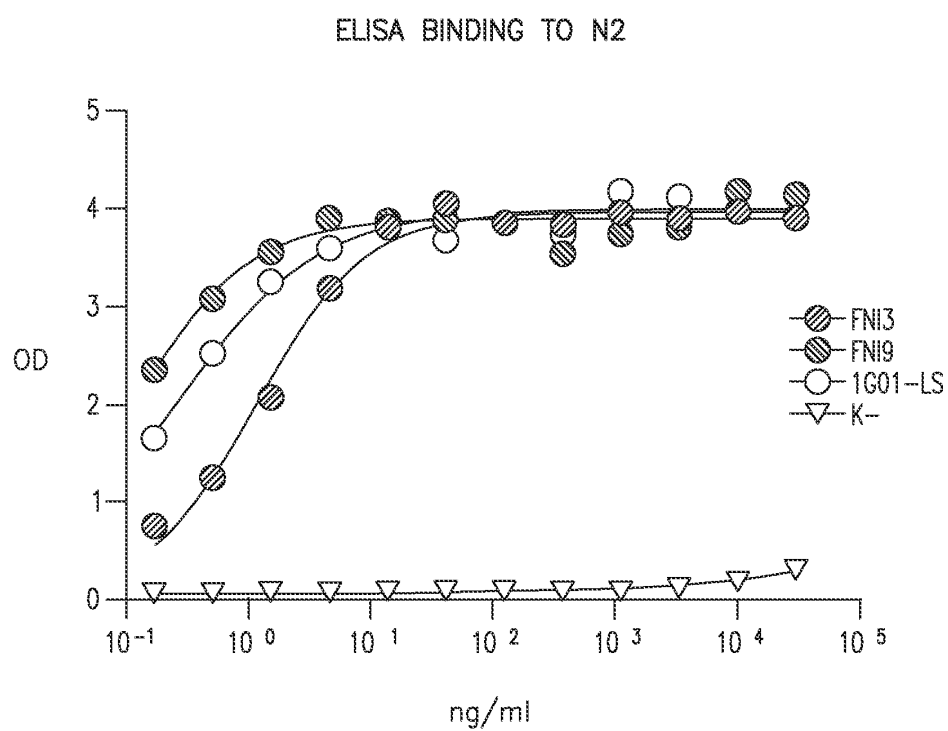


FIG. 3B

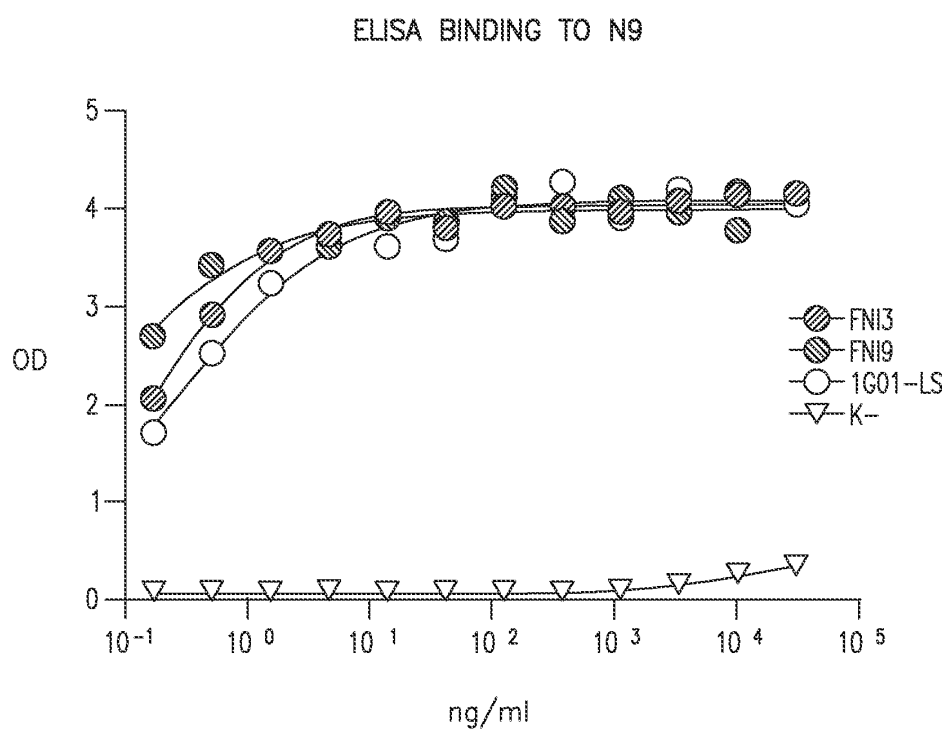


FIG. 3C

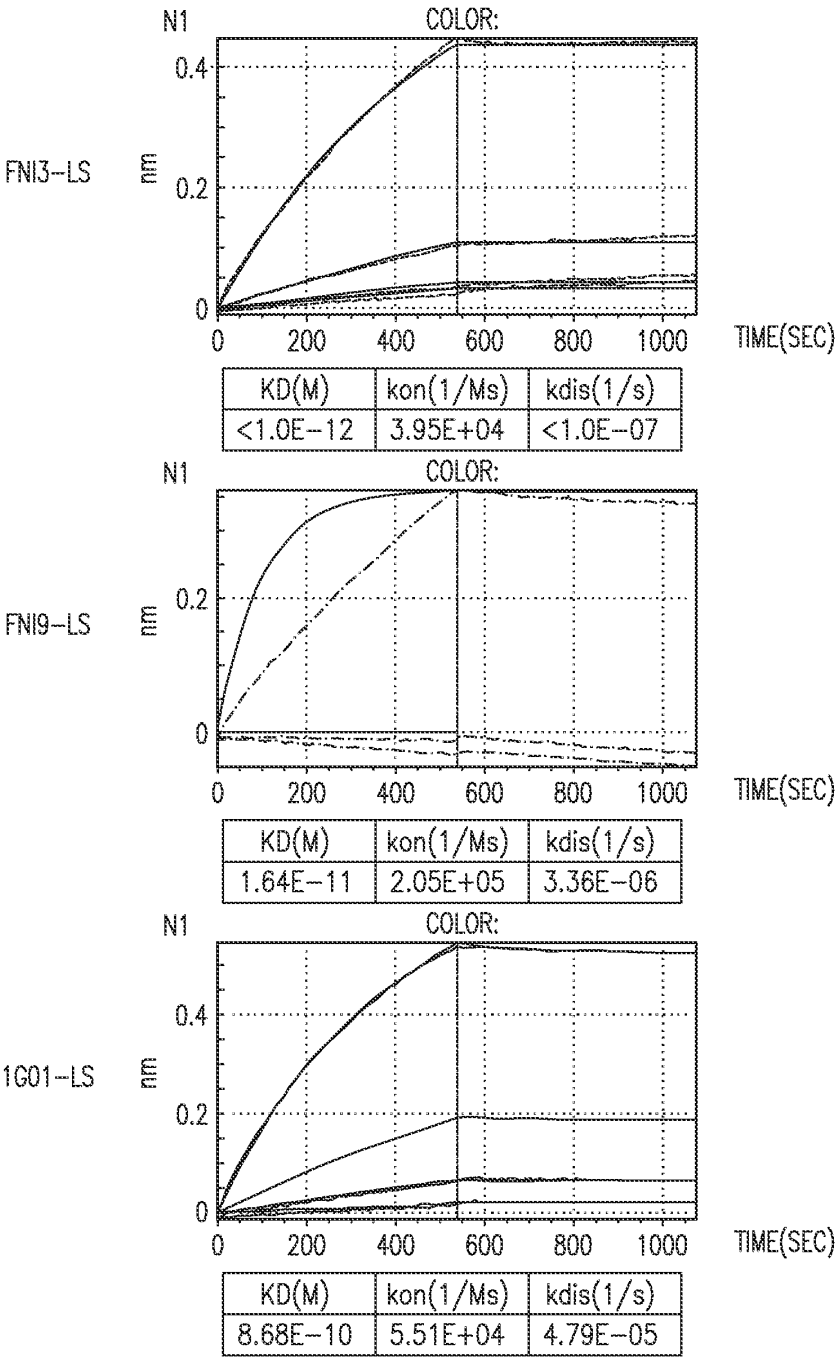


FIG. 4A

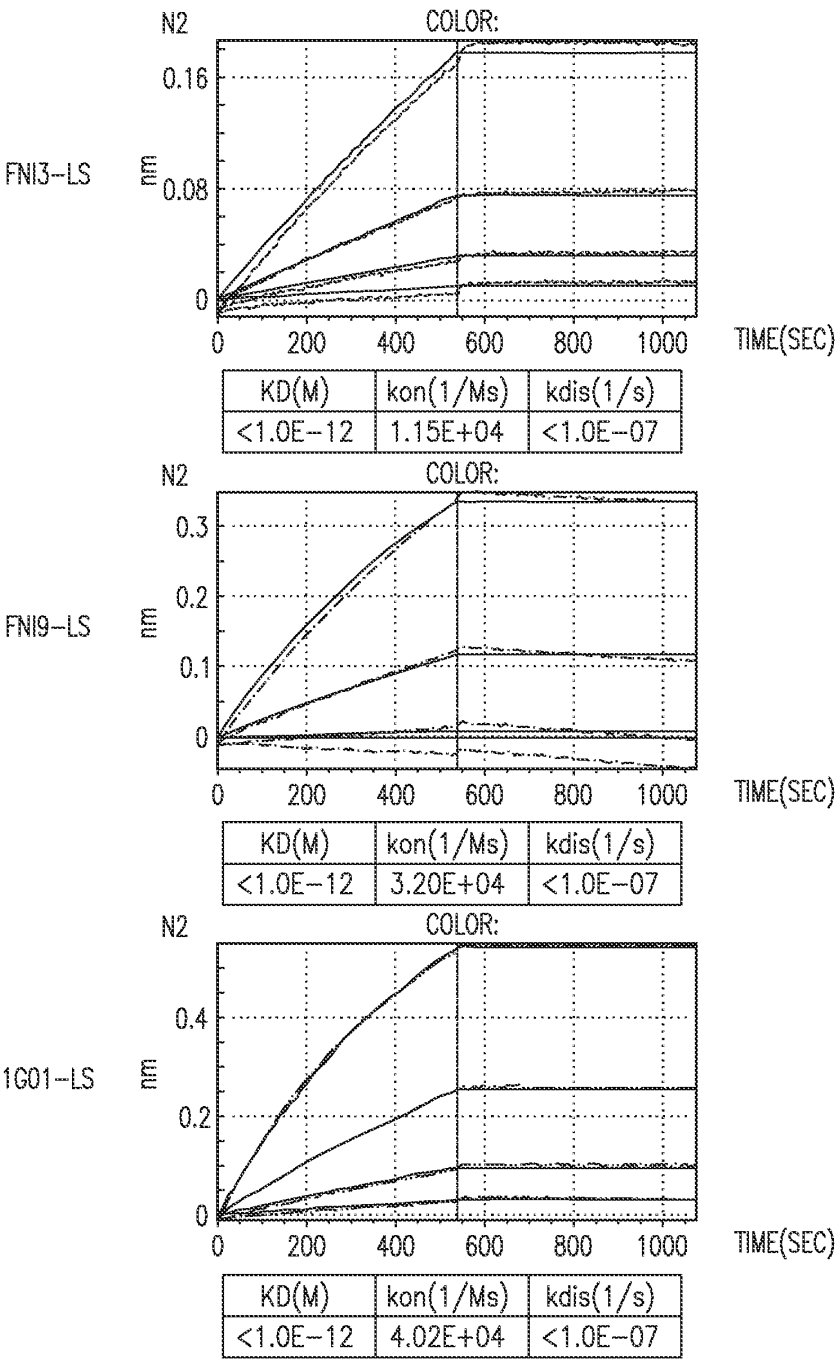


FIG. 4B

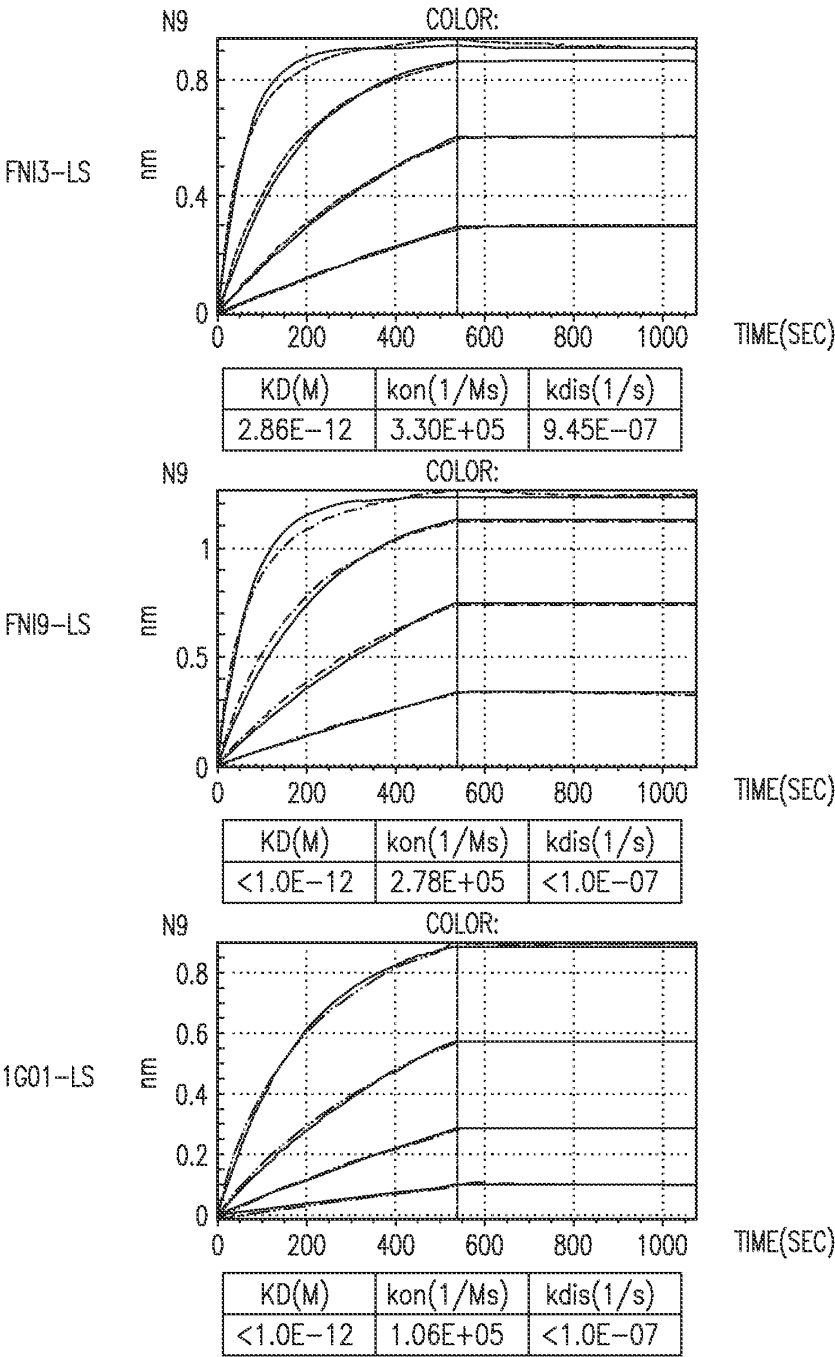


FIG. 4C

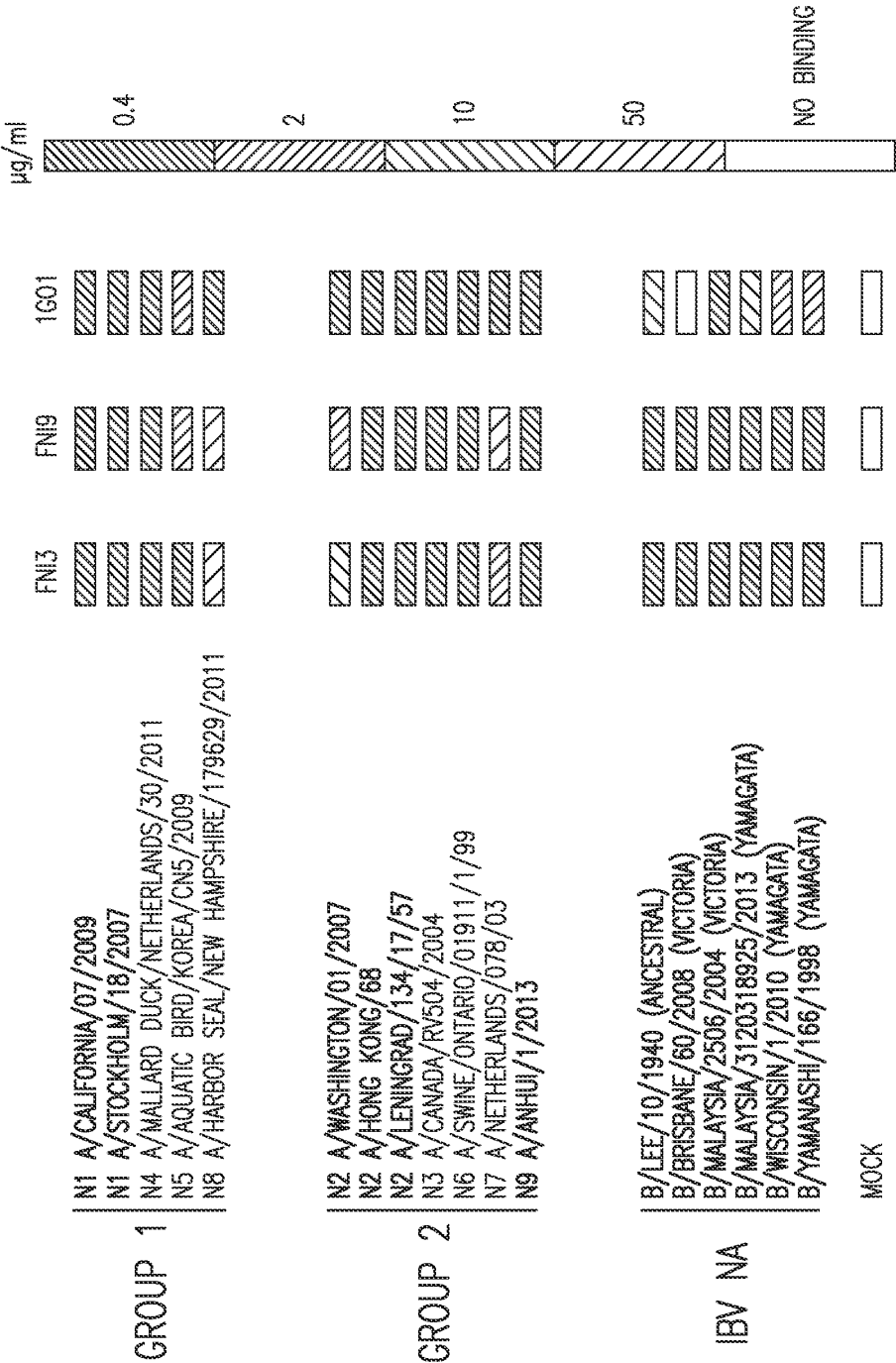


FIG. 5

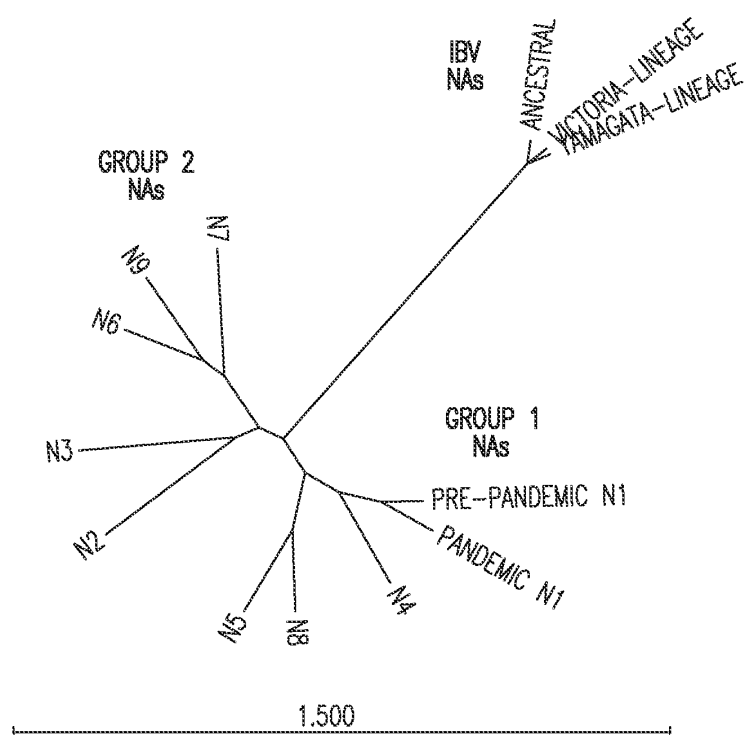


FIG. 6

			245	247	
A/SOUTH AUSTRALIA/34/2019	G	N	A	T	G
A/SWITZERLAND/8060/2017	G	N	A	T	G
A/SINGAPORE/INFIMH-16-0019/2016	G	N	A	T	G
A/SWITZERLAND/9715293/2013	G	S	A	S	G

FIG. 7A

		FNI3 NAI (µg/ml)	FNI9 NAI (µg/ml)
H3N2	A/SWITZERLAND/8060/2017	9.49	3.84
	A/SINGAPORE/INFIMH-16-0019/2016	18.39	2.21
	A/SWITZERLAND/9715293/2013	1.63	1.21

FIG. 7B

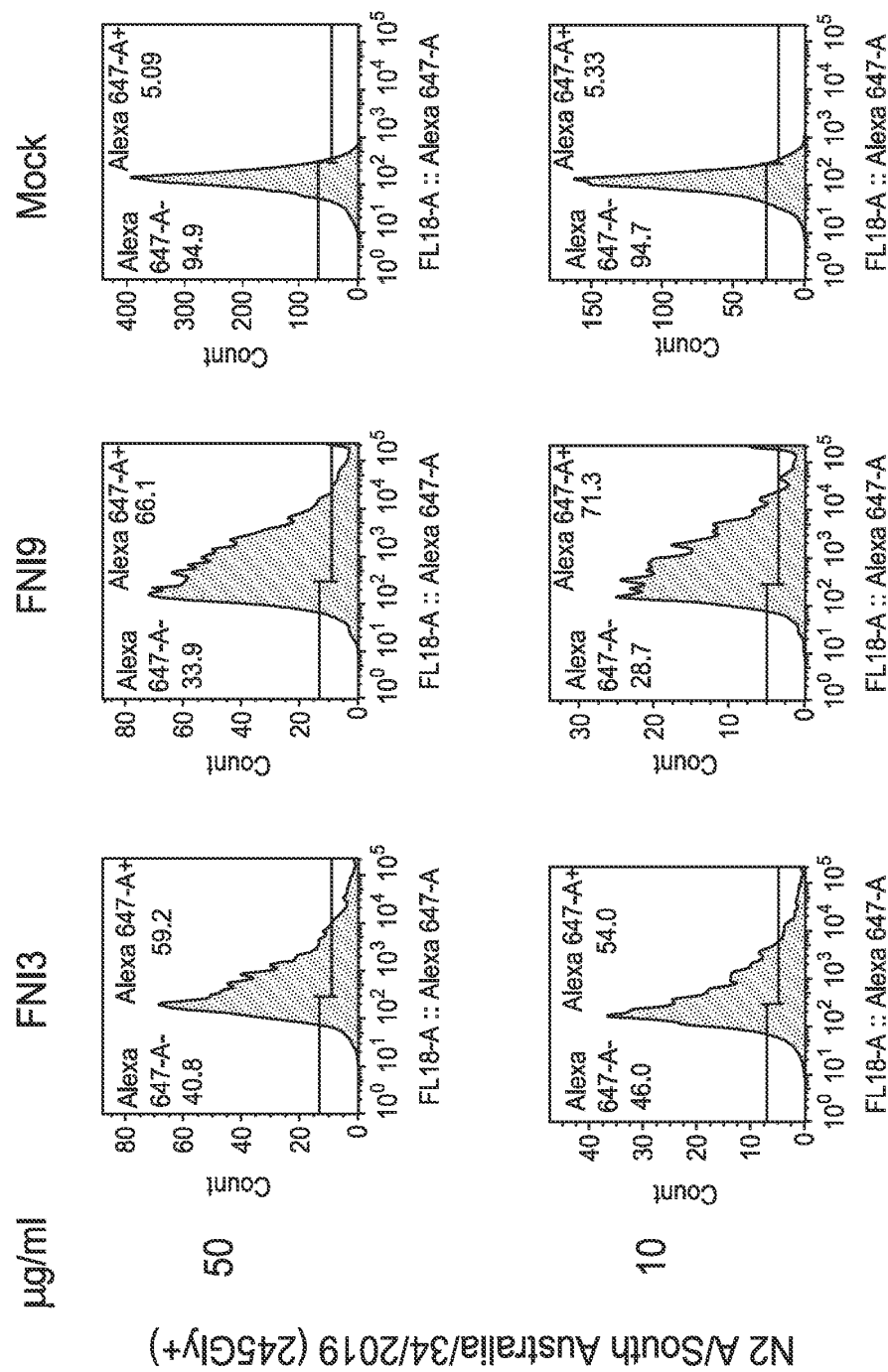


FIG. 7C

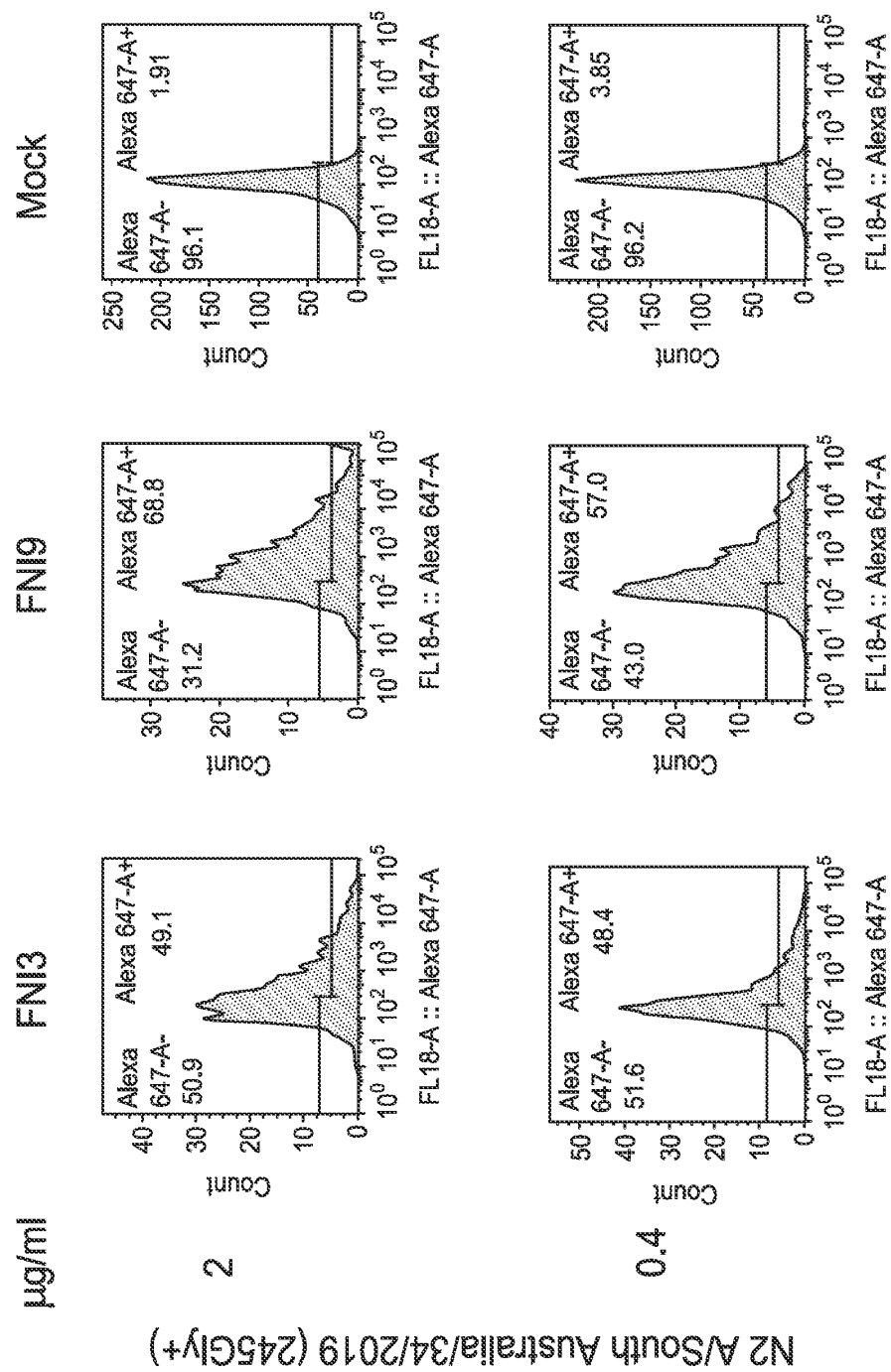


FIG. 7C (cont'd)

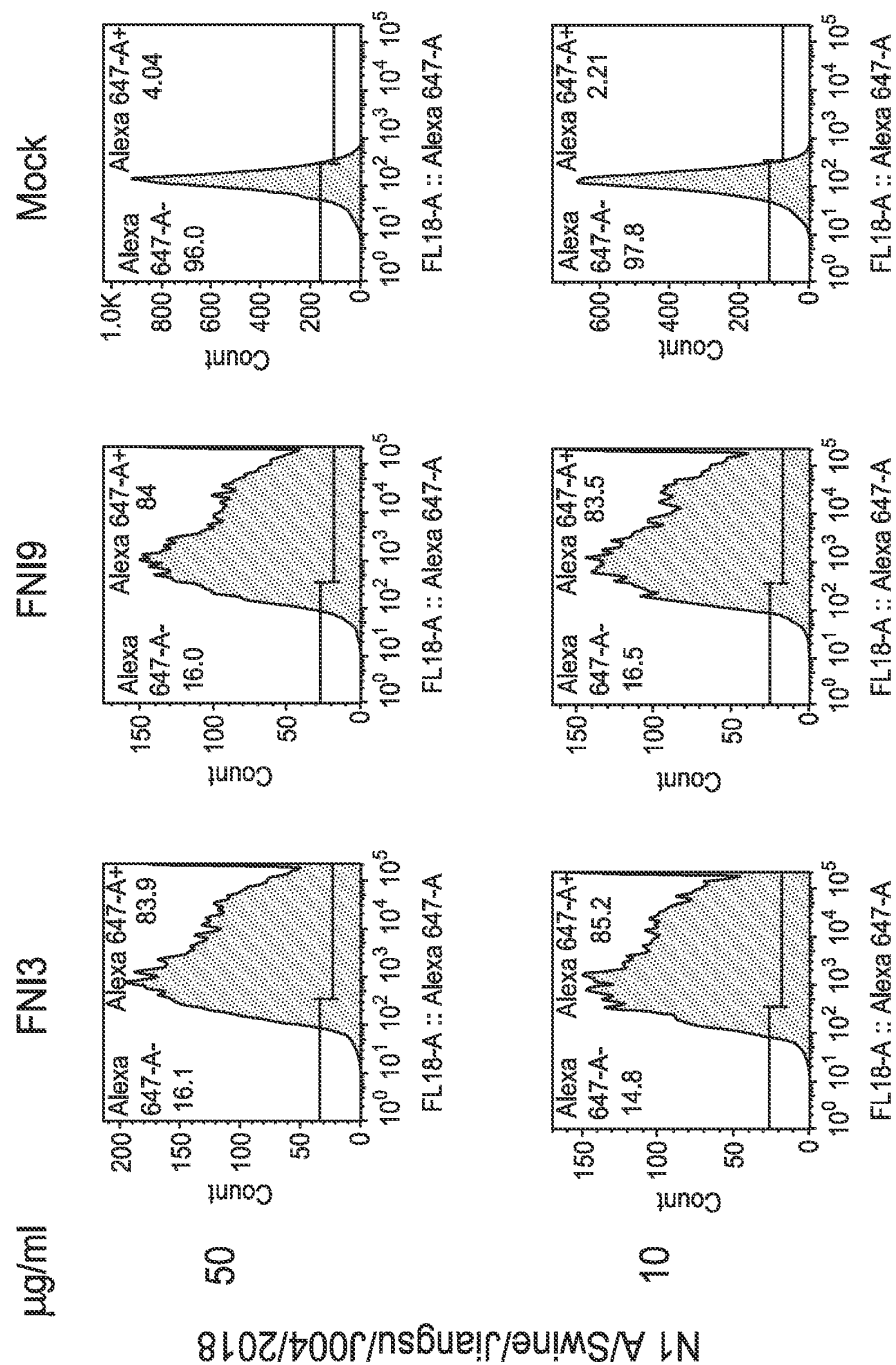


FIG. 8

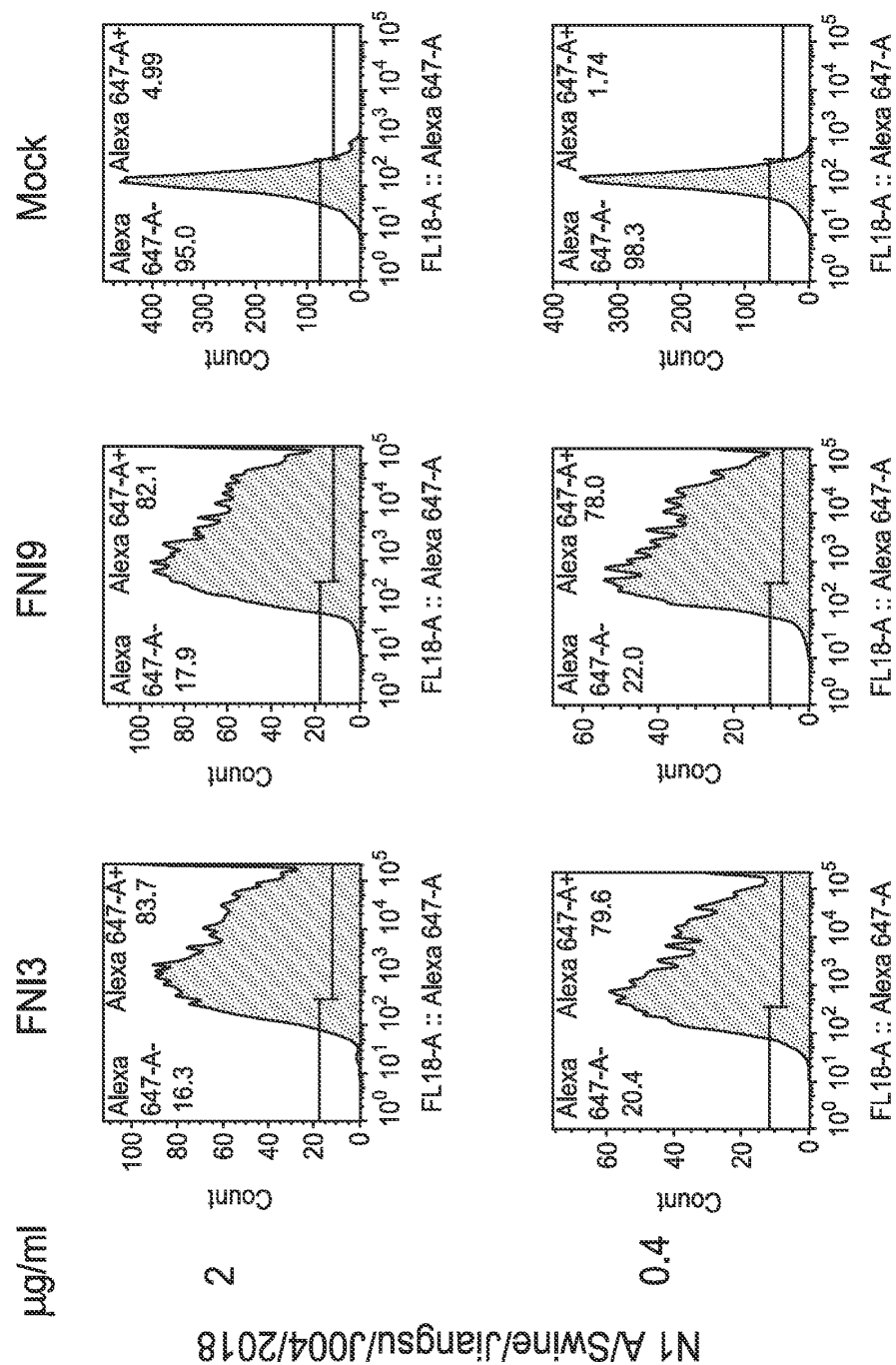


FIG. 8 (cont'd)

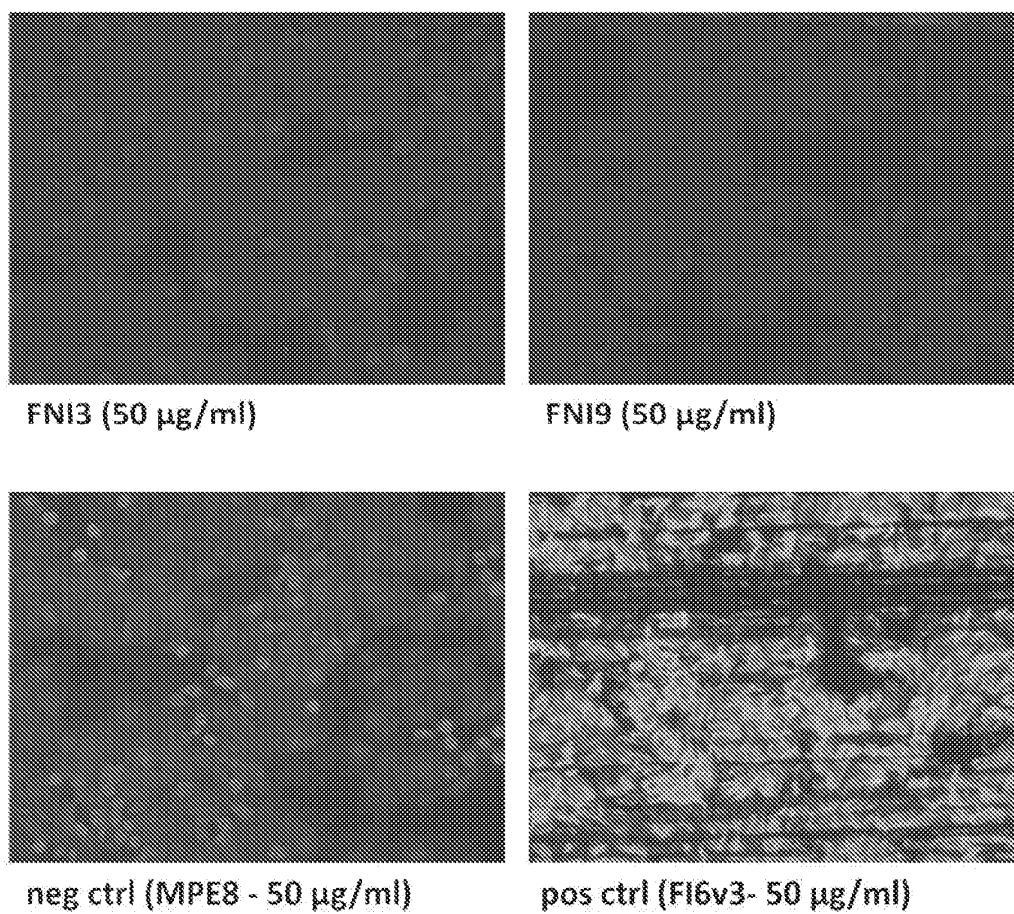
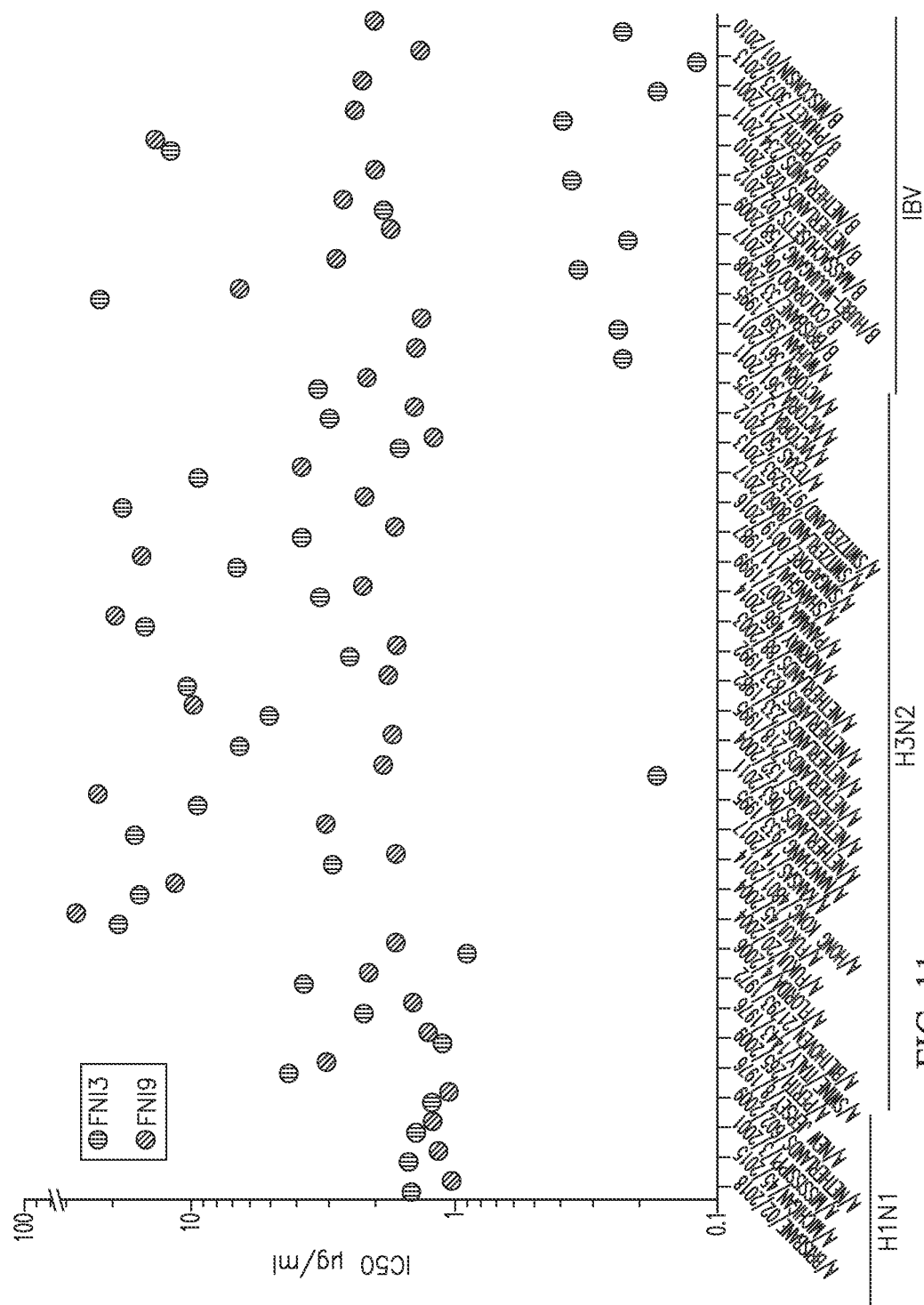


FIG. 9



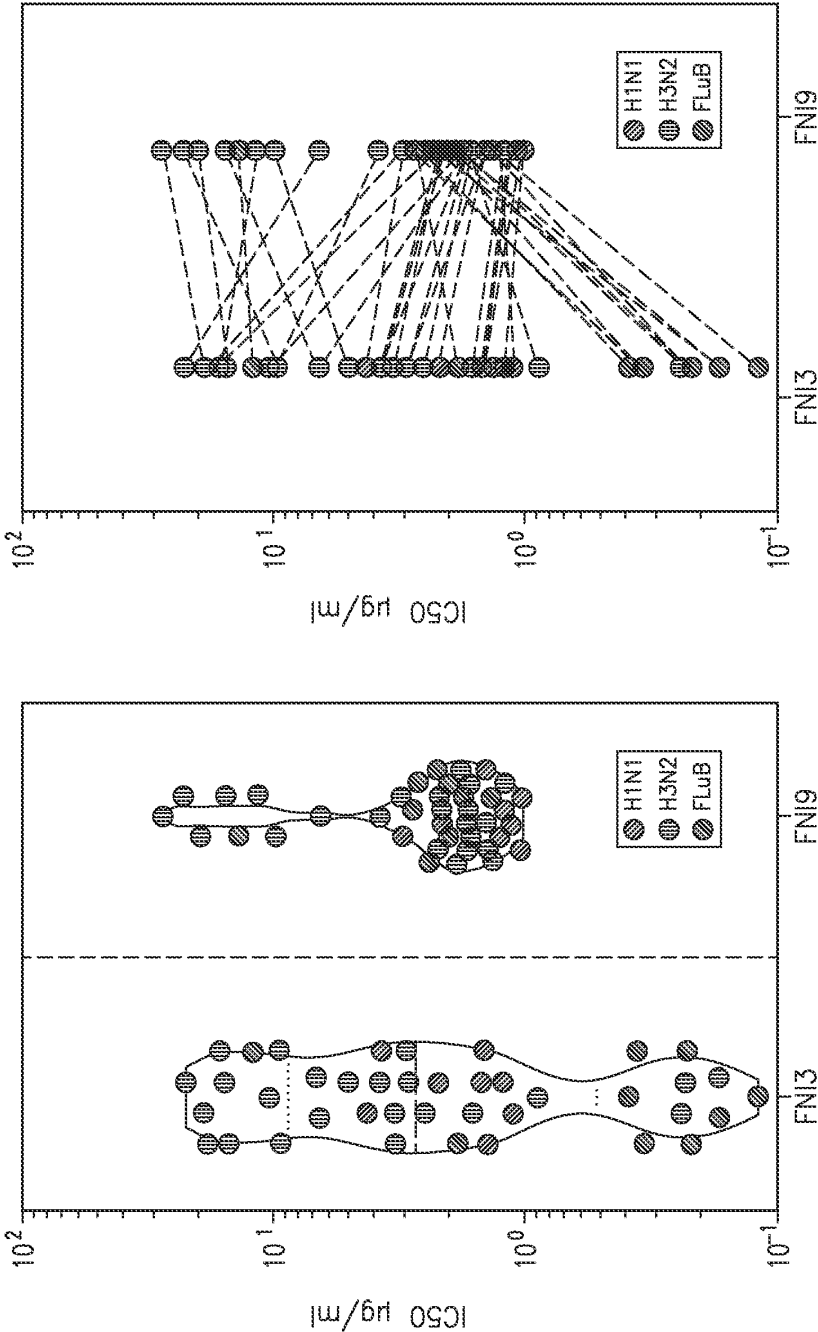


FIG. 12A

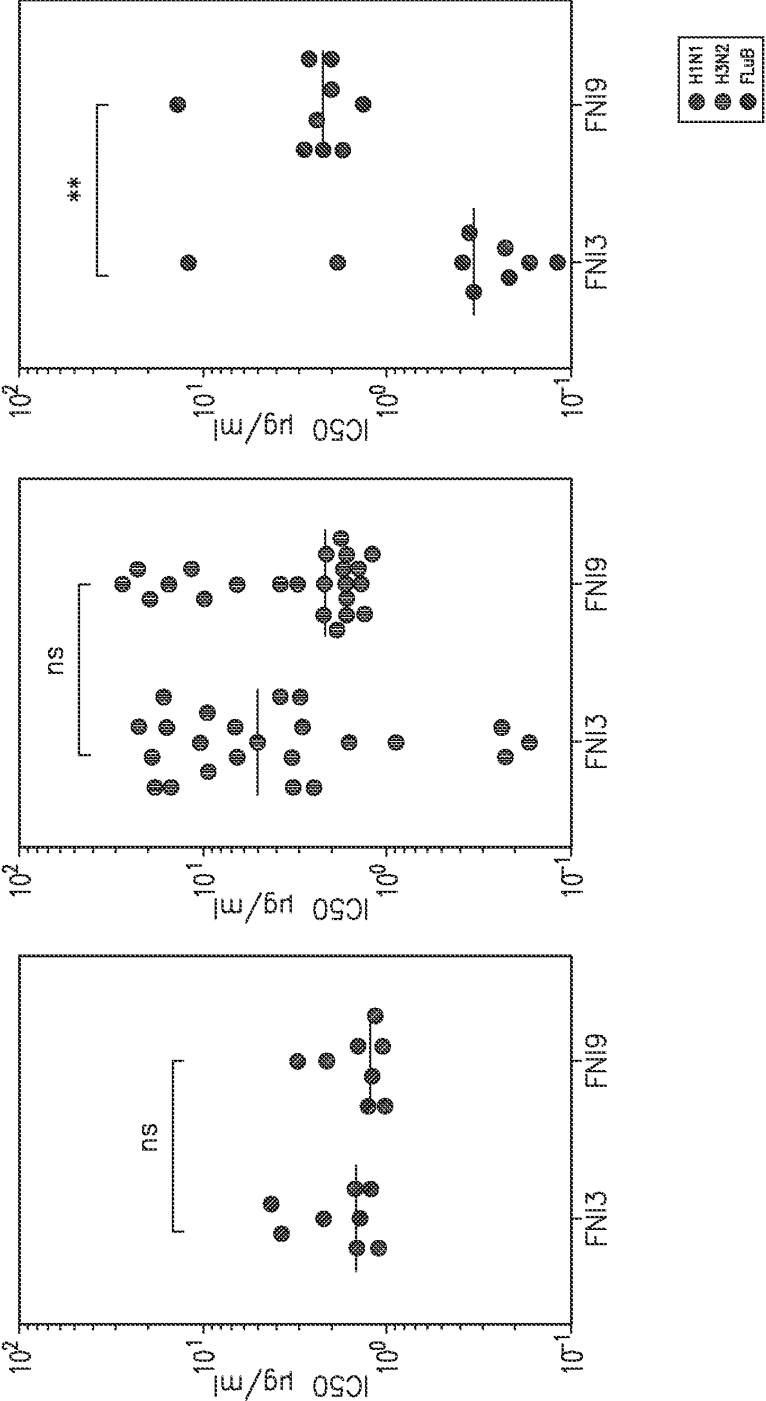


FIG. 12B

A, H1N1	A/BRISBANE/02/2018
A, H1N1	A/MICHIGAN/45/2015
A, H1N1	A/MISSISSIPPI/3/2001
A, H1N1	A/NETHERLANDS/602/2009
A, H1N1	A/NEW JERSEY/8/1976
A, H3N2	A/FLORIDA/4/2006
A, H3N2	A/NETHERLANDS/823/1992
A, H3N2	A/NORWAY/466/2014
A, H3N2	A/SINGAPORE/INFIMH-16-0019/2016
A, H3N2	A/SWITZERLAND/8060/2017
A, H3N2	A/TEXAS/50/2012
A, H3N2	A/VICTORIA/361/2011
B	B/BRISBANE/33/2008
B	B/COLORADO/06/2017
B	B/HUBEI-WUJIAGANG/158/2009
B	B/MASSACHUSETTS/02/2012
B	B/NETHERLANDS/234/2011
B	B/PERTH/211/2001
B	B/PHUKET/3073/2013
B	B/WISCONSIN/01/2010

*A/SINGAPORE/INFIMH-16-0019/2016 AND
A/SWITZERLAND/8060/2017 PRESENT A GLY SITE IN POSITION 245

FIG. 13A

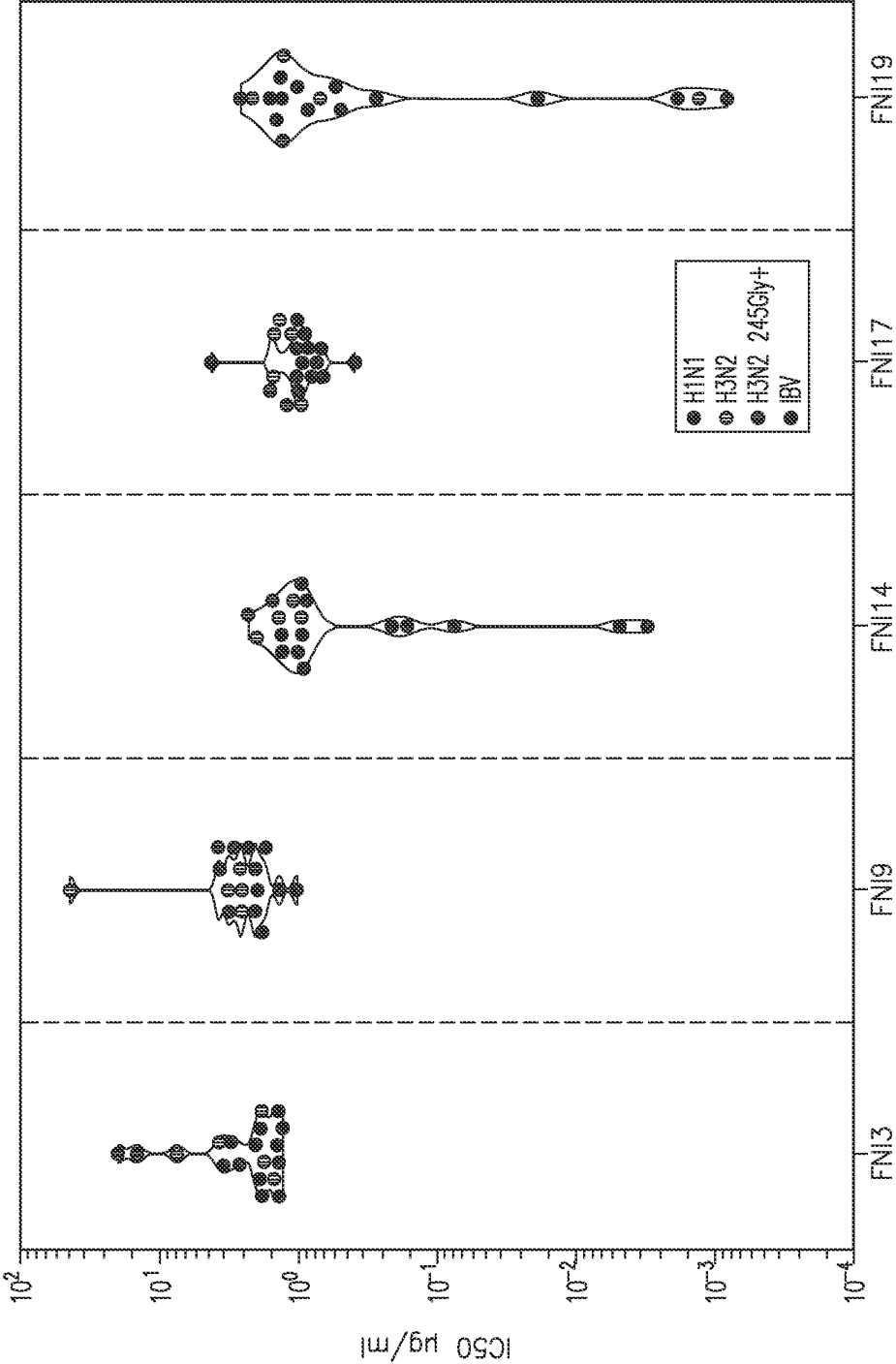


FIG. 13B

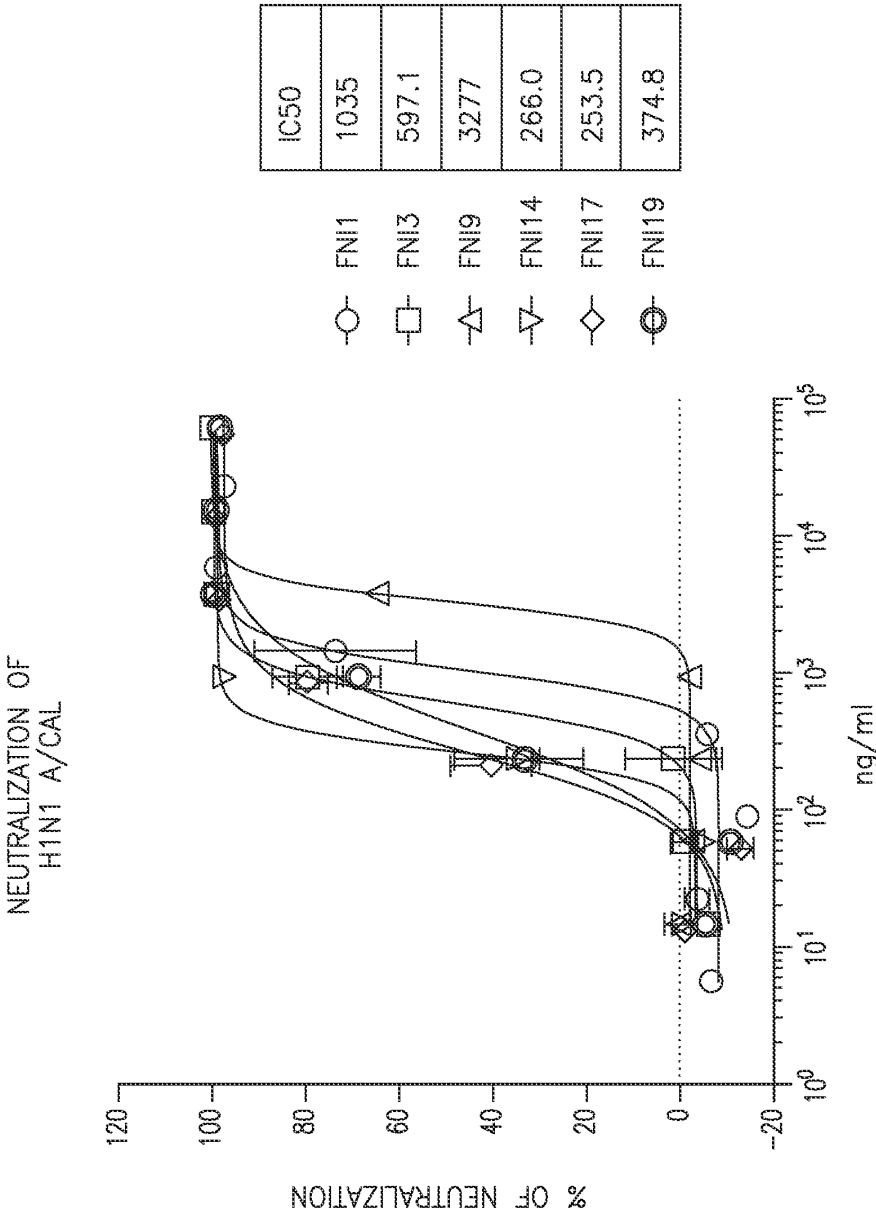


FIG. 14A

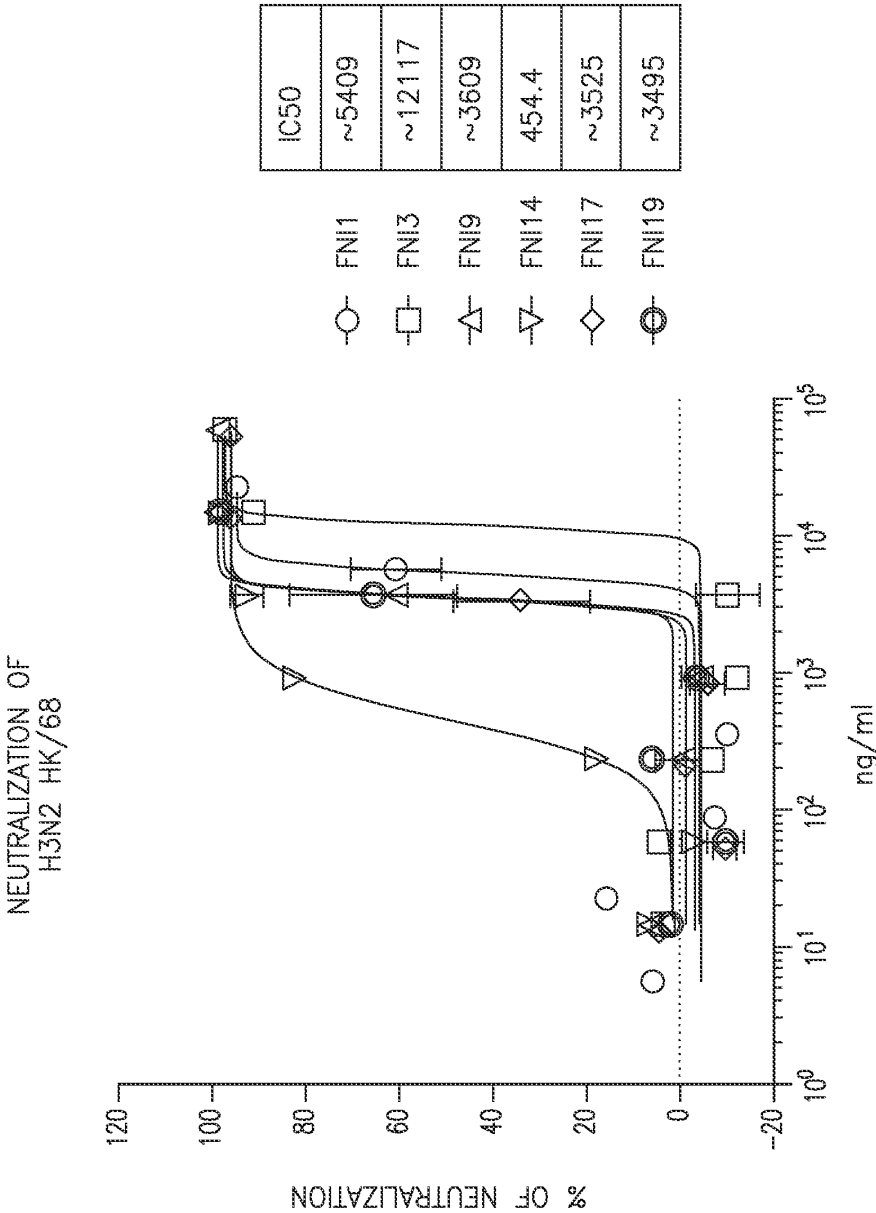


FIG. 14B

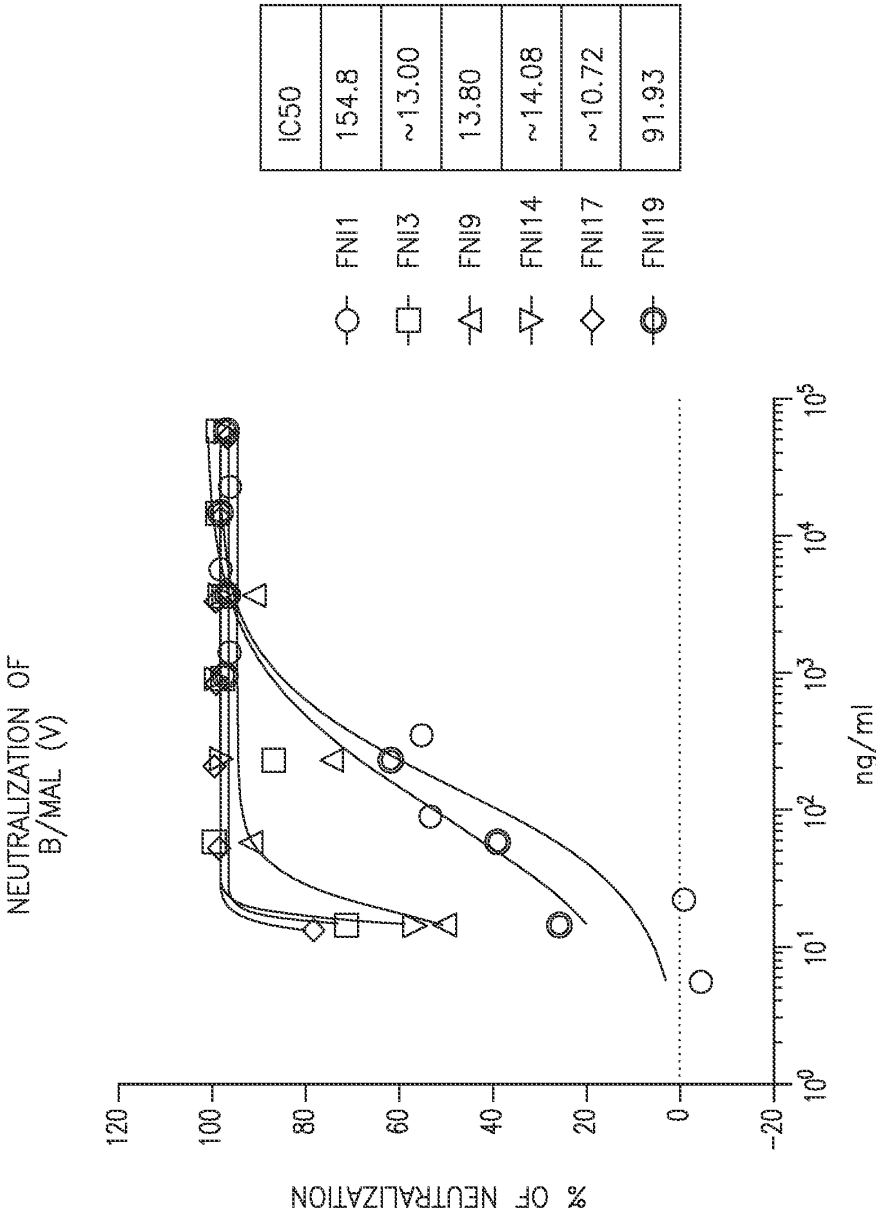


FIG. 14C

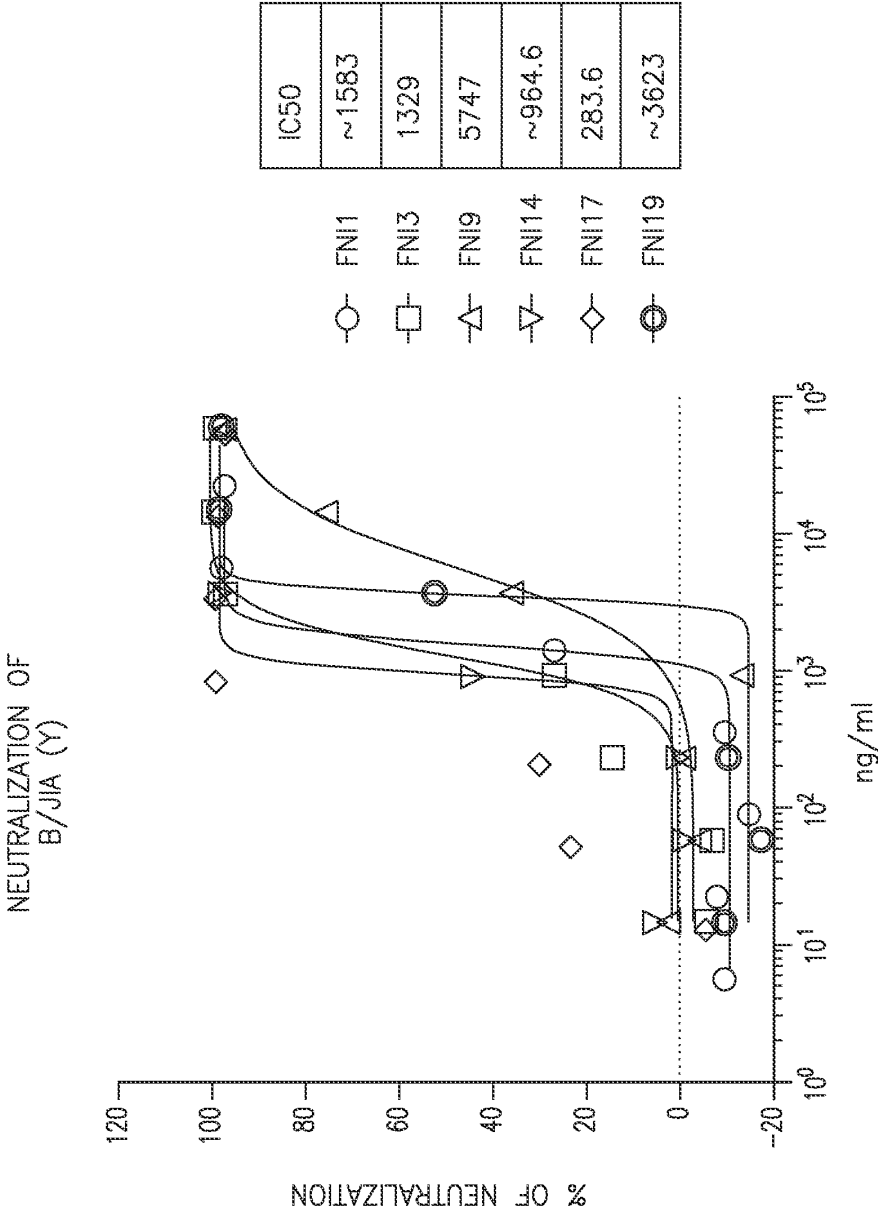


FIG. 14D

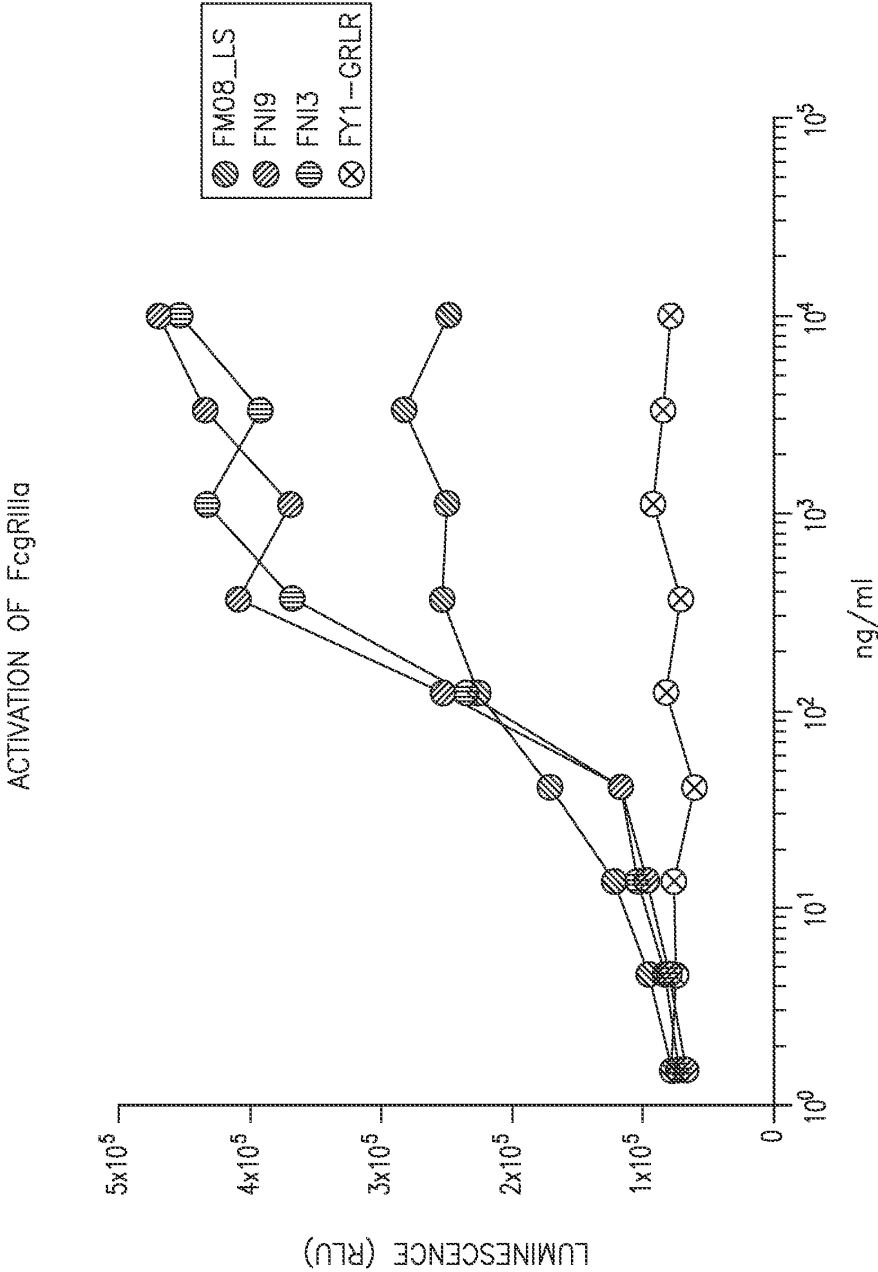


FIG. 15A

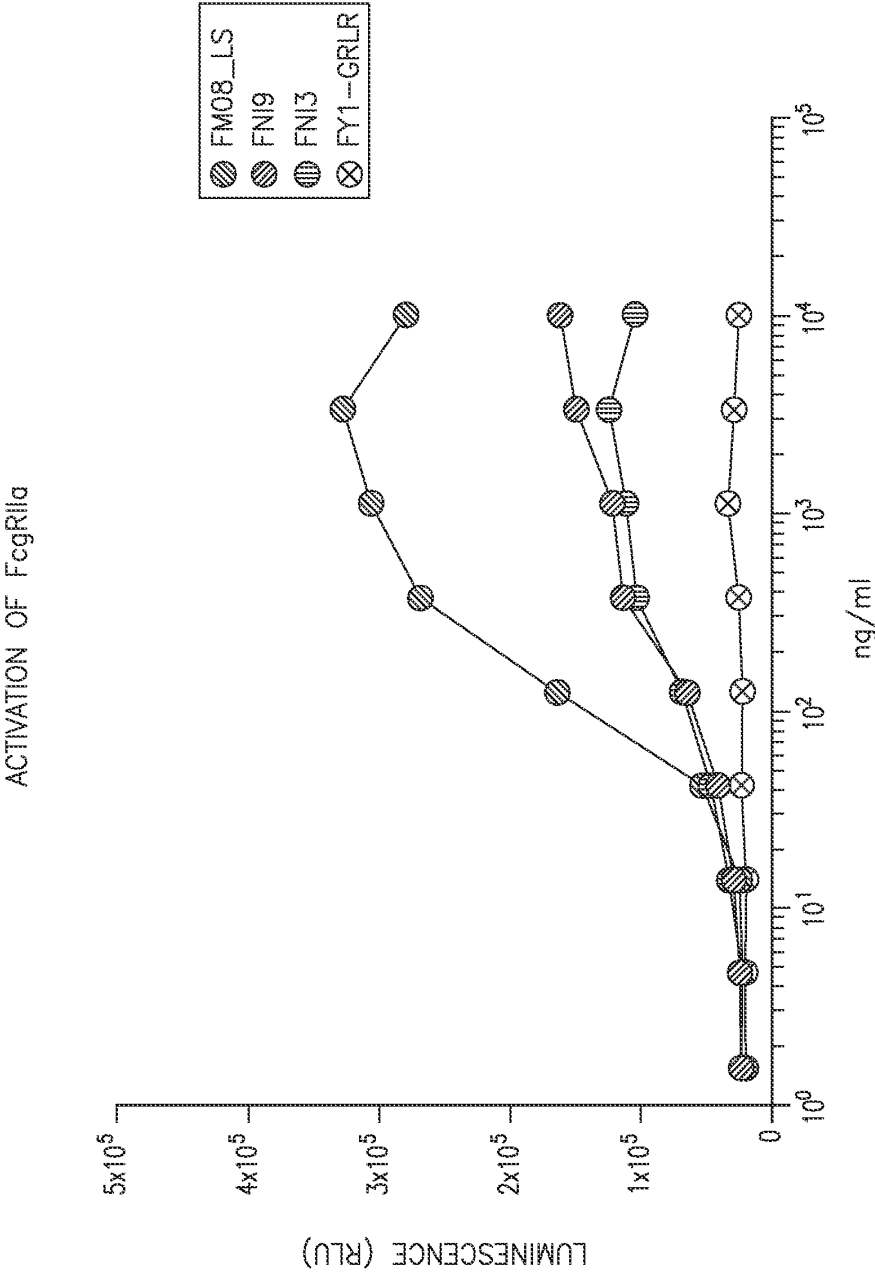


FIG. 15B

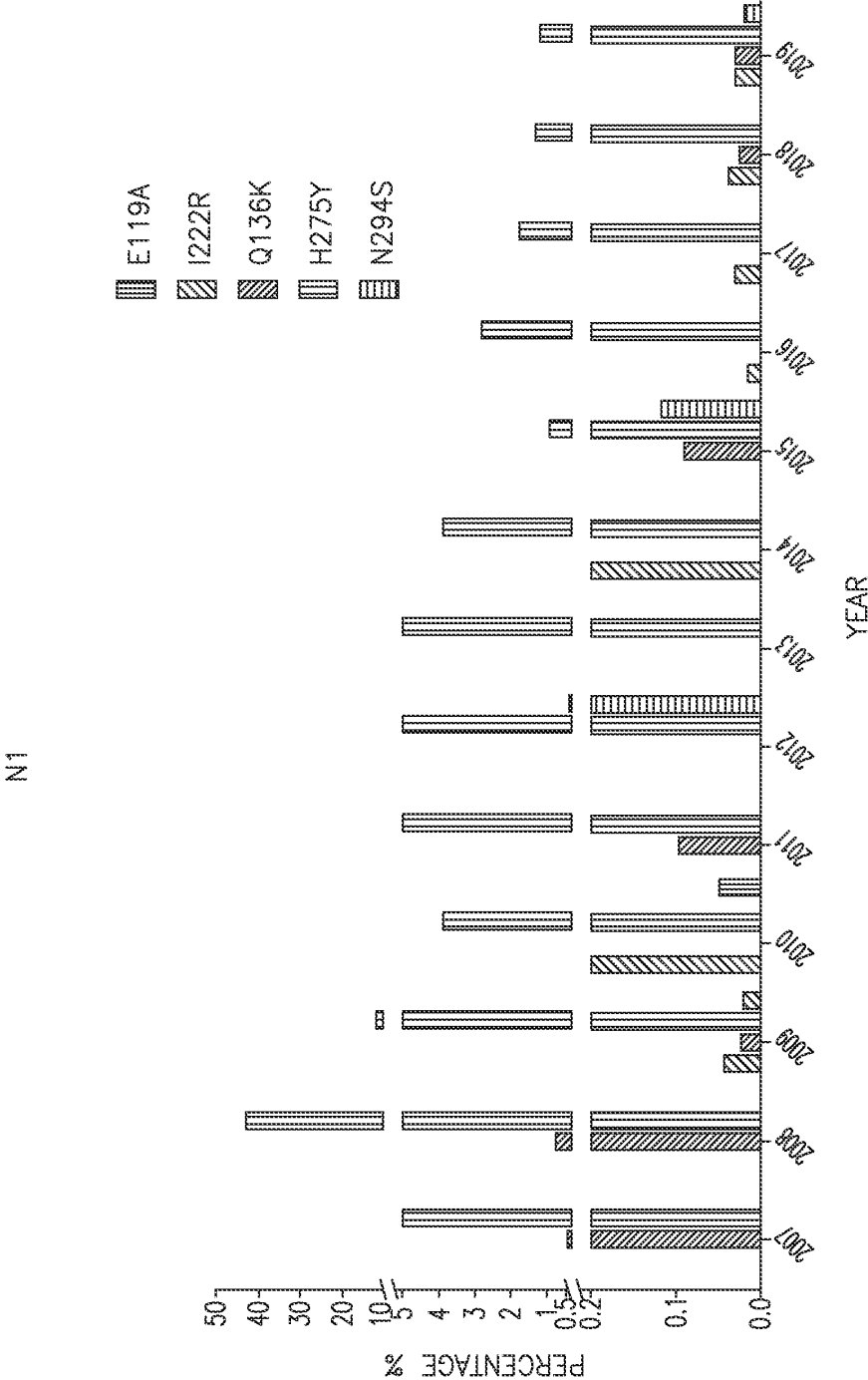


FIG. 16A

N2

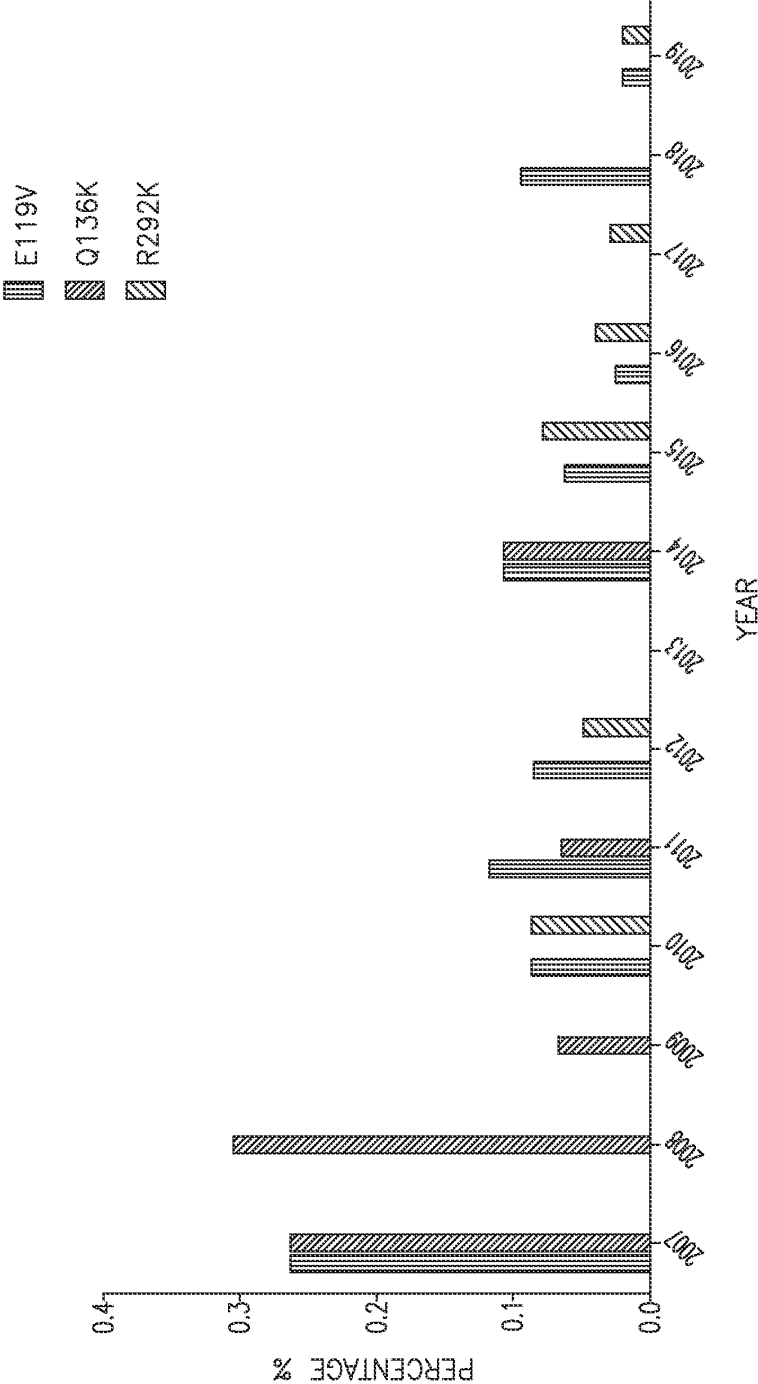


FIG. 16B

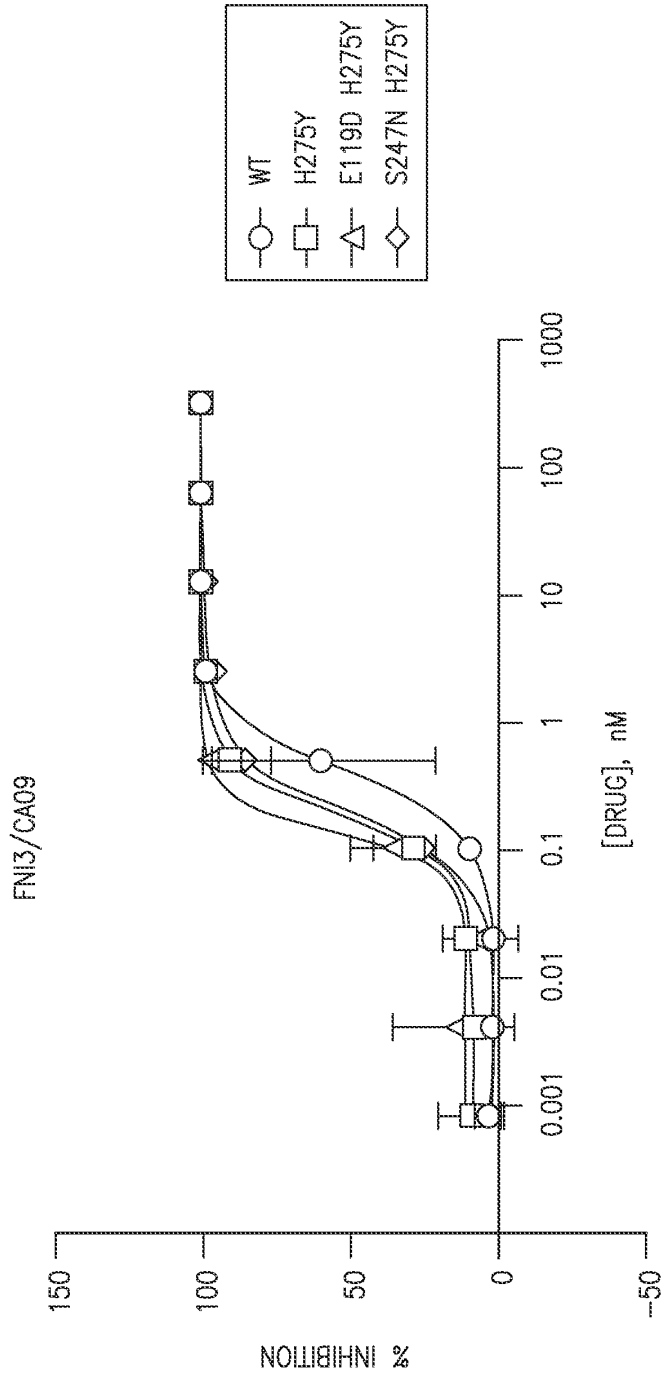


FIG. 17A

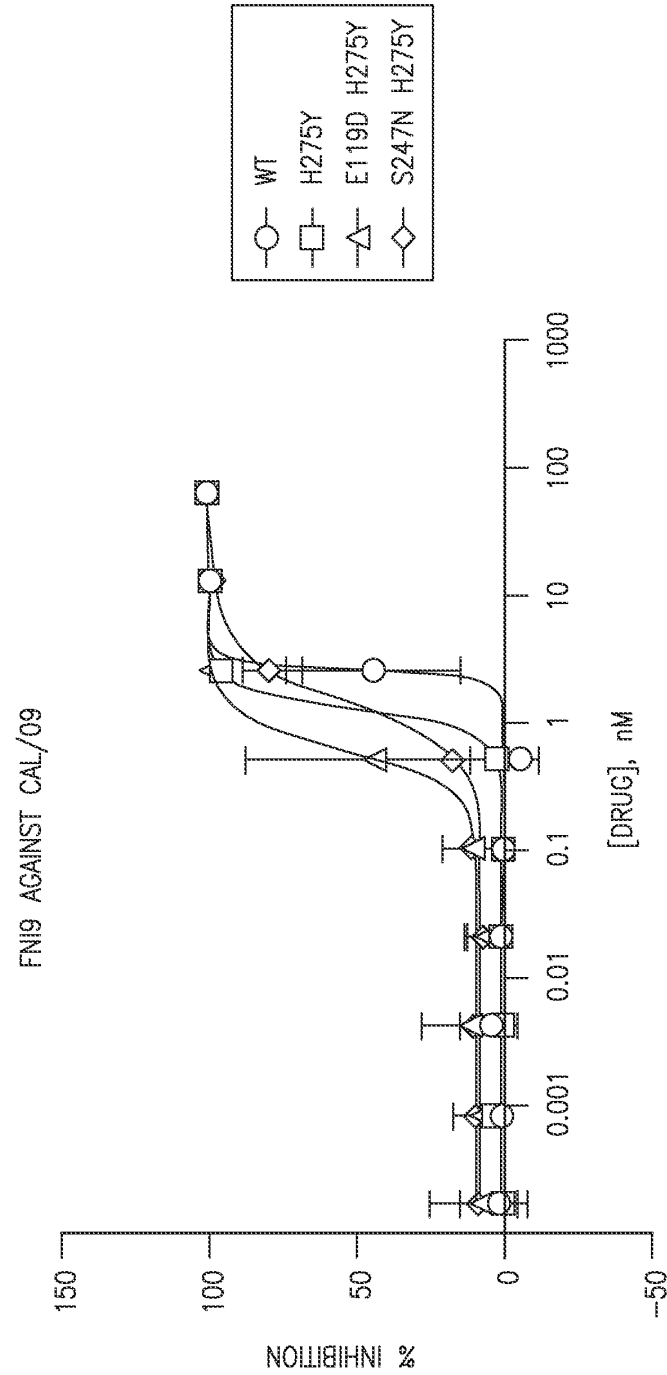


FIG. 17B

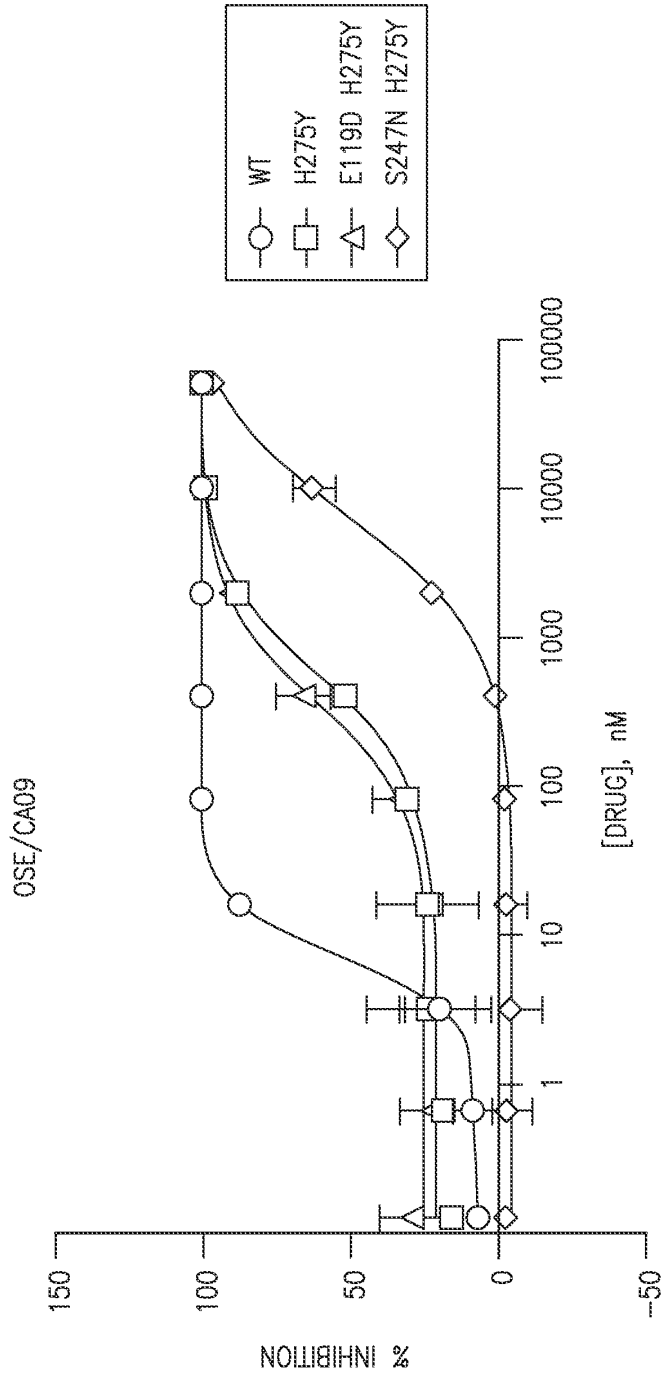


FIG. 17C

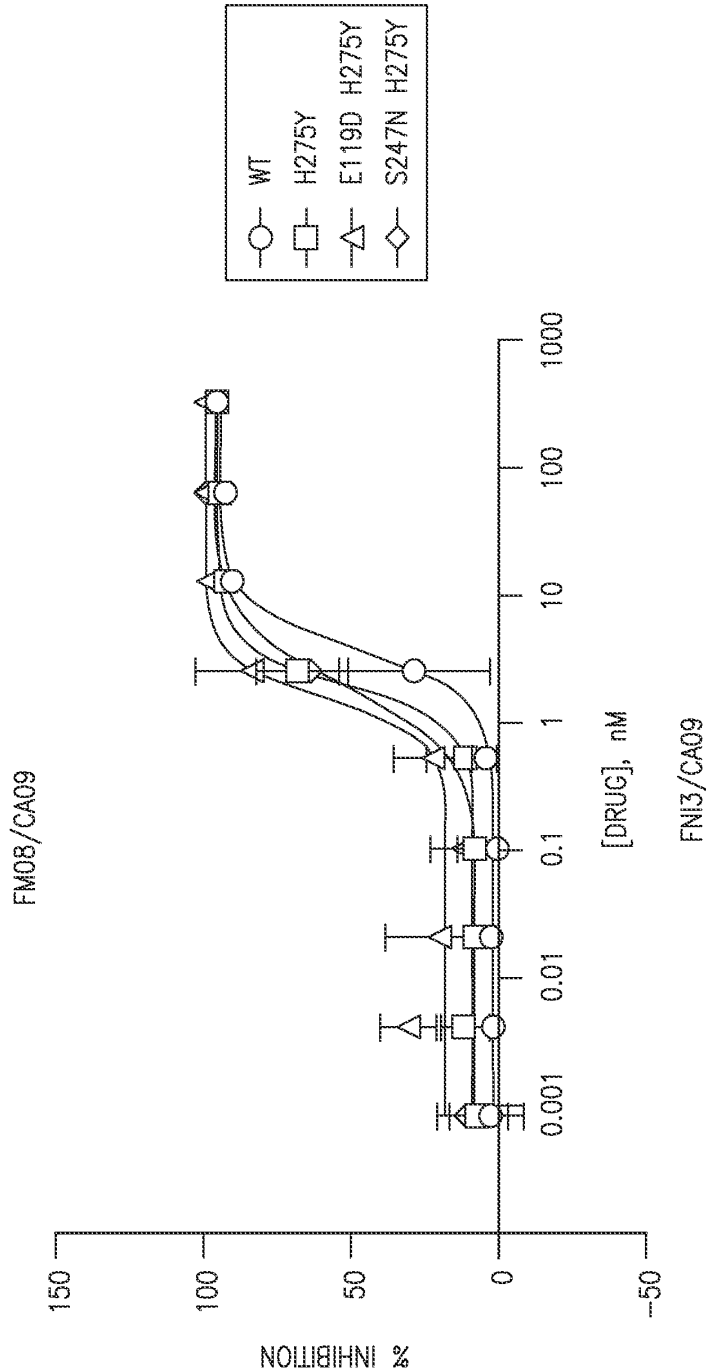


FIG. 17D

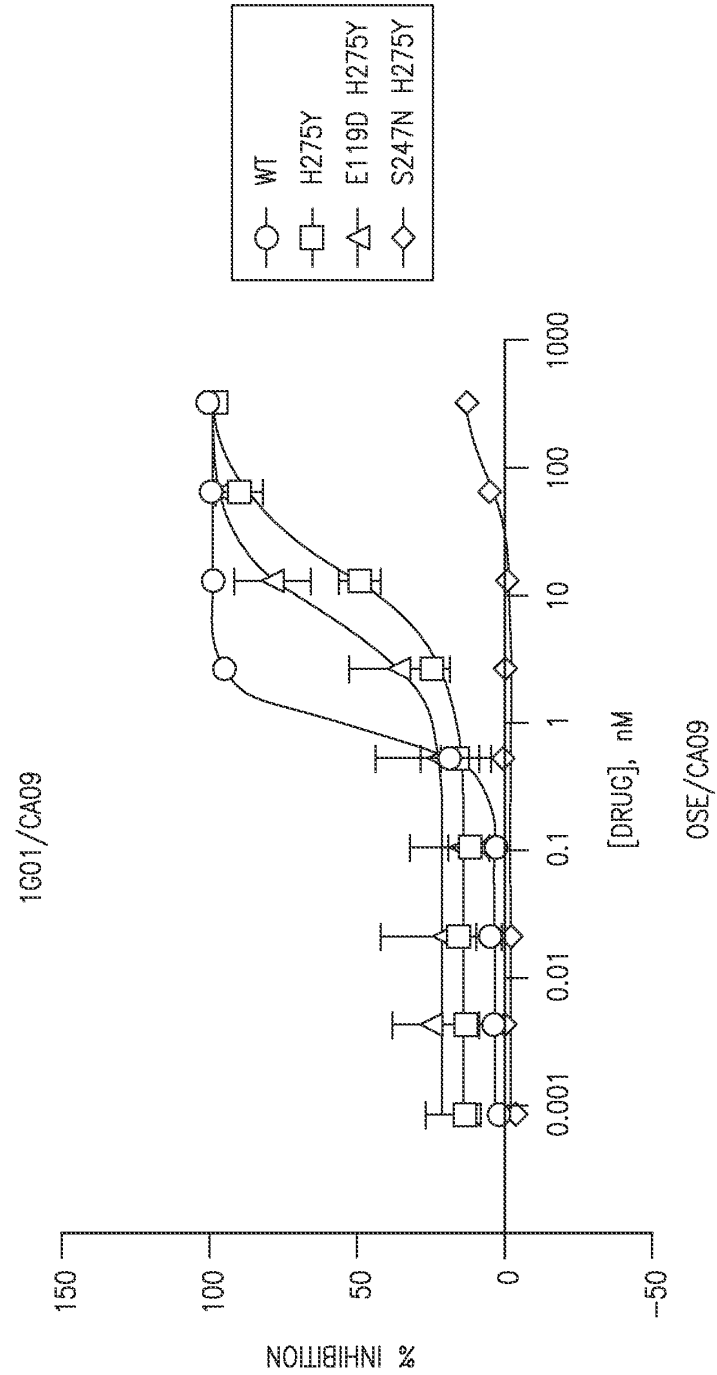
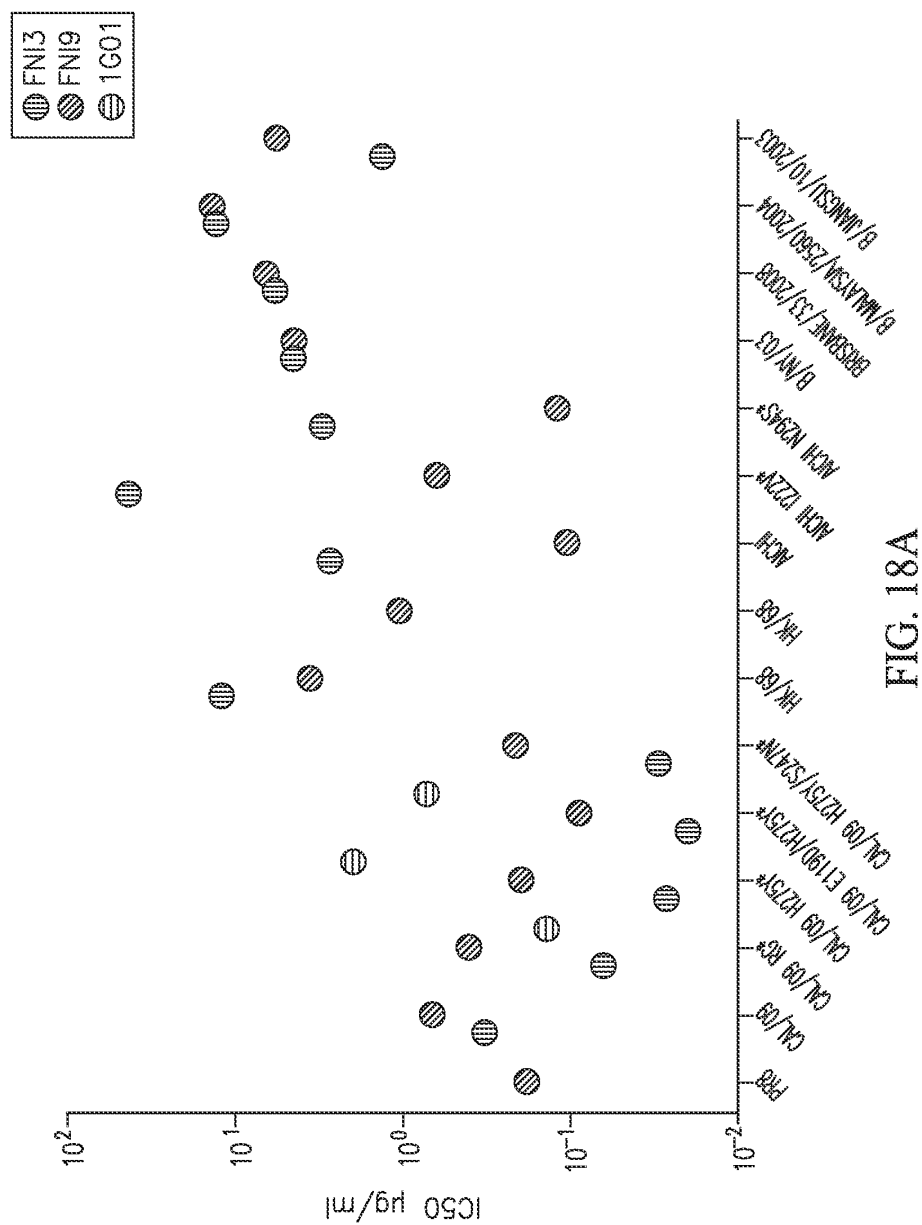


FIG. 17E



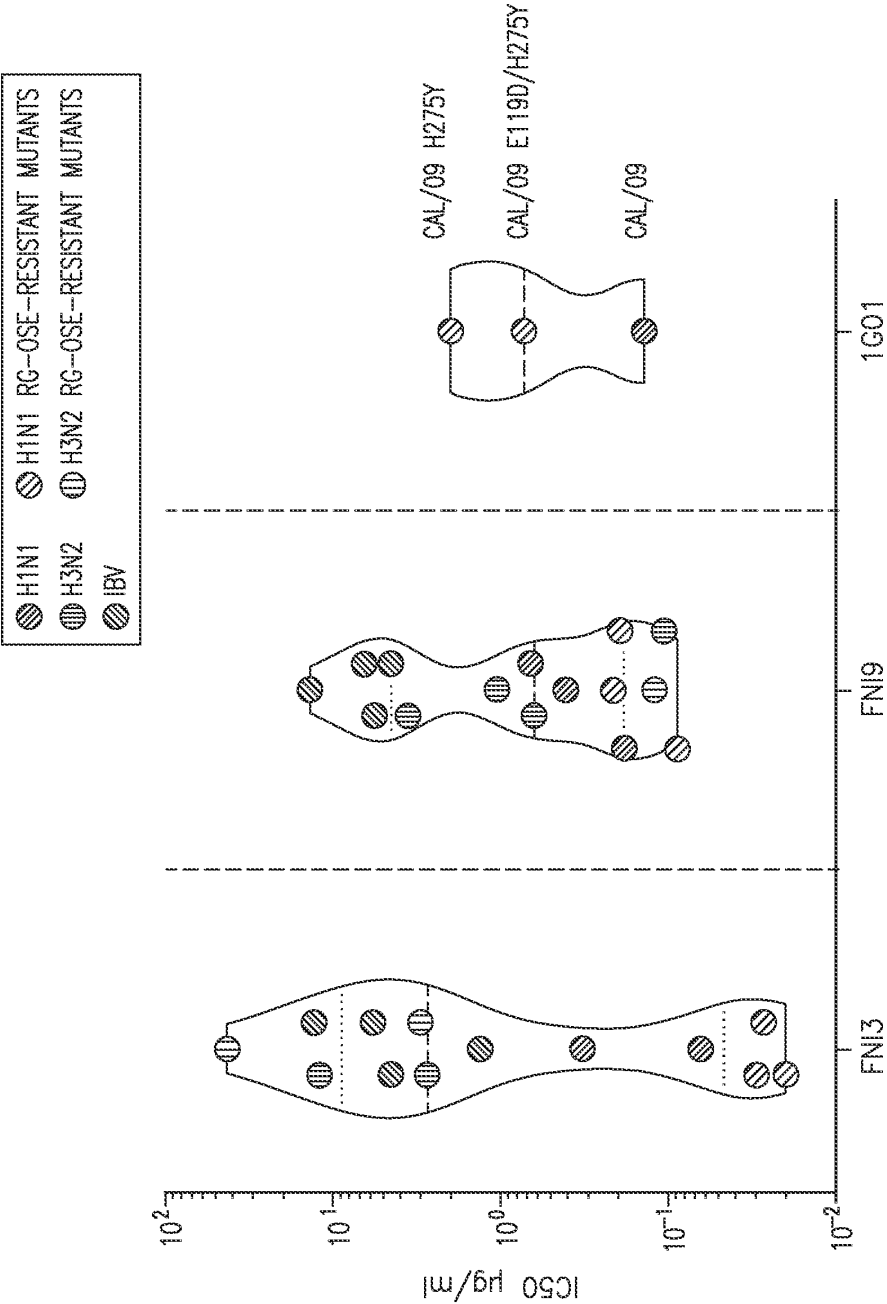
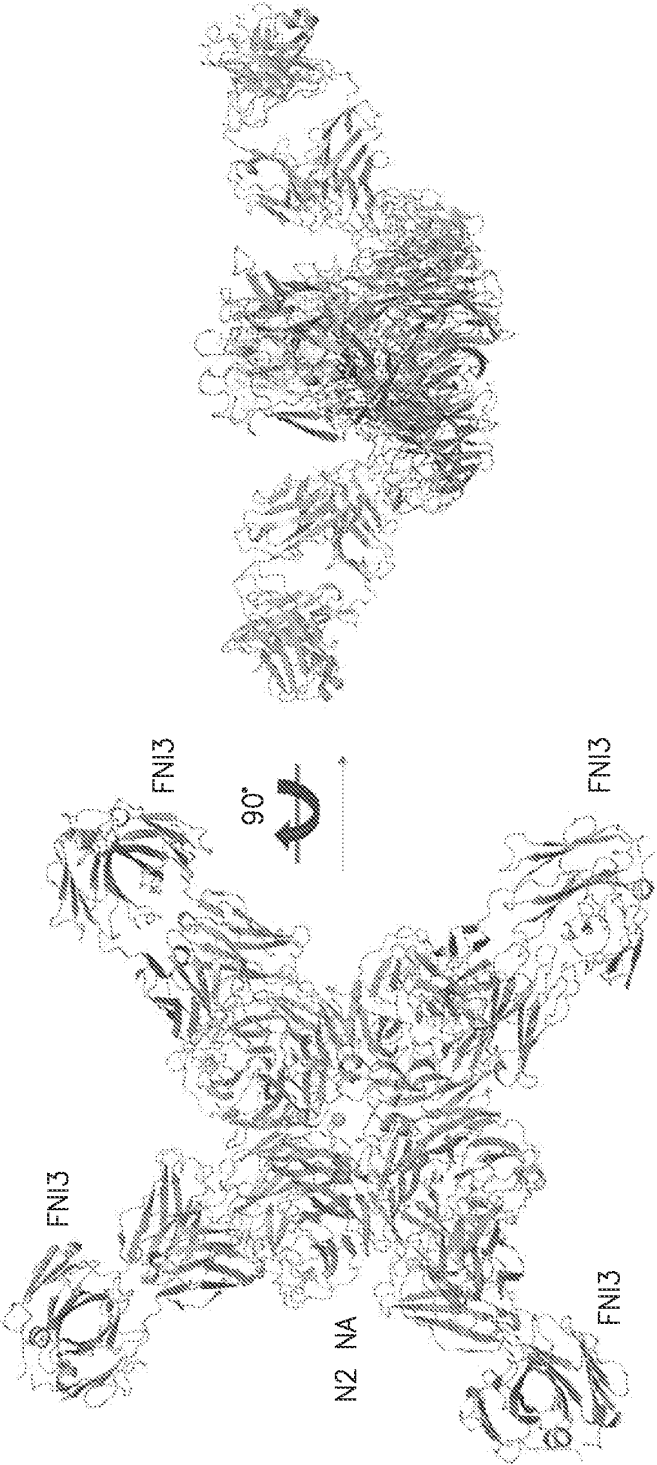


FIG. 18B



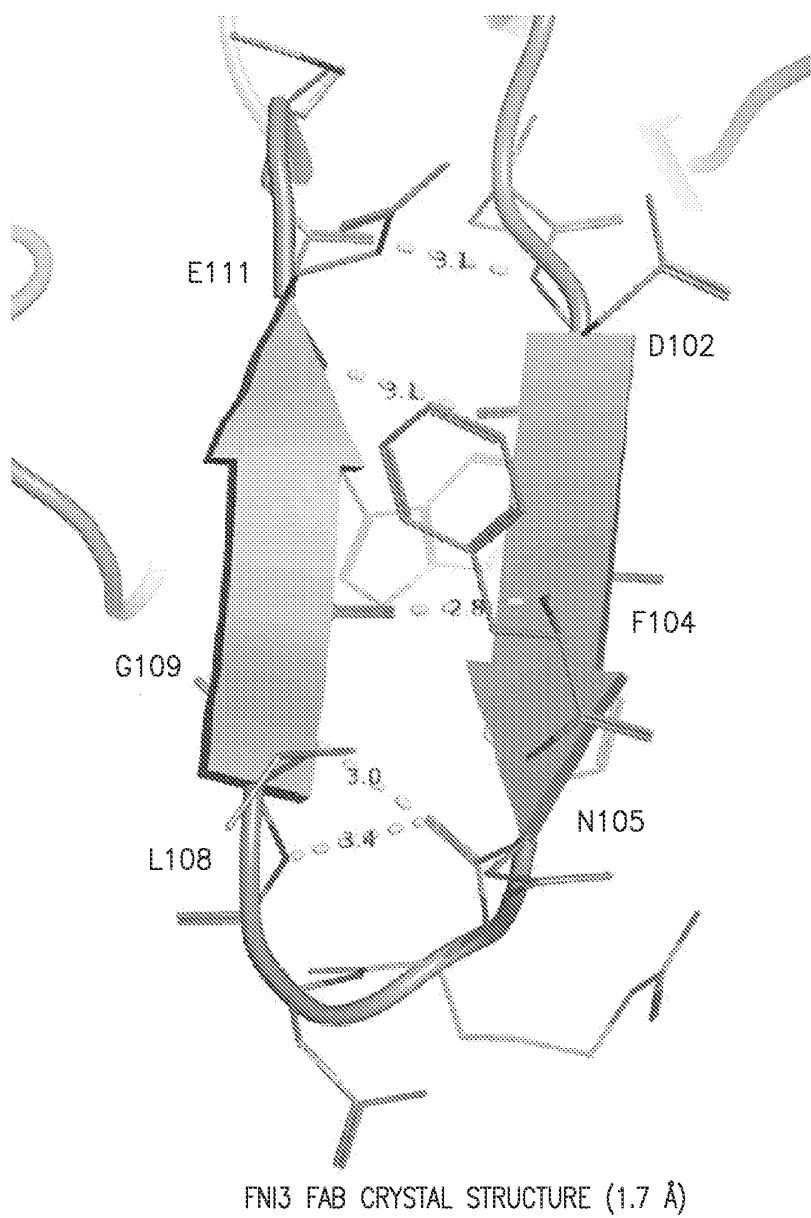
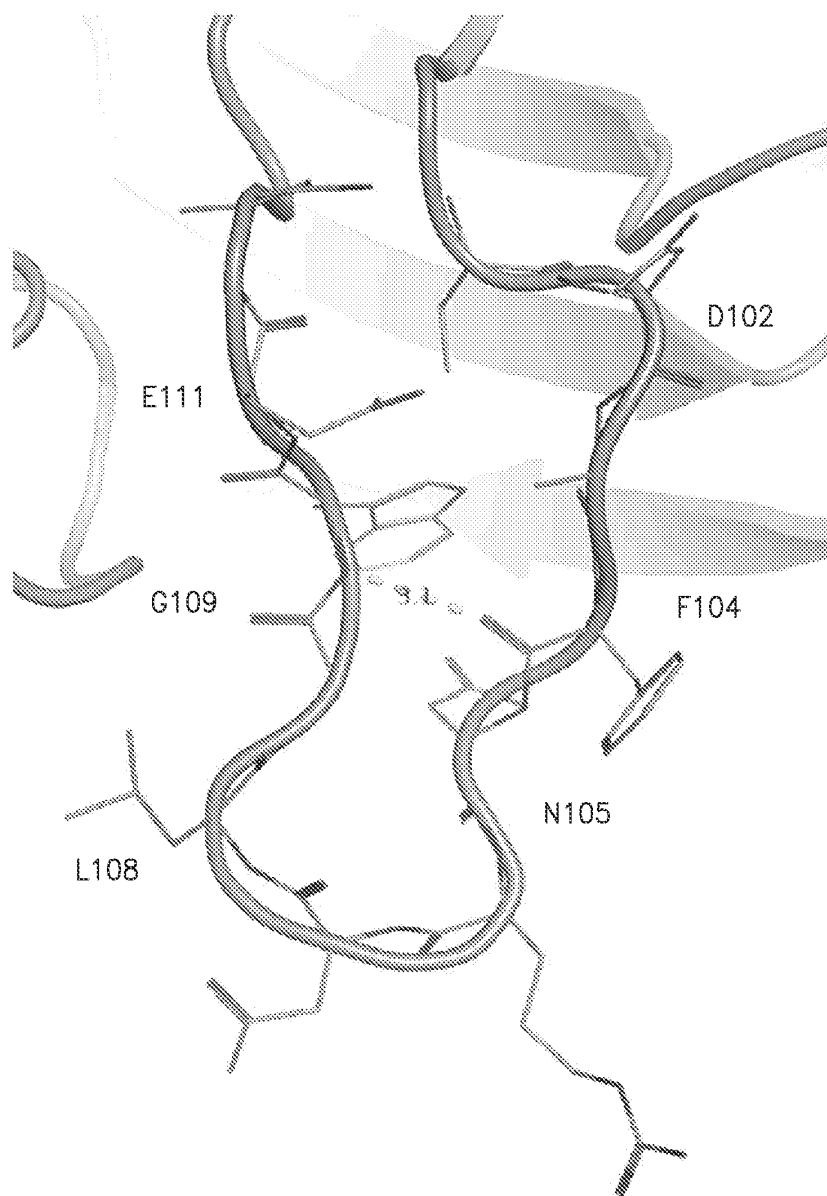


FIG. 20A



FNI3-N2 CRYSTAL STRUCTURE (3.7 Å)

FIG. 20B

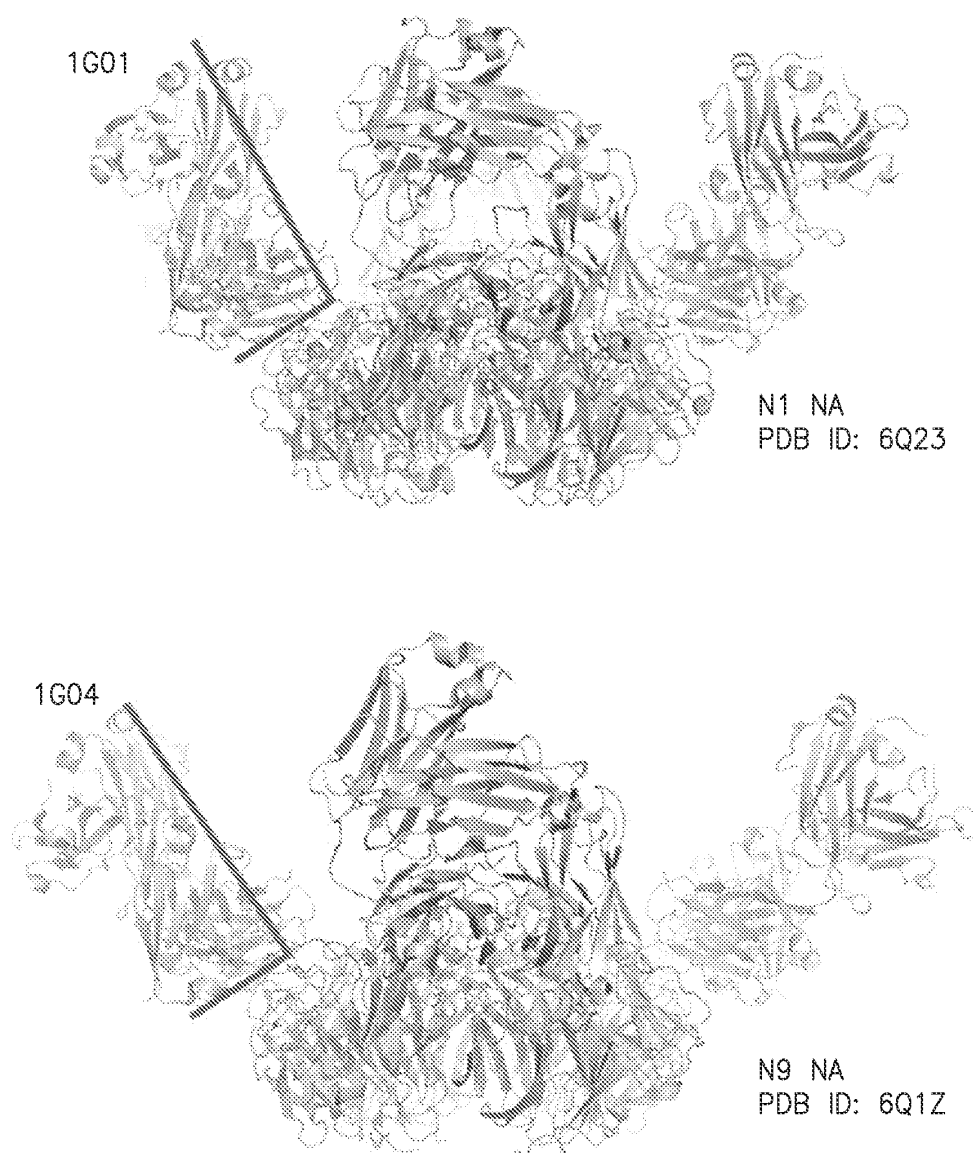


FIG. 21A

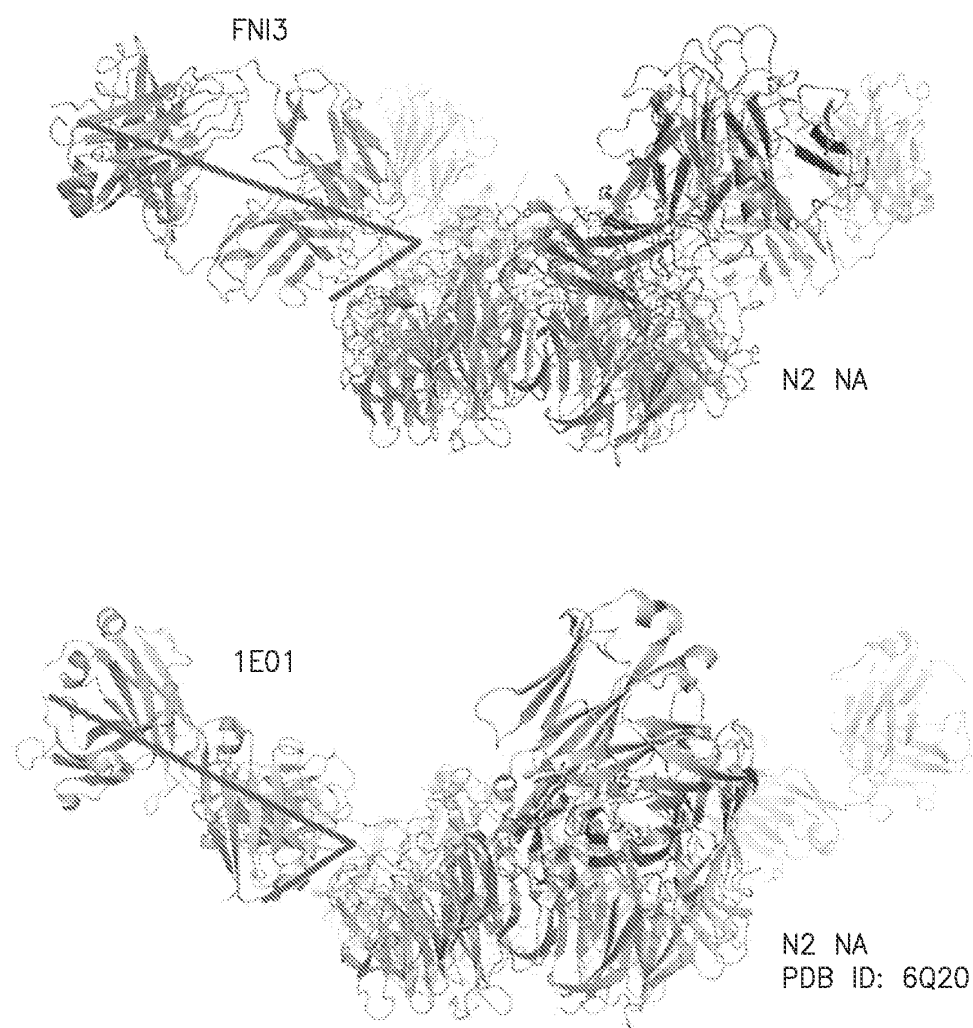


FIG. 21B

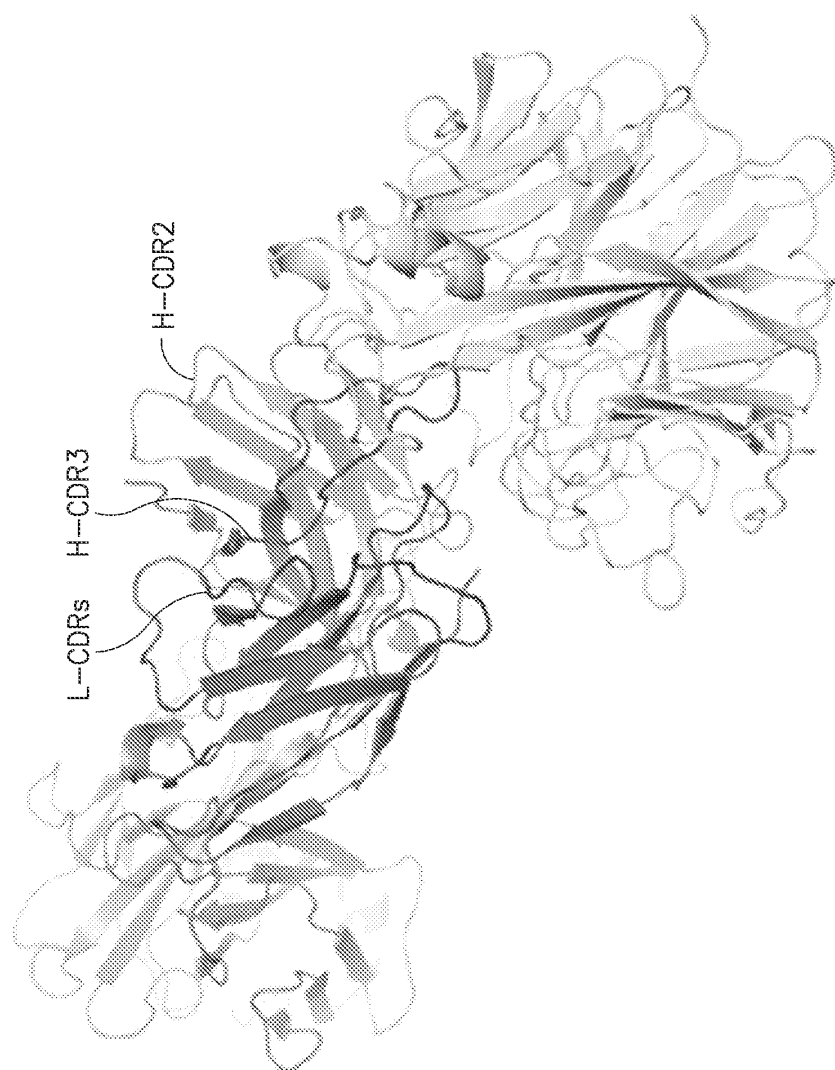


FIG. 22

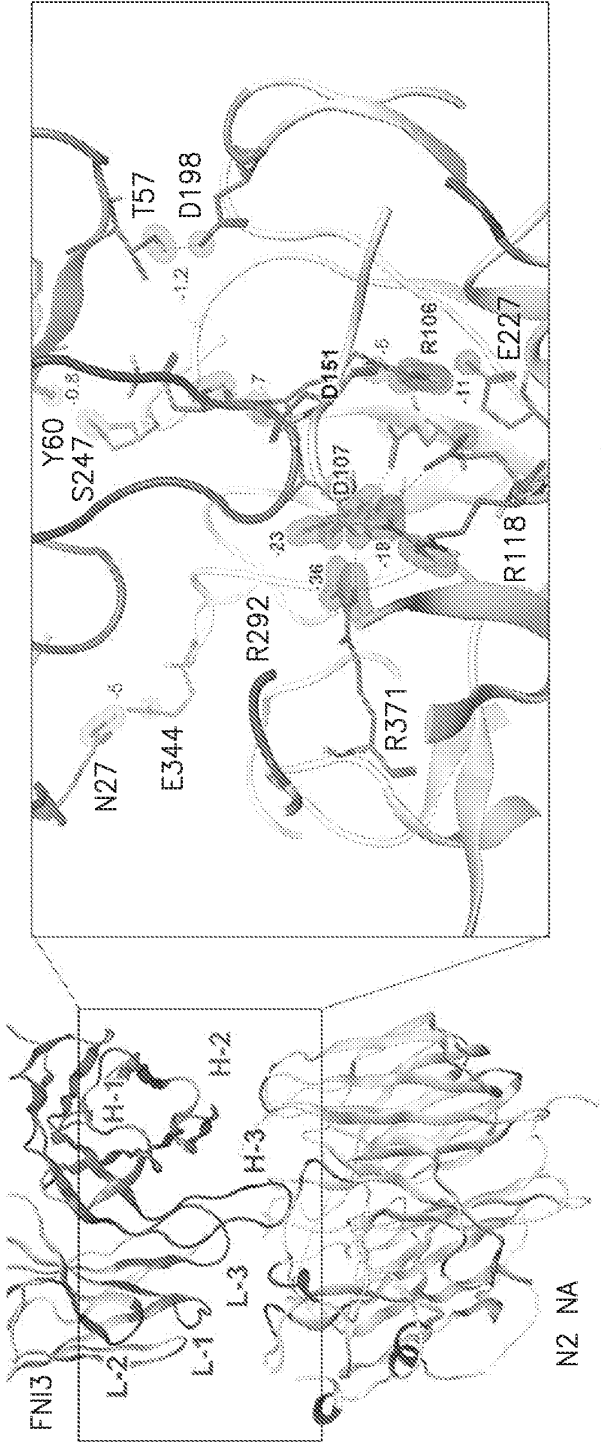


FIG. 23

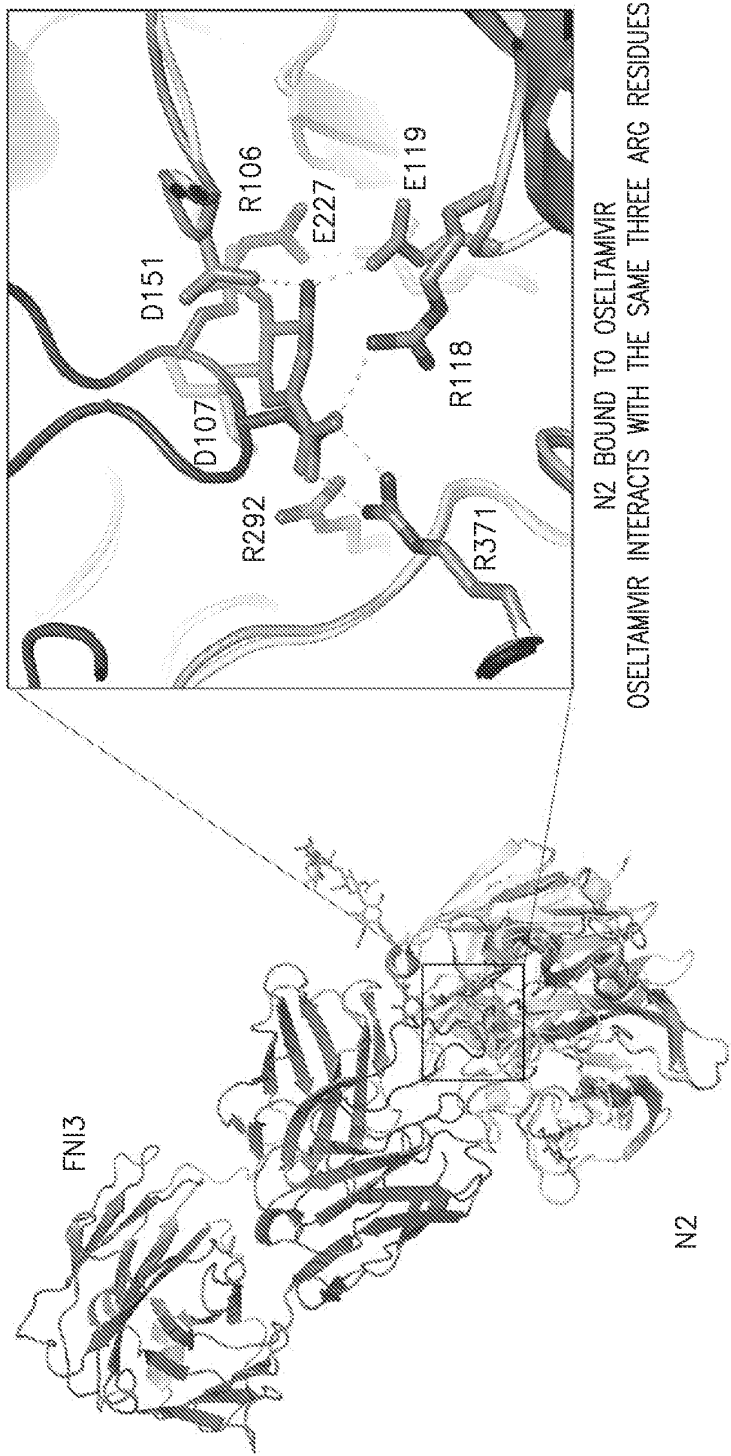


FIG. 24

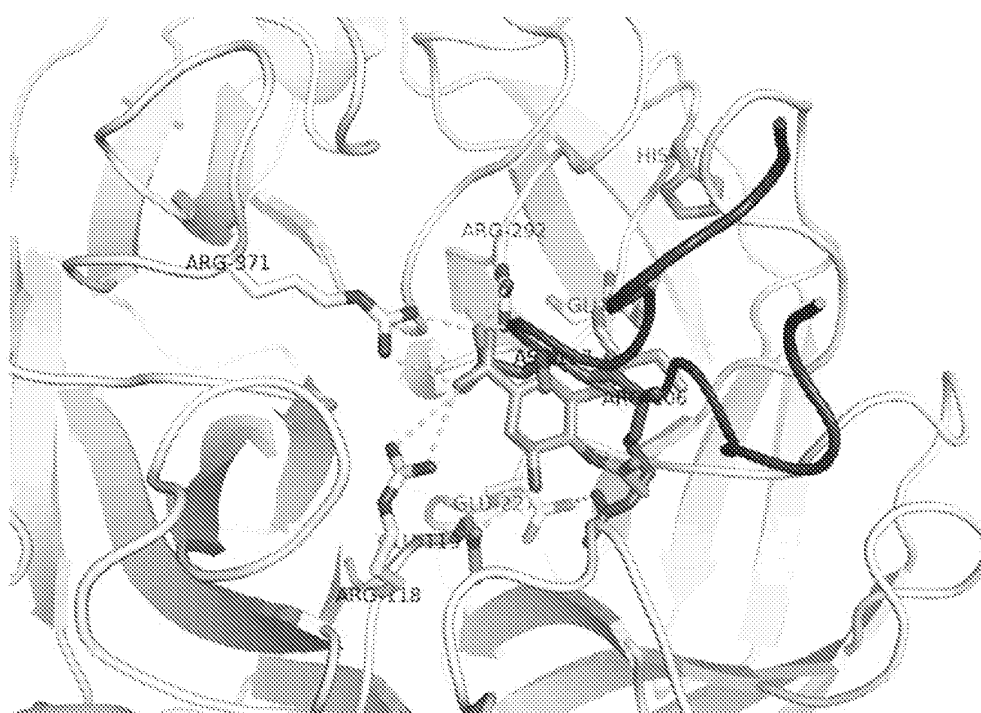


FIG. 25

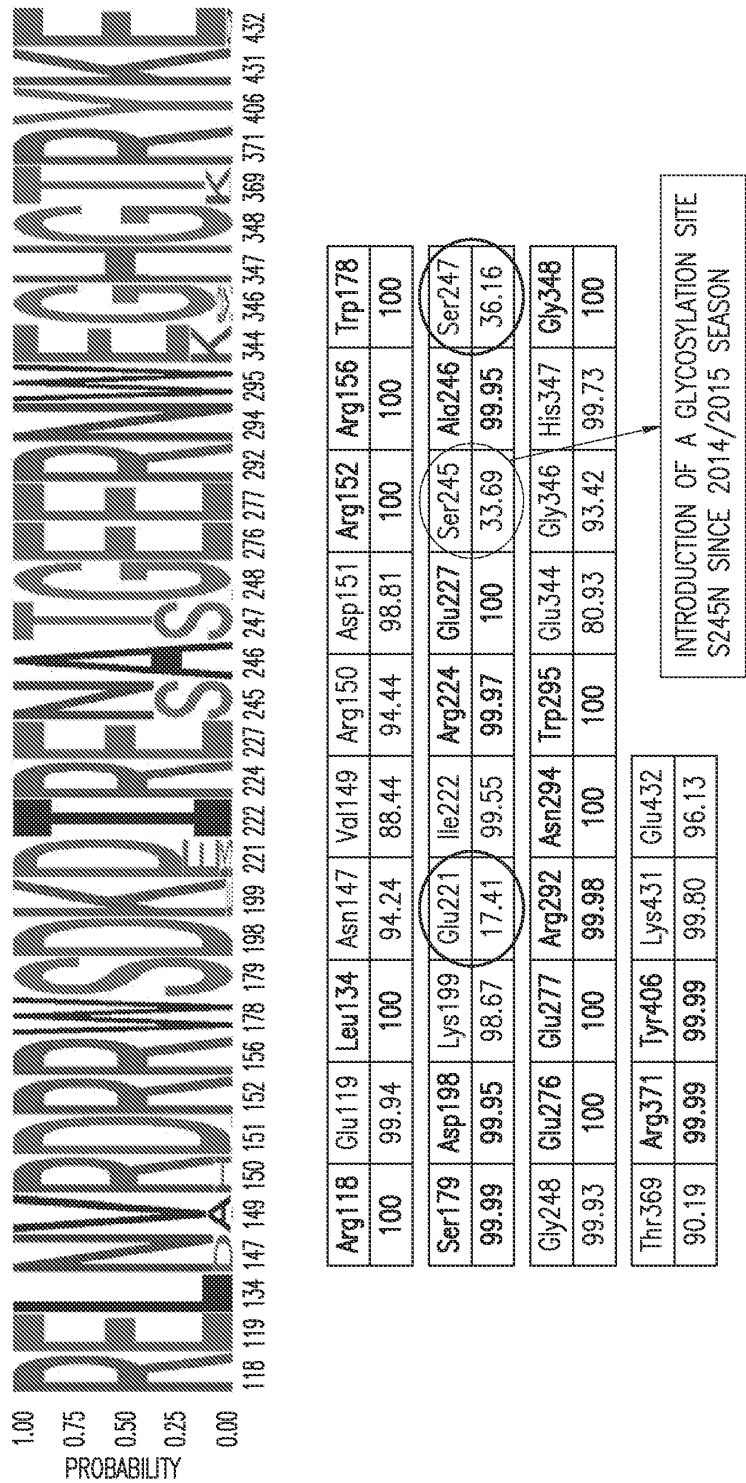


FIG. 26A

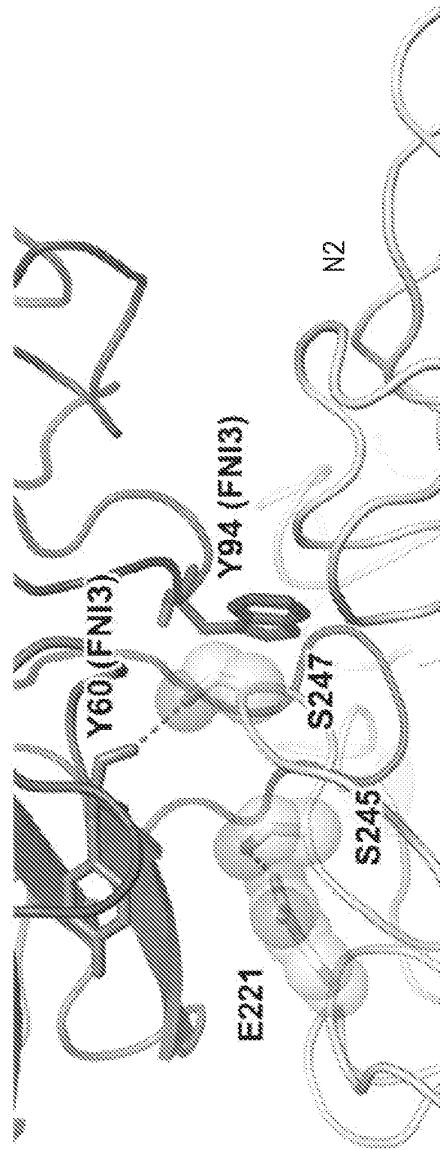
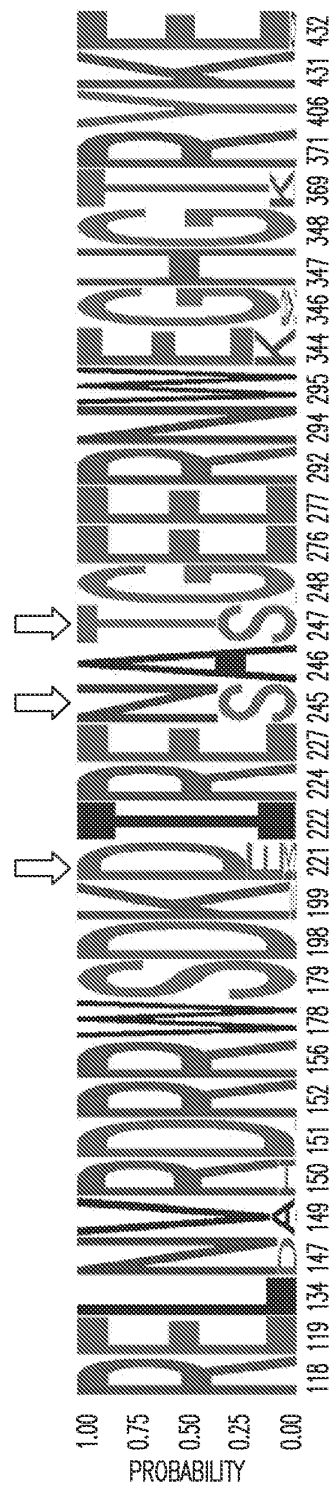
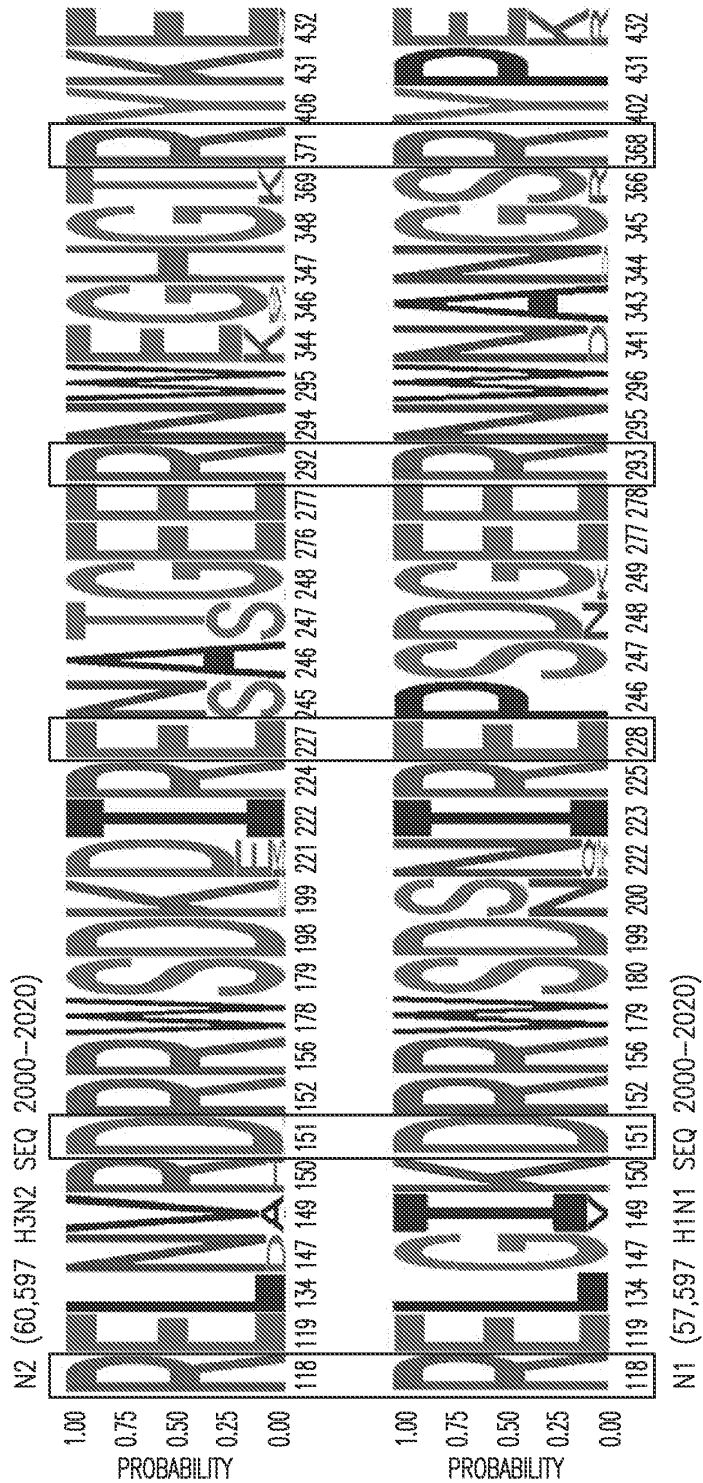


FIG. 26B



MAJOR INTERACTING RESIDUES ON THE NA	CORRESPONDING INTERACTING RESIDUES WITHIN FN13 HCDR3
R371	D107
R292	D107
R118	D107
D151	R106
E227	R106

FIG. 27

GROUP	MOUSE STRAIN	TREATMENT	INFLUENZA INFECTION	ENDPOINTS
CONTROL	BALB/c	VEHICLE CONTROL	A/PUERTO RICO/8/34	BODYWEIGHT, MORTALITY
mAB-03	BALB/c	6 mg/kg	A/PUERTO RICO/8/34	
mAB-03	BALB/c	2 mg/kg	A/PUERTO RICO/8/34	
mAB-03	BALB/c	0.6 mg/kg	A/PUERTO RICO/8/34	
mAB-03	BALB/c	0.2 mg/kg	A/PUERTO RICO/8/34	
mAB-09	BALB/c	6 mg/kg	A/PUERTO RICO/8/34	
mAB-09	BALB/c	2 mg/kg	A/PUERTO RICO/8/34	
mAB-09	BALB/c	0.6 mg/kg	A/PUERTO RICO/8/34	
mAB-09	BALB/c	0.2 mg/kg	A/PUERTO RICO/8/34	
54 MICE TOTAL				
CONTROL	BALB/c	VEHICLE CONTROL	A/HONG KONG/8/68	BODYWEIGHT, MORTALITY
mAB-03	BALB/c	6 mg/kg	A/HONG KONG/8/68	
mAB-03	BALB/c	2 mg/kg	A/HONG KONG/8/68	
mAB-03	BALB/c	0.6 mg/kg	A/HONG KONG/8/68	
mAB-03	BALB/c	0.2 mg/kg	A/HONG KONG/8/68	
mAB-09	BALB/c	6 mg/kg	A/HONG KONG/8/68	
mAB-09	BALB/c	2 mg/kg	A/HONG KONG/8/68	
mAB-09	BALB/c	0.6 mg/kg	A/HONG KONG/8/68	
mAB-09	BALB/c	0.2 mg/kg	A/HONG KONG/8/68	
54 MICE TOTAL				

mAB-03 = FN13-r1gG
mAB-09 = FN19-r1gG

FIG. 28A

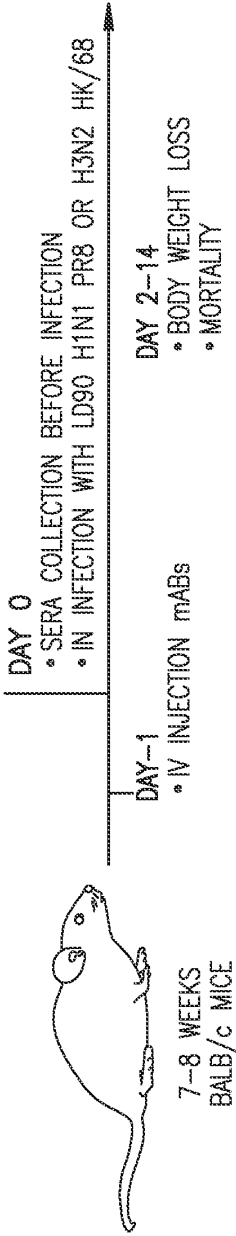


FIG. 28B

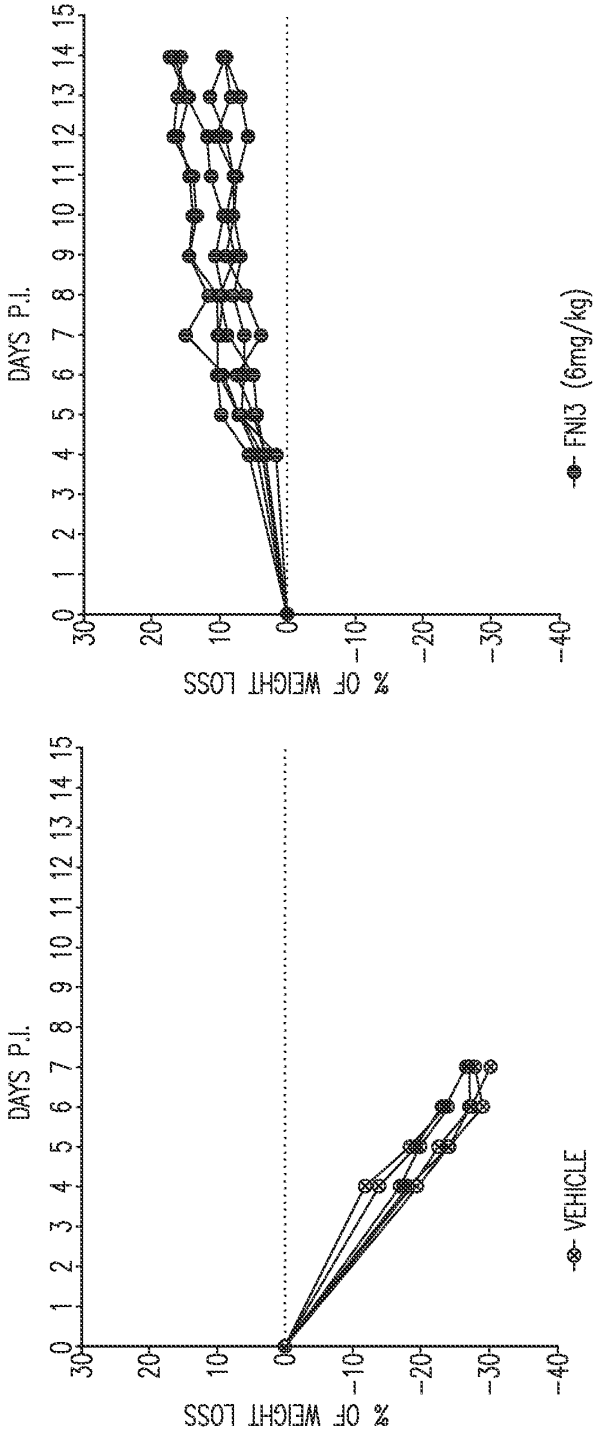


FIG. 29A

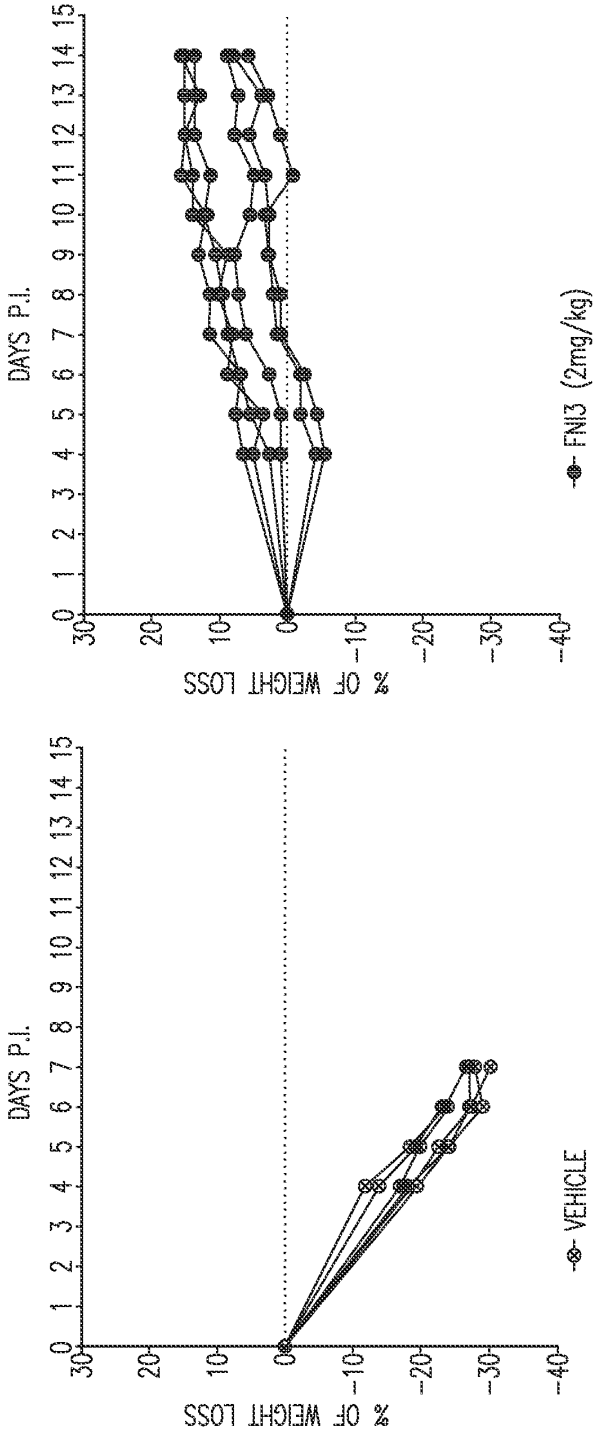


FIG. 29B

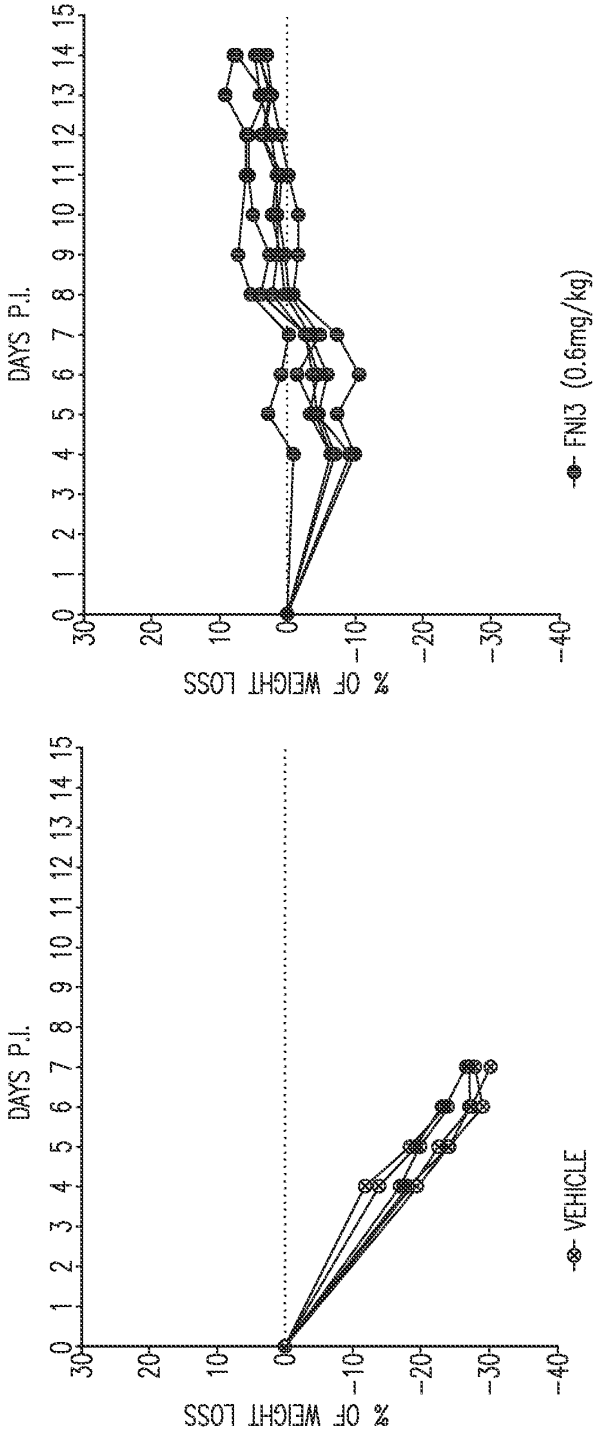


FIG. 29C

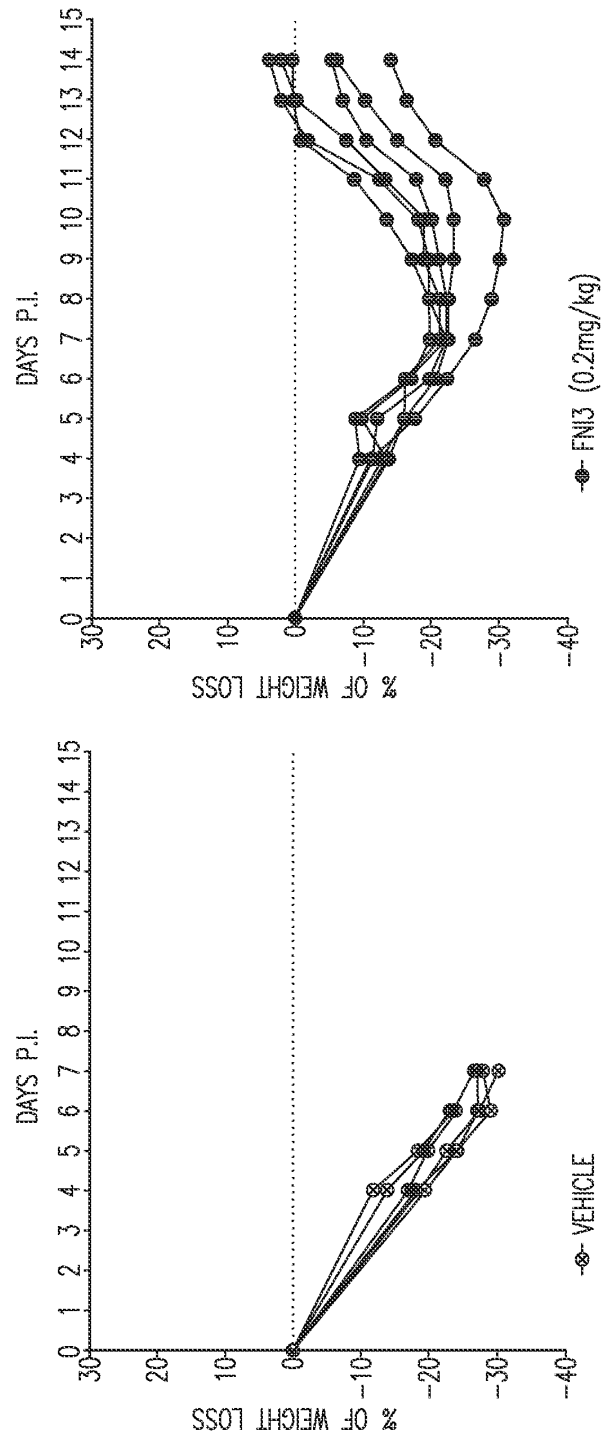


FIG. 29D

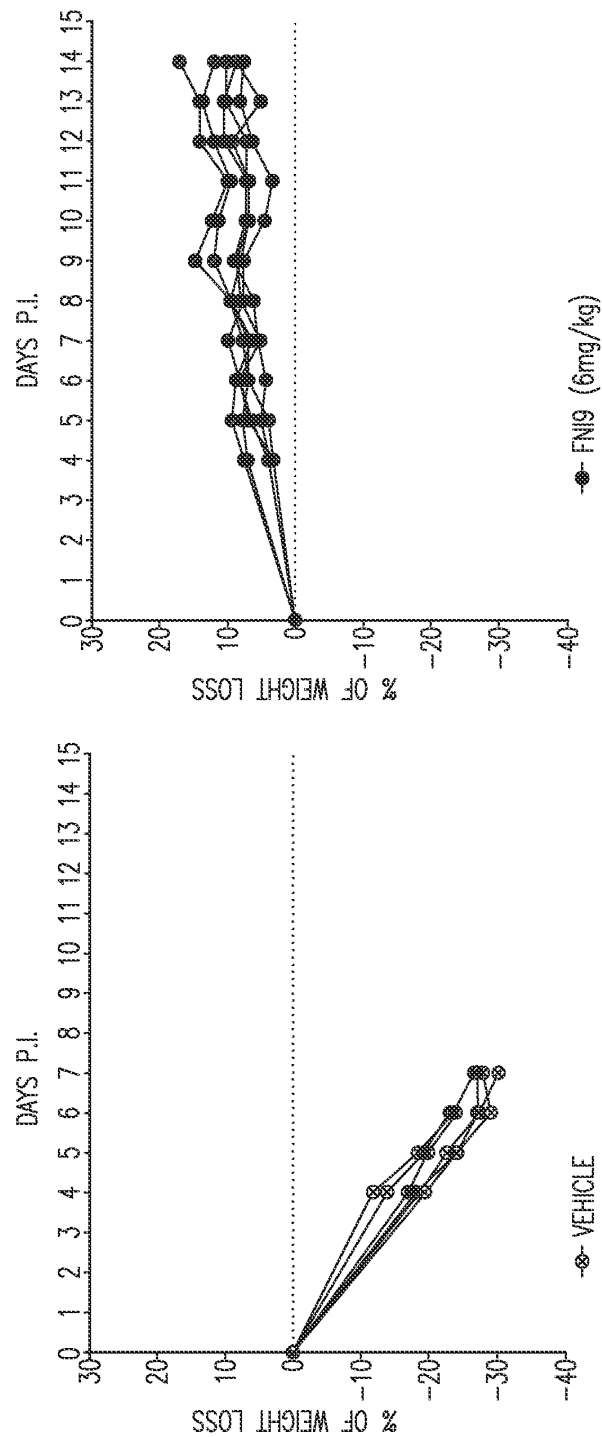


FIG. 30A

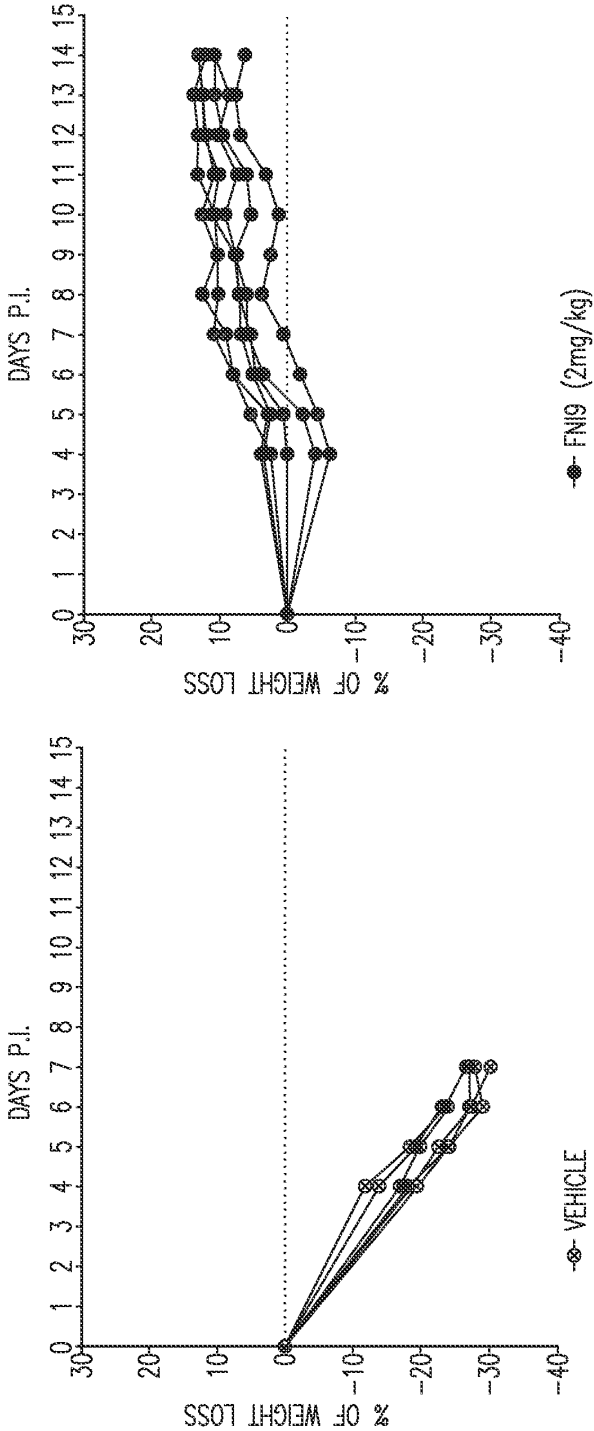


FIG. 30B

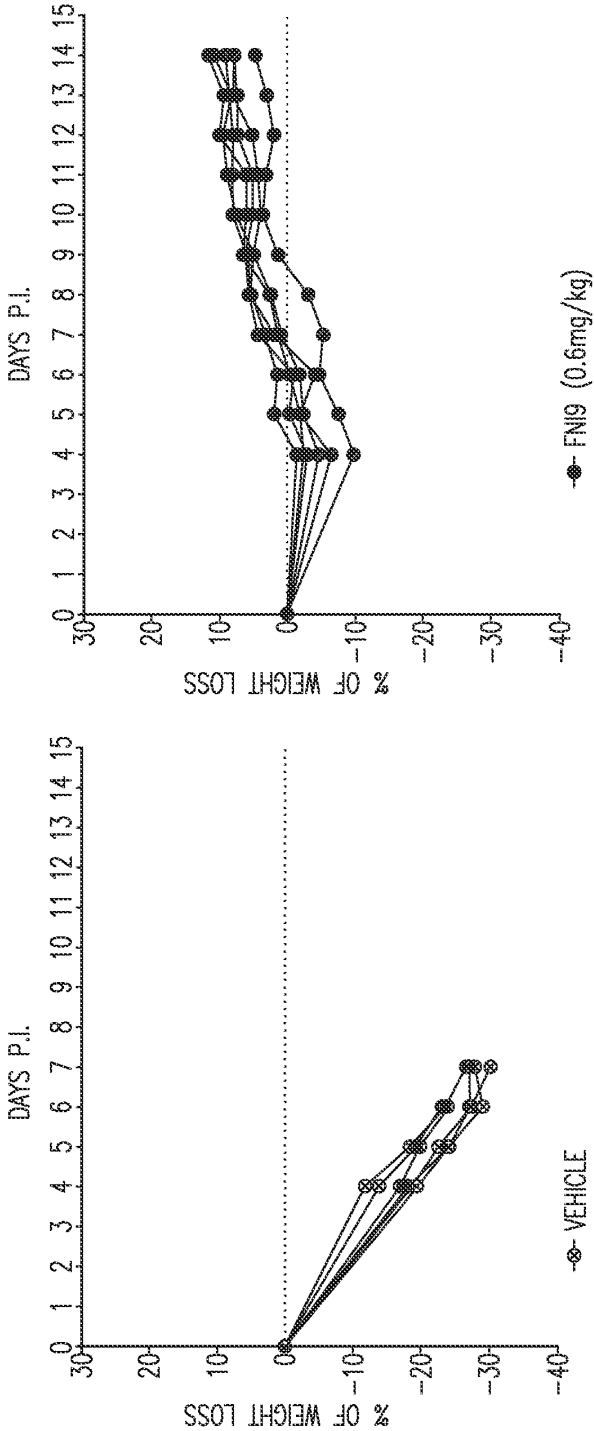


FIG. 30C

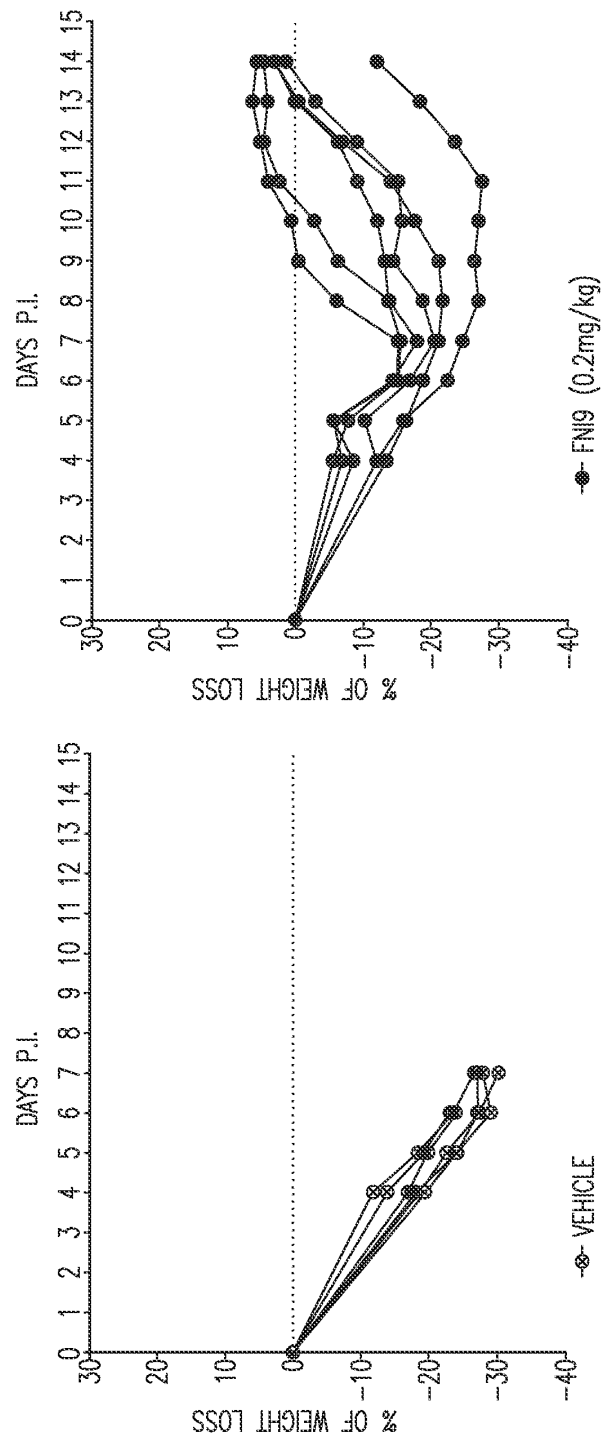


FIG. 30D

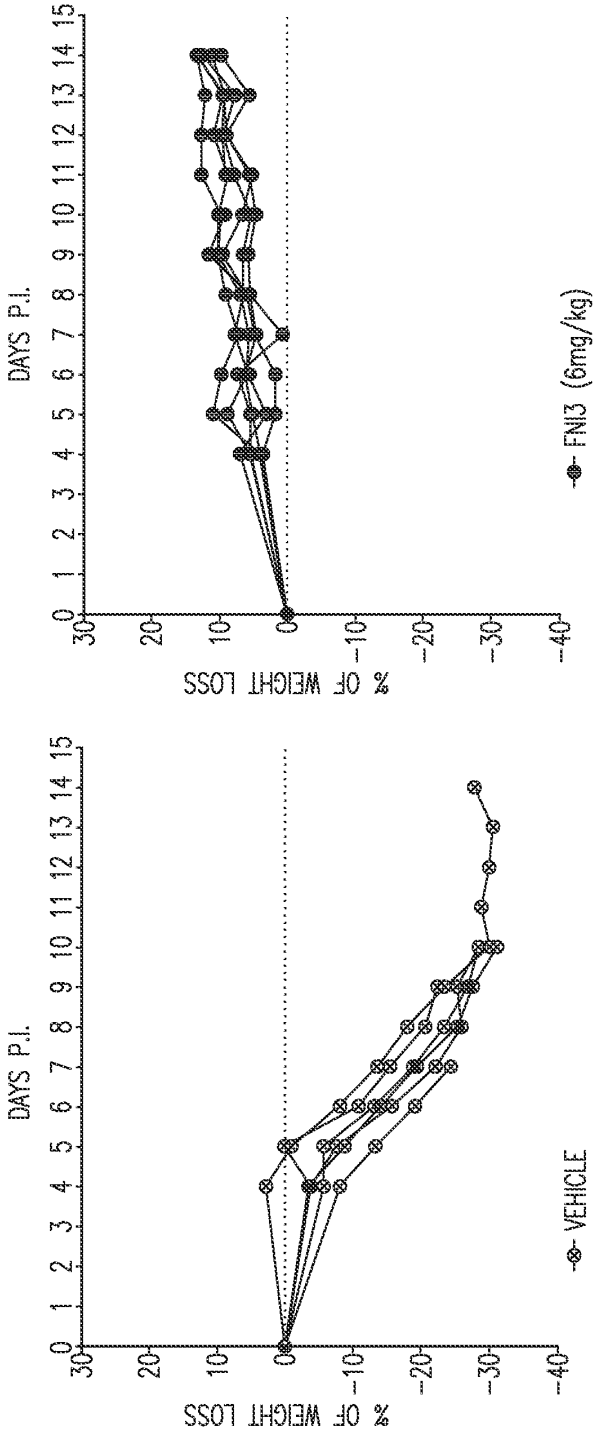


FIG. 31A

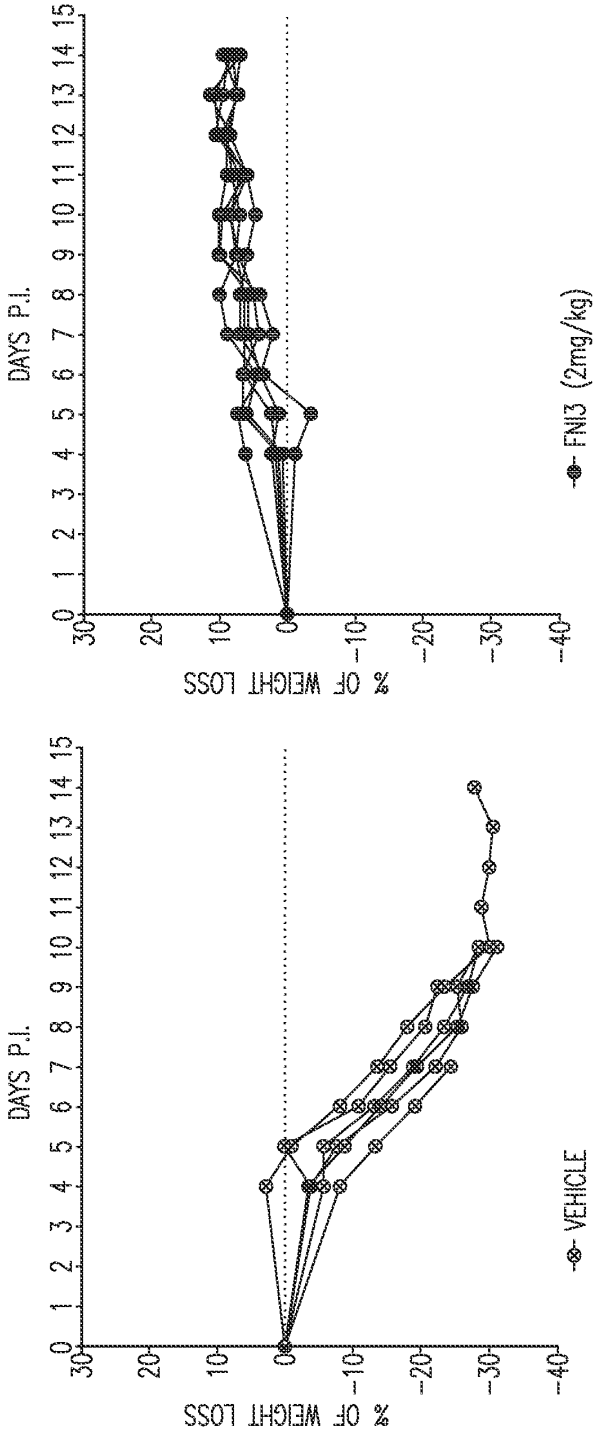


FIG. 31B

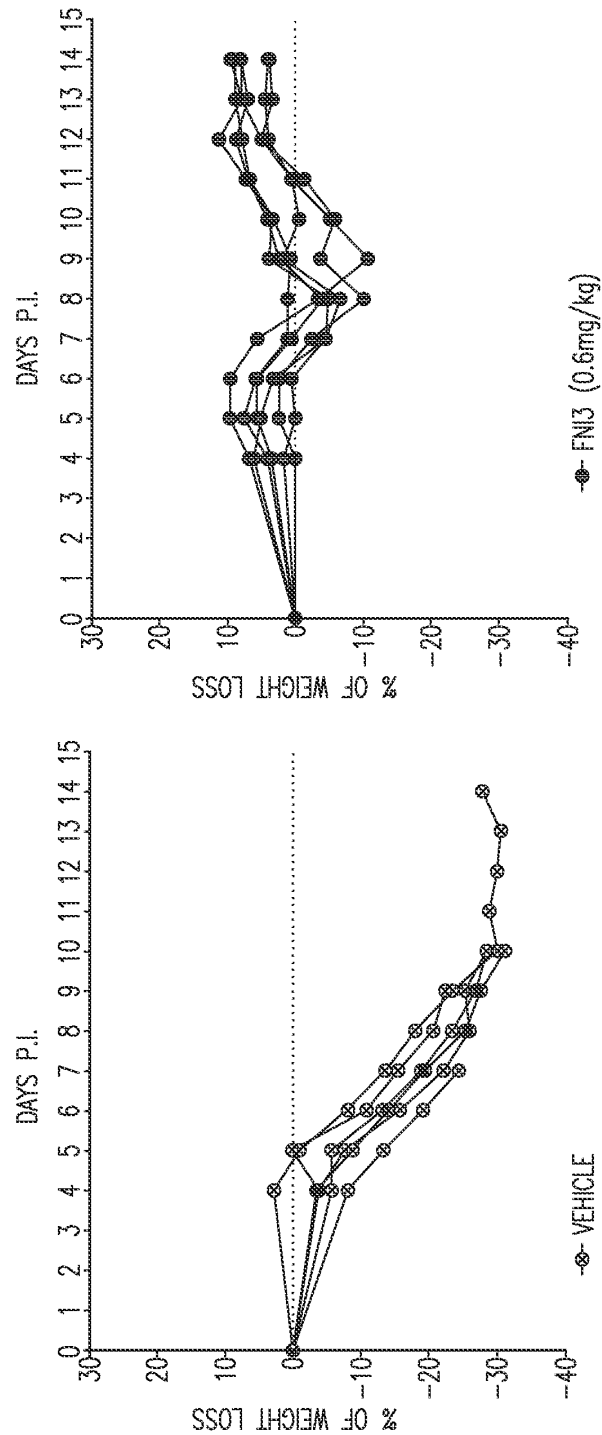


FIG. 31C

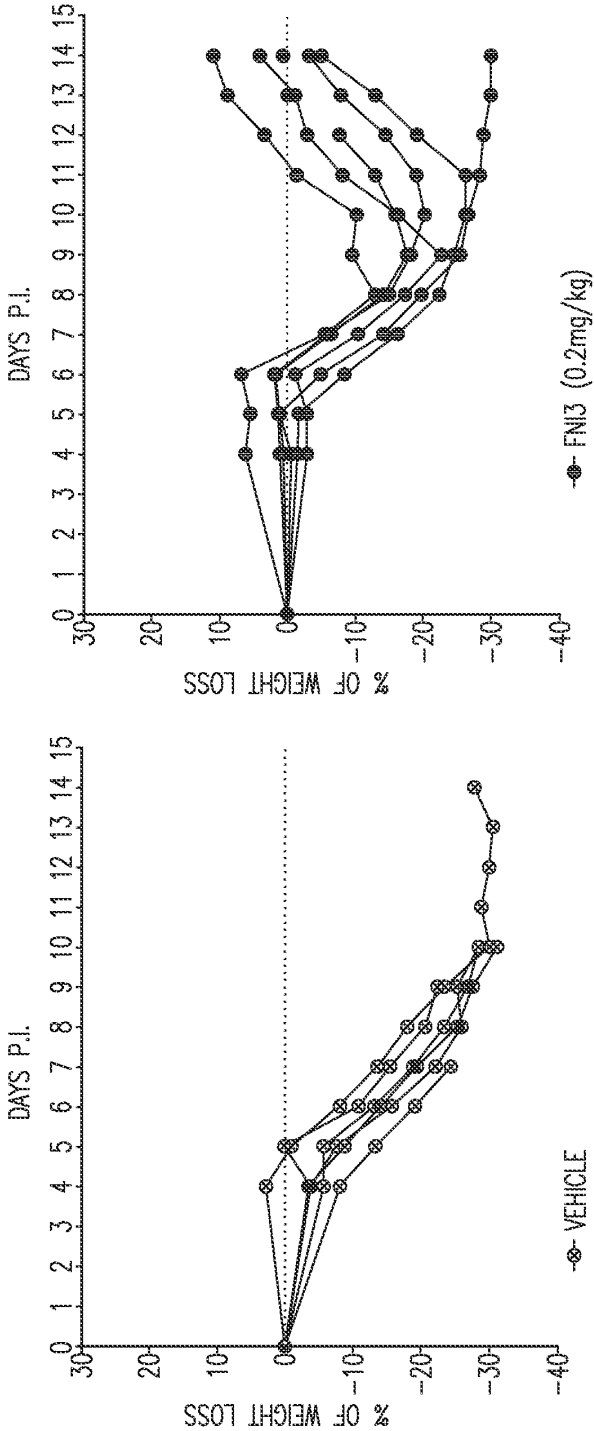


FIG. 31D

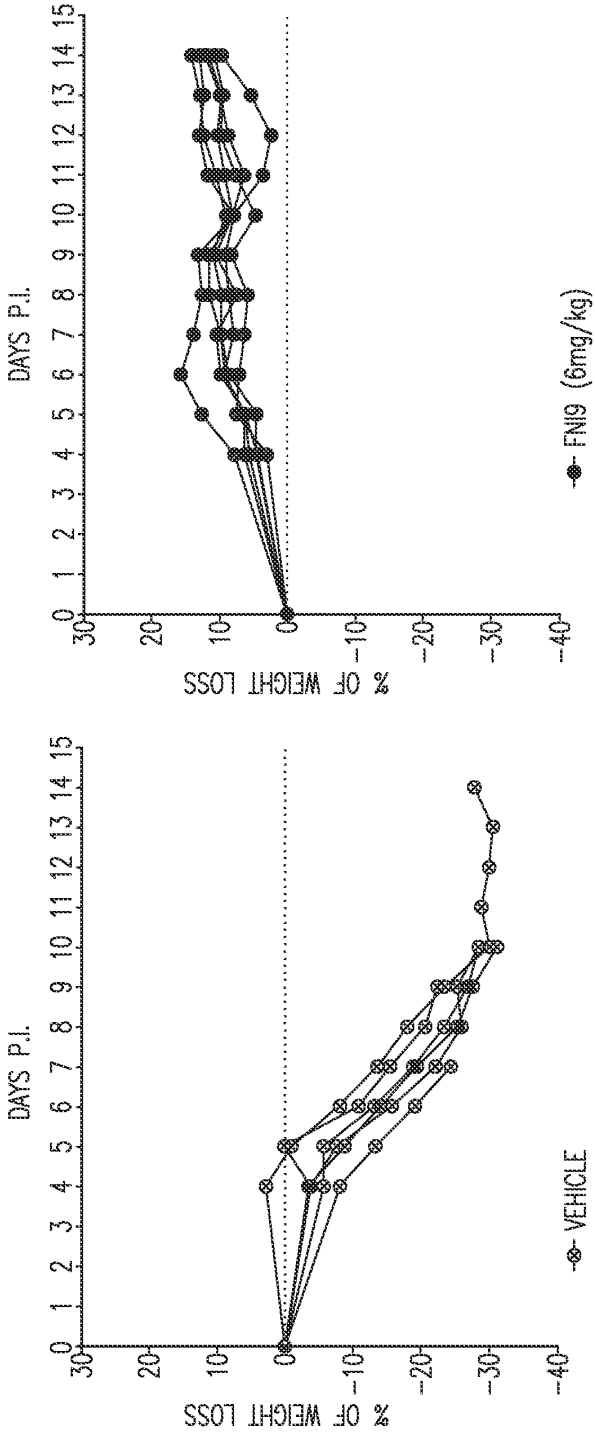


FIG. 32A

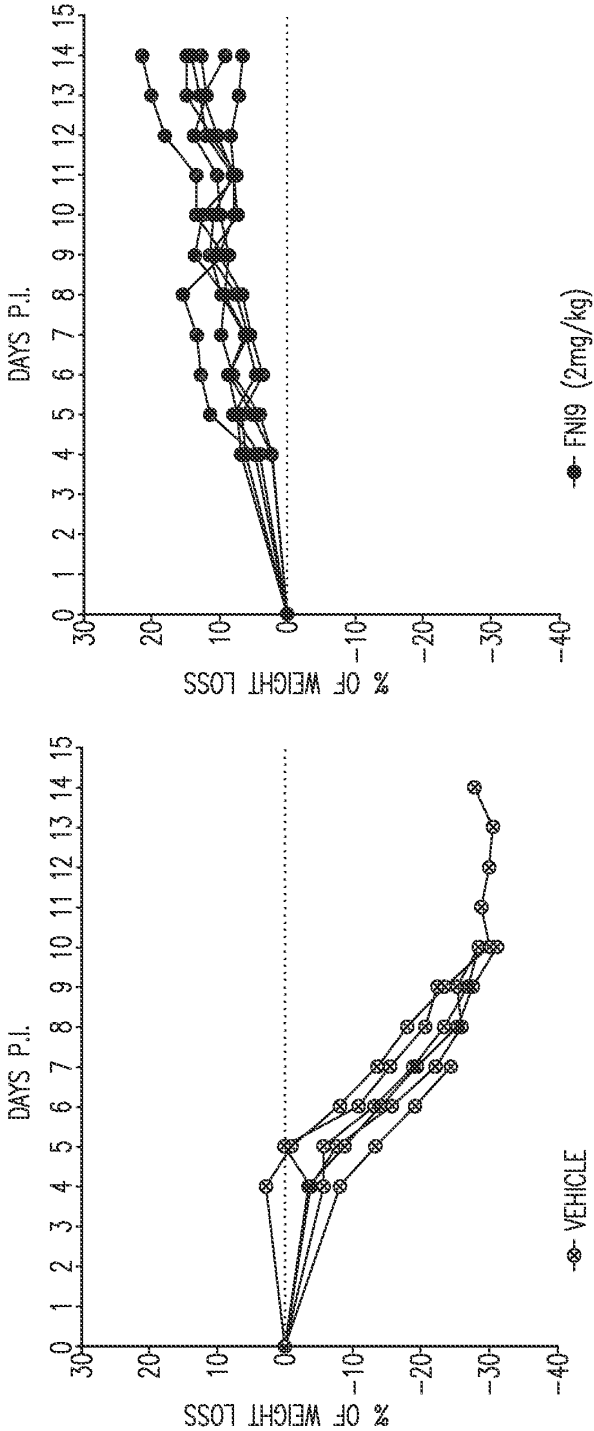


FIG. 32B

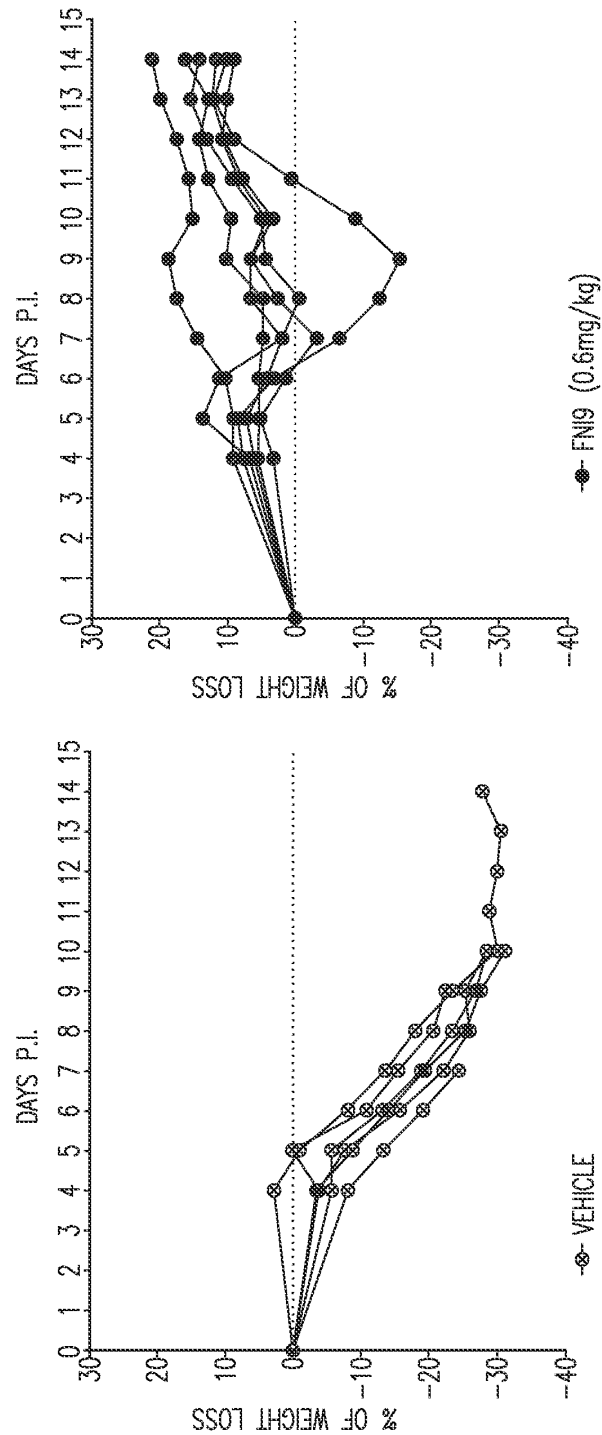


FIG. 32C

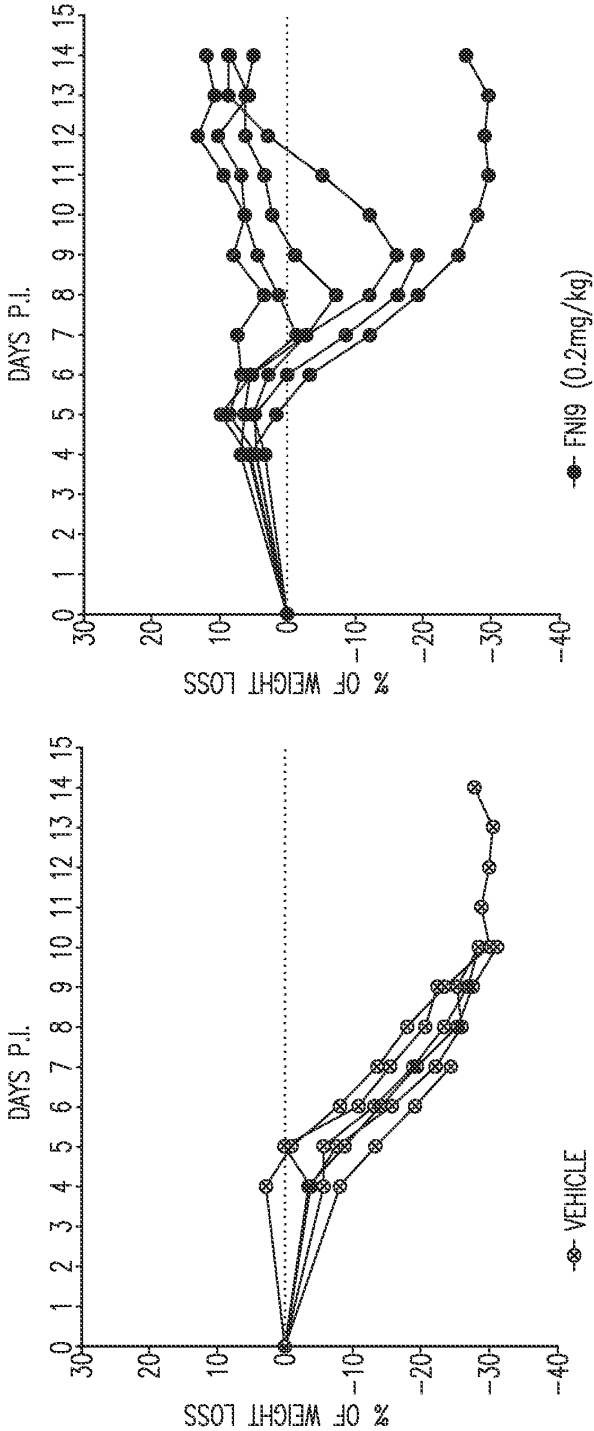


FIG. 32D

H1N1 A/PUERTO RICO/8/1934

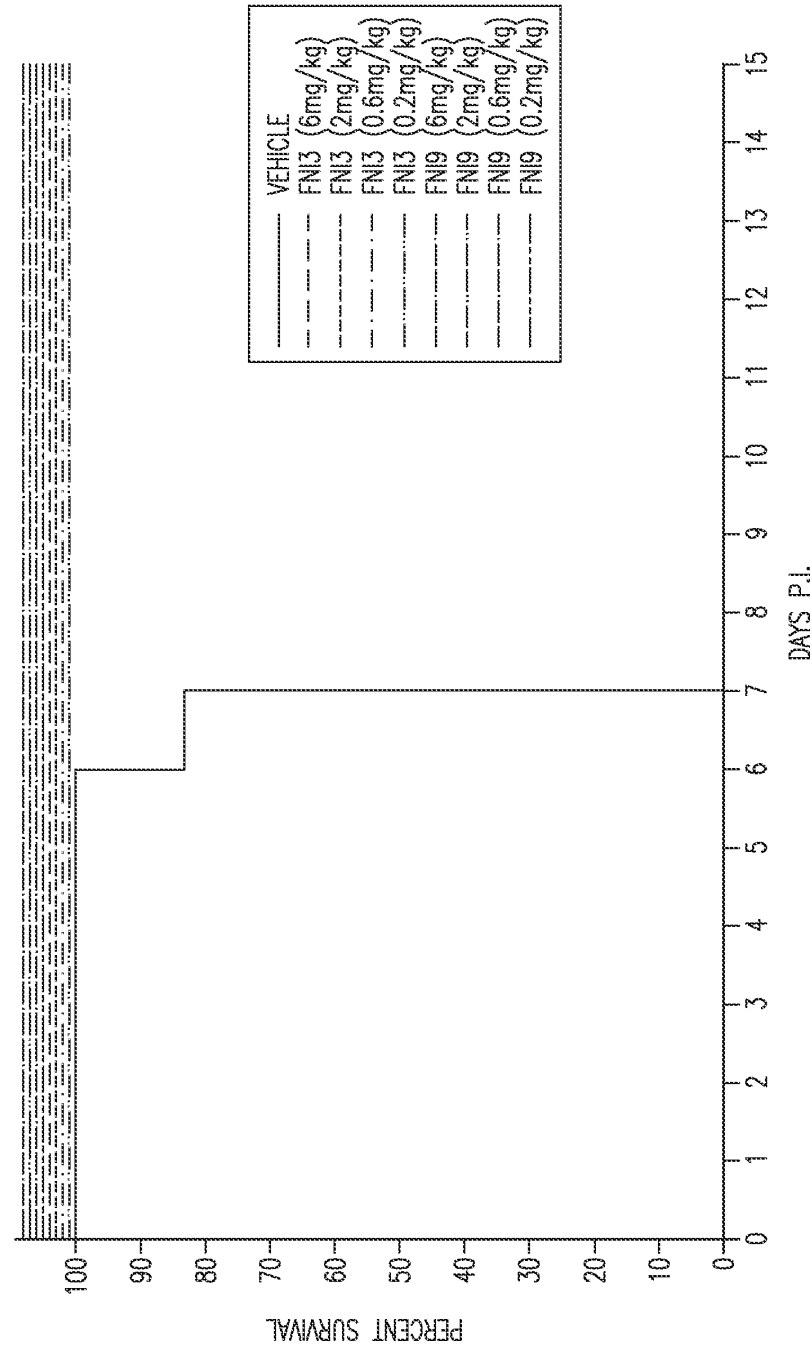


FIG. 33A

H3N2 A/HONG KONG/8/1968

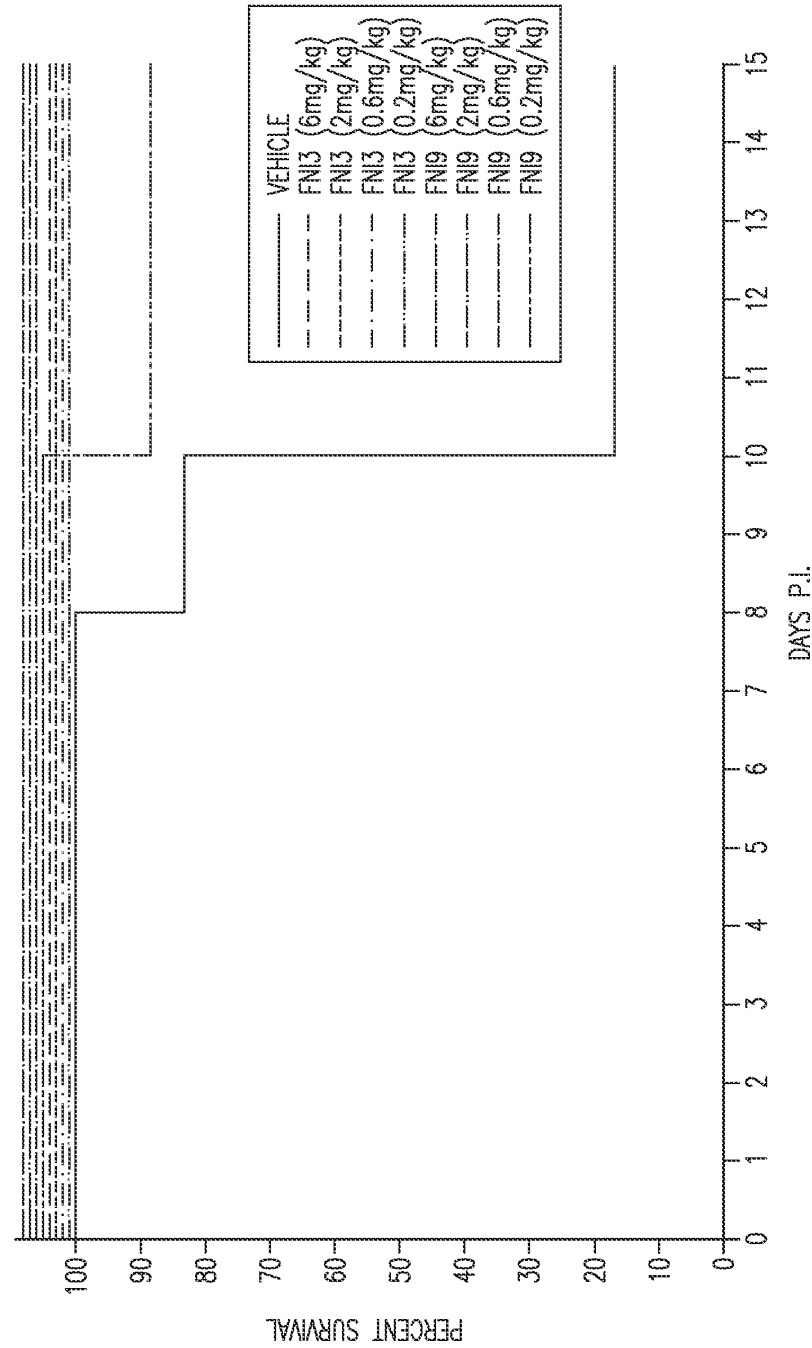


FIG. 33B

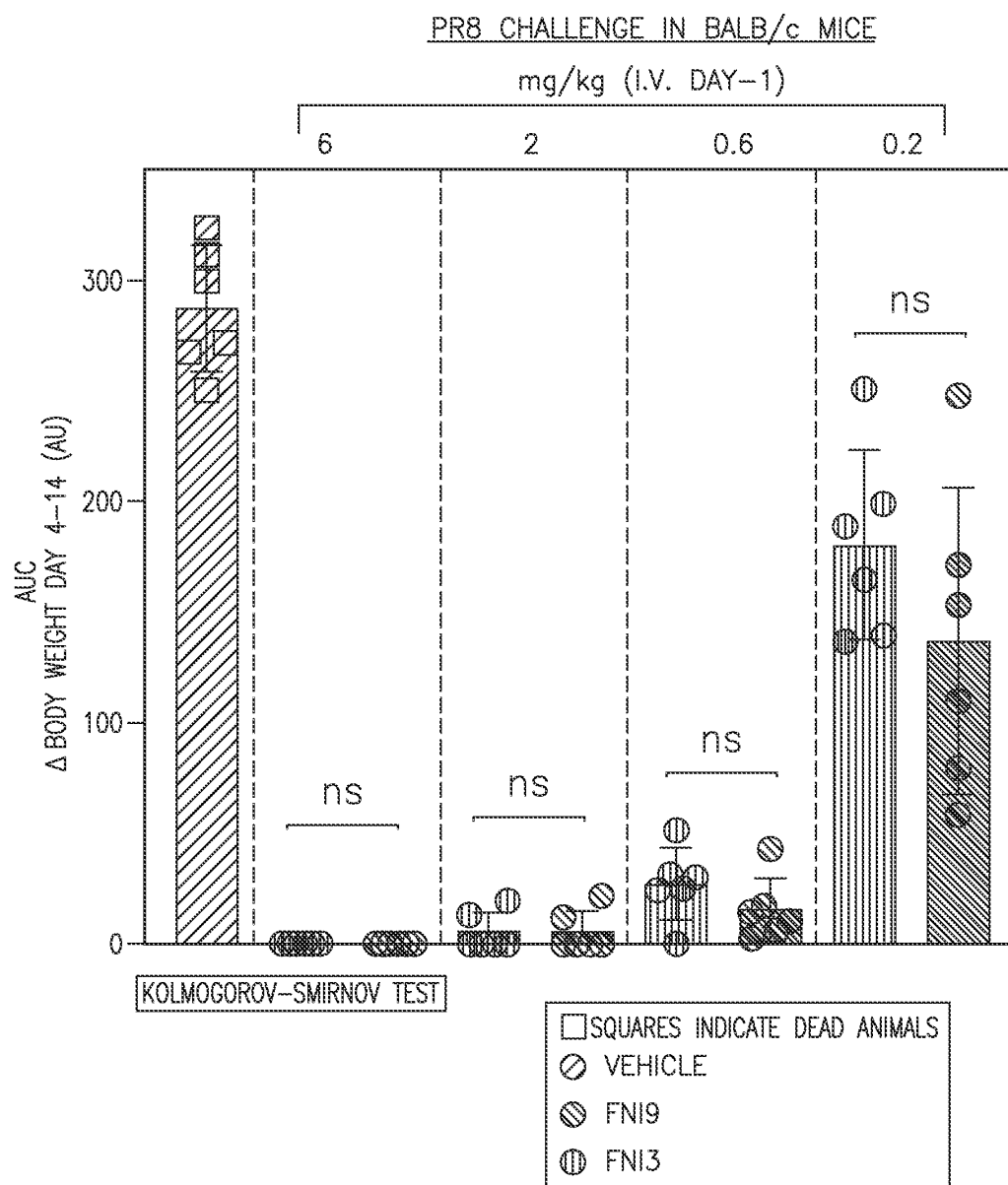


FIG. 34A

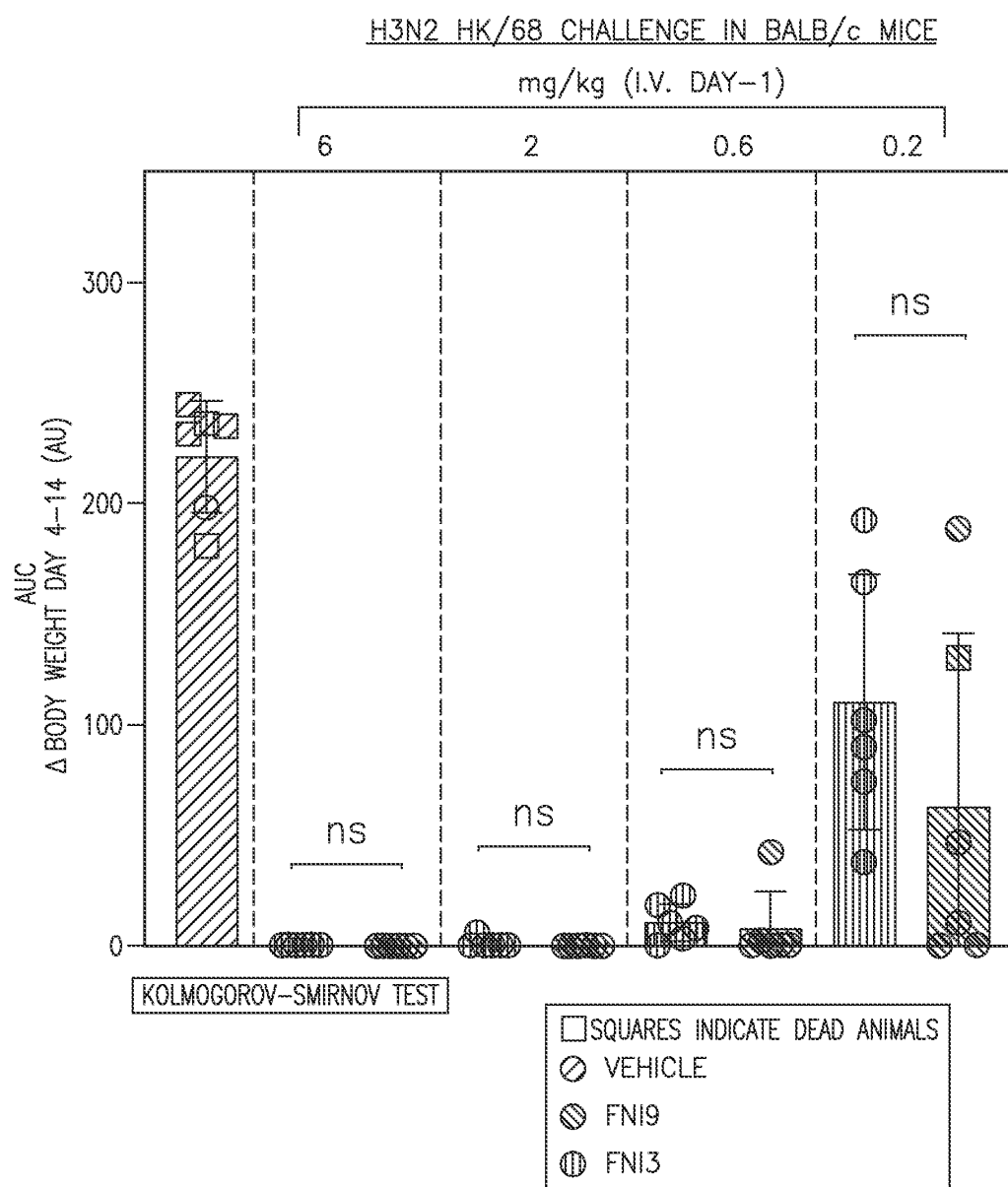


FIG. 34B

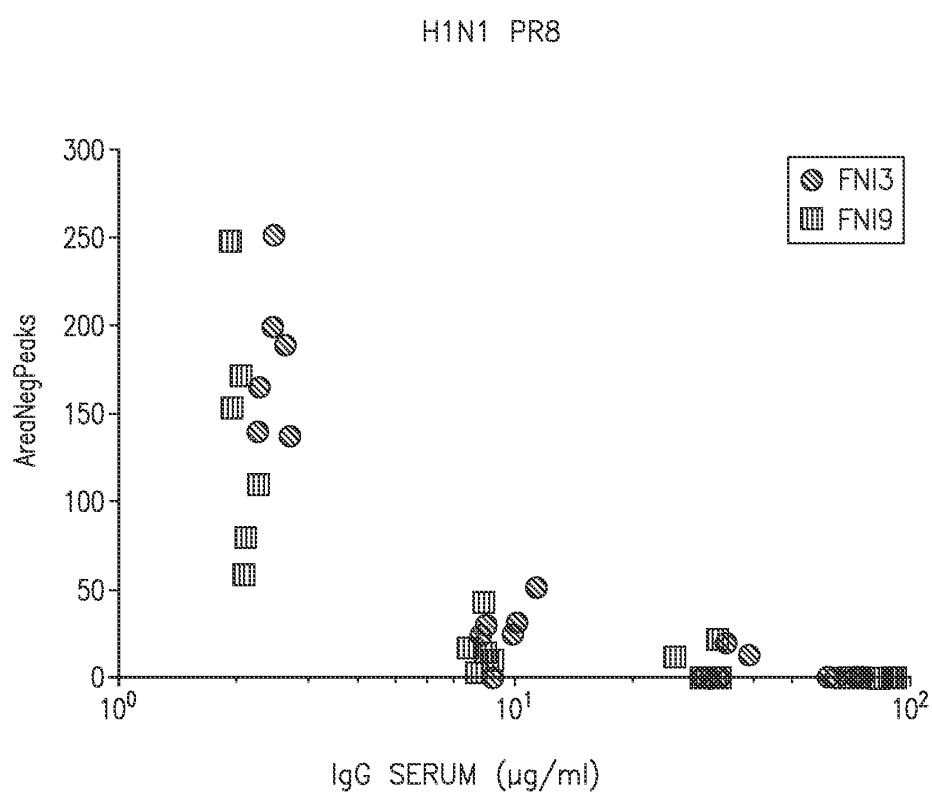


FIG. 35A

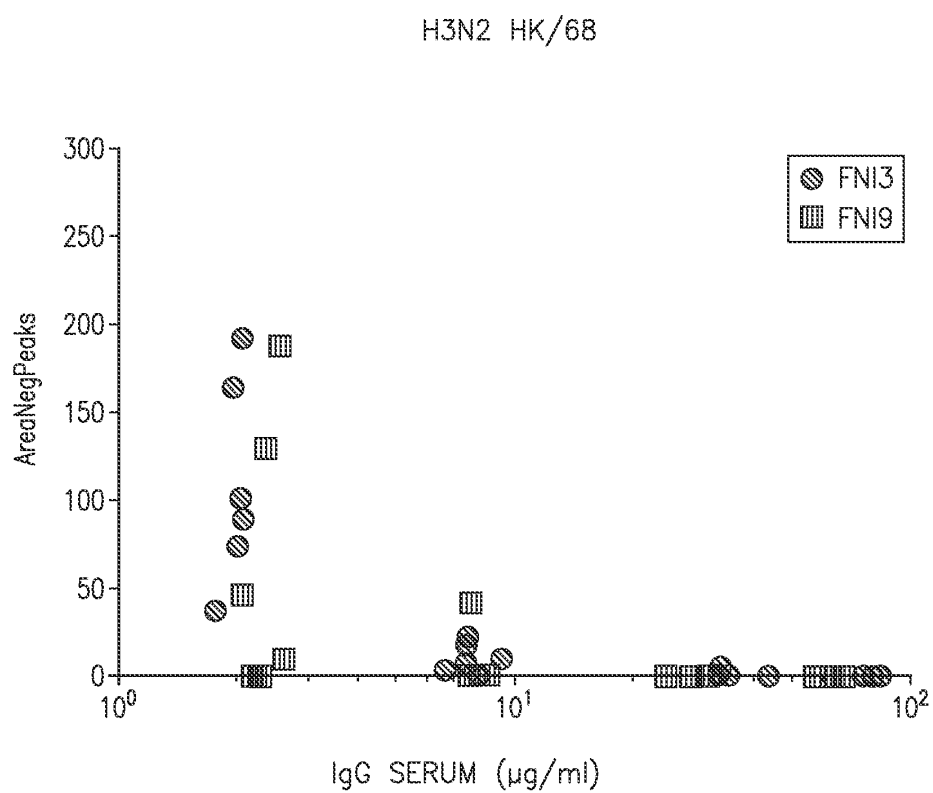


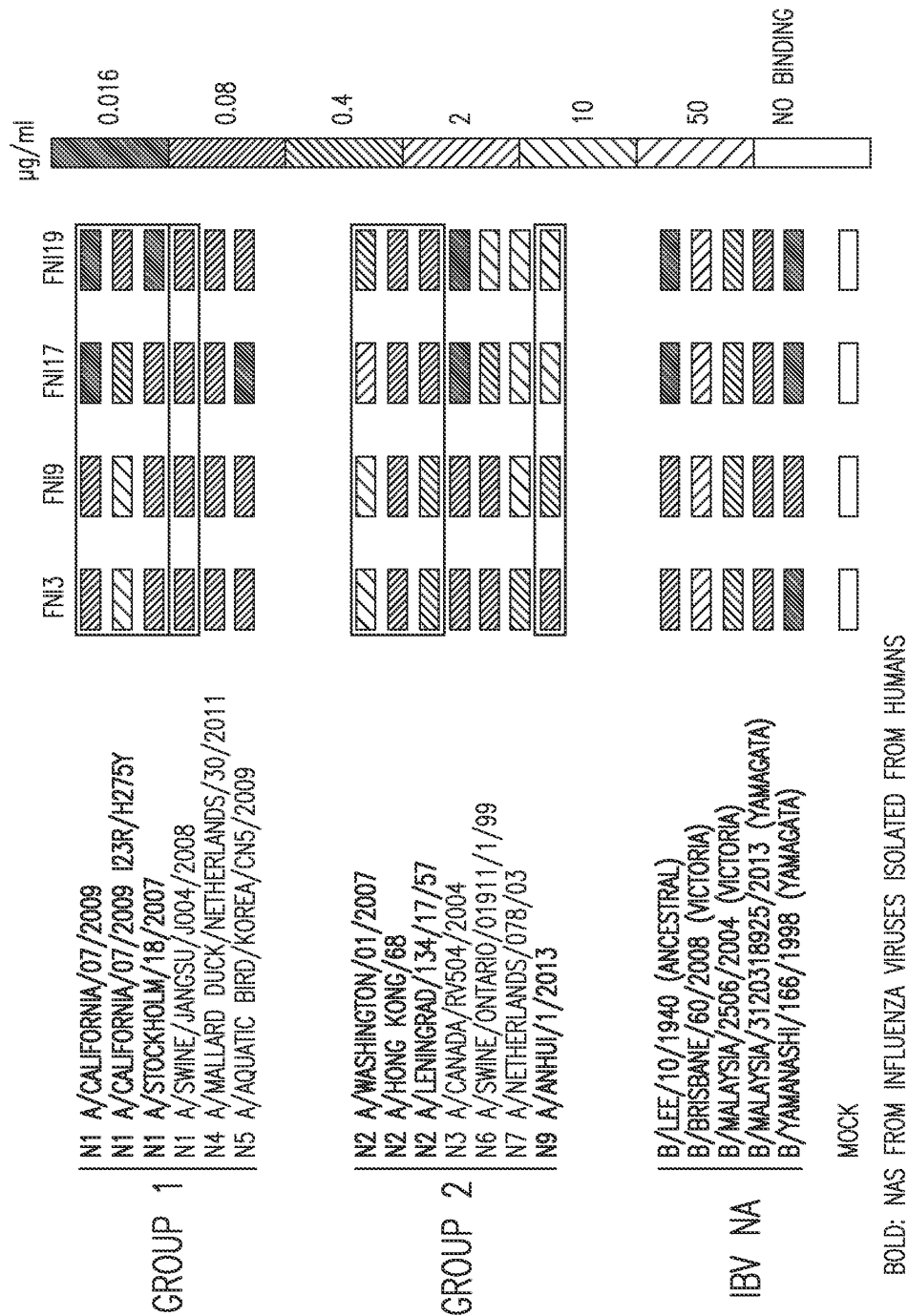
FIG. 35B

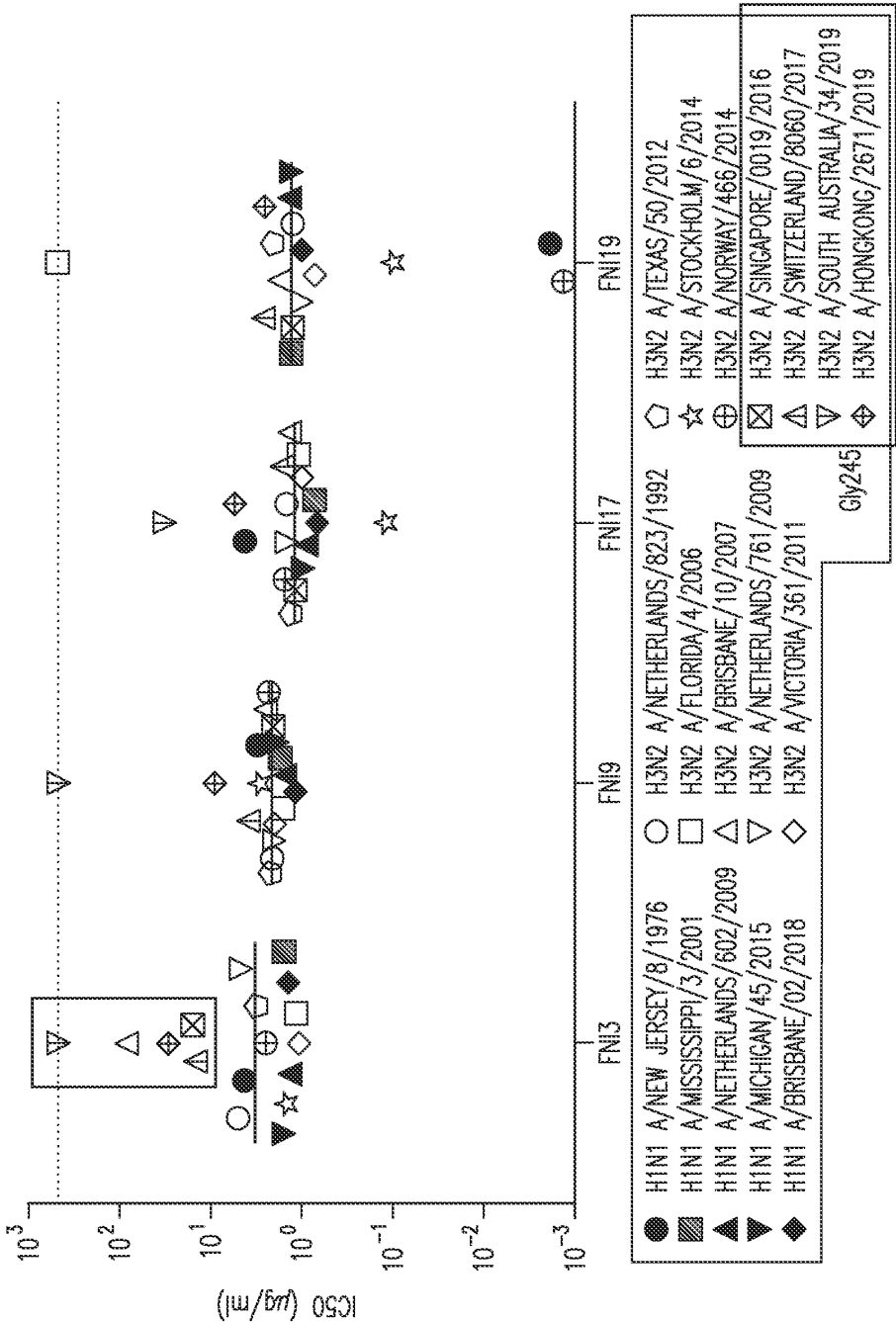
GROUP	DOSE (μ g)	Rsqr	POINTS FITS	LAMBDA_Z (1/DAY)	HALF-LIFE (DAY)	AUCLAST (DAY* μ g/mL)	Vz (mL)	CLss (mL/DAY)
FNI3-LS	60.3	0.88	5	0.05	15.1	337.88	30.22	1.39
	61	0.93	5	0.06	11.49	191.19	46.84	2.83
	60.3	0.84	5	0.06	11.4	237.19	26.22	1.6
	70.8	0.96	5	0.06	11.73	291.55	29.39	1.74
	47.5	0.95	5	0.07	10.46	174.68	29.67	1.97
MEAN	59.98	0.911	5	0.058	12.034	253.697	32.47	1.902
SD	8.277	0.052	0	0.008	1.781	69.01	8.183	0.558
FNI9-LS	54.8	0.92	5	0.05	14.23	242.18	38.36	1.87
	52.3	0.95	5	0.06	11.04	249.53	23.68	1.49
	56	0.85	4	0.04	16.64	299.93	45.24	1.88
	53.3	0.84	5	0.05	14.65	233.35	53.54	2.53
	53.3	0.79	5	0.05	14.42	247.92	40.58	1.95
MEAN	53.94	0.87	4.8	0.05	14.198	254.583	40.281	1.944
SD	1.457	0.062	0.447	0.008	2.014	26.131	10.952	0.376
FM08_LS	53.5	0.87	4	0.07	10.29	204.54	17.44	1.17
	52.8	0.93	5	0.08	8.58	275.51	12.72	1.03
	54.5	0.87	5	0.09	8	275.84	12.57	1.09
	51.3	0.97	5	0.12	6	173.86	12.02	1.39
	51.3	0.91	5	0.09	7.49	204.07	17.16	1.59
MEAN	52.68	0.91	4.8	0.089	8.072	226.764	14.381	1.253
SD	1.397	0.043	0.447	0.018	1.567	46.348	2.677	0.231

FIG. 36

GROUP	ID	DOSE (μg)	Rsq_ADJUSTED	POINTS	LAMBDA_Z (1/DAY)	AU CLAST (DAY* $\mu\text{g/mL}$)	AUCINF_obs (DAY* $\mu\text{g/mL}$)	CLAST ($\mu\text{g/mL}$)	MRTINF_obs (DAY)	Vz (mL)	CLss (mL/DAY)	HALF-LIFE (DAY)
1G01-LS		165	0.89	5	0.04	417.16	746.65	14.14	14.45	77.3	3.32	16.15
		145	0.99	5	0.06	421.18	618.57	12.66	8.17	31.91	2.05	10.8
		160	0.93	5	0.05	429.26	685.83	13.16	9.94	47.82	2.45	13.52
		115	0.93	5	0.06	453.66	725.08	16.88	12.9	34.37	2.14	11.15
		136	0.87	5	0.06	454.1	706.12	15.11	11.55	39	2.34	11.56
	MEAN	144.2	0.923	5	0.056	435.073	696.451	14.39	11.401	46.079	2.458	12.636
	SD	20.017	0.047	0	0.009	17.714	49.02	1.679	2.456	18.479	0.506	2.23

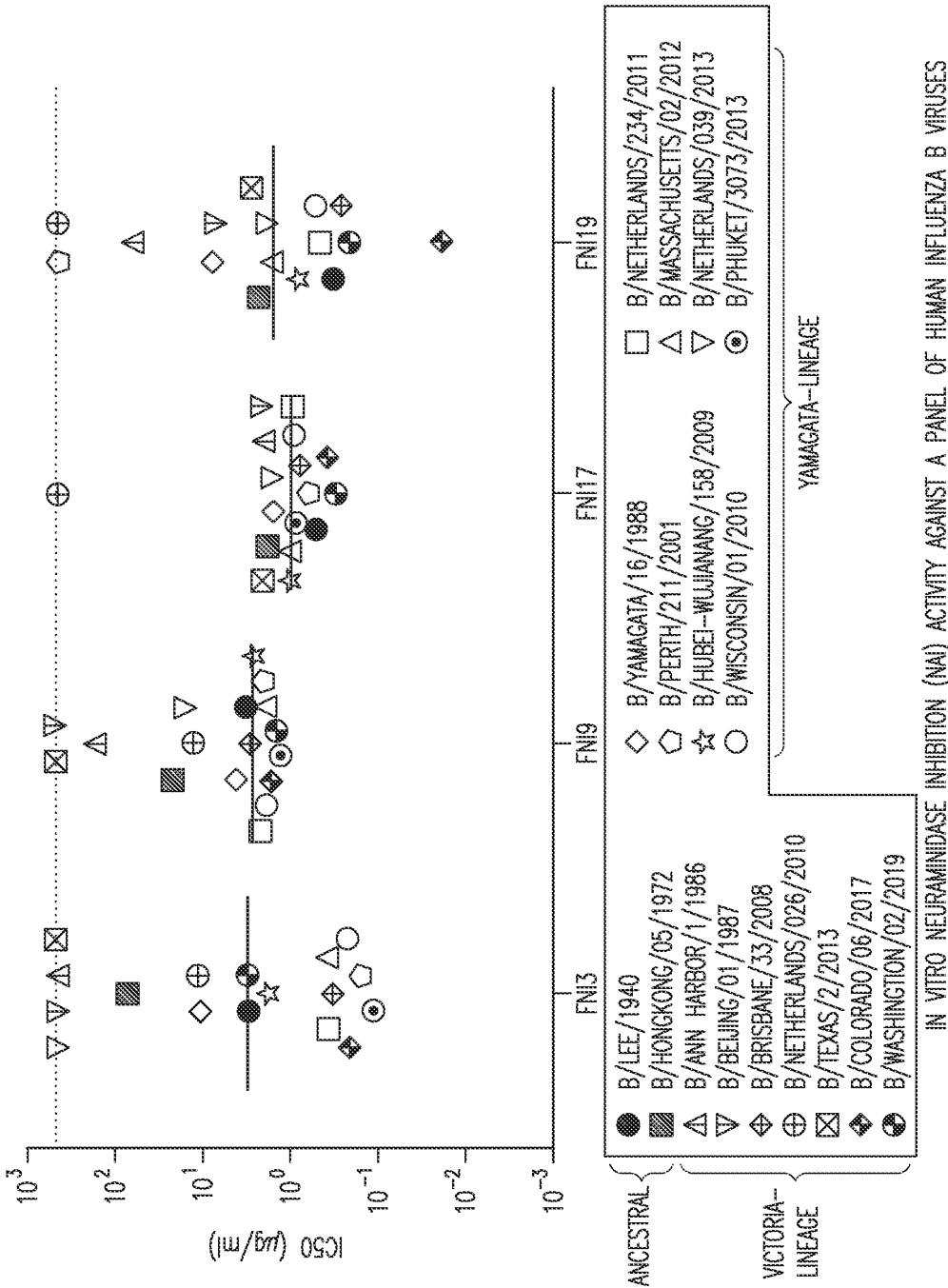
FIG. 36(cont'd)

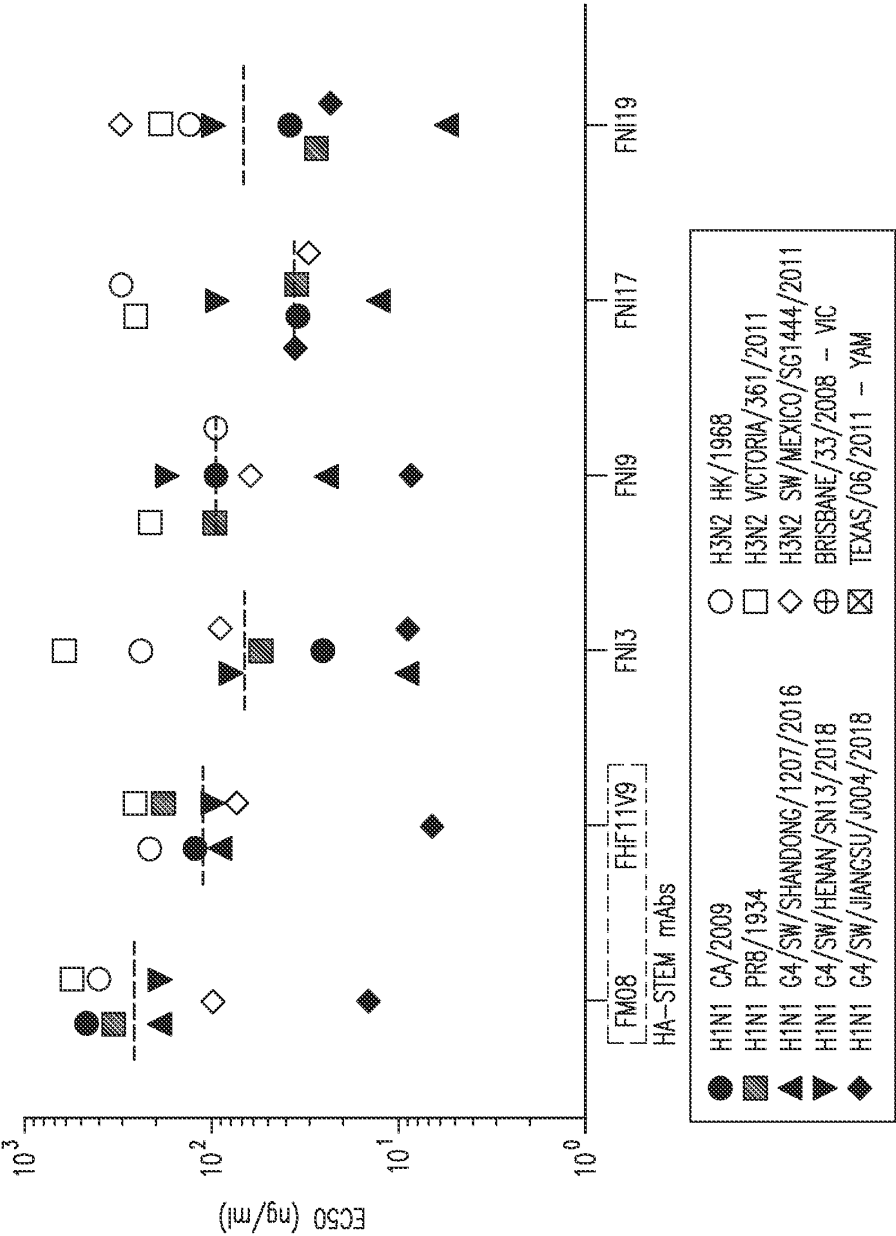




IN VITRO NEURAMINIDASE INHIBITION (NAI) ACTIVITY AGAINST A PANEL OF H1N1, H3N2 HUMAN INFLUENZA A VIRUSES

FIG. 38





NEUTRALIZING ACTIVITY OF FNIS VS FM08_MLNS AGAINST H1N1 AND H3N2 VIRUSES MEASURED BY NP STAINING

FIG. 40

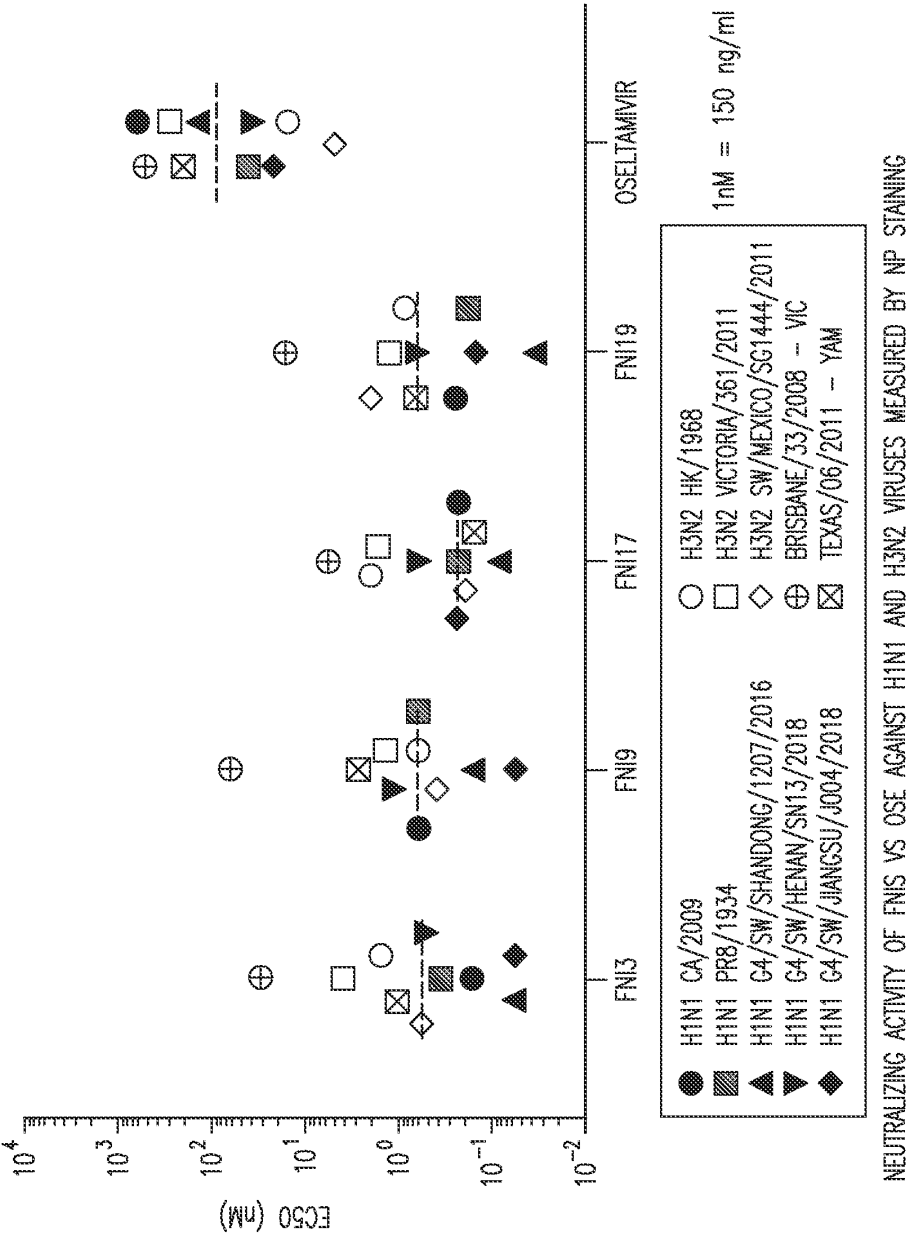


FIG. 41

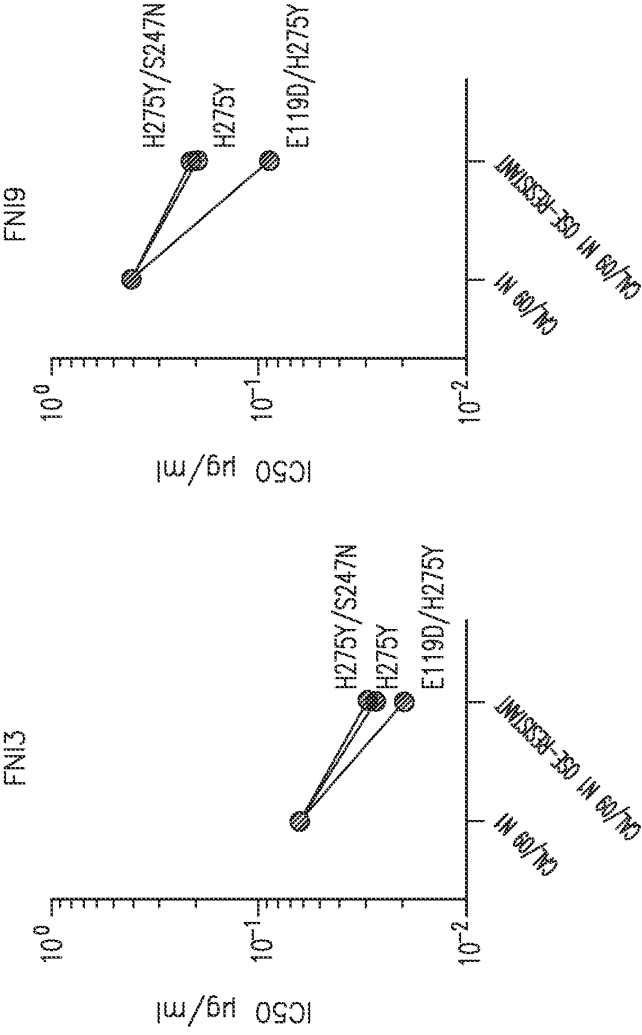


FIG. 42A

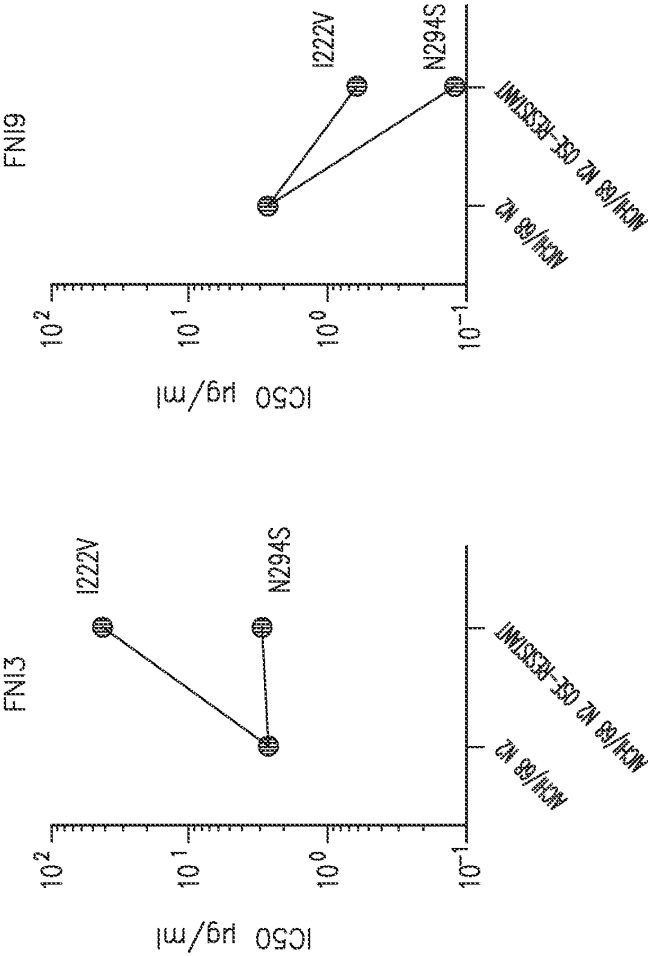


FIG. 42B

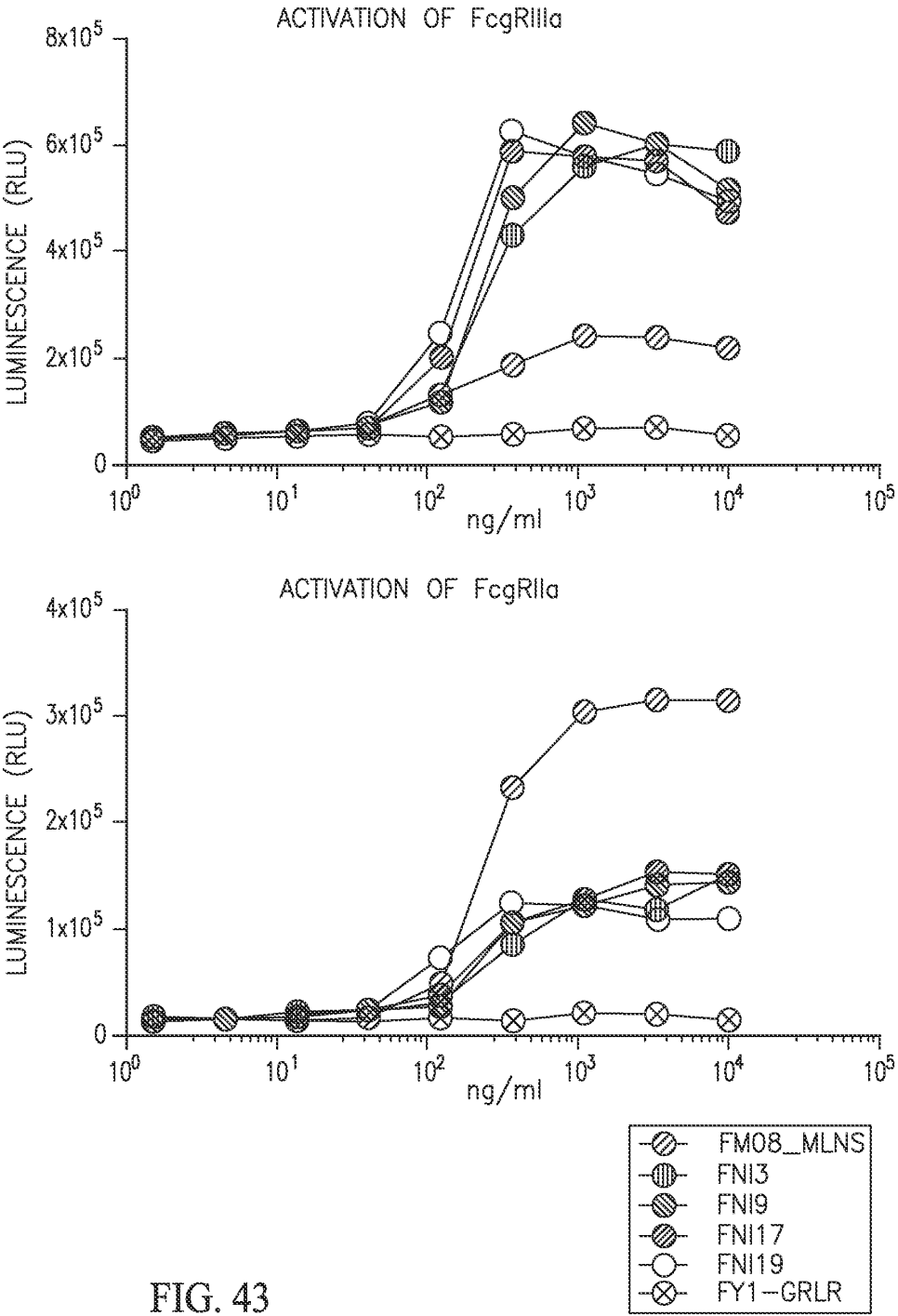


FIG. 43

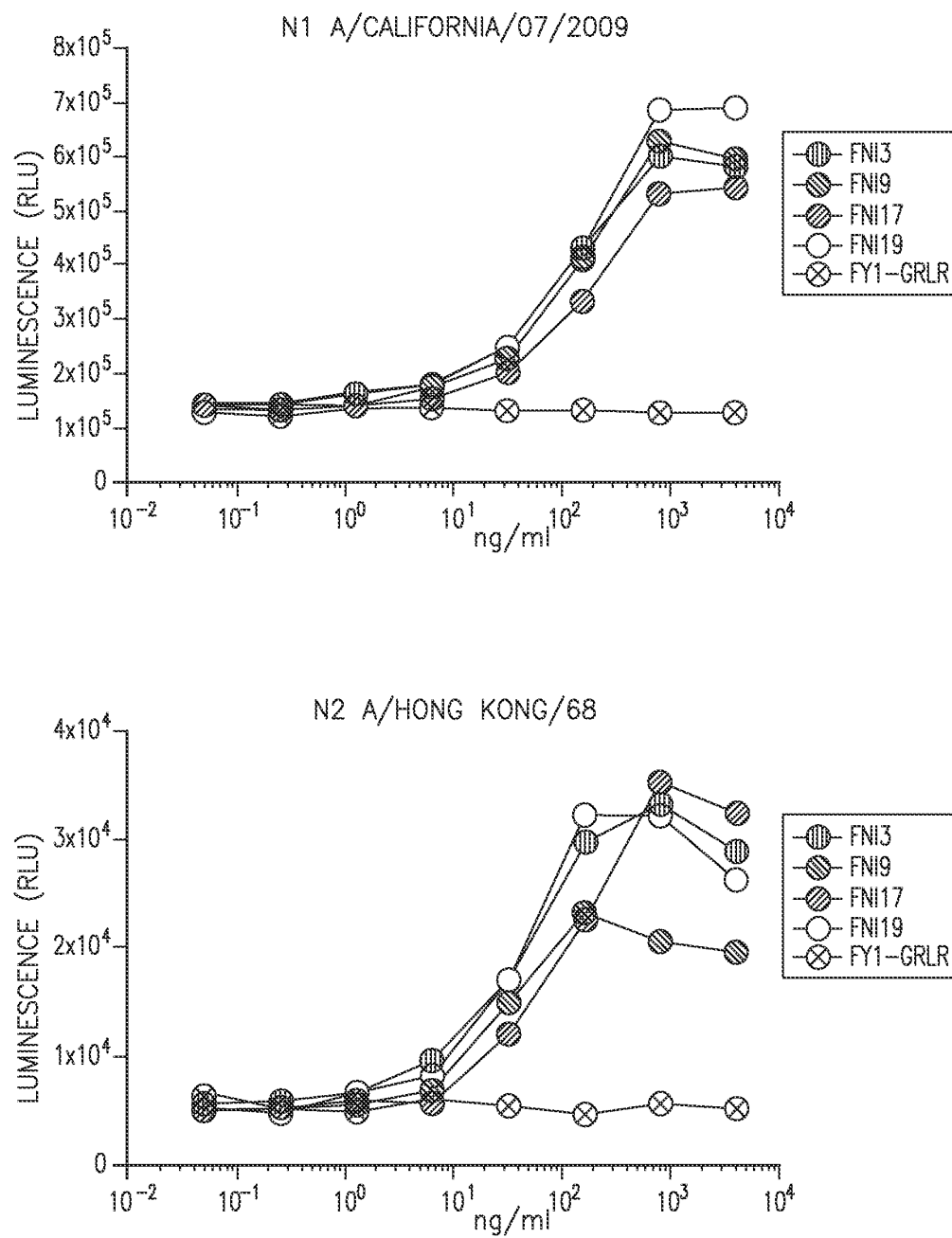


FIG. 44A

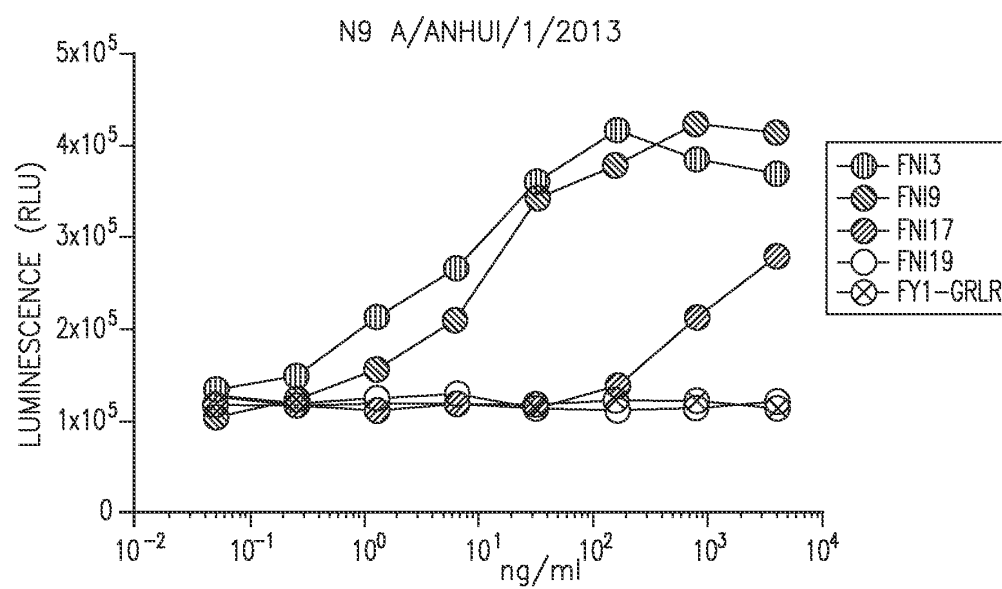


FIG. 44A(cont'd)

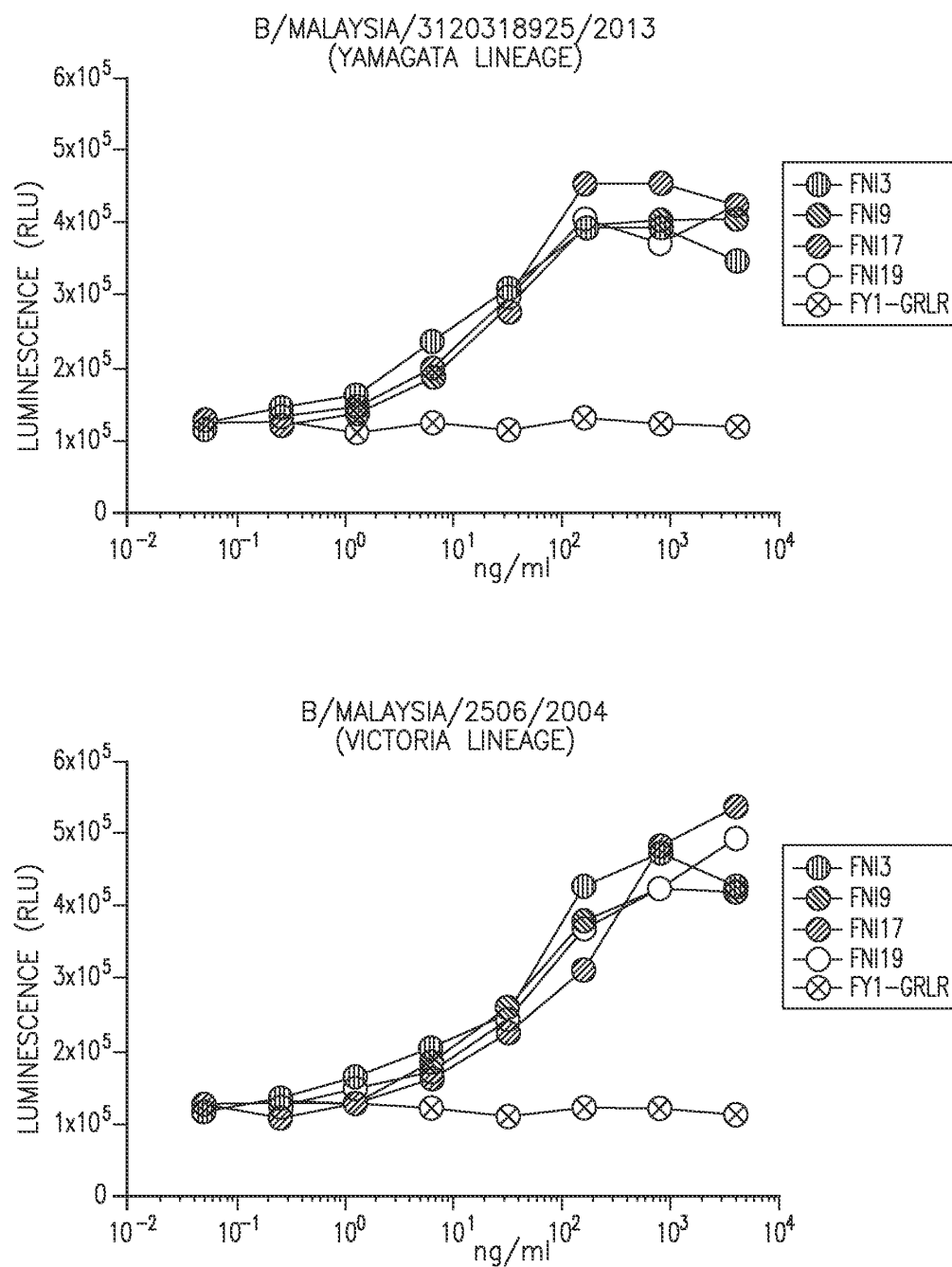


FIG. 44B

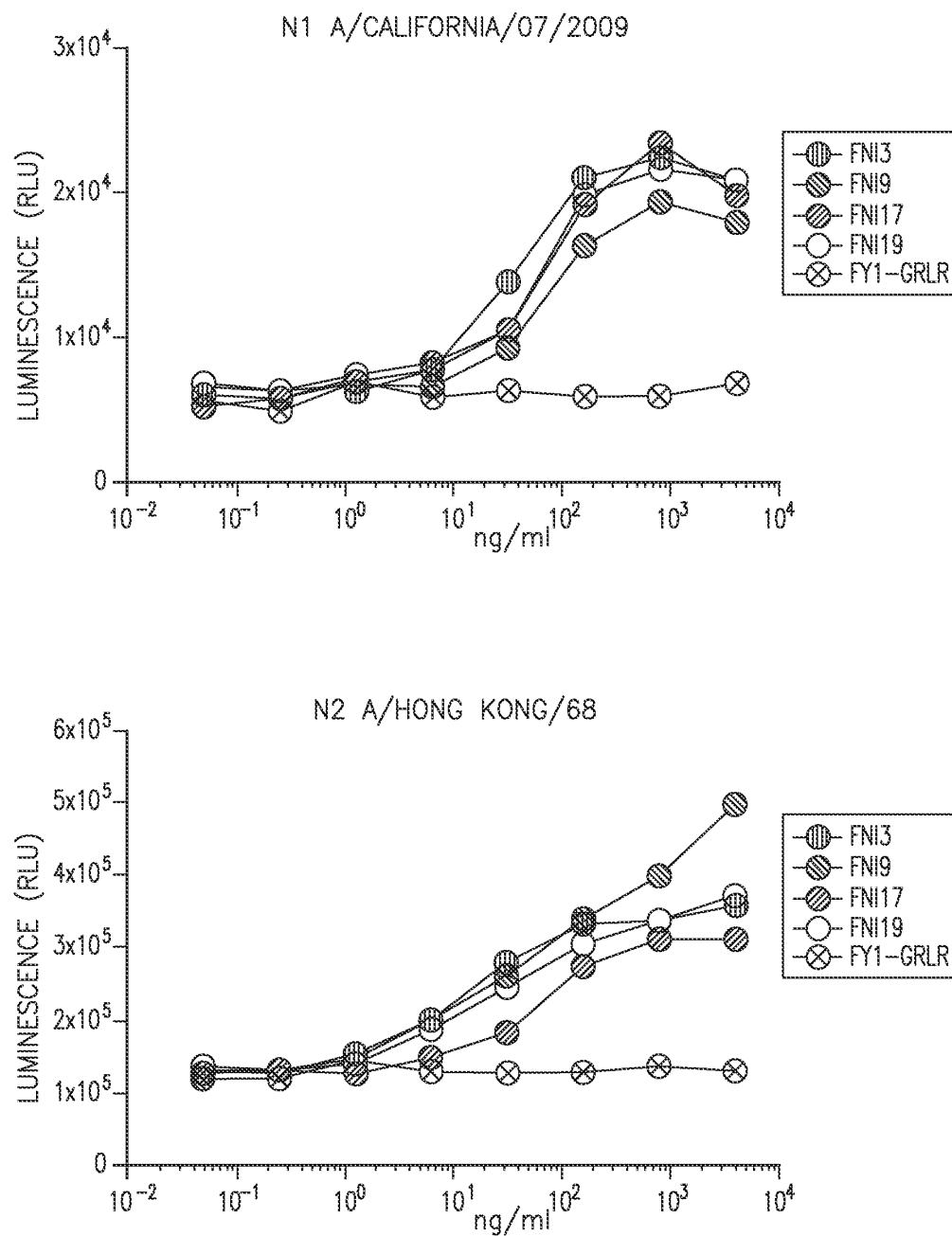


FIG. 45A

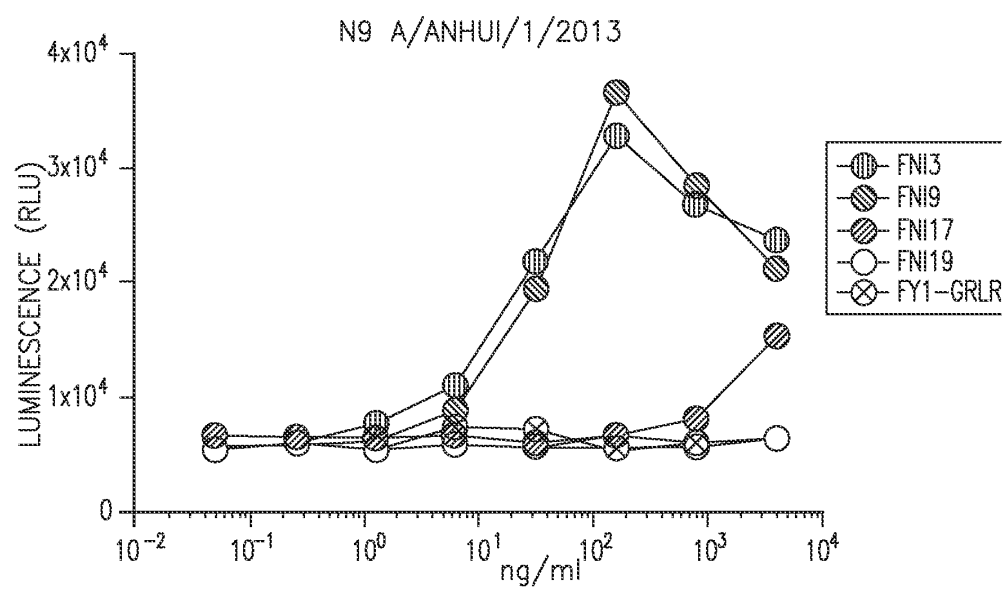


FIG. 45A(cont'd)

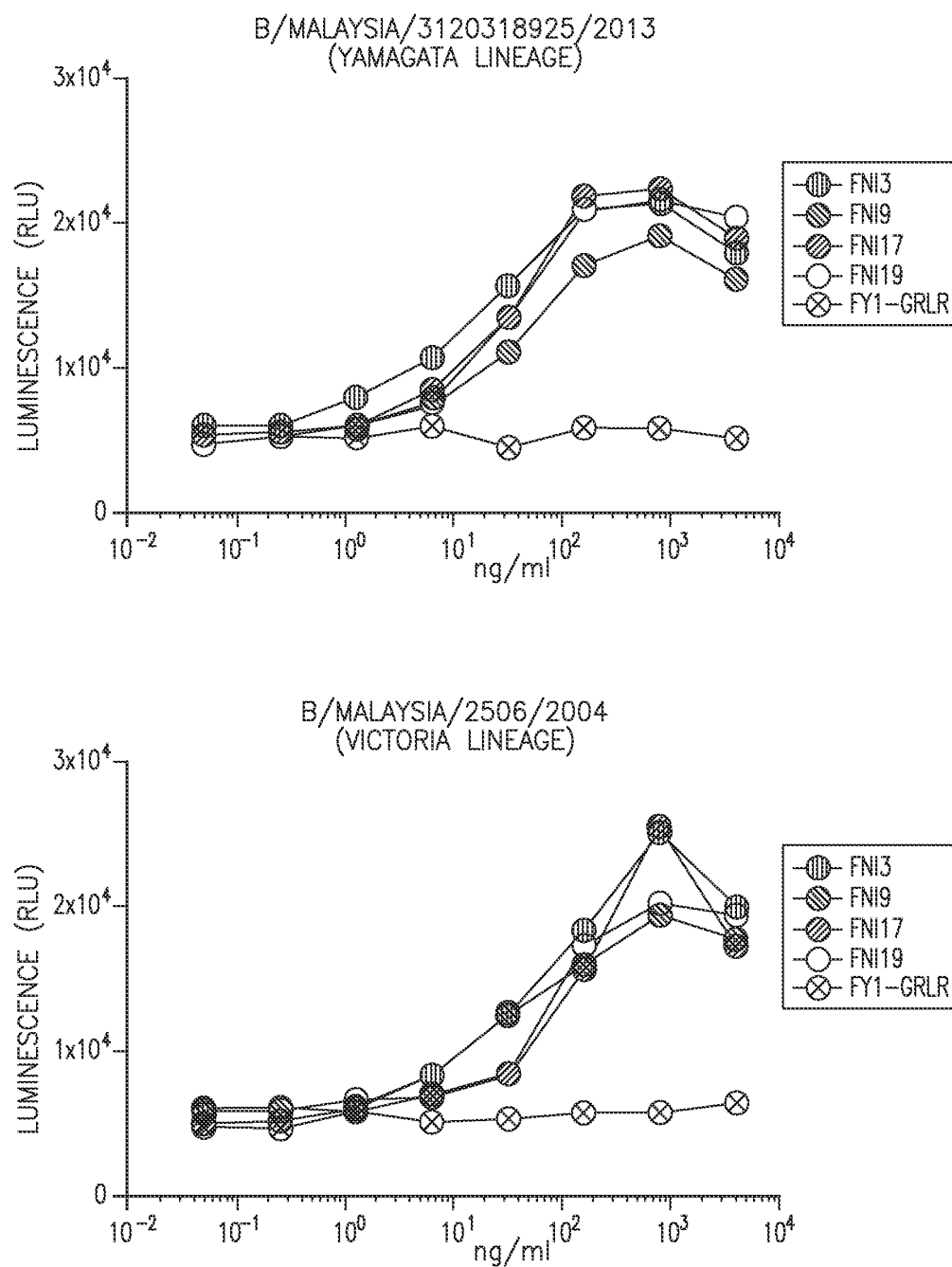


FIG. 45B

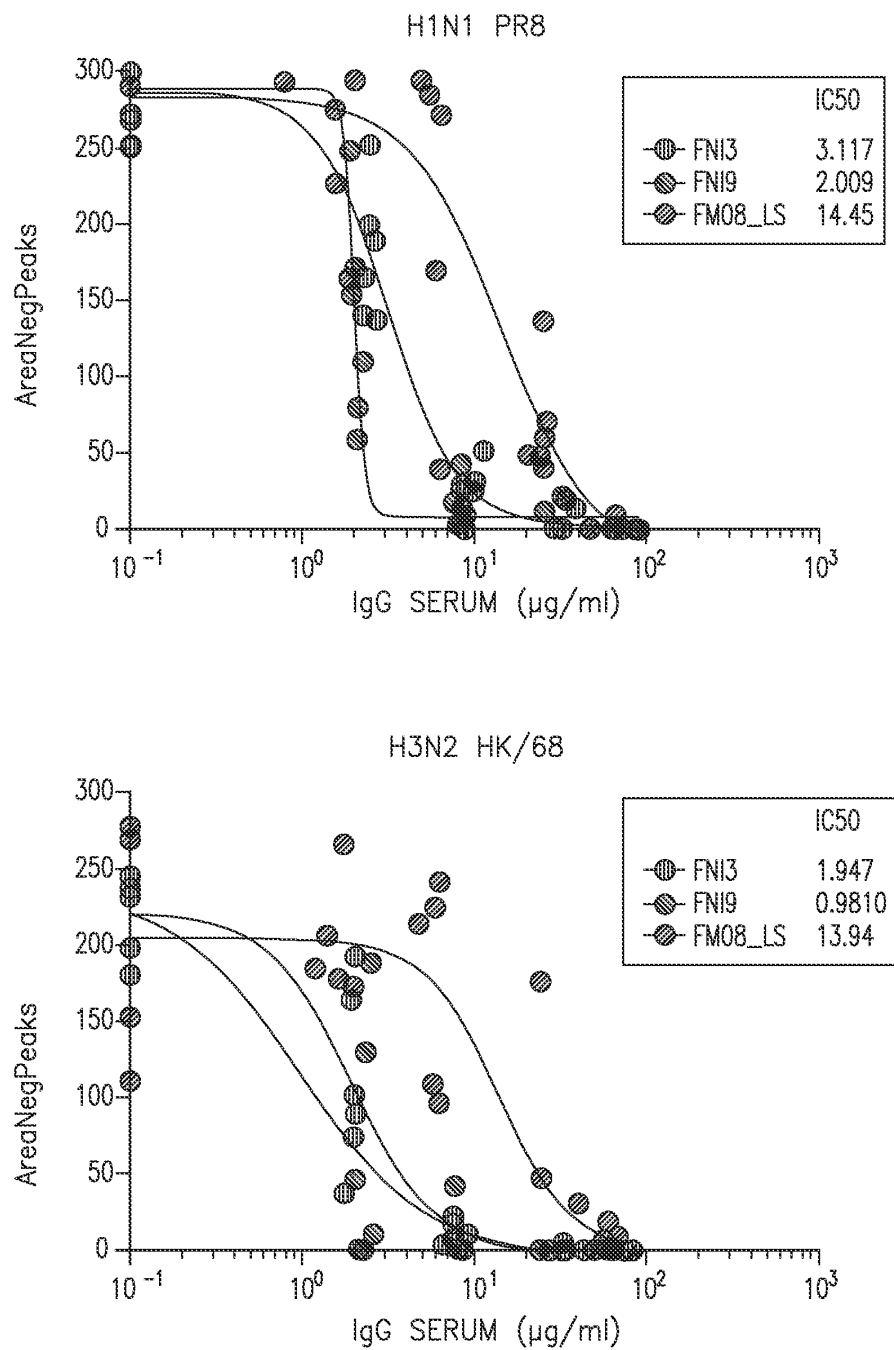


FIG. 46

GROUP	MOUSE STRAIN	TREATMENT	INFLUENZA INFECTION	ENDPOINTS
CONTROL	DBA2/J	VEHICLE CONTROL	A/VICTORIA/504/2000	BODYWEIGHT, MORTALITY
mAB-03	DBA2/J	6 mg/kg	A/VICTORIA/504/2000	
mAB-03	DBA2/J	2 mg/kg	A/VICTORIA/504/2000	
mAB-03	DBA2/J	0.6 mg/kg	A/VICTORIA/504/2000	
mAB-03	DBA2/J	0.2 mg/kg	A/VICTORIA/504/2000	
mAB-09	DBA2/J	6 mg/kg	A/VICTORIA/504/2000	
mAB-09	DBA2/J	2 mg/kg	A/VICTORIA/504/2000	
mAB-09	DBA2/J	0.6 mg/kg	A/VICTORIA/504/2000	
mAB-09	DBA2/J	0.2 mg/kg	A/VICTORIA/504/2000	
54 MICE TOTAL				
CONTROL	DBA2/J	VEHICLE CONTROL	B/BRISBANE/60/2008	BODYWEIGHT, MORTALITY
mAB-03	DBA2/J	6 mg/kg	B/BRISBANE/60/2008	
mAB-03	DBA2/J	2 mg/kg	B/BRISBANE/60/2008	
mAB-03	DBA2/J	0.6 mg/kg	B/BRISBANE/60/2008	
mAB-03	DBA2/J	0.2 mg/kg	B/BRISBANE/60/2008	
mAB-09	DBA2/J	6 mg/kg	B/BRISBANE/60/2008	
mAB-09	DBA2/J	2 mg/kg	B/BRISBANE/60/2008	
mAB-09	DBA2/J	0.6 mg/kg	B/BRISBANE/60/2008	
mAB-09	DBA2/J	0.2 mg/kg	B/BRISBANE/60/2008	
54 MICE TOTAL				

mAB-03 = FN13-r1gG-LG
mAB-09 = FN19-r1gG-LG

FIG. 47A

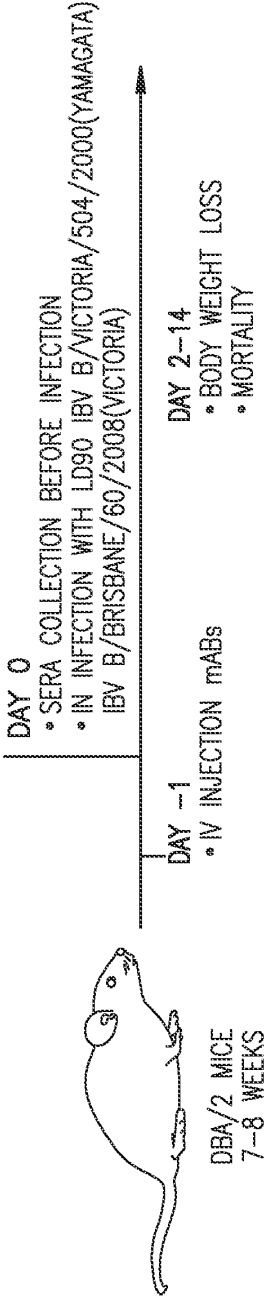


FIG. 47B

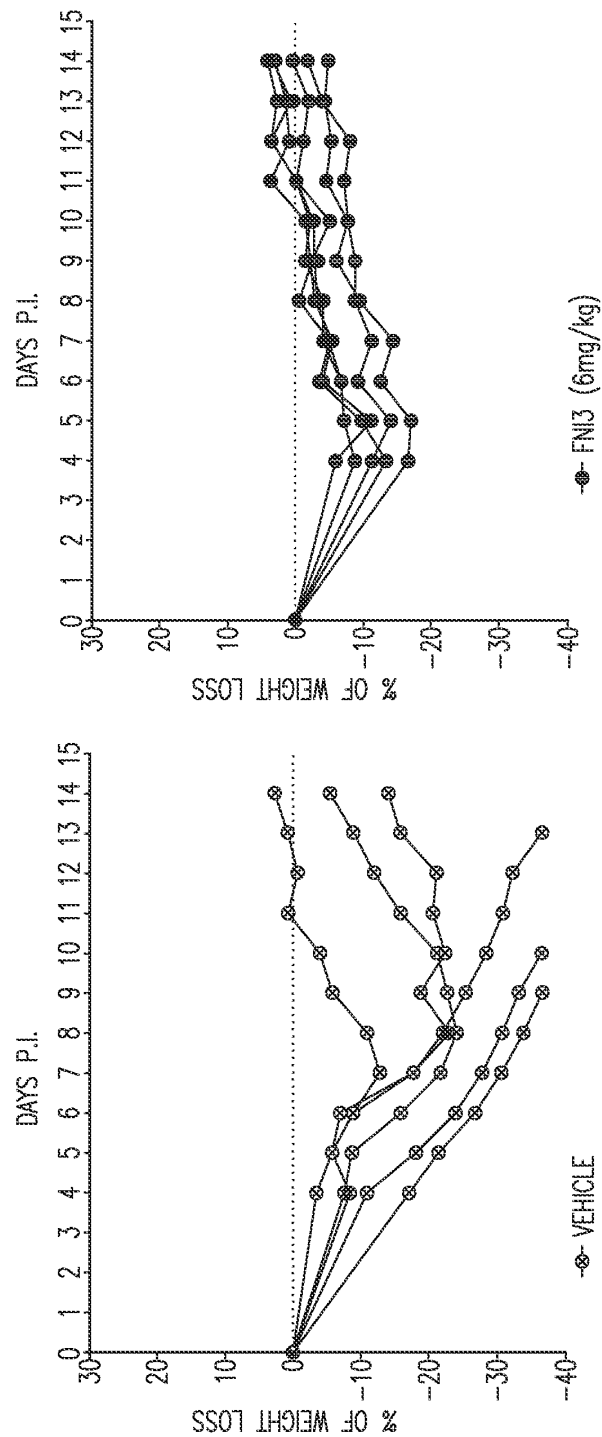


FIG. 48A

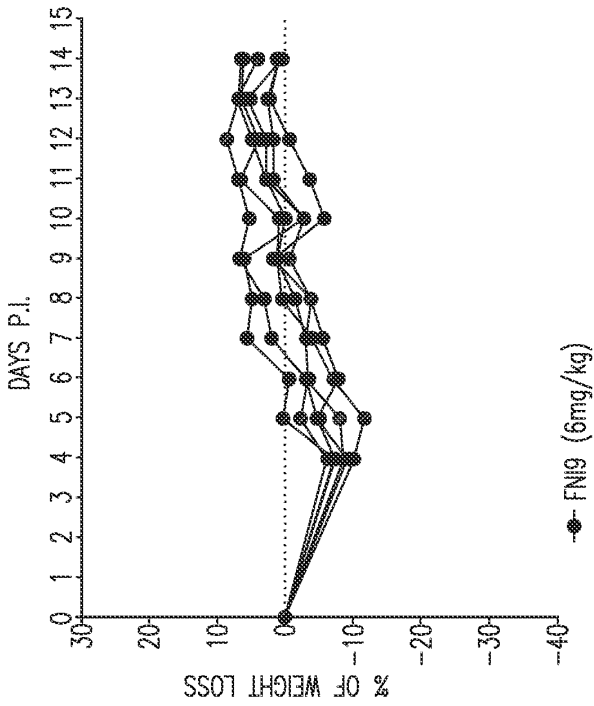


FIG. 48A(cont'd)

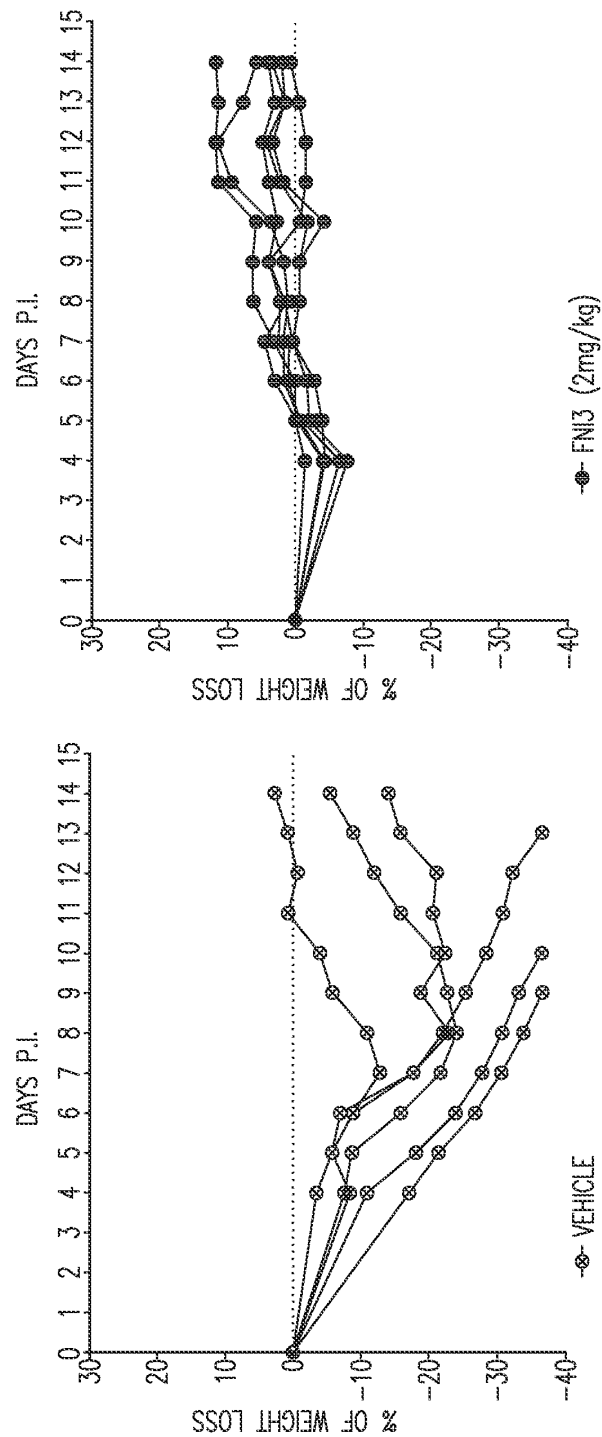


FIG. 48B

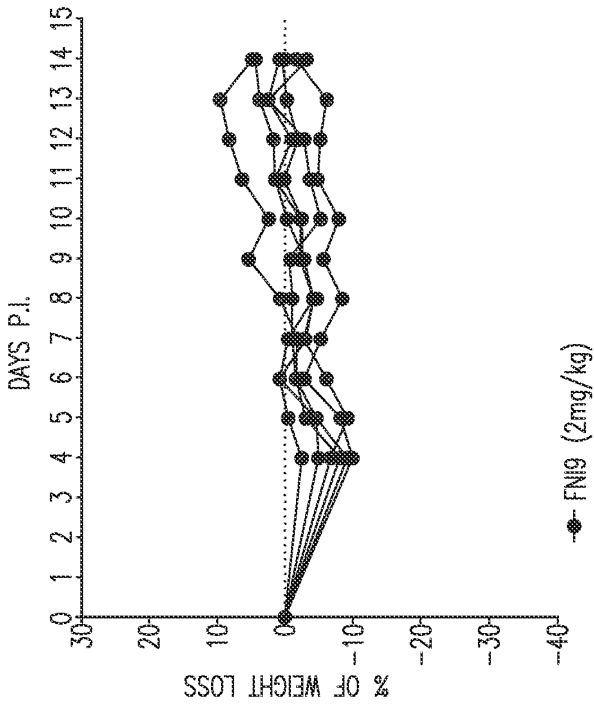


FIG. 48B(cont'd)

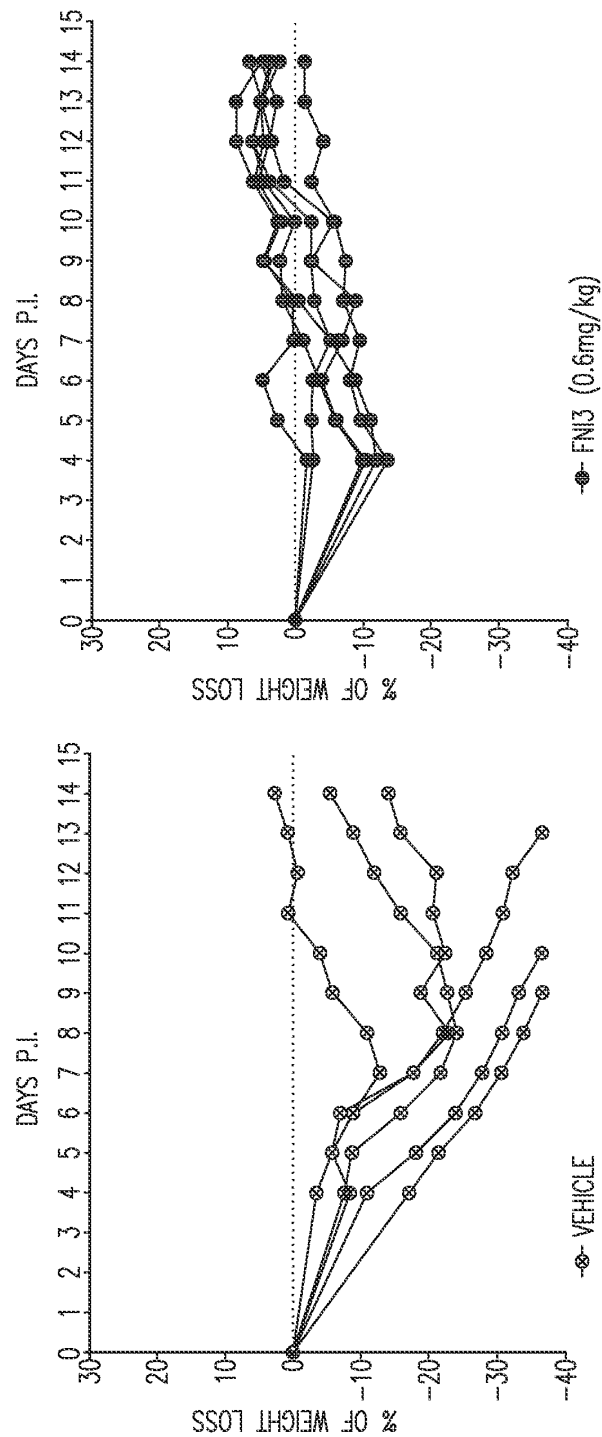
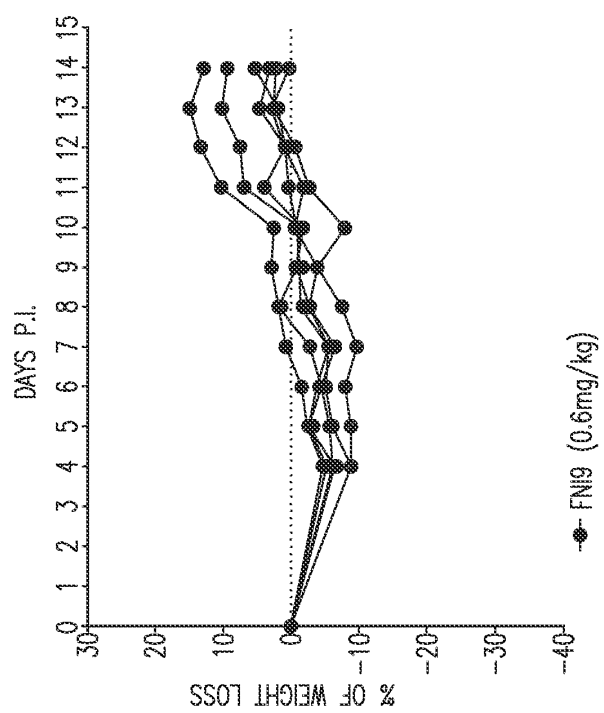


FIG. 48C



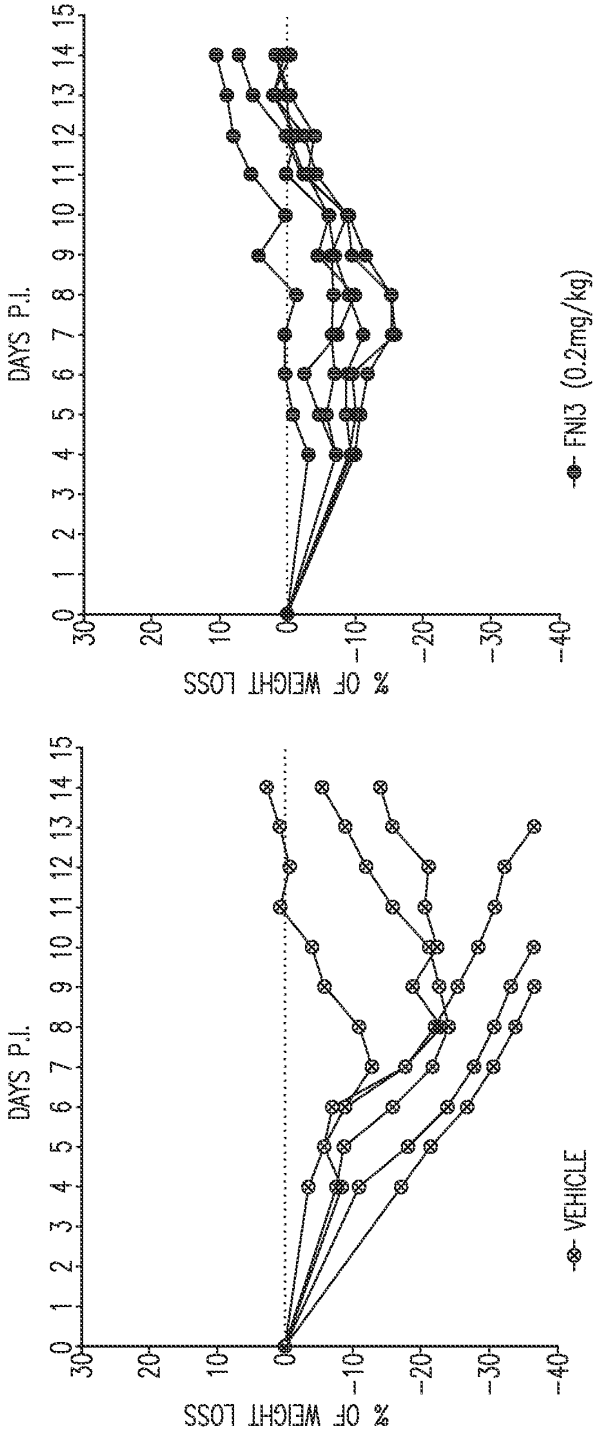


FIG. 48D

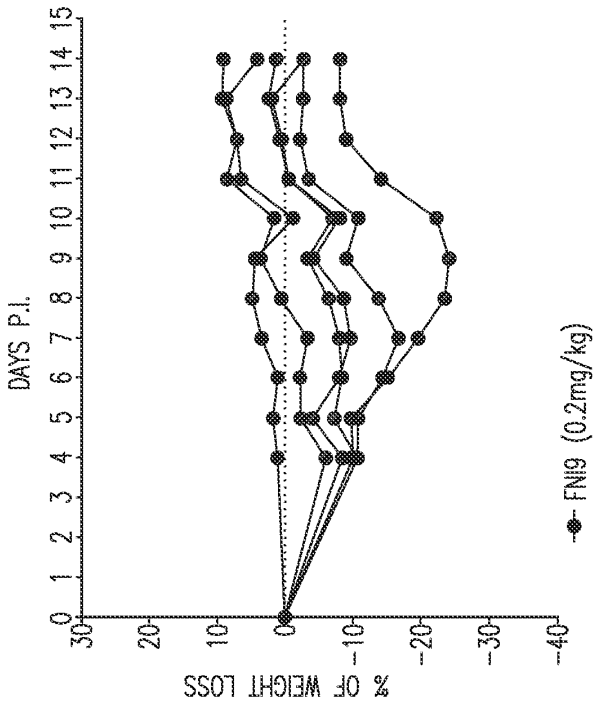


FIG. 48D(cont'd)

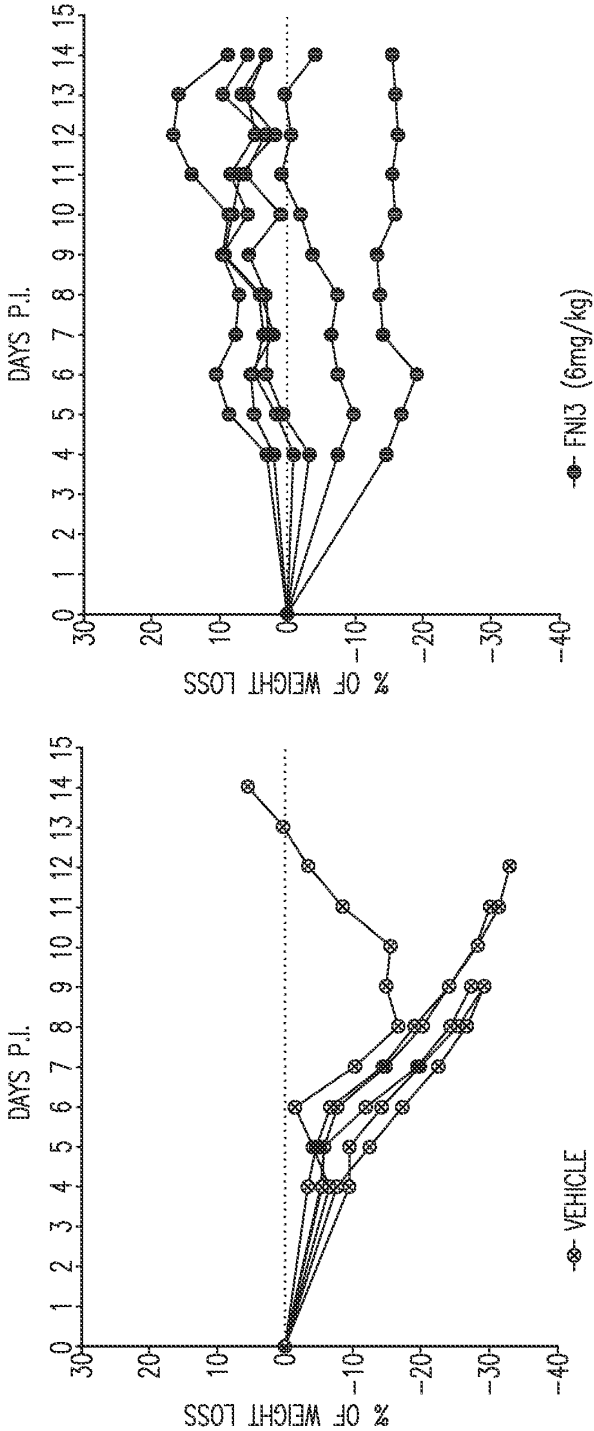


FIG. 49A

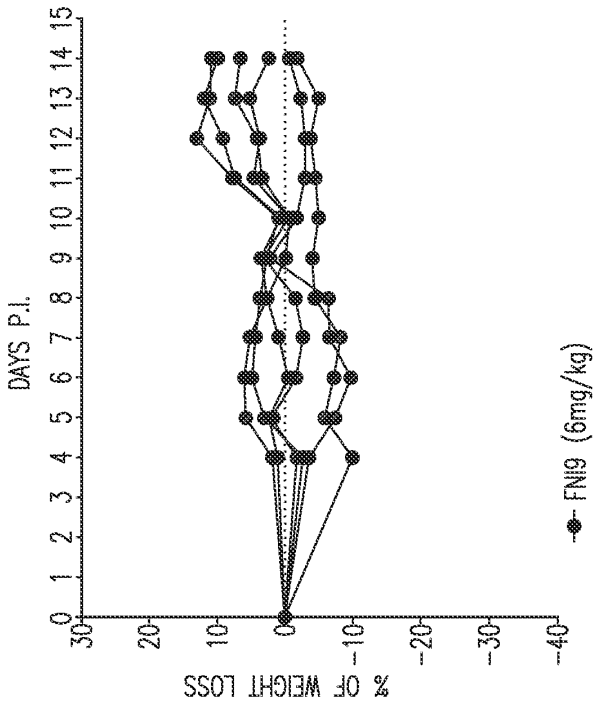


FIG. 49A(cont'd)

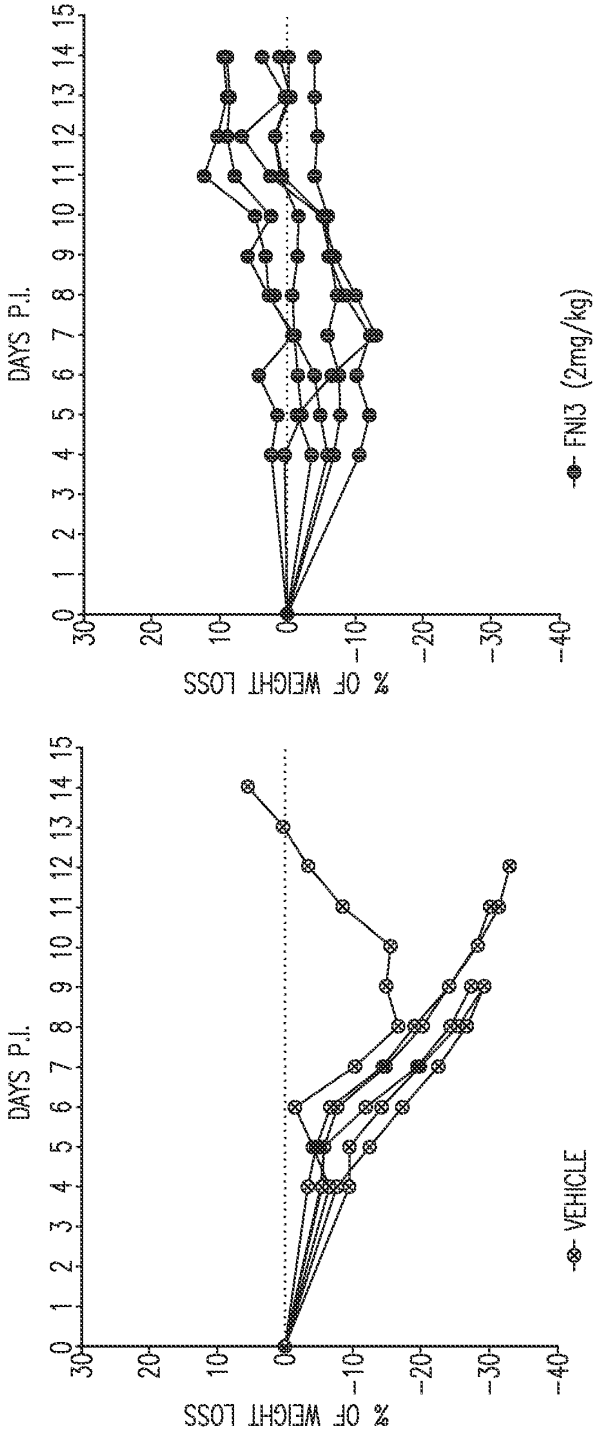


FIG. 49B

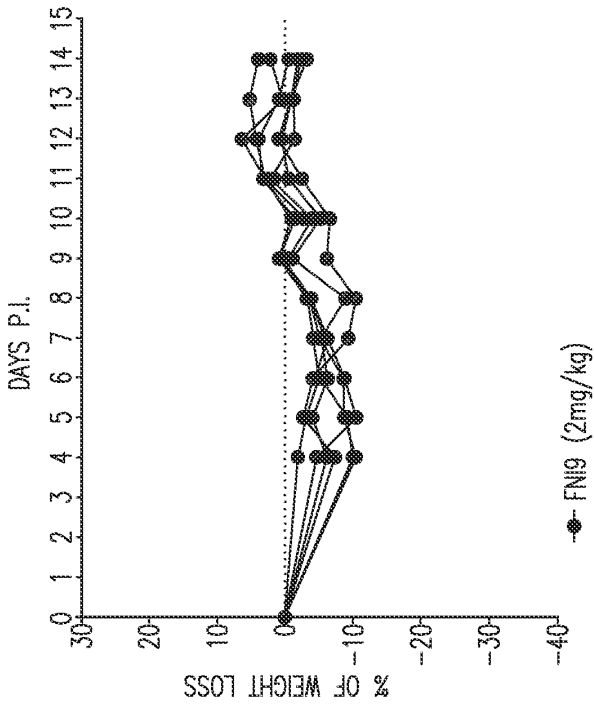


FIG. 49B(cont'd)

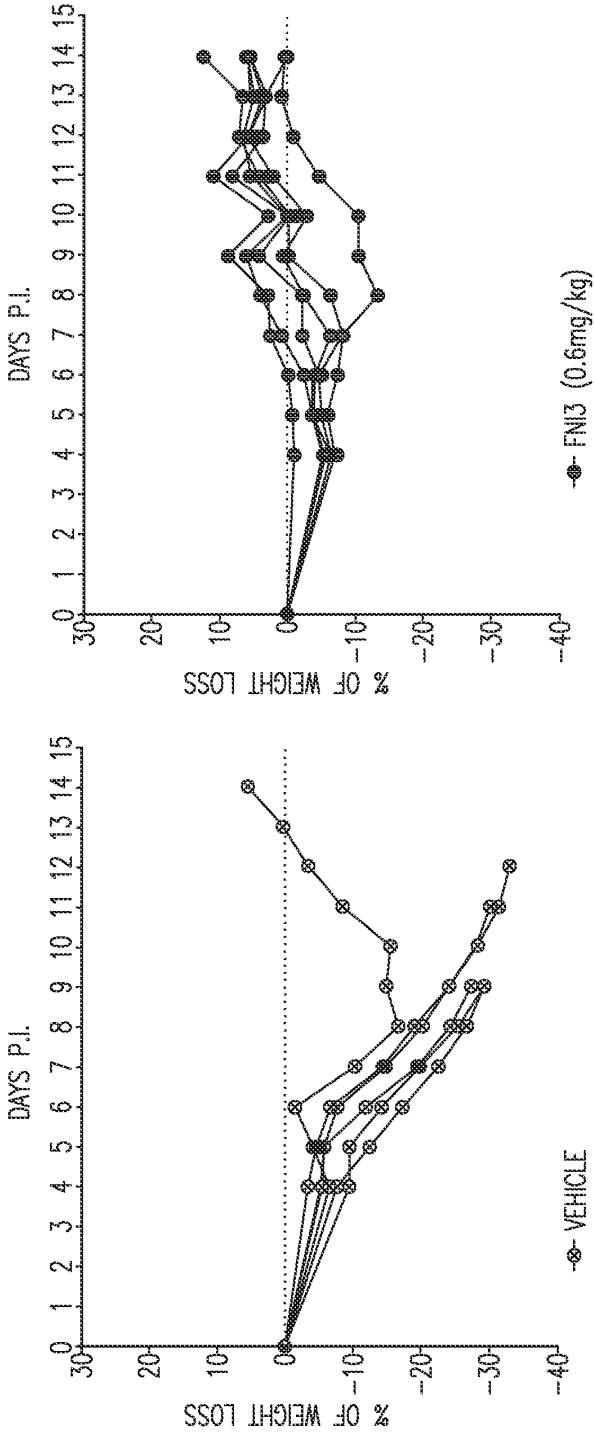


FIG. 49C

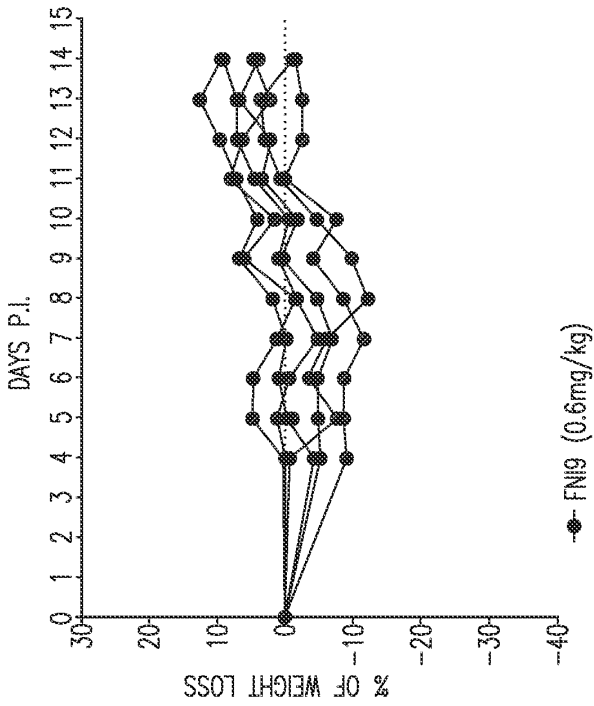


FIG. 49C(cont'd)

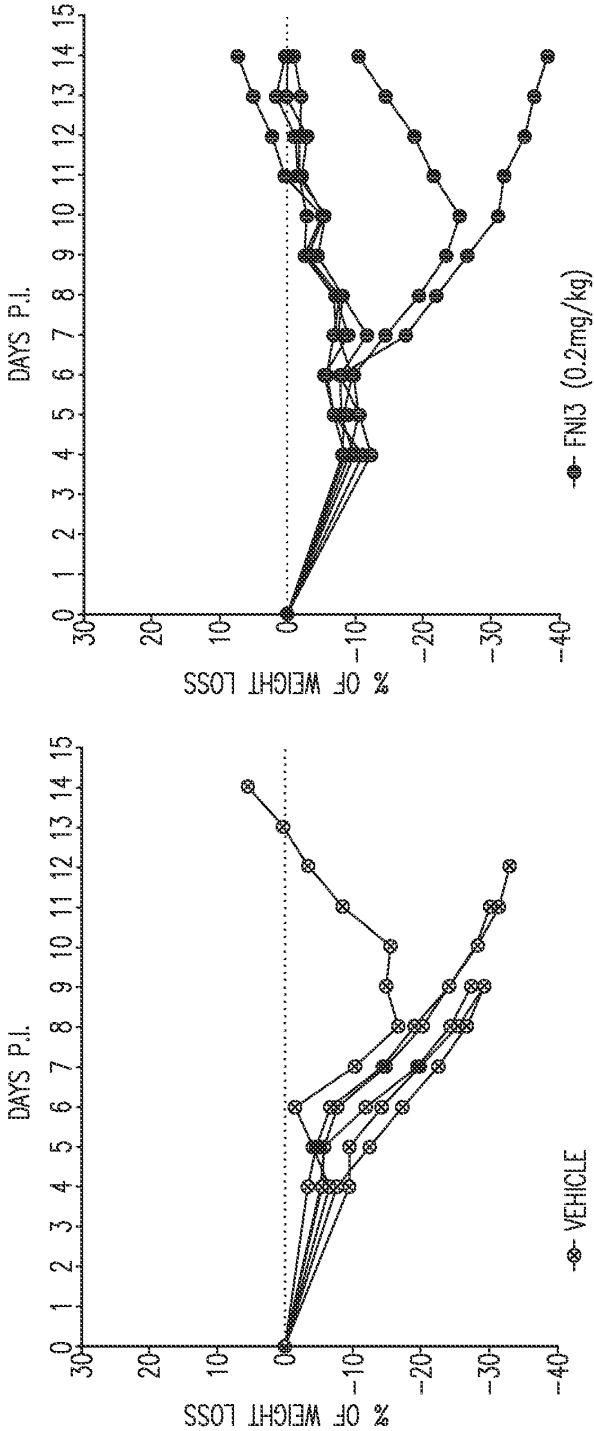


FIG. 49D

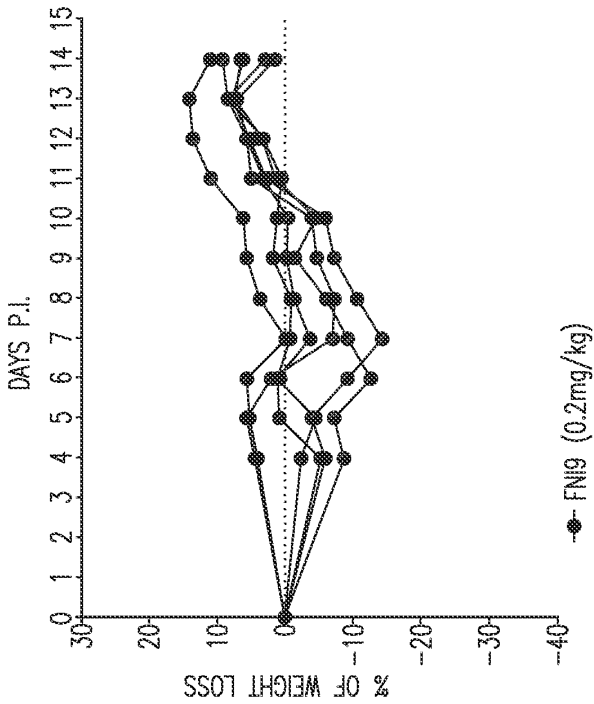


FIG. 49D(cont'd)

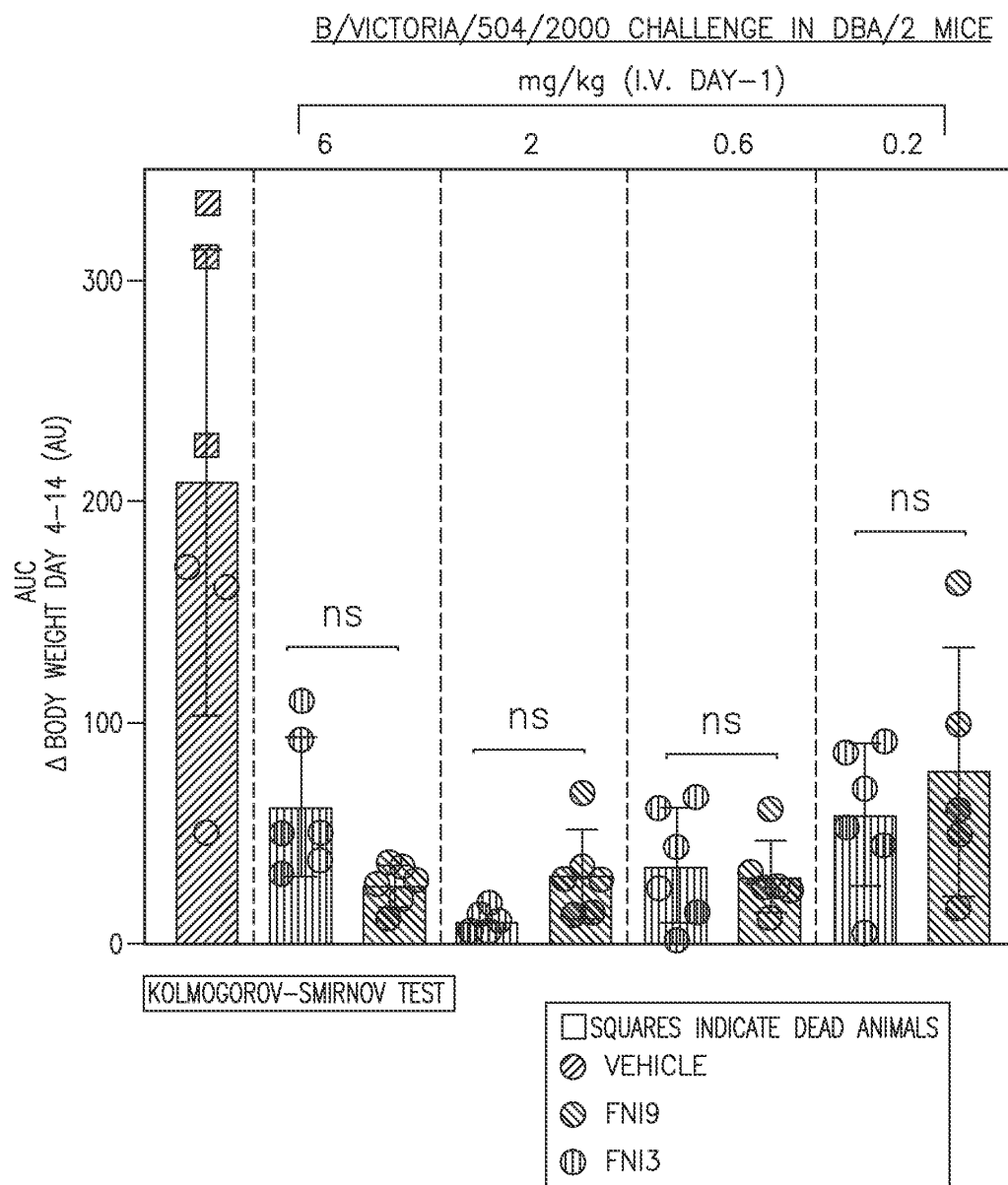
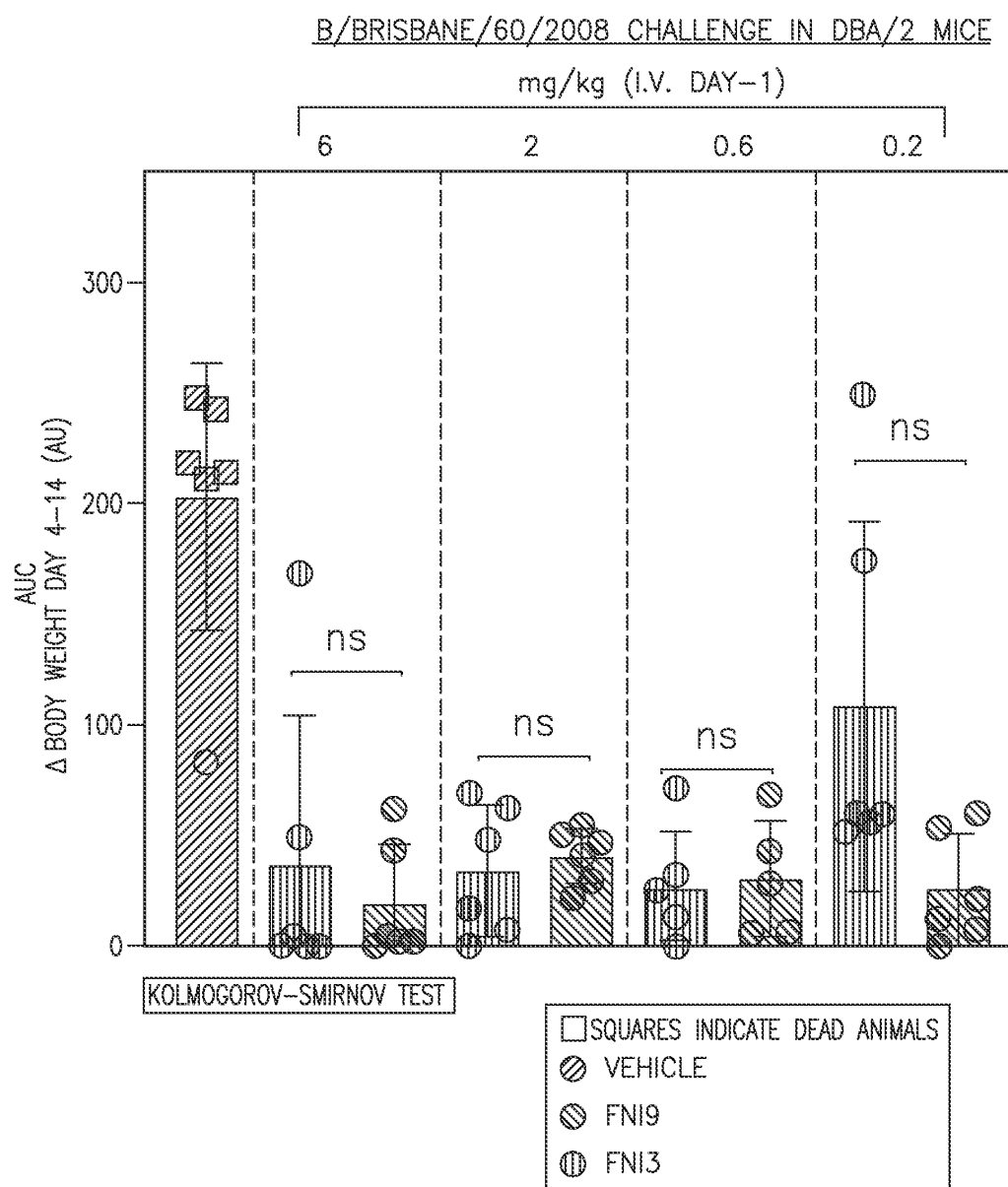


FIG. 50A



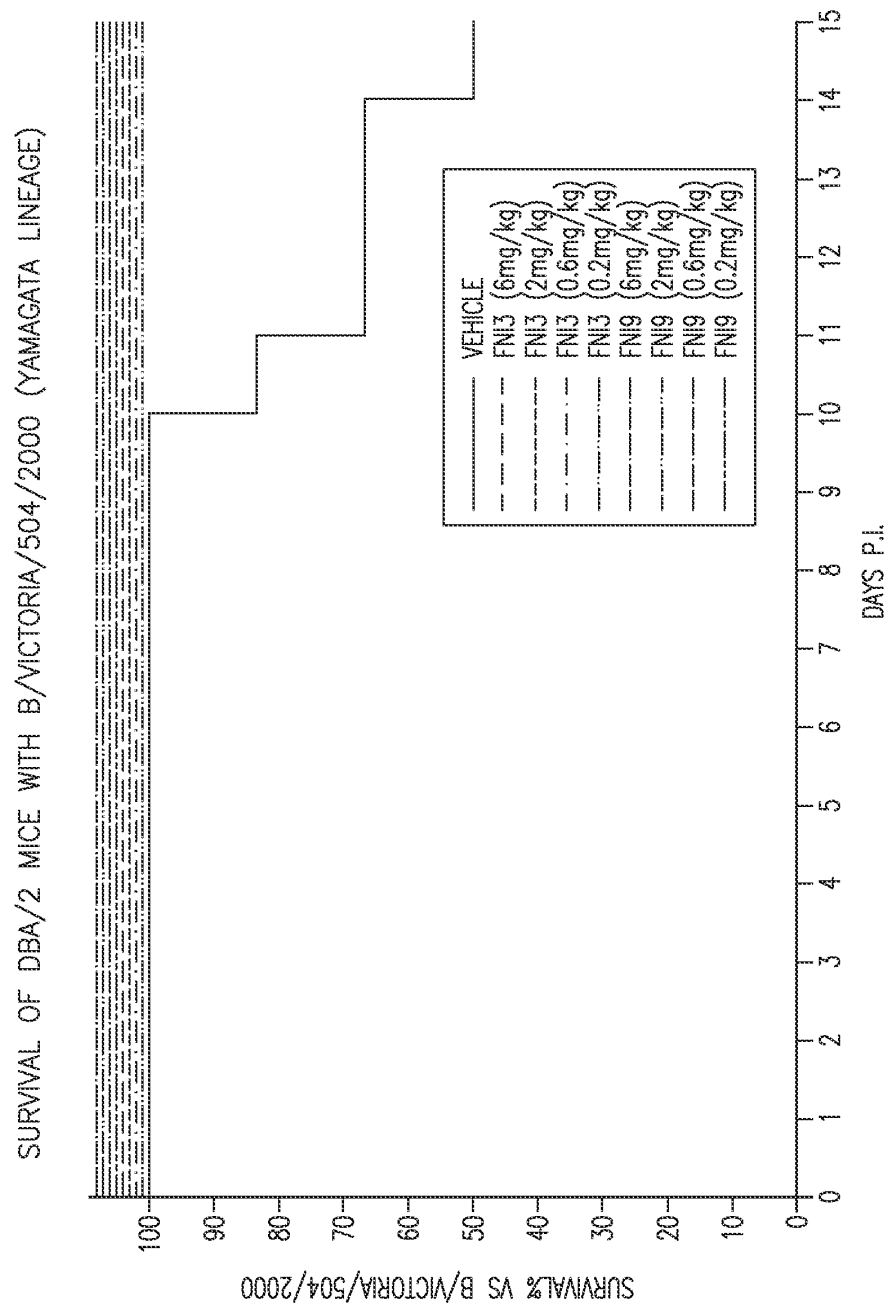


FIG. 51A

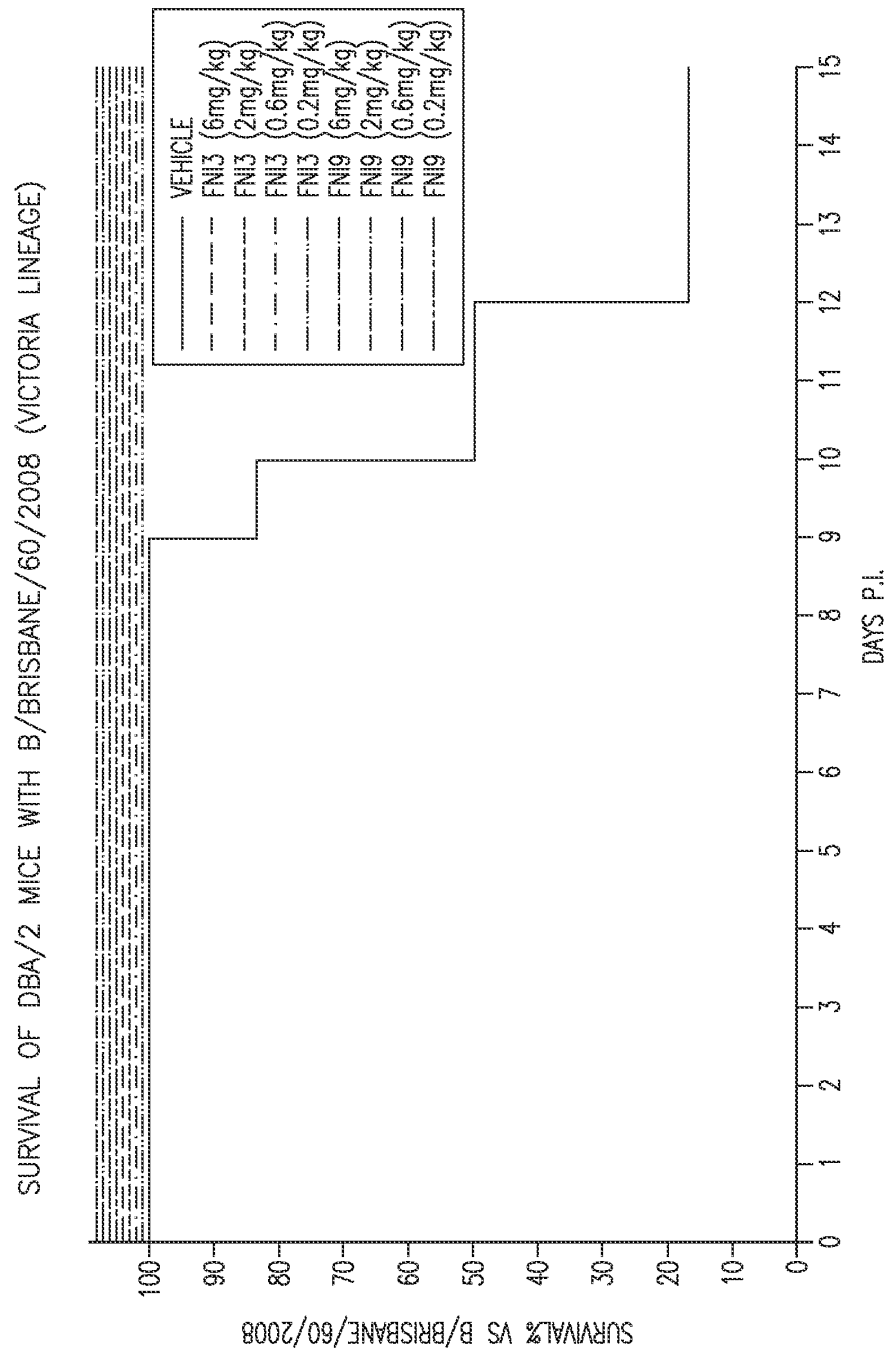


FIG. 51B

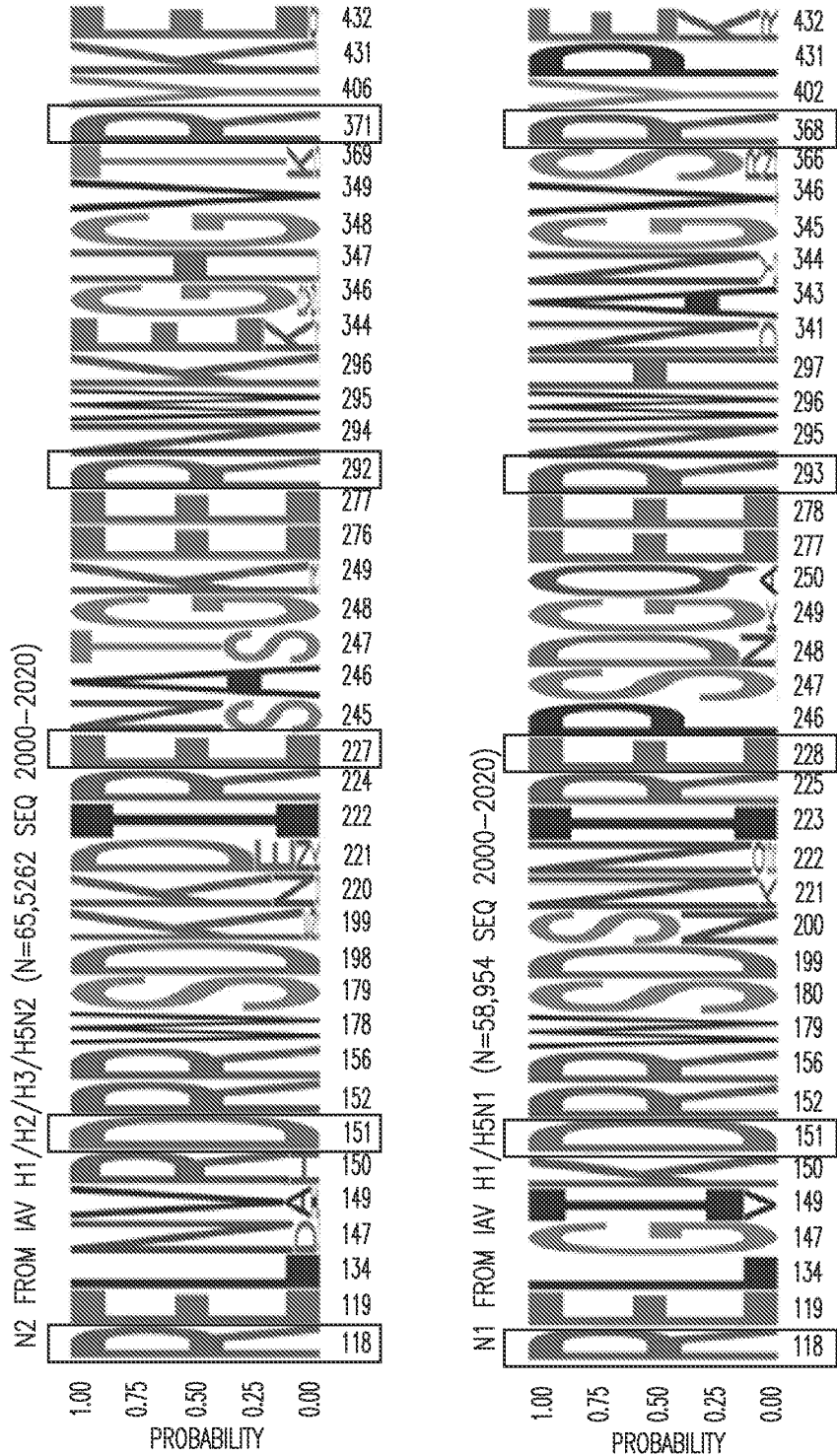


FIG. 52A

MAJOR INTERACTING RESIDUES ON THE N2	CORRESPONDING INTERACTING RESIDUES ON FN13 HCDR3
R118	D107
D151	R106
E227	R106
R292	D107
R371	D107

THE ENZYME ACTIVE SITE:

8 FUNCTIONAL AMINO ACIDS (R118, D151,
R152, R224, E276, R292, R371, AND Y406—
N2 NUMBERING THROUGHOUT) THAT FORM THE
CATALYTIC CORE AND DIRECTLY CONTACT THE
SIALIC ACID

11 STRUCTURAL AMINO ACIDS (E119, R156, W178,
S179, D/N198, I222, E227, H274, E277, D293, AND
E425) THAT FORM THE ACTIVE SITE FRAMEWORK

FIG. 52B

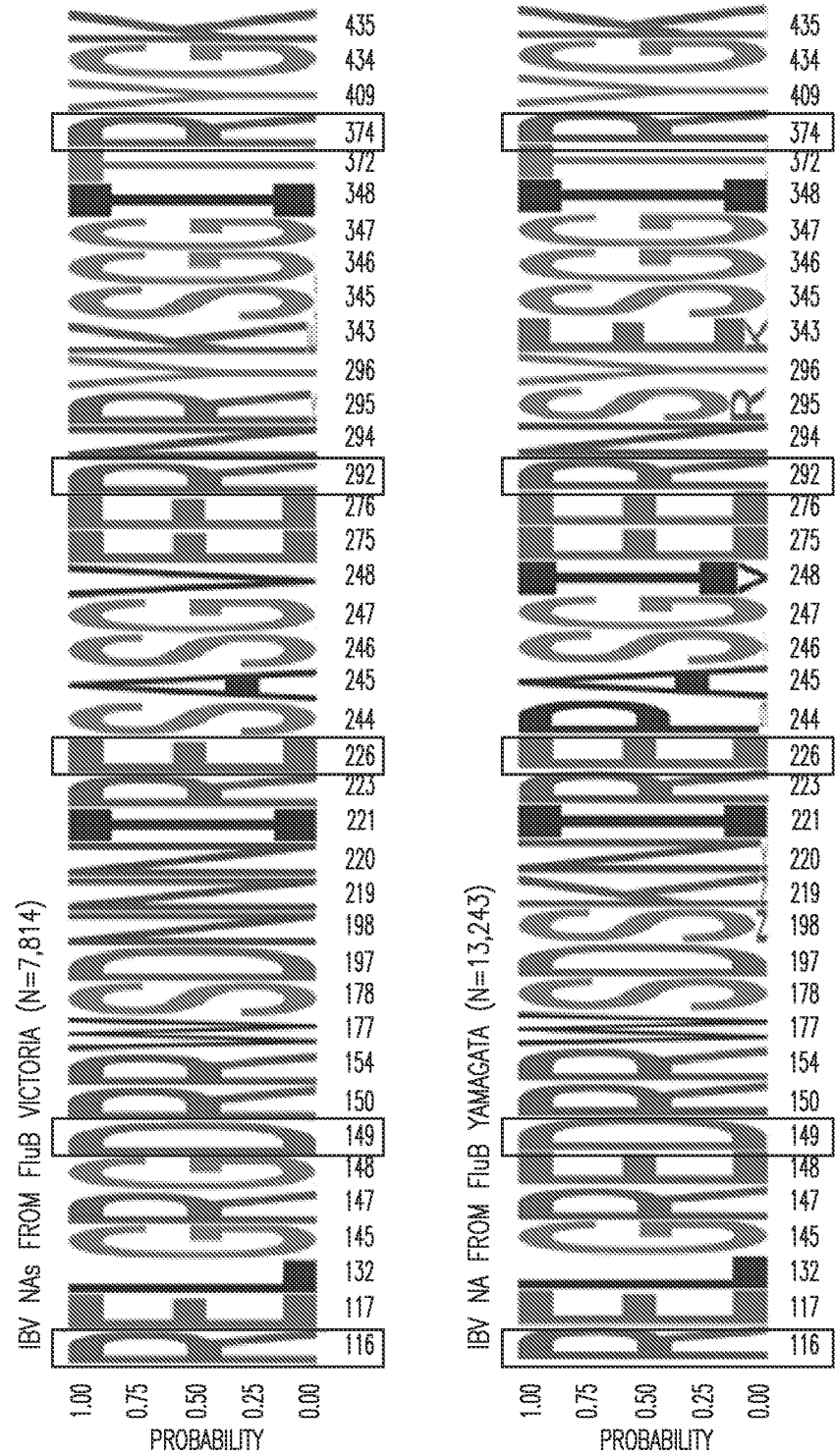


FIG. 53

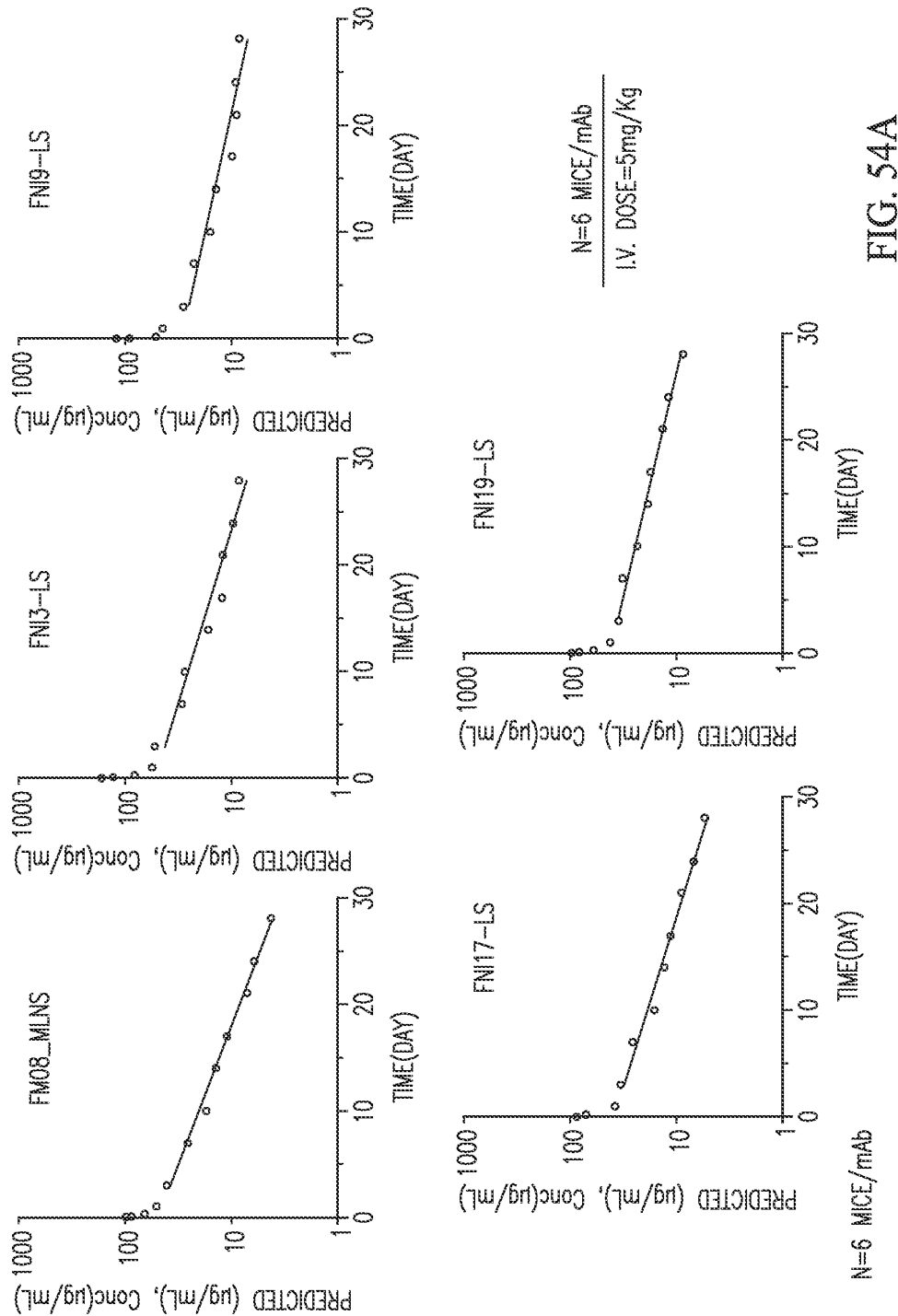
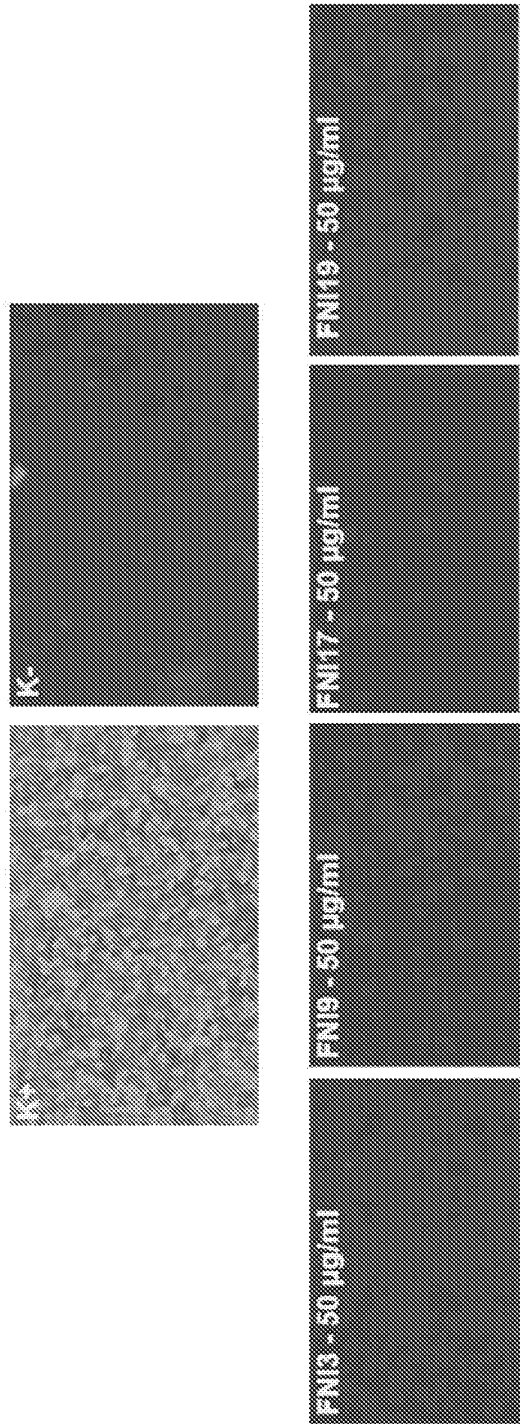


FIG. 54A

	HALF-LIFE (DAYS)	AUC (DAY* μ g/ml)	CLEARANCE (μ g/ml)	VOLUME (mL)
FM08-MLNS	7.56 $\pm$ 0.55	537.46 $\pm$ 92.58	1.671 $\pm$ 0.28	32.71 $\pm$ 9.08
FNI3-LS	9.12 $\pm$ 0.75	712.32 $\pm$ 56.41	1.088 $\pm$ 0.05	14.31 $\pm$ 1.374
FNI9-LS	13.37 $\pm$ 1.52	527.46 $\pm$ 75.92	1.47 $\pm$ 0.19	16.16 $\pm$ 3.09
FNI17-LS	8.86 $\pm$ 0.57	551.38 $\pm$ 74.42	1.24 $\pm$ 0.23	16.02 $\pm$ 3.88
FNI19-LS	11.57 $\pm$ 0.63	548.47 $\pm$ 77.01	1.512 $\pm$ 0.27	25.18 $\pm$ 4.10

FIG. 54B



EVALUATION OF NON-SPECIFIC BINDING OF FNI MABS TO HEP-2 CELLS AS OBSERVED BY MICROSCOPE IMAGE.

FIG. 55

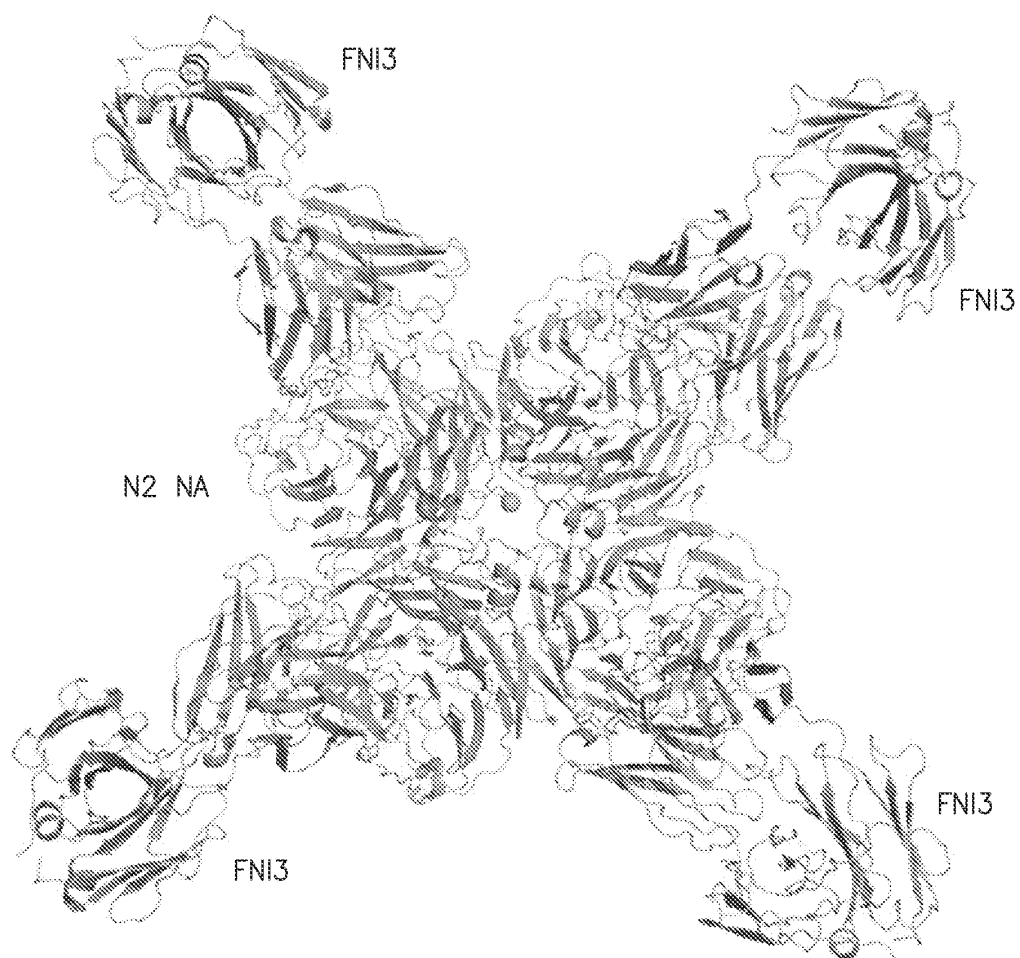
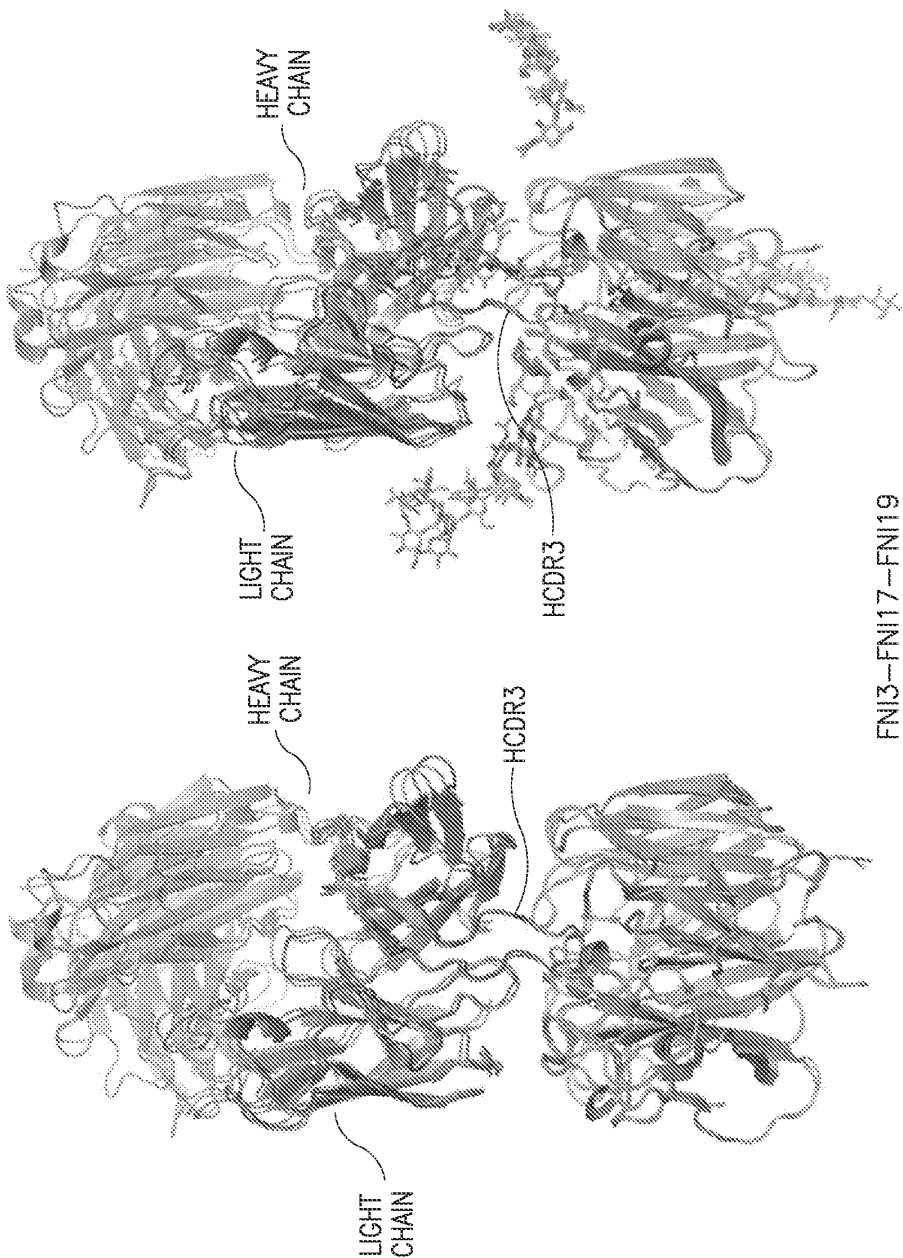


FIG. 56A



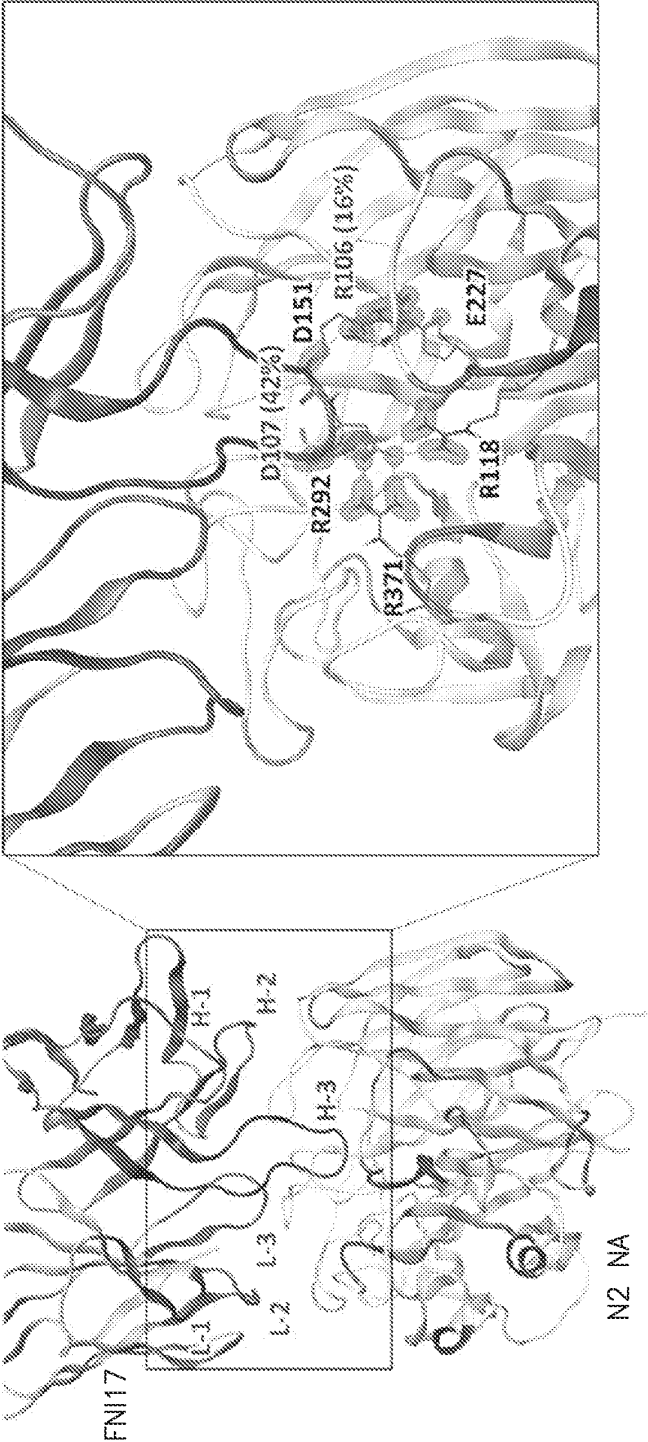


FIG. 57A

FIG. 57B

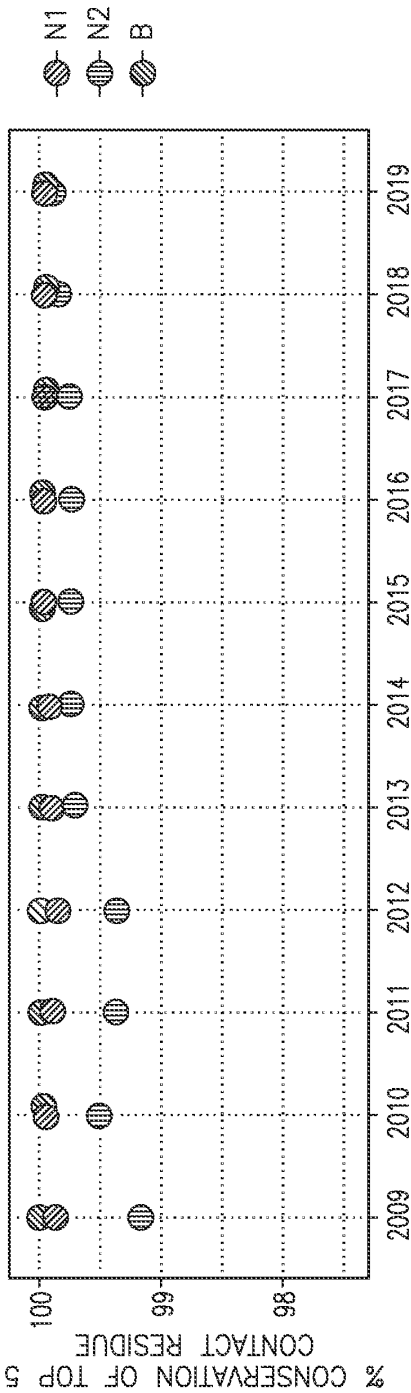
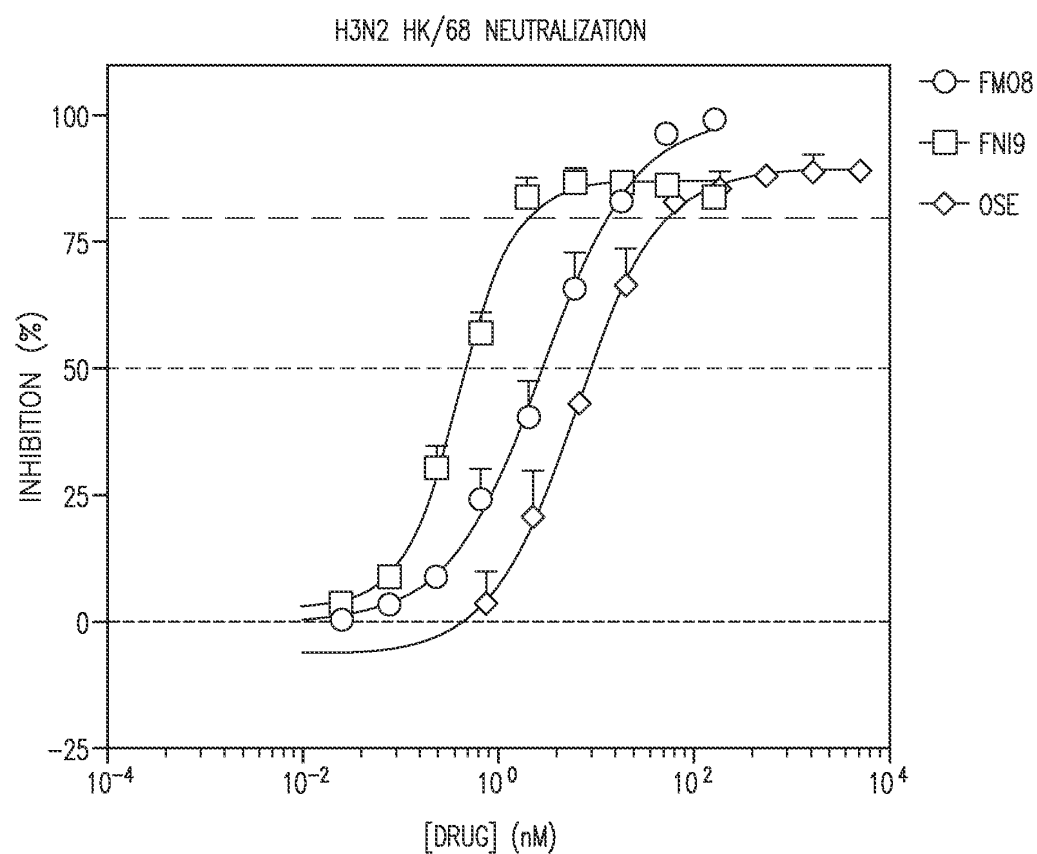


FIG. 58



	FM08	FNI9	OSE
EC50 (nM)	2.87	0.47	8.82
EC80 (nM)	13.45	2.06	56.17
MAX INHIBITION (%)	100	86	89

FIG. 59

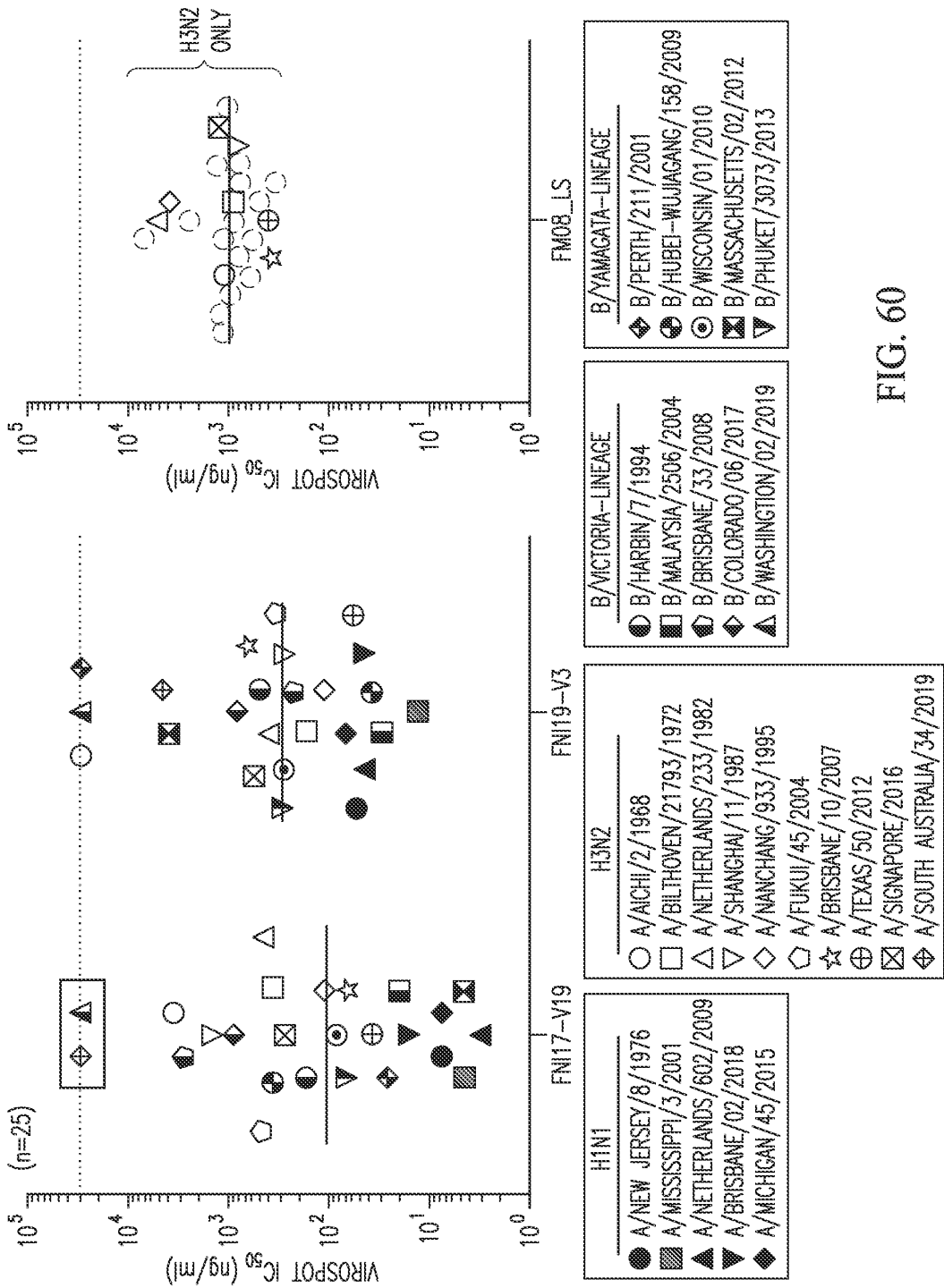
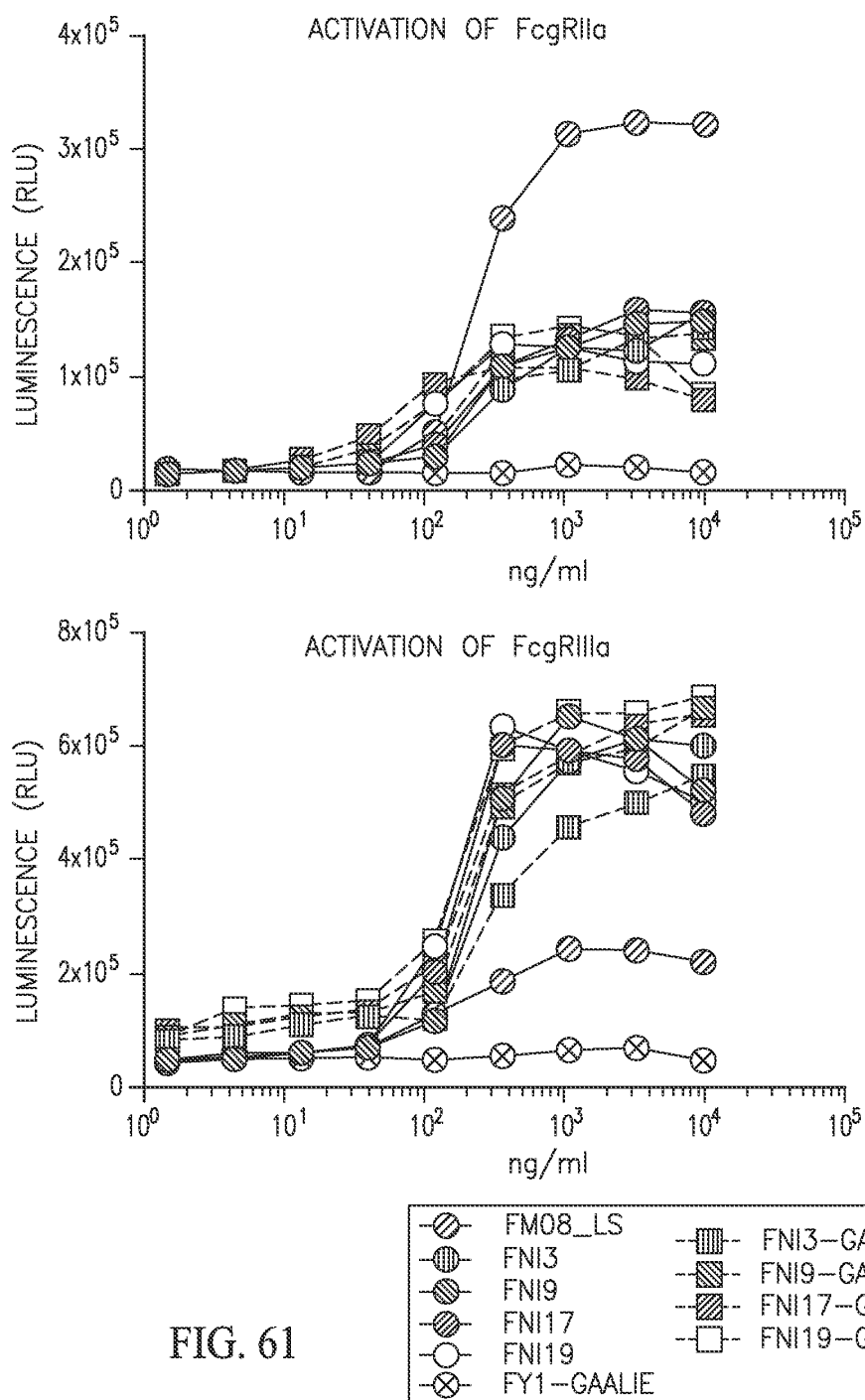


FIG. 60



EXP-A	EXP-B	TREATMENT	INFLUENZA INFECTION	ENDPOINTS
		VEHICLE CONTROL	A/PUERTO RICO/8/34	BODYWEIGHT, MORTALITY
FNI3-LS	FM08-LS	6 mg/kg	A/PUERTO RICO/8/34	
		2 mg/kg	A/PUERTO RICO/8/34	
		0.6 mg/kg	A/PUERTO RICO/8/34	
		0.2 mg/kg	A/PUERTO RICO/8/34	
FNI9-LS		6 mg/kg	A/PUERTO RICO/8/34	
		2 mg/kg	A/PUERTO RICO/8/34	
		0.6 mg/kg	A/PUERTO RICO/8/34	
		0.2 mg/kg	A/PUERTO RICO/8/34	
		54 MICE TOTAL		
		VEHICLE CONTROL	A/HONG KONG/8/68	BODYWEIGHT, MORTALITY
FNI3-LS	FM08-LS	6 mg/kg	A/HONG KONG/8/68	
		2 mg/kg	A/HONG KONG/8/68	
		0.6 mg/kg	A/HONG KONG/8/68	
		0.2 mg/kg	A/HONG KONG/8/68	
FNI9-LS		6 mg/kg	A/HONG KONG/8/68	
		2 mg/kg	A/HONG KONG/8/68	
		0.6 mg/kg	A/HONG KONG/8/68	
		0.2 mg/kg	A/HONG KONG/8/68	
		54 MICE TOTAL		

FIG. 62

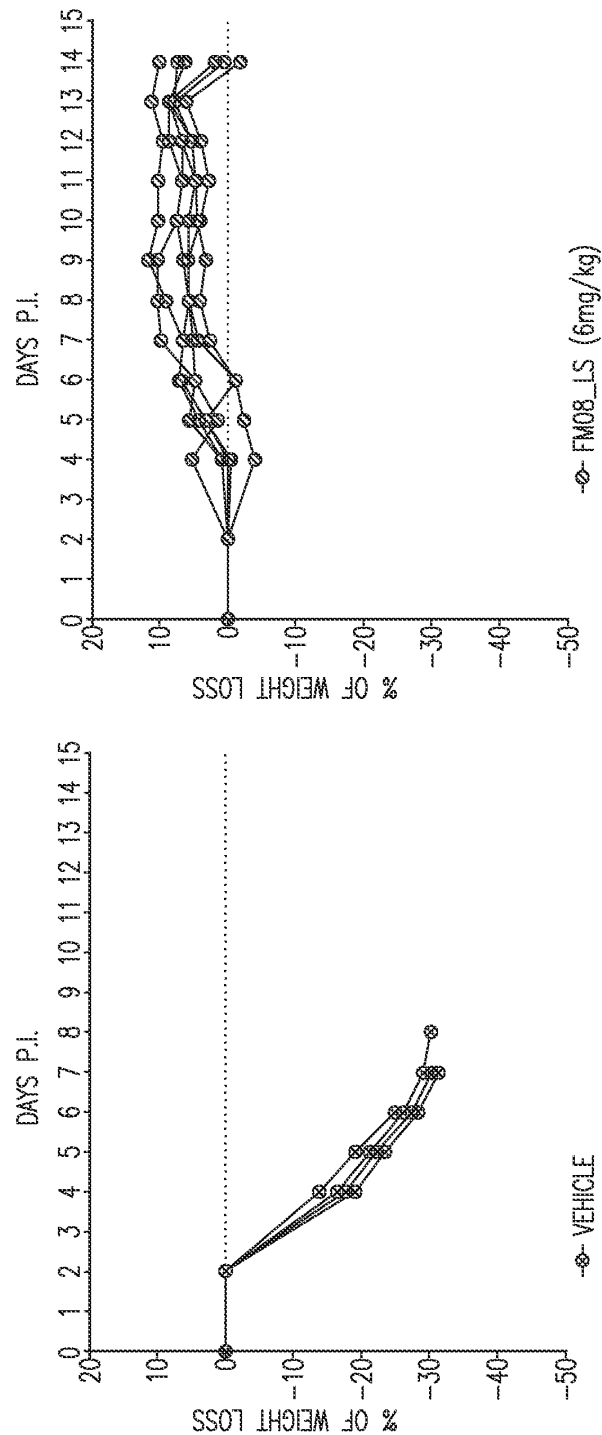


FIG. 63A

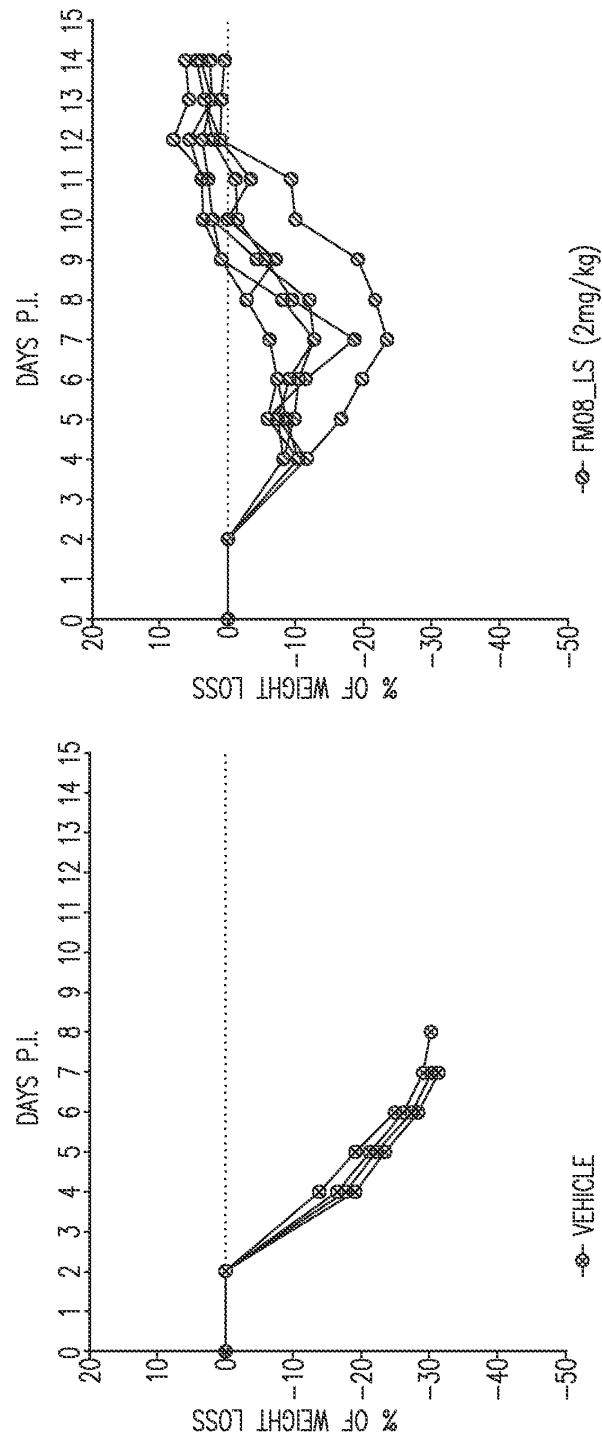


FIG. 63B

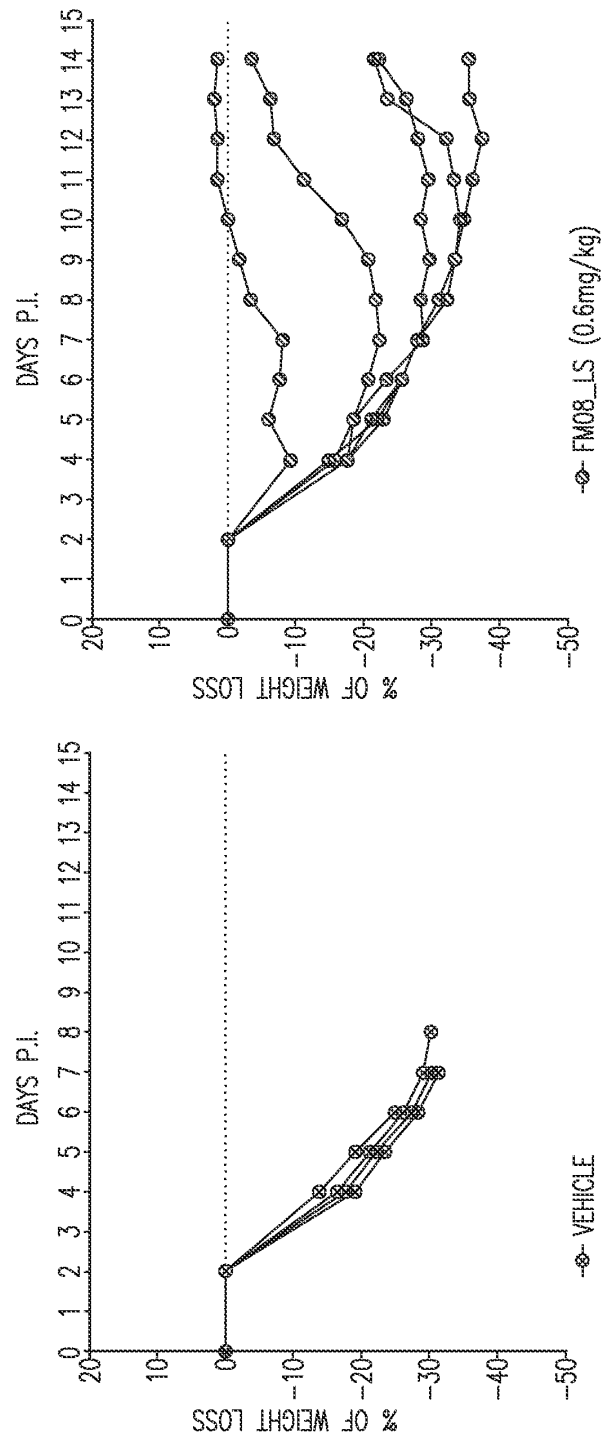


FIG. 63C

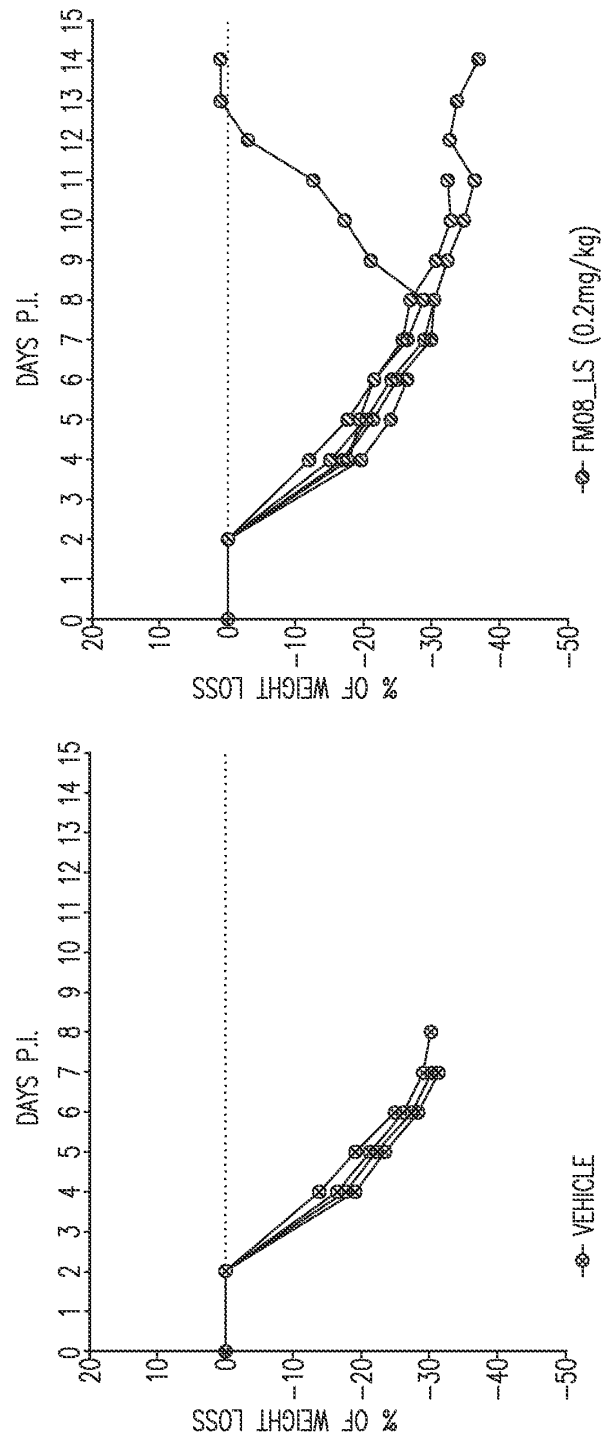


FIG. 63D

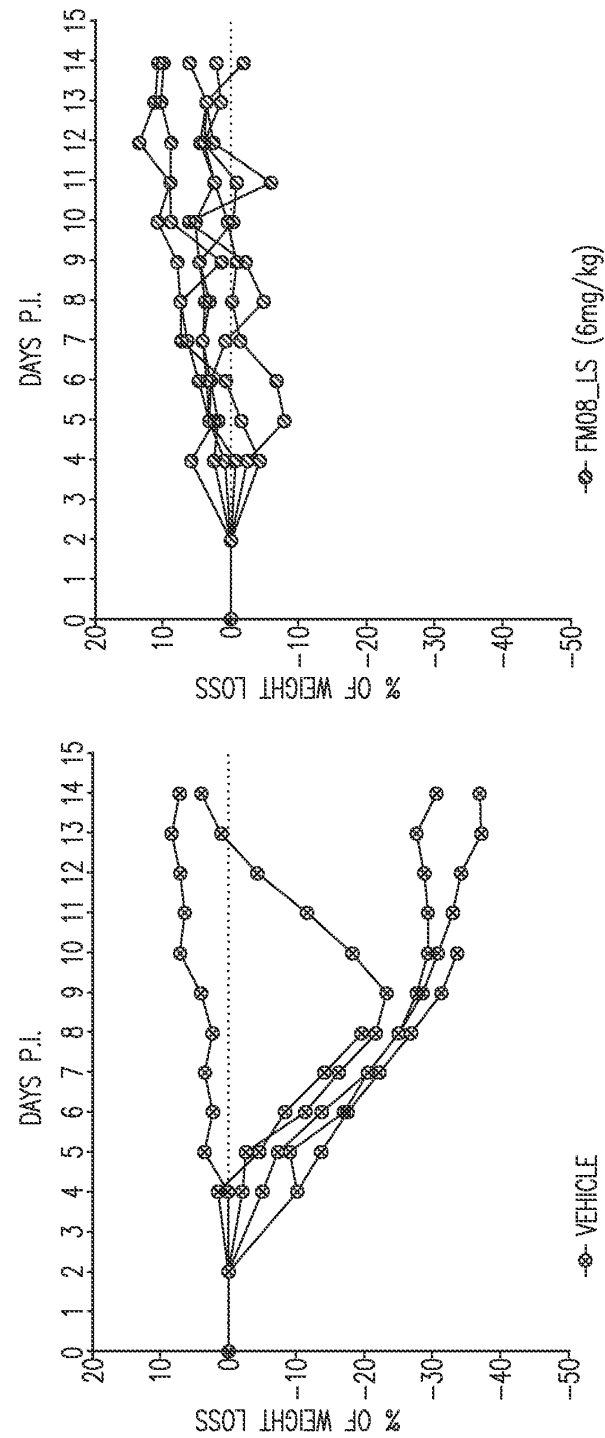


FIG. 64A

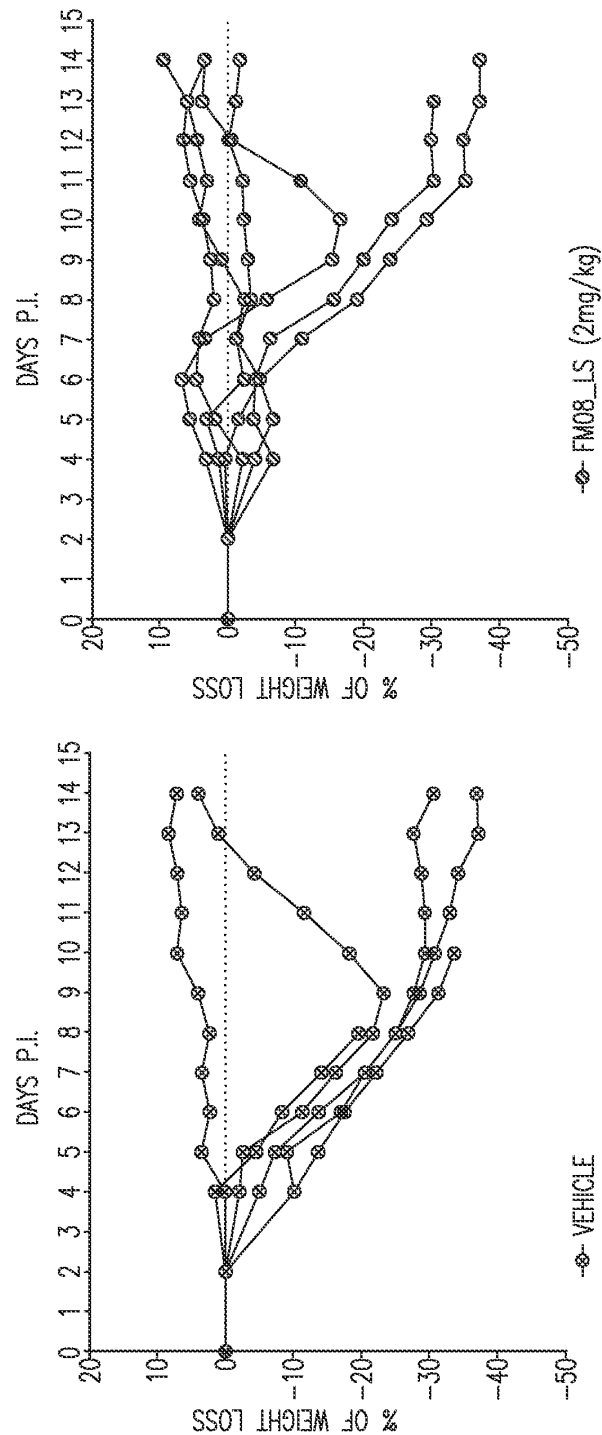


FIG. 64B

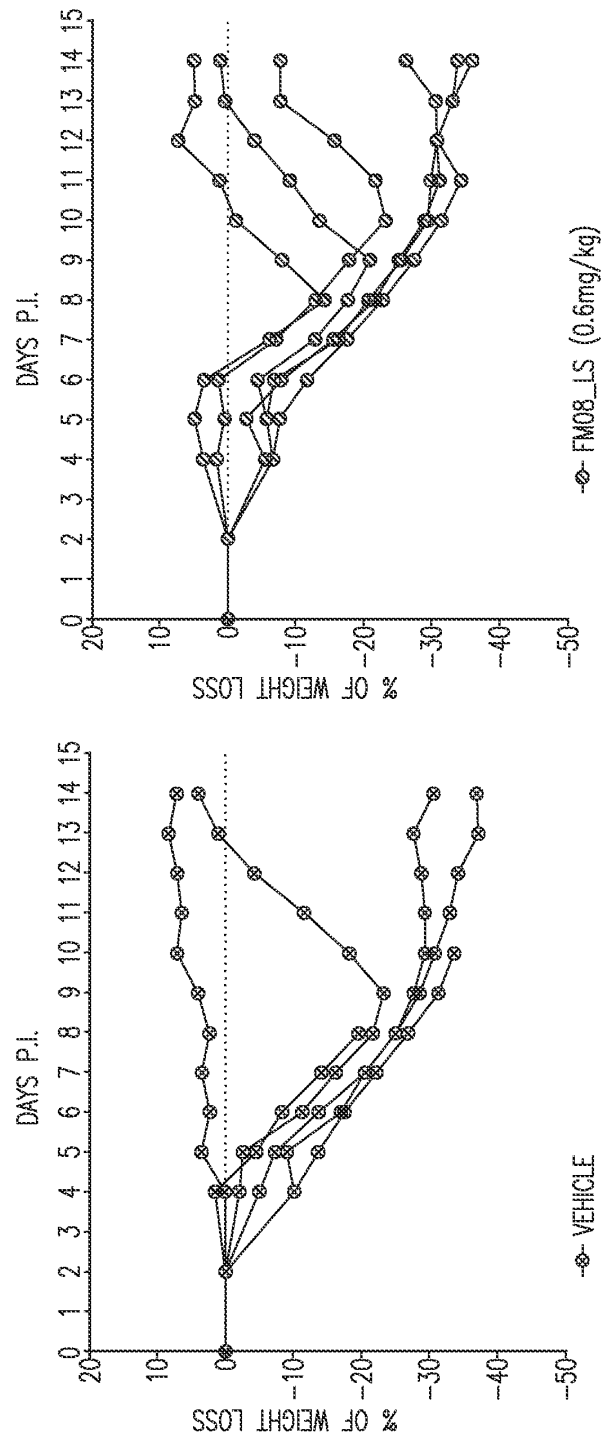


FIG. 64C

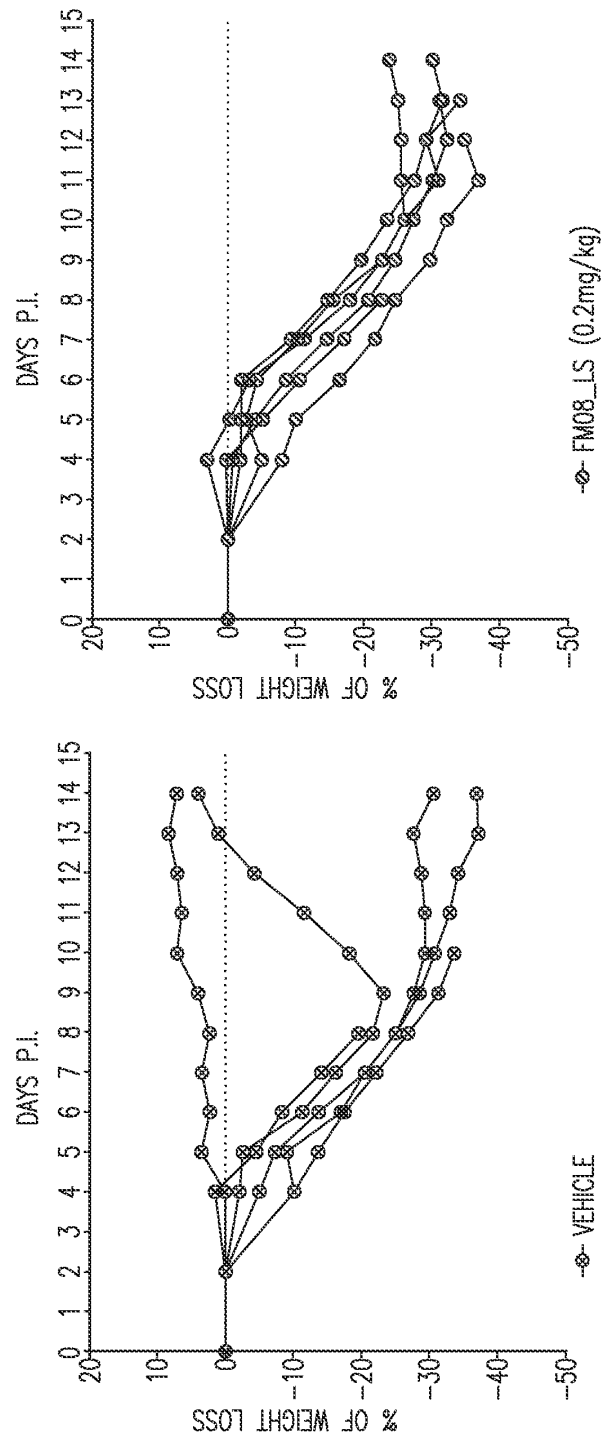


FIG. 64D

TREATMENT GROUP	DOSE	N
VEHICLE	—	6
FM08_LS	1mg/kg	6
FM08_LS	0.5mg/kg	6
FM08_LS	0.25mg/kg	6
FM08_LS	0.125mg/kg	6
FNI17_LS	1mg/kg	6
FNI17_LS	0.5mg/kg	6
FNI17_LS	0.25mg/kg	6
FNI17_LS	0.125mg/kg	6

FIG. 65

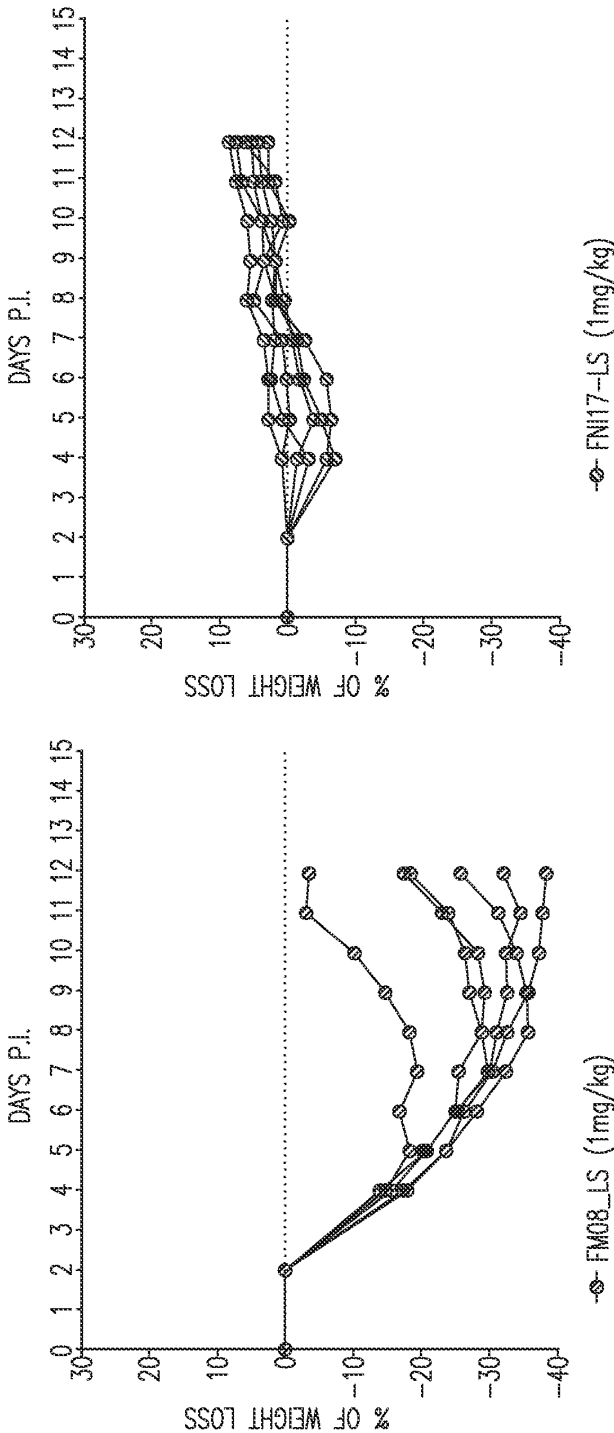


FIG. 66A

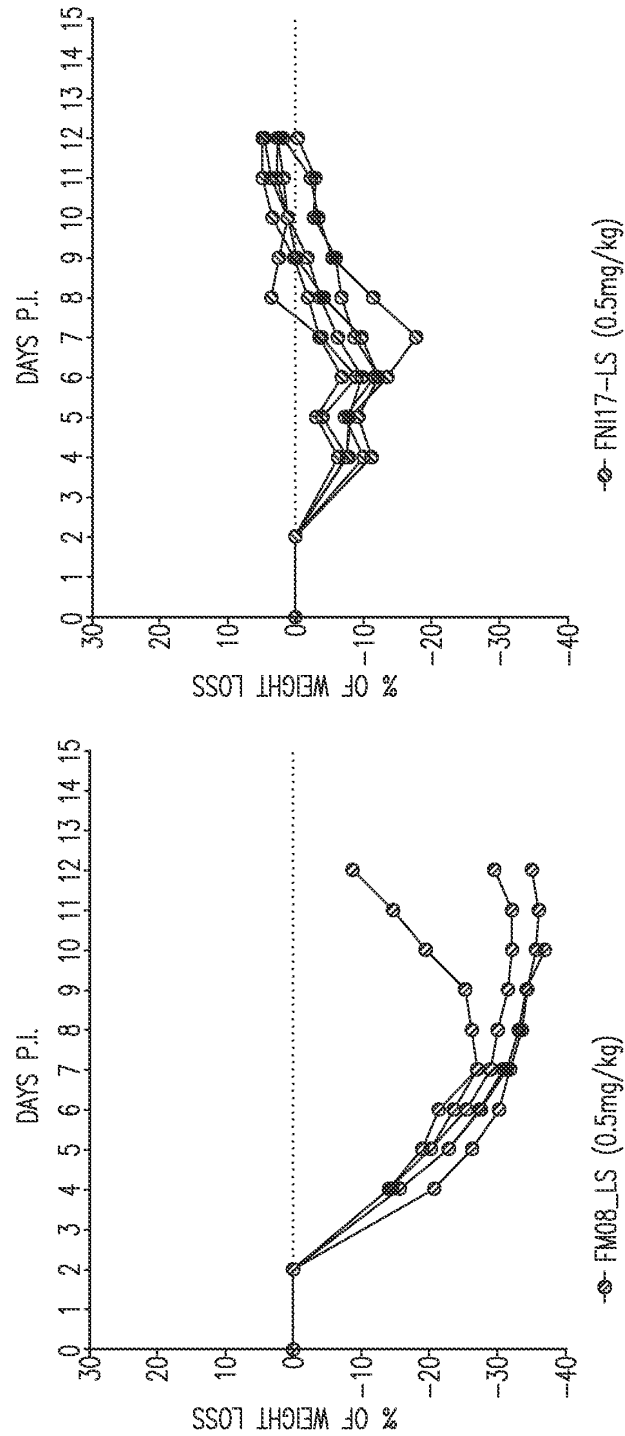


FIG. 66B

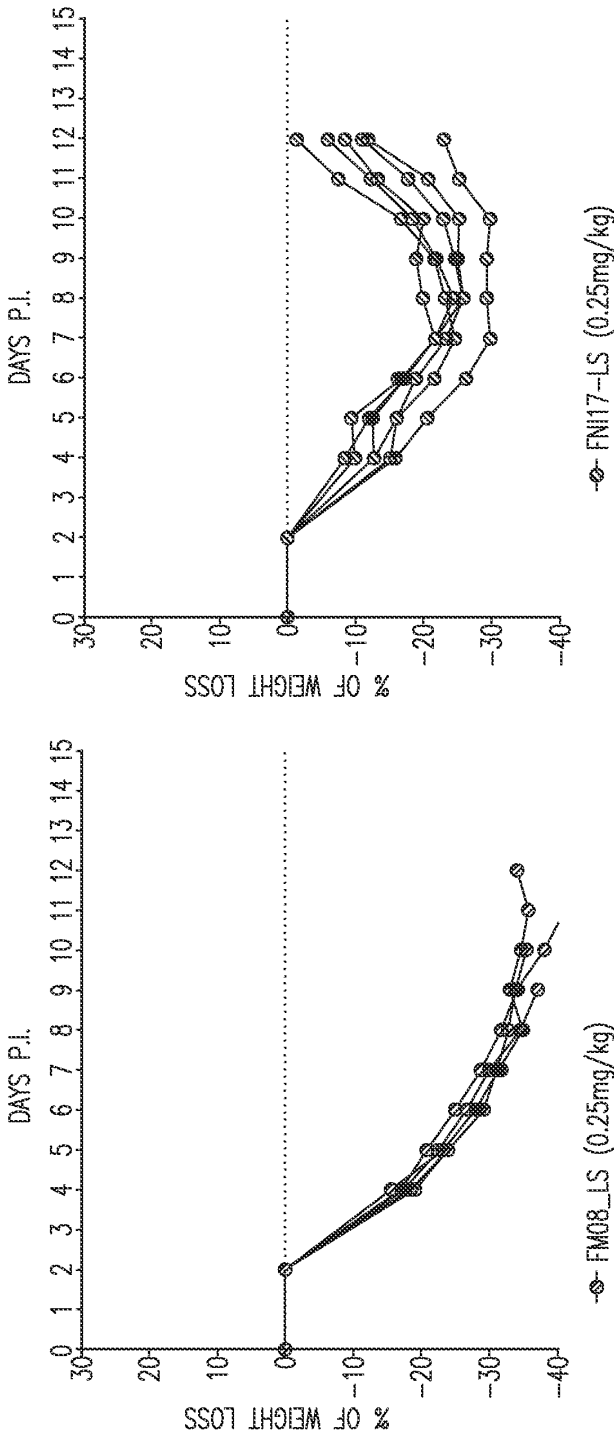


FIG. 66C

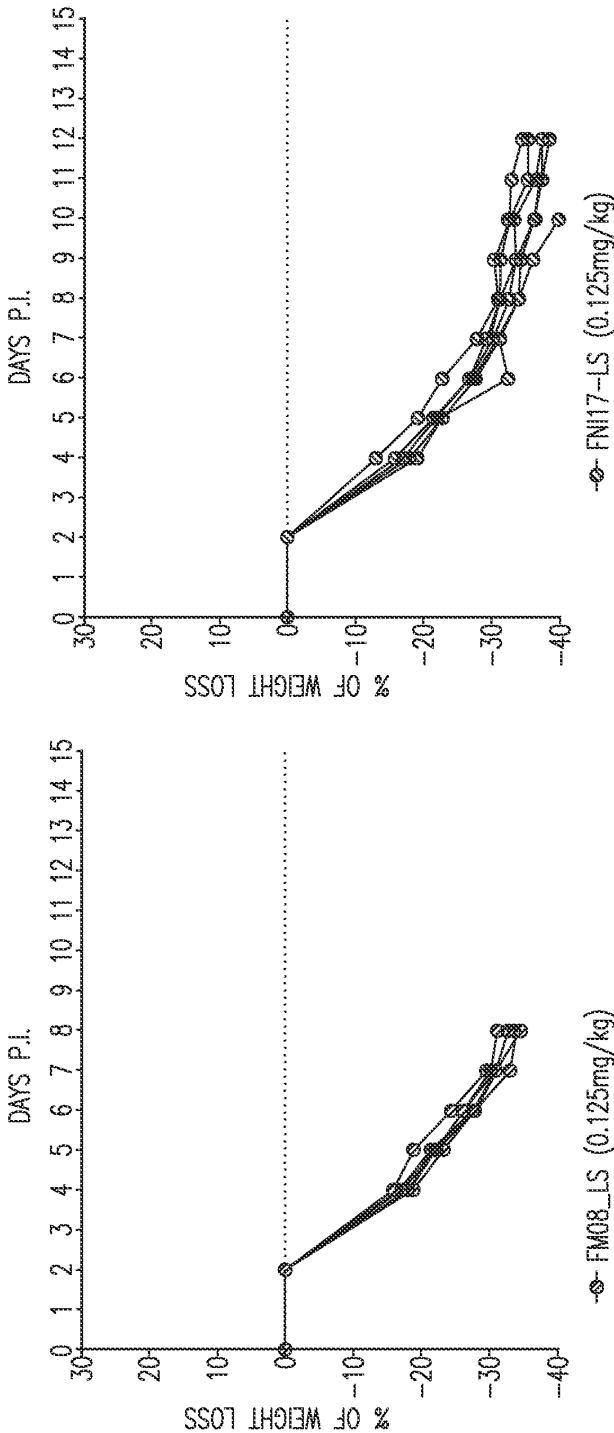


FIG. 66D

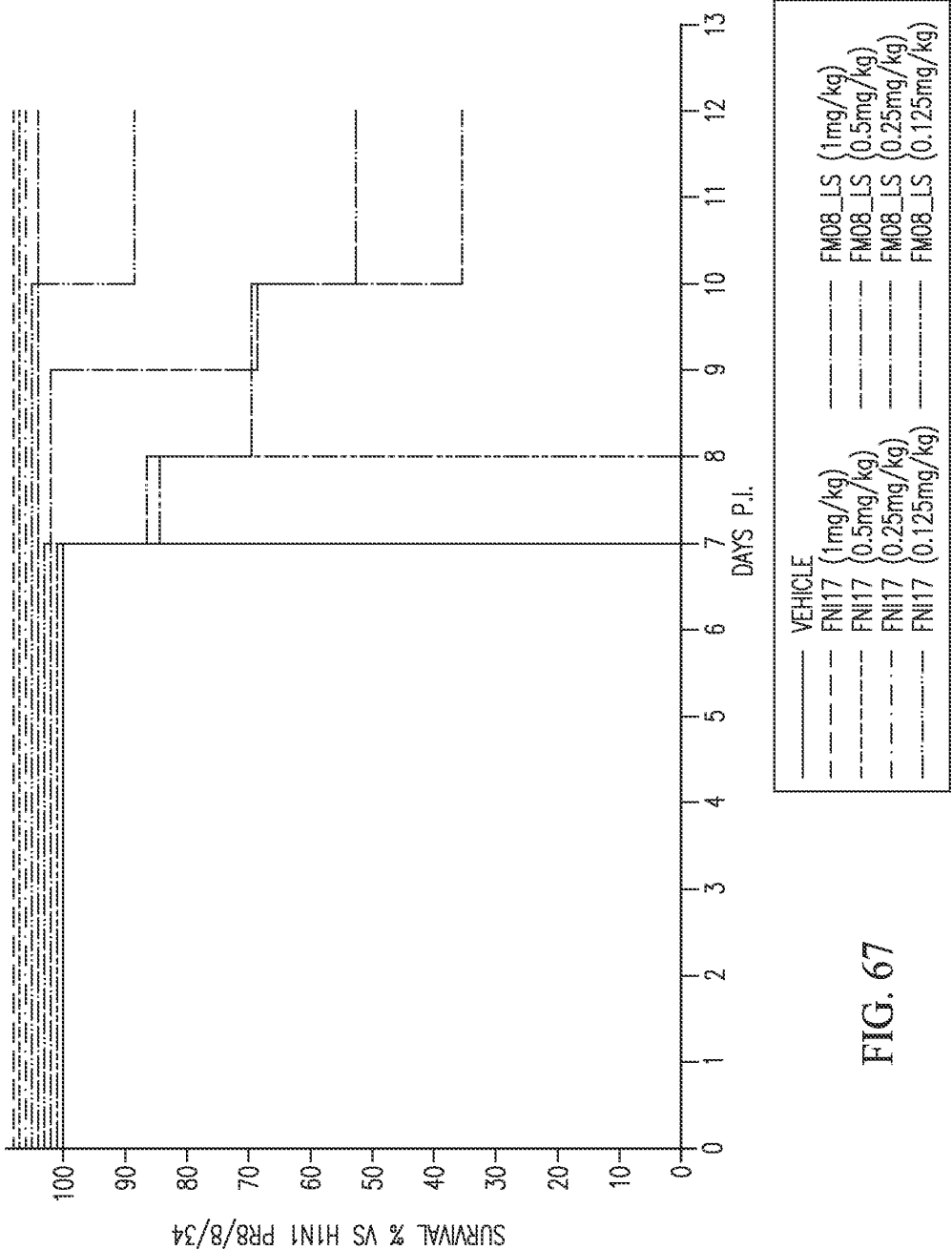


FIG. 67

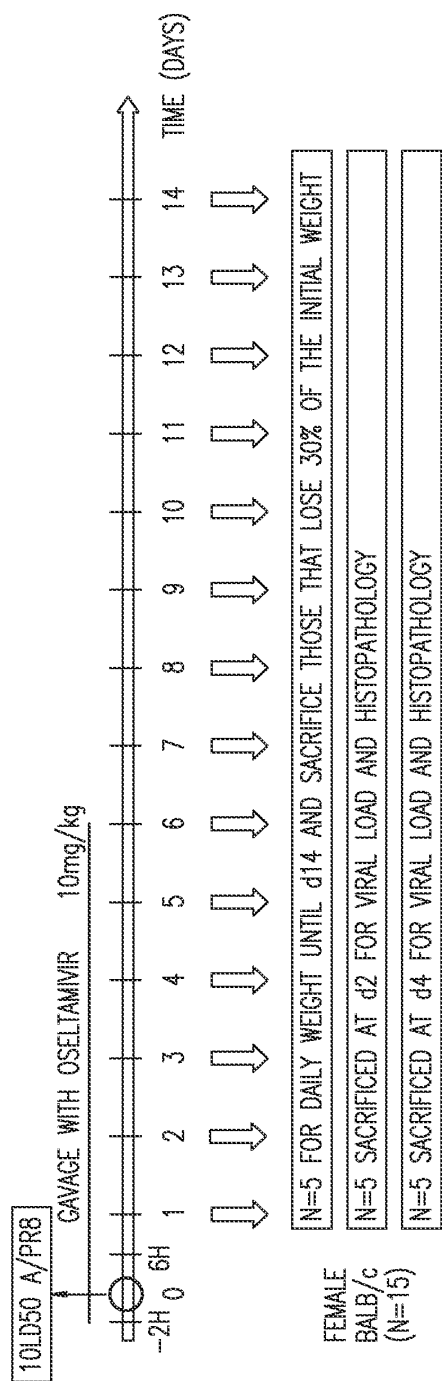


FIG. 68

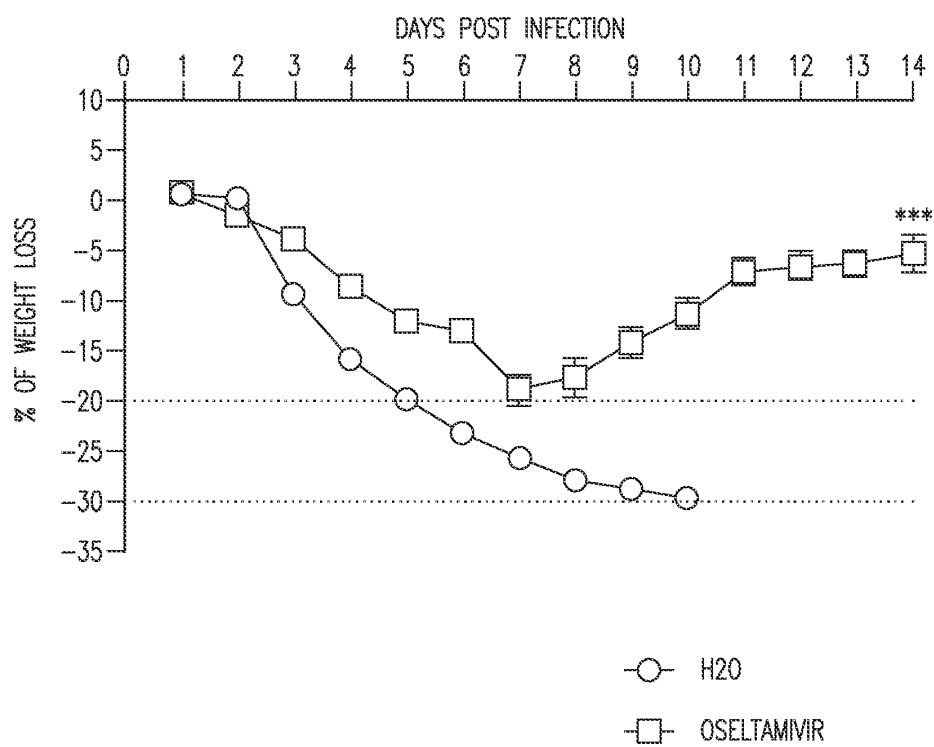


FIG. 69

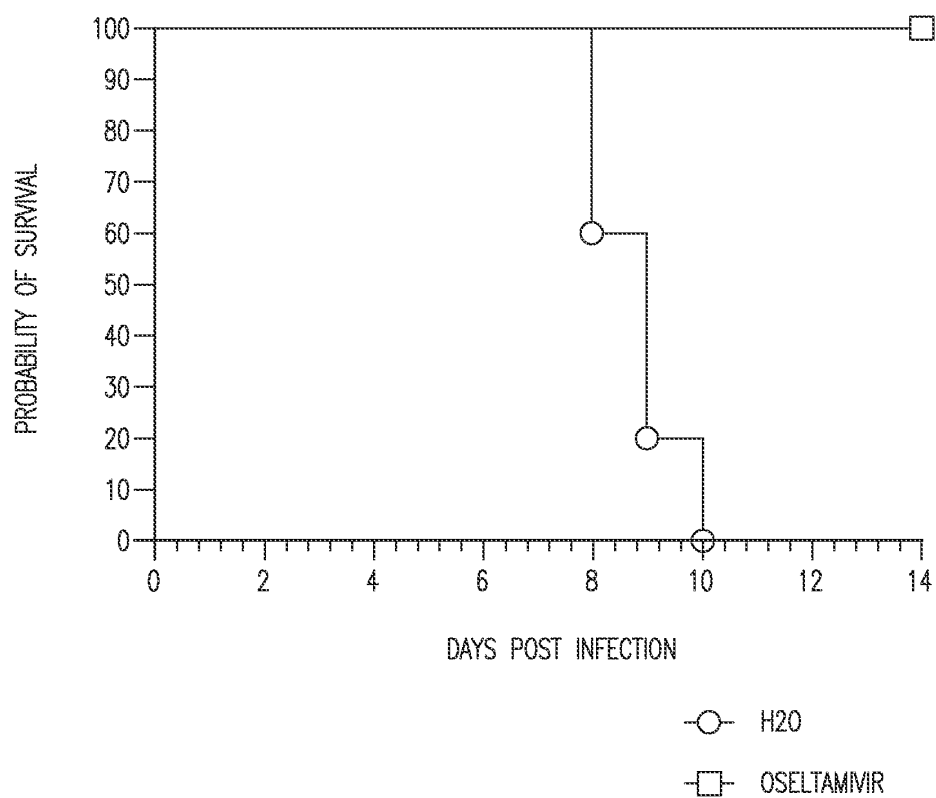


FIG. 70

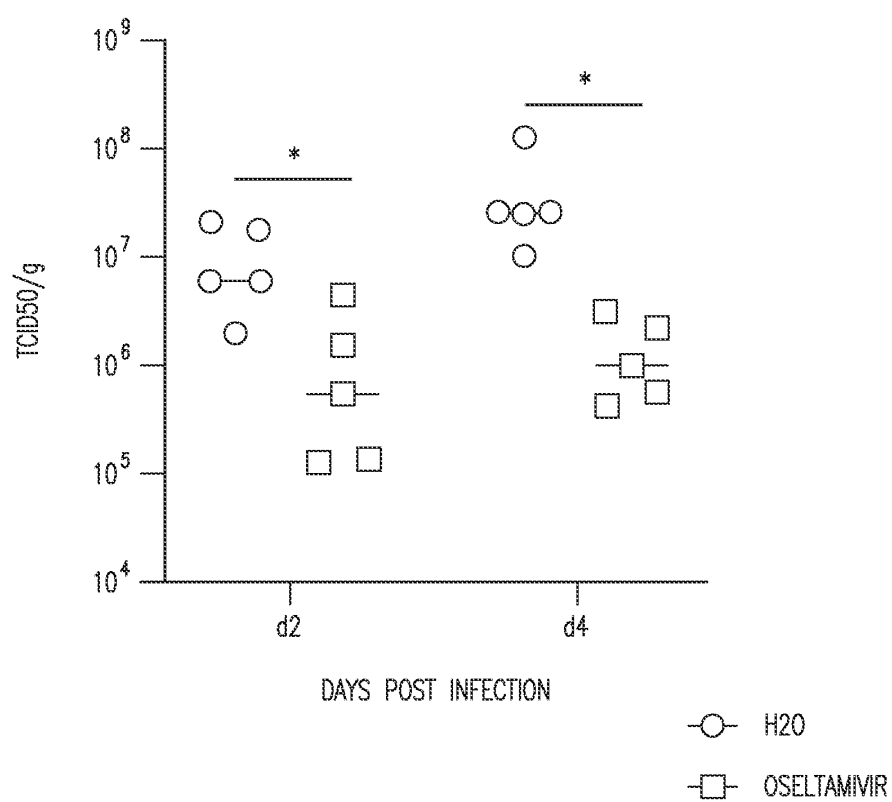
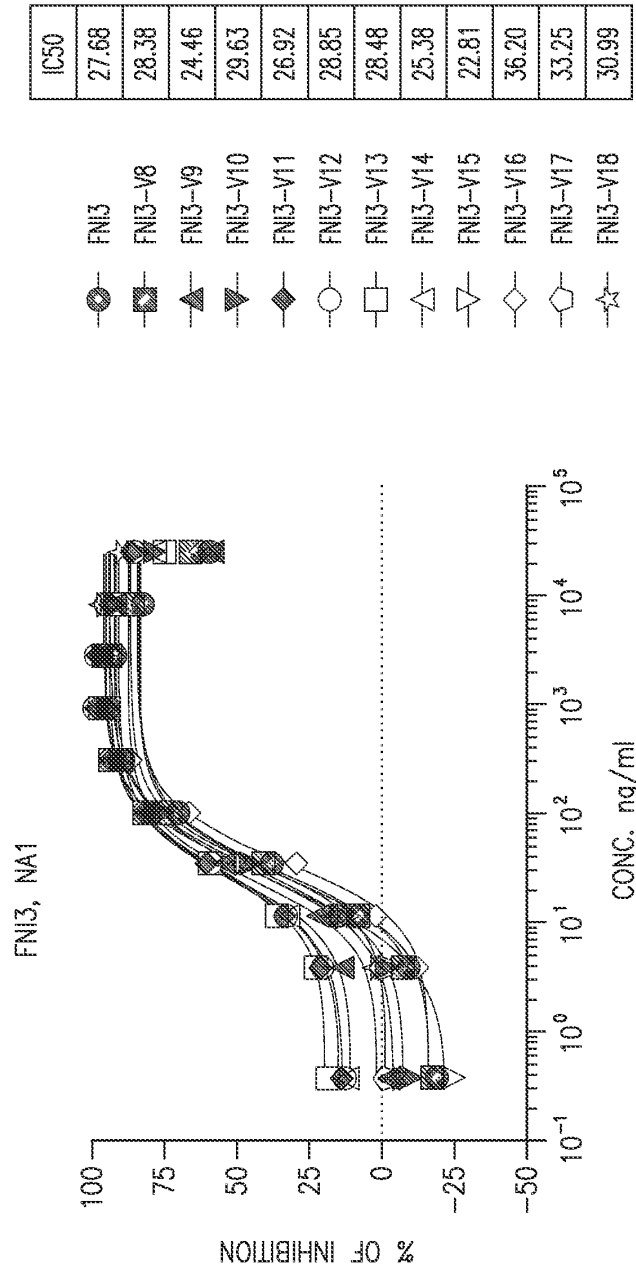
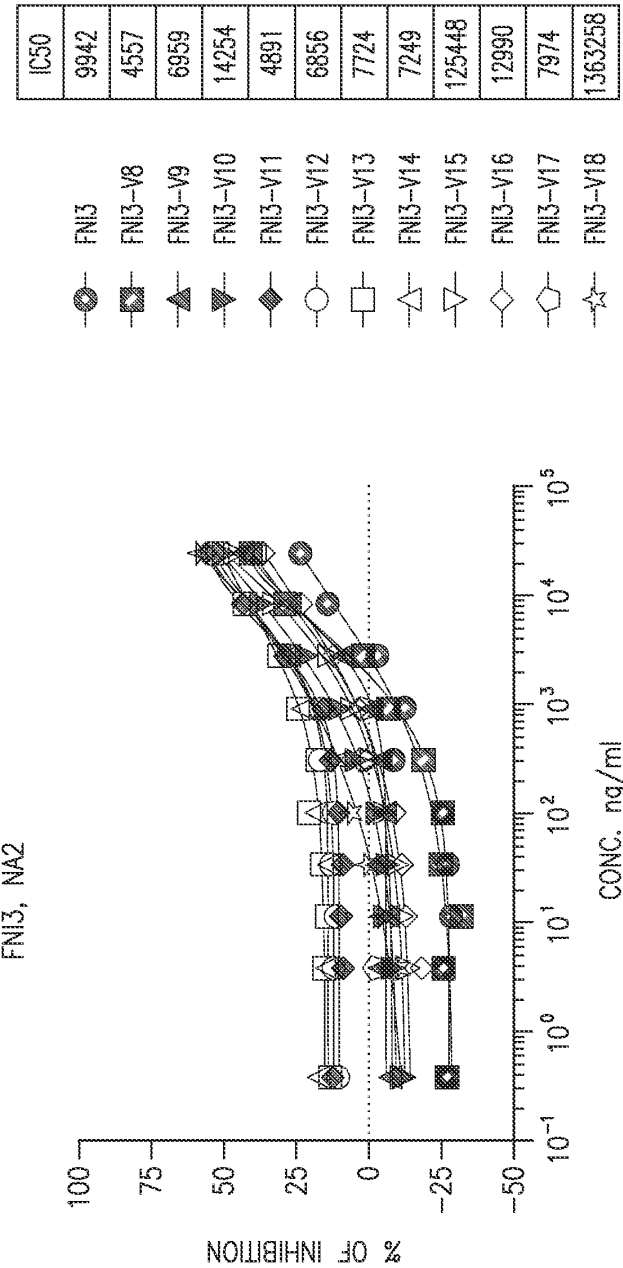
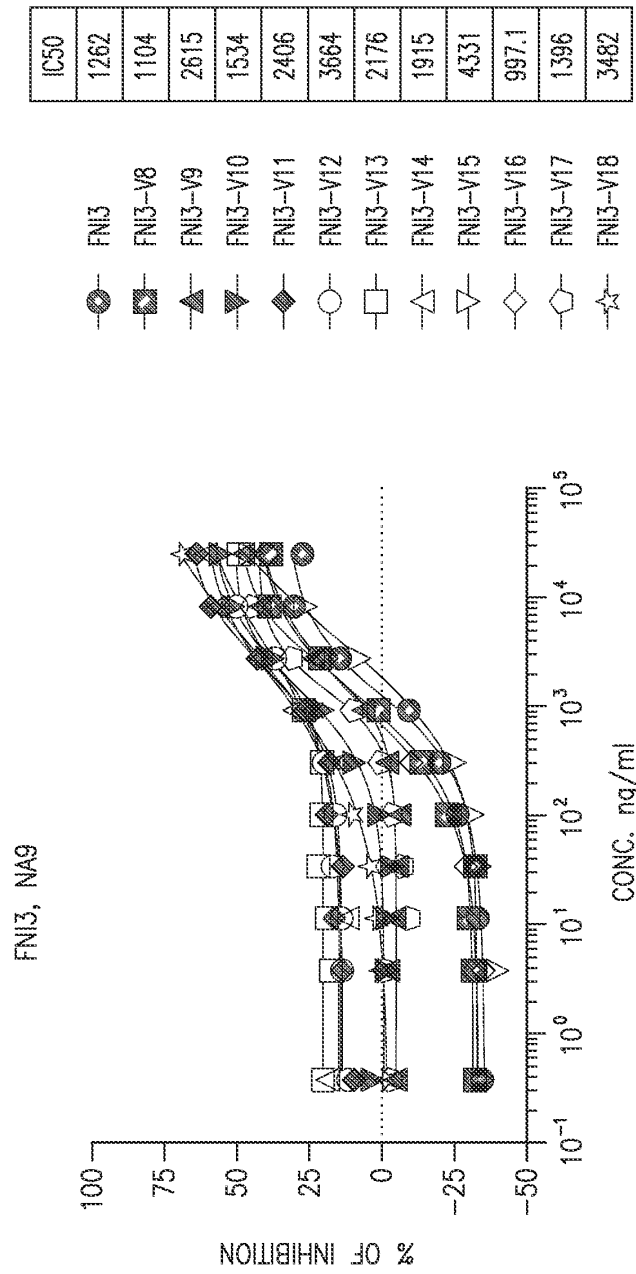


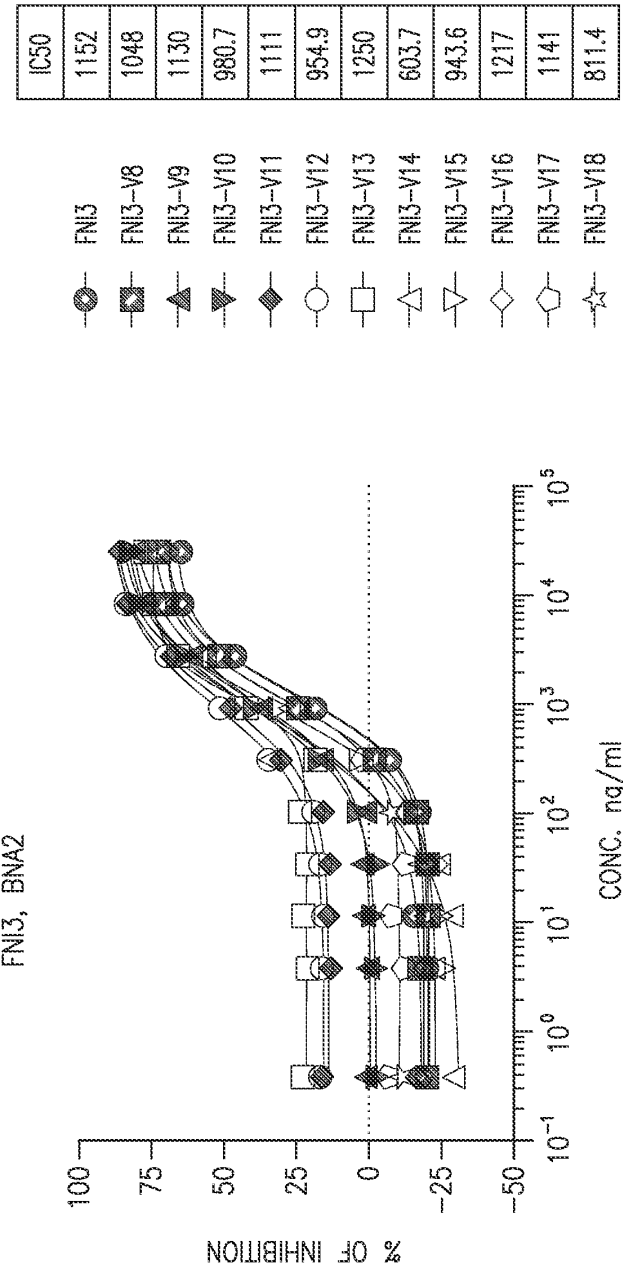
FIG. 71

FIG. 72B









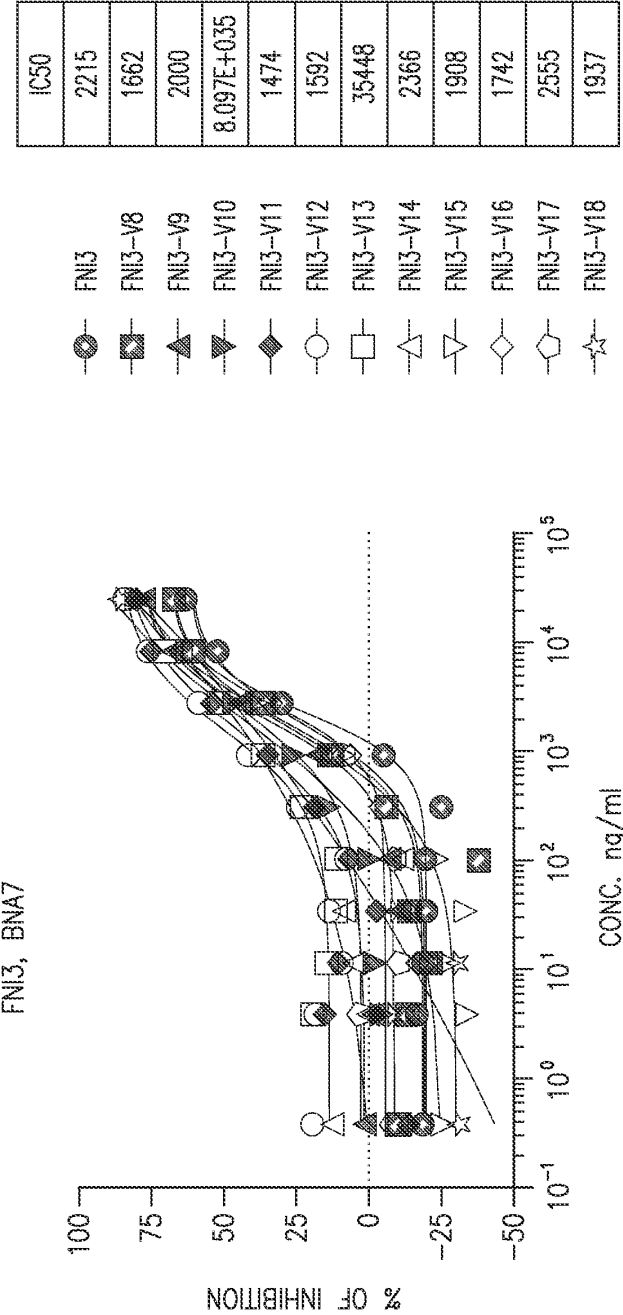


FIG. 73E

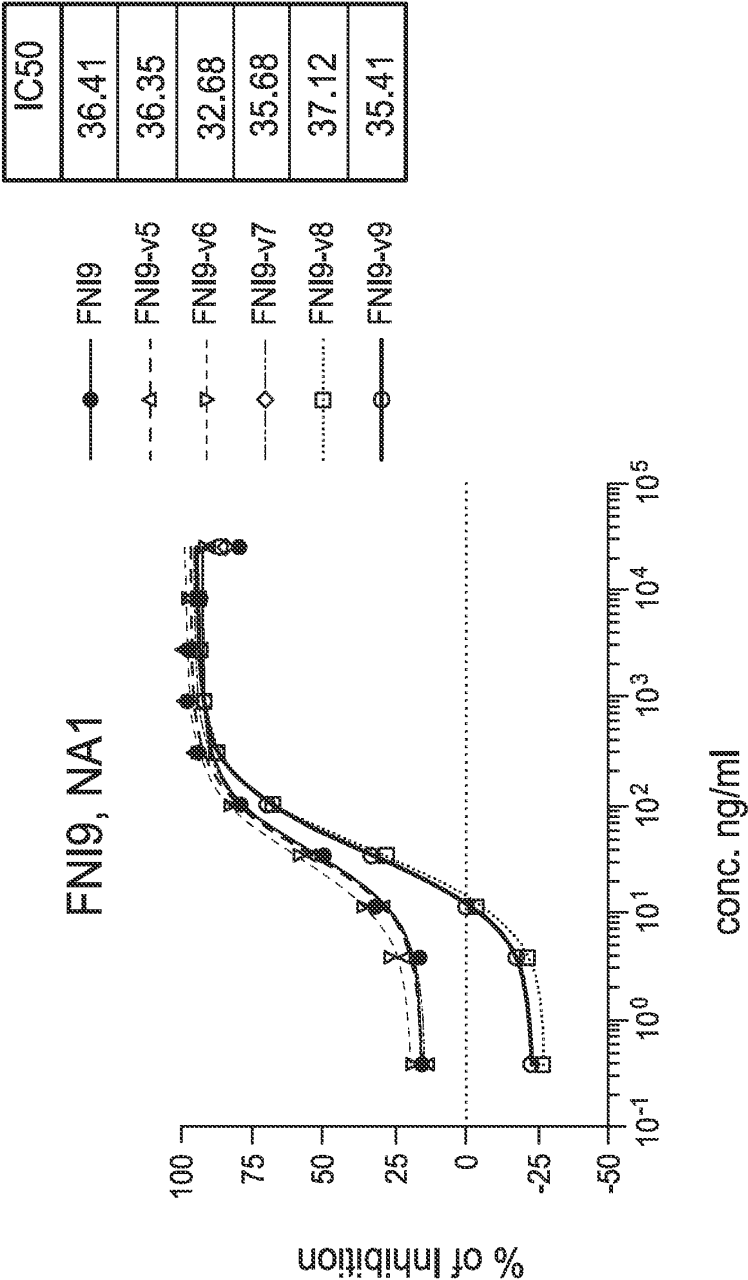


FIG. 74A

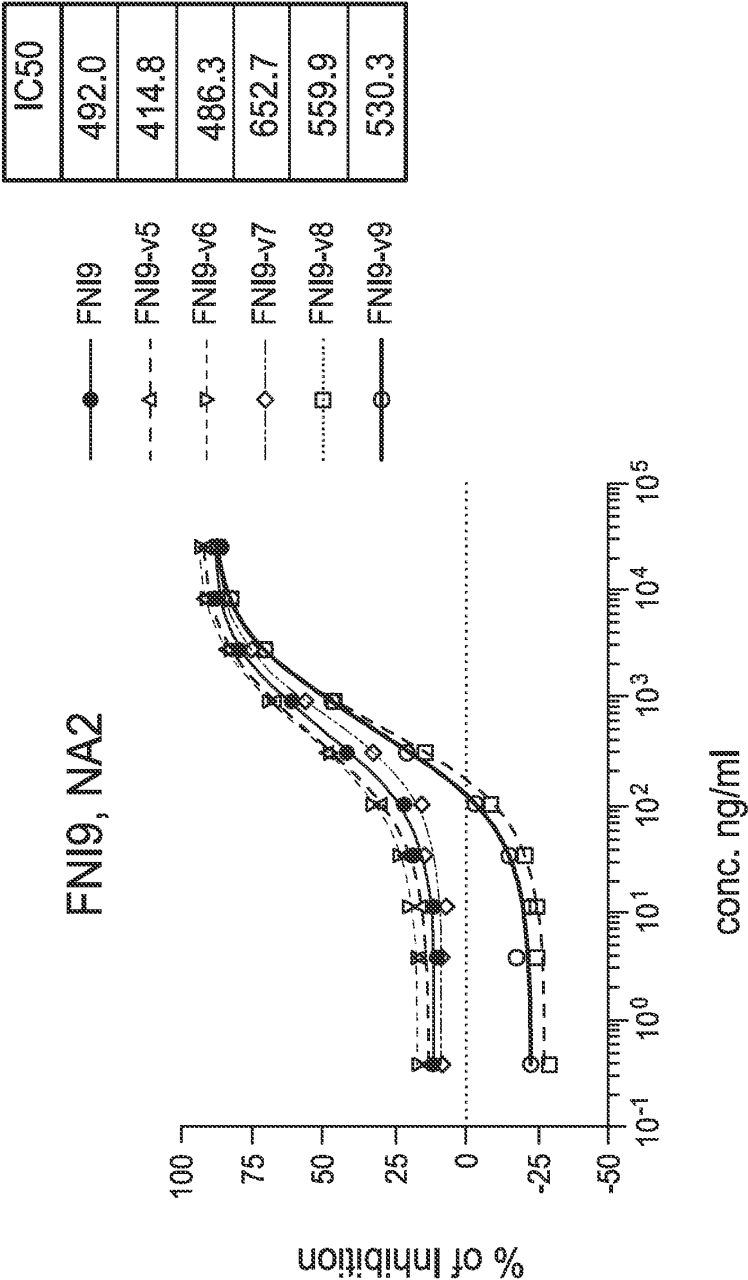


FIG. 74B

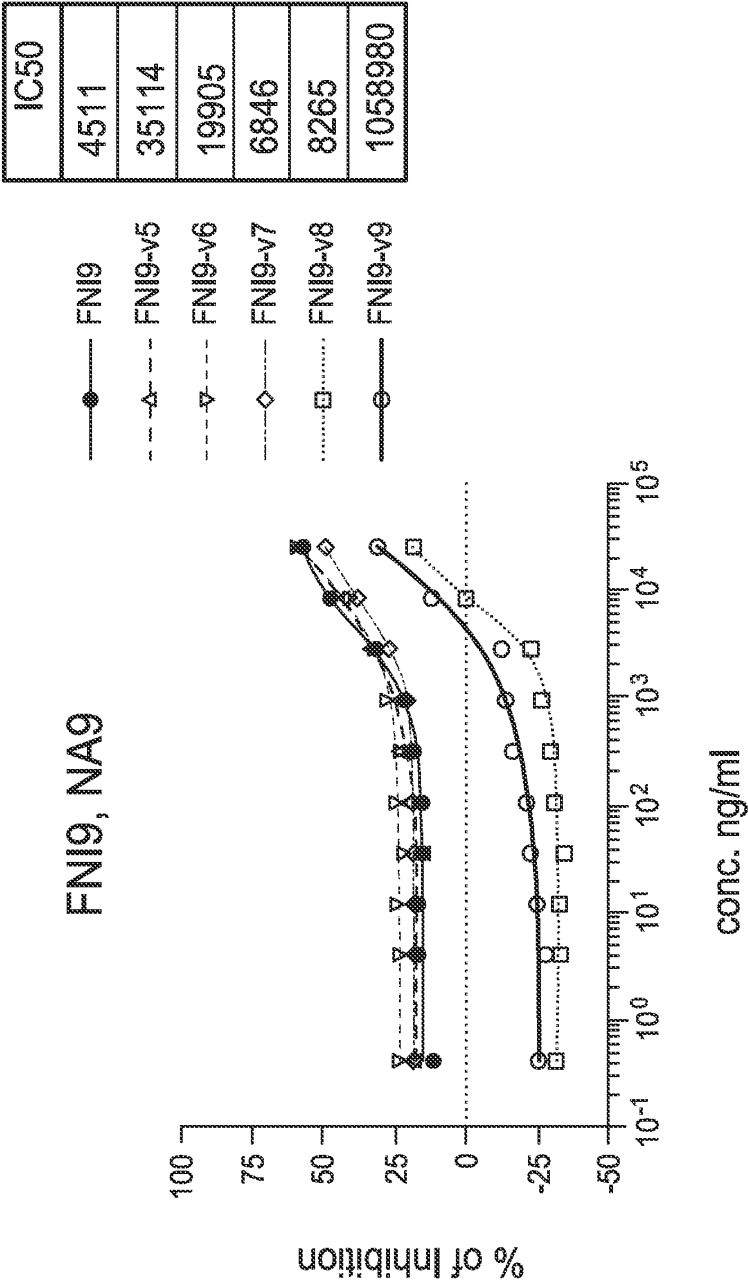


FIG. 74C

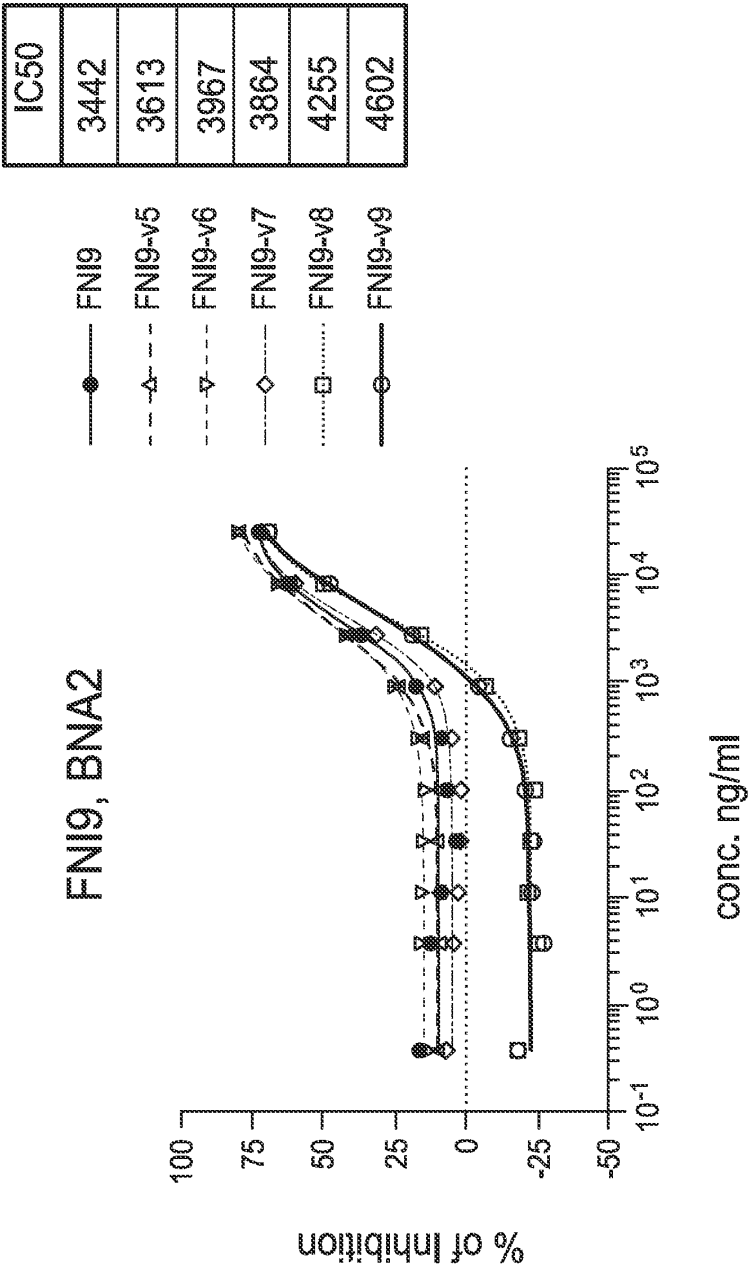


FIG. 74D

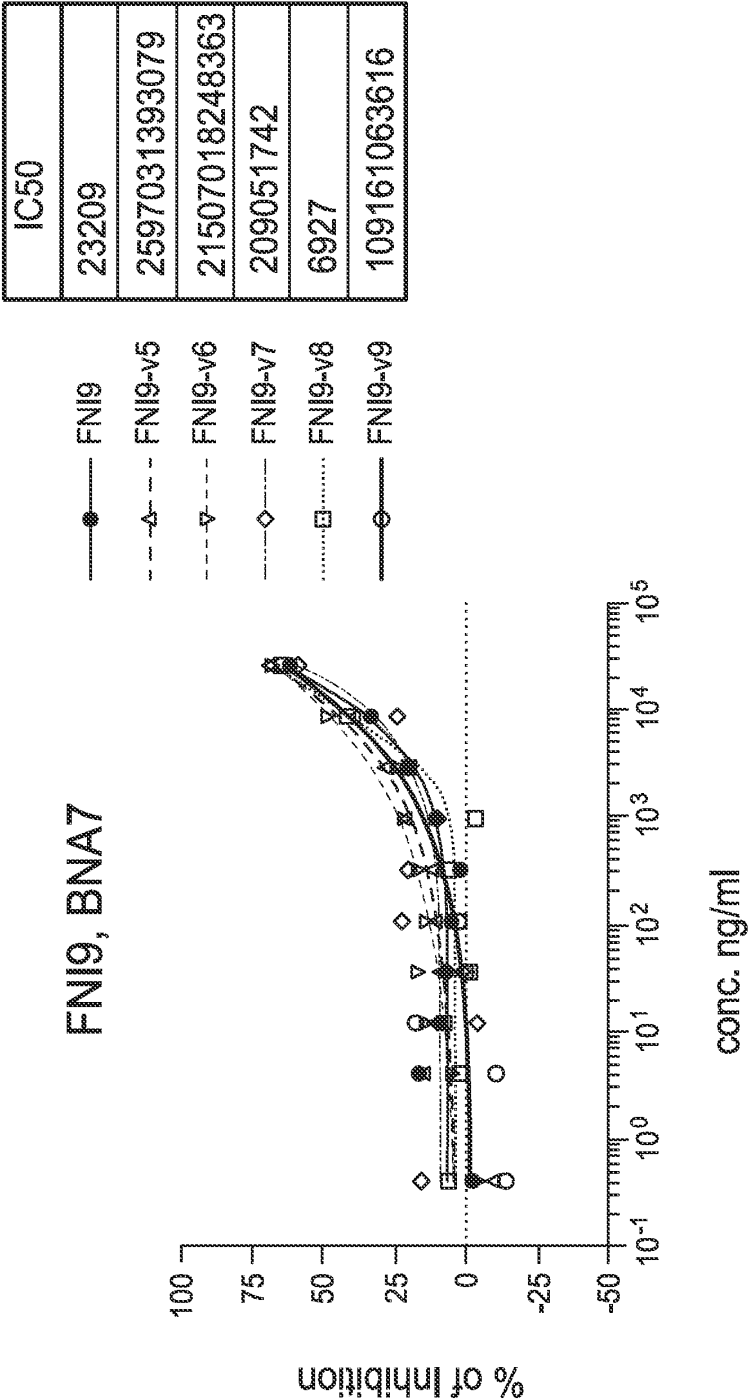


FIG. 74E

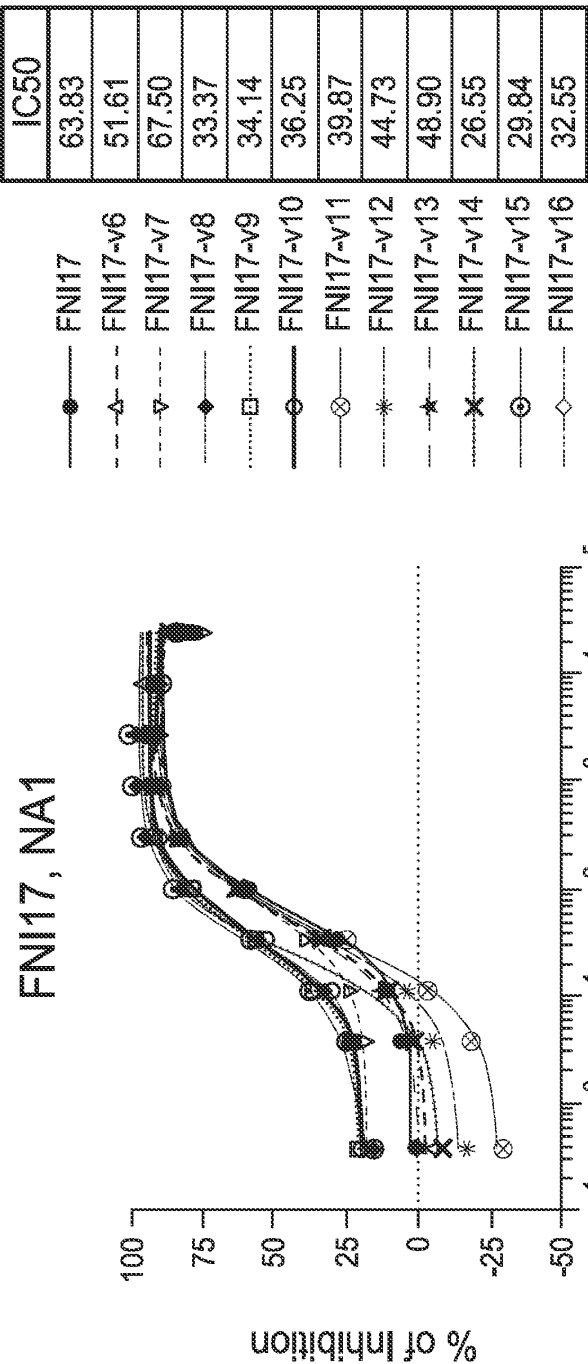


FIG. 75A

	IC50
FNI17	4815
FNI17-v6	35435
FNI17-v7	4274
FNI17-v8	9261
FNI17-v9	5282
FNI17-v10	4188
FNI17-v11	4170
FNI17-v12	5176
FNI17-v13	5119
FNI17-v14	46900
FNI17-v15	5068
FNI17-v16	3798

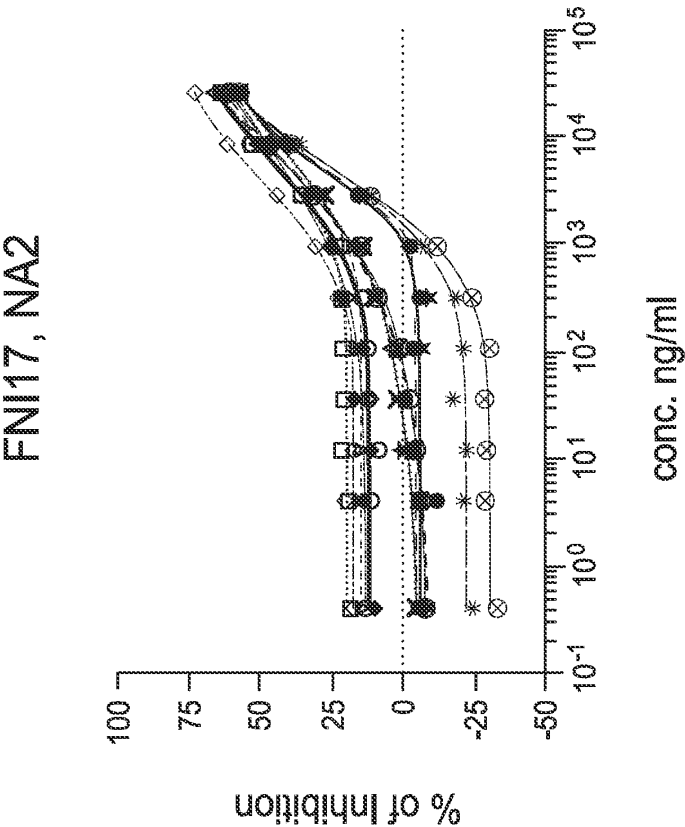


FIG. 75B

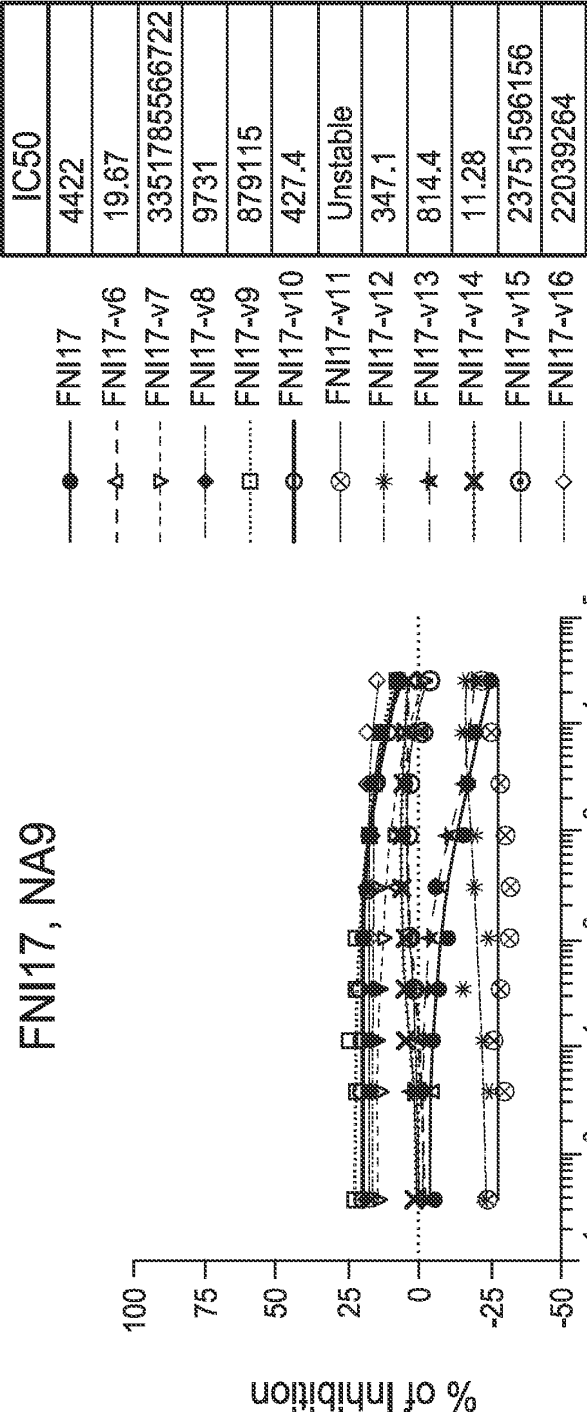


FIG. 75C

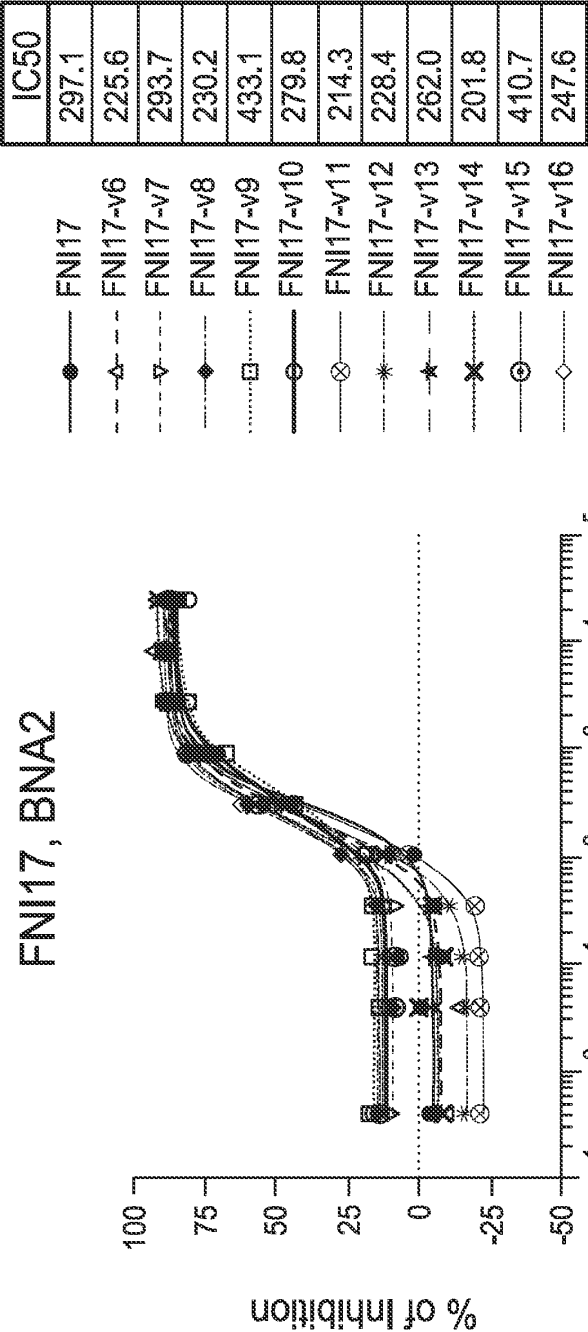


FIG. 75D

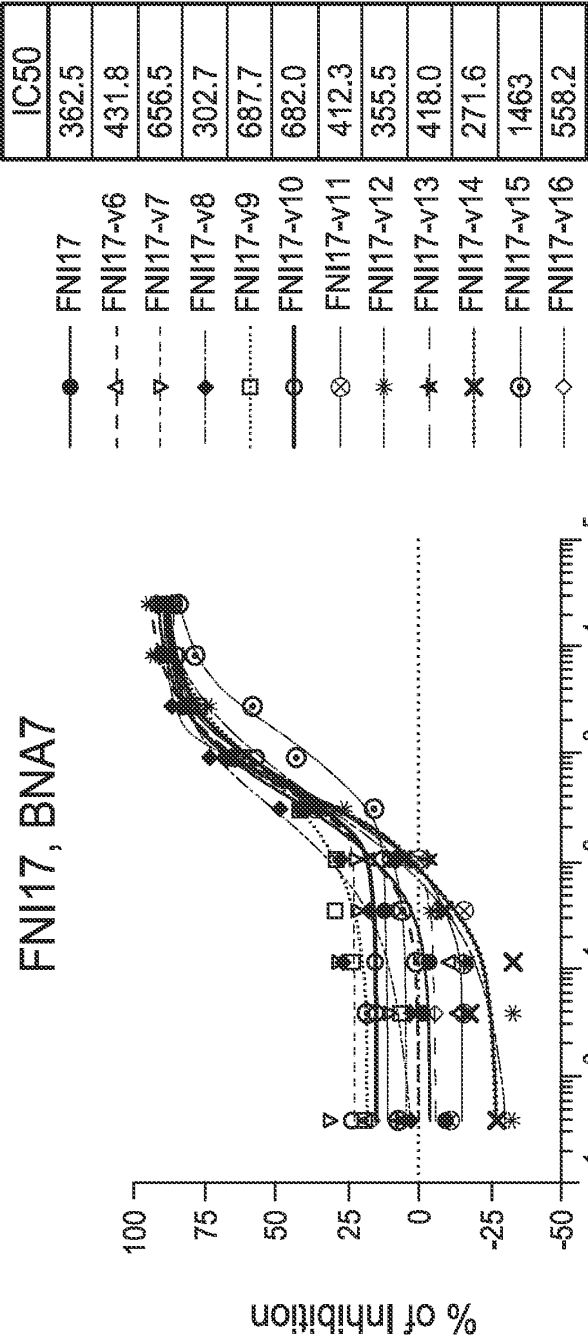


FIG. 75E

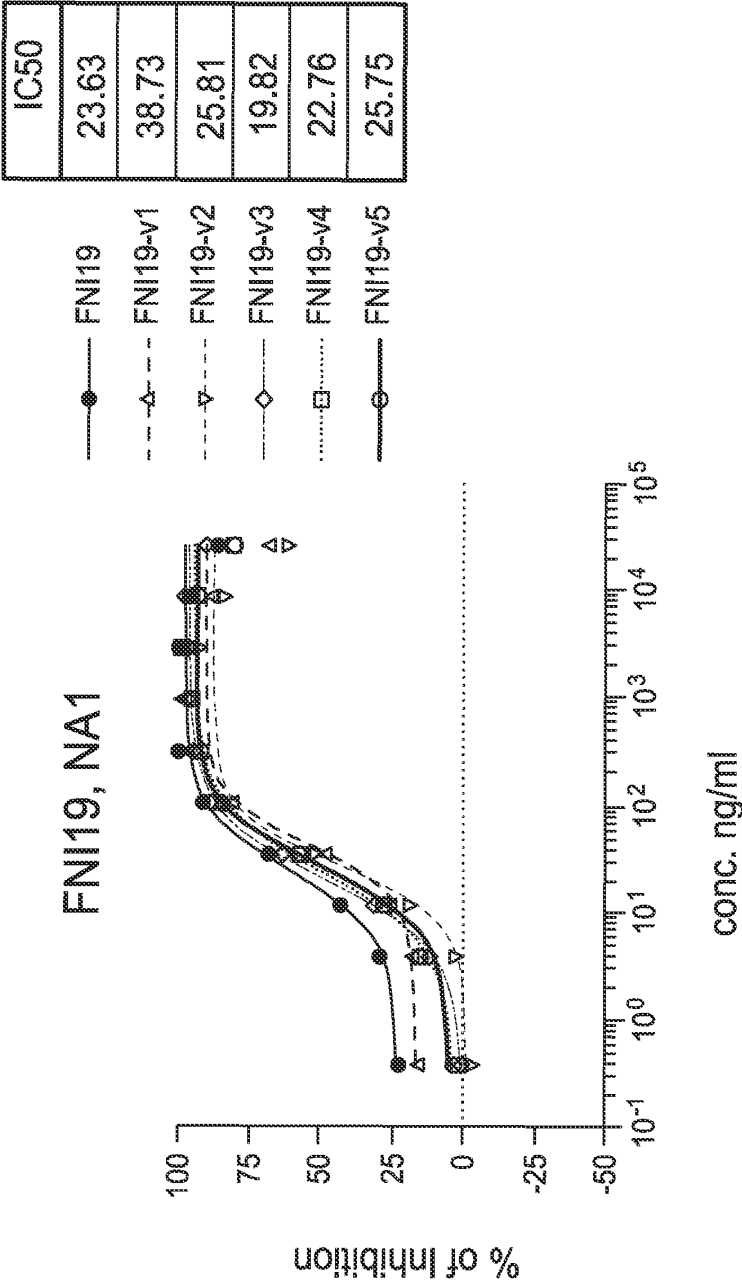


FIG. 76A

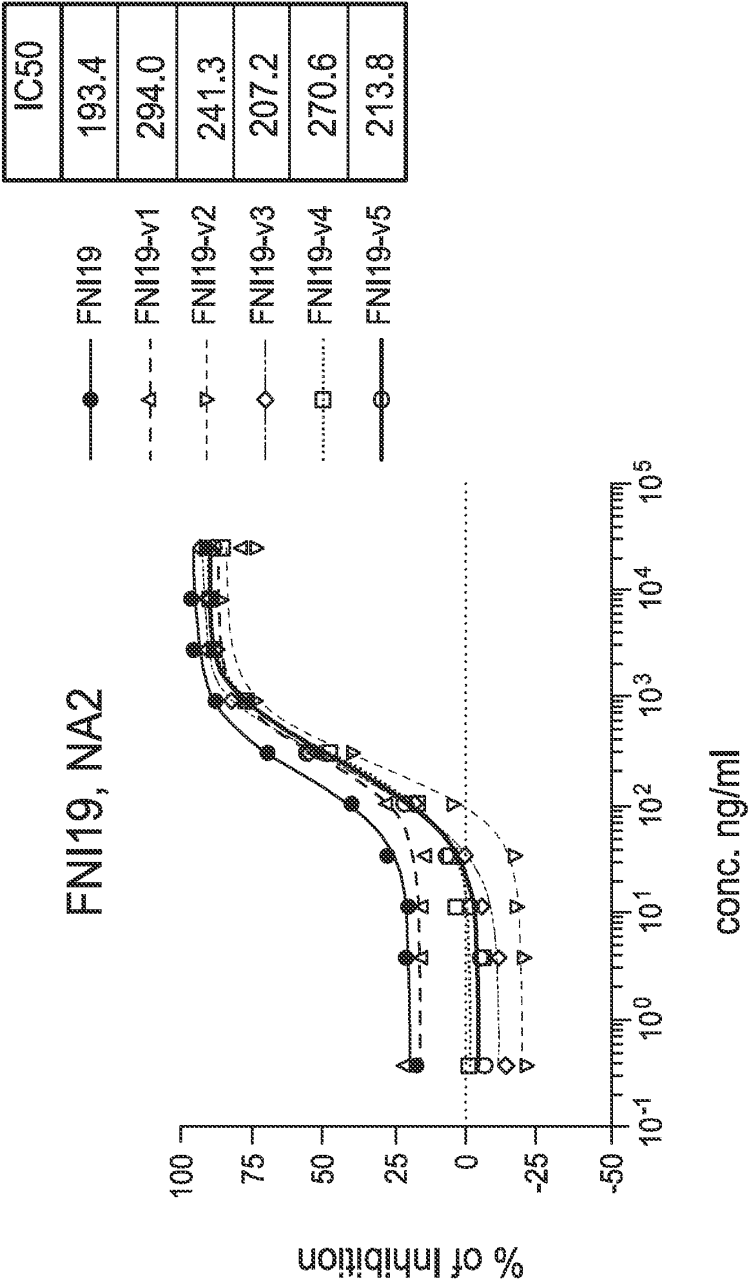


FIG. 76B

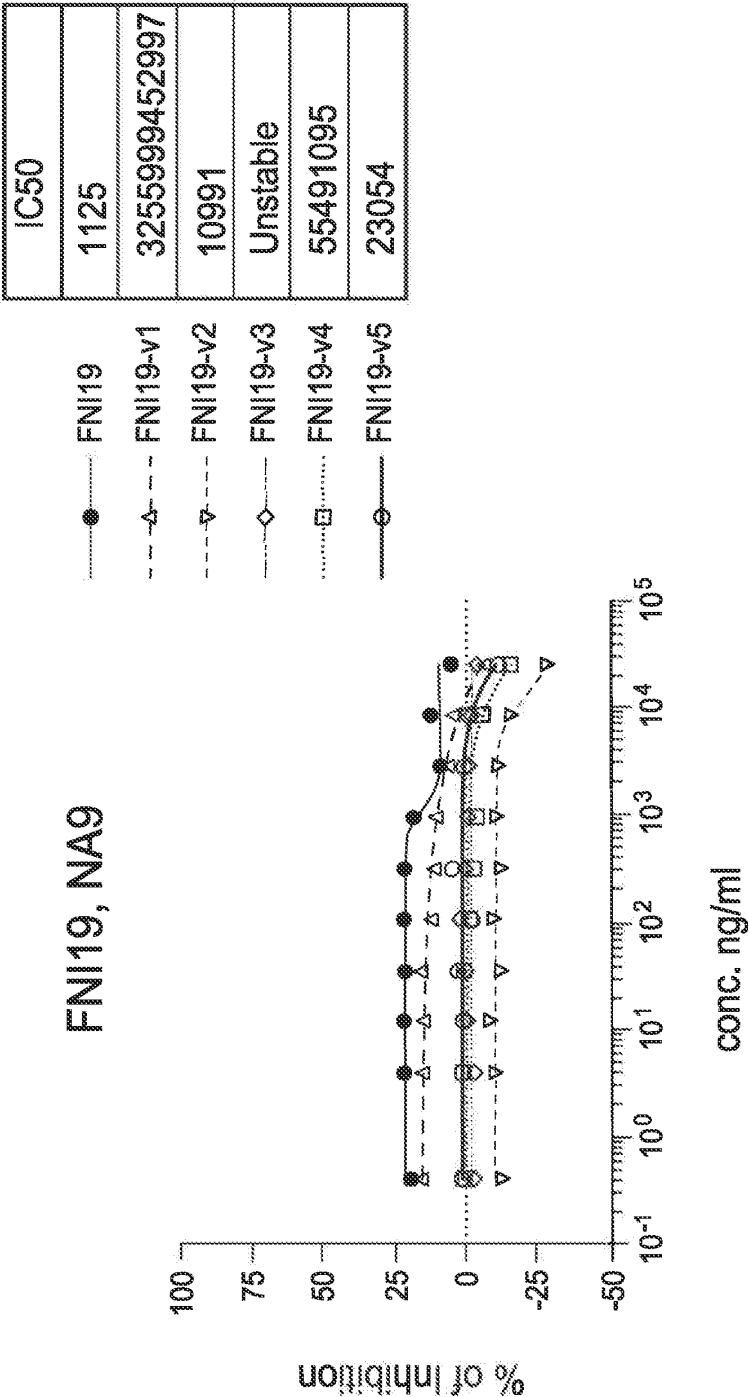


FIG. 76C

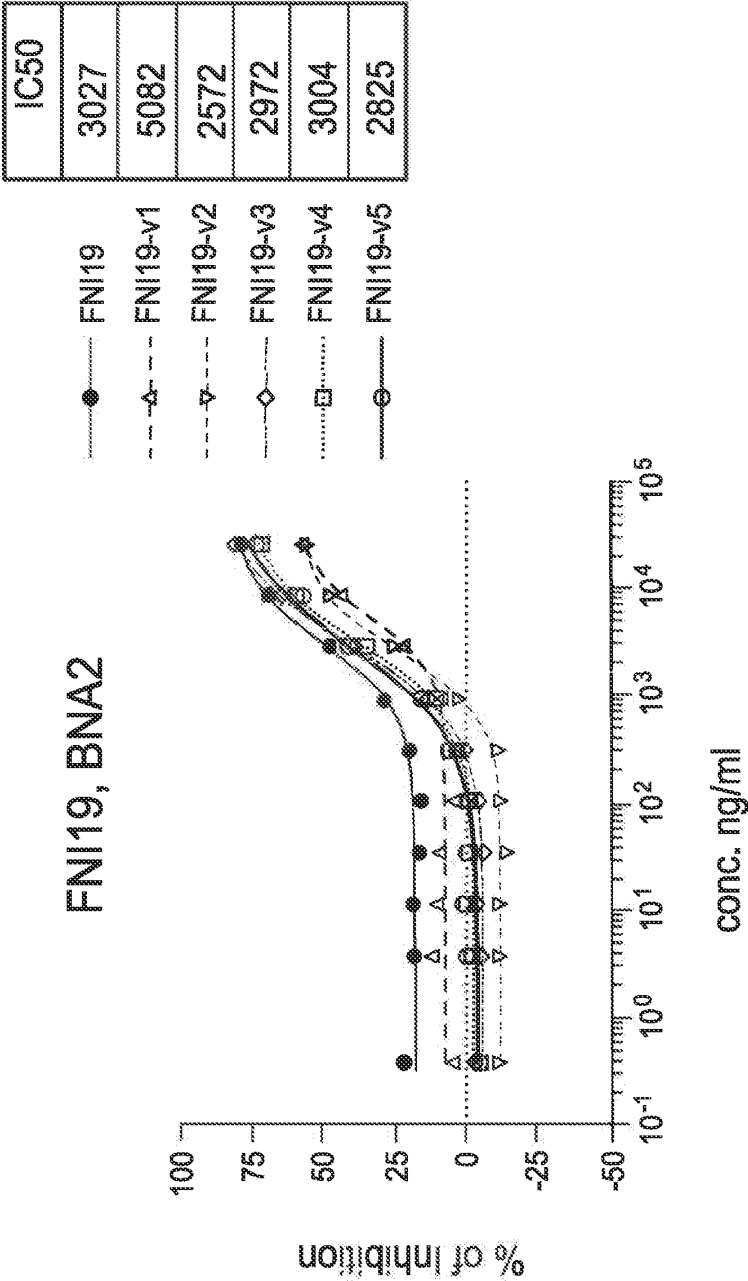


FIG. 76D

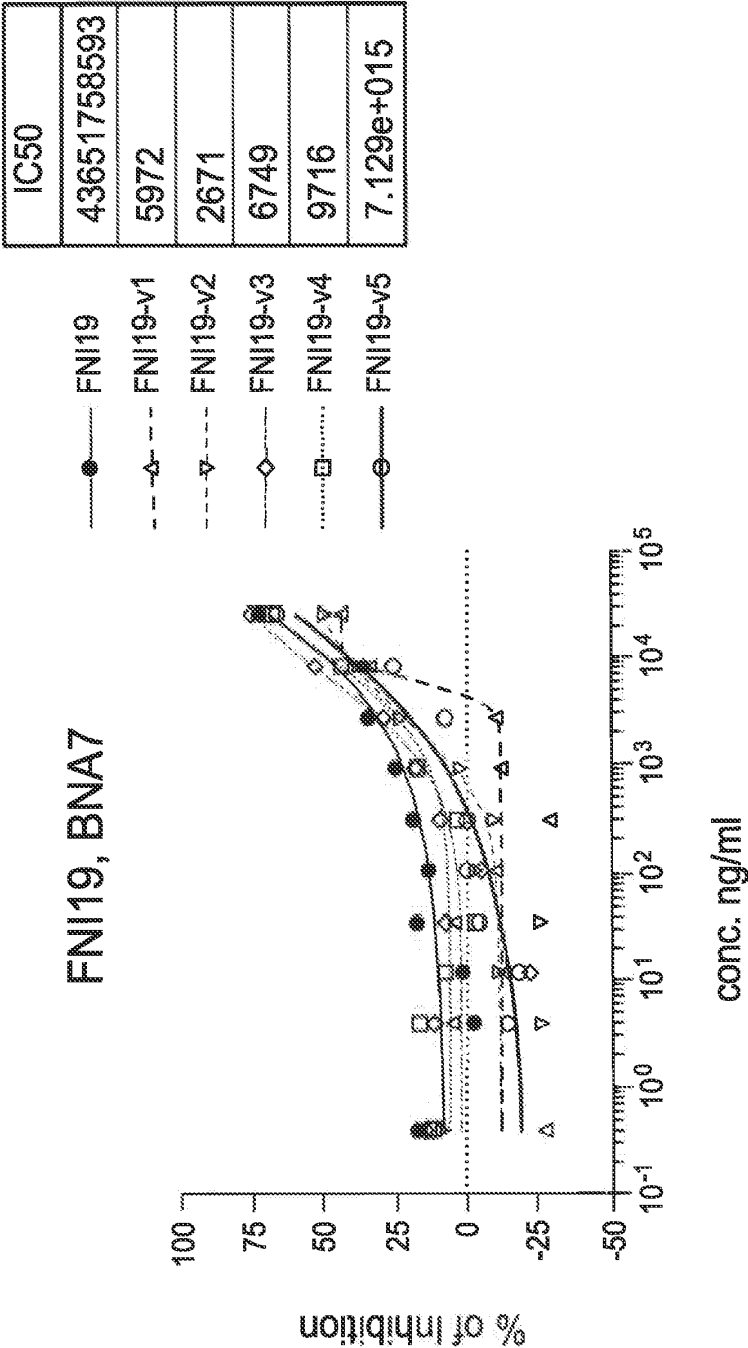


FIG. 76E

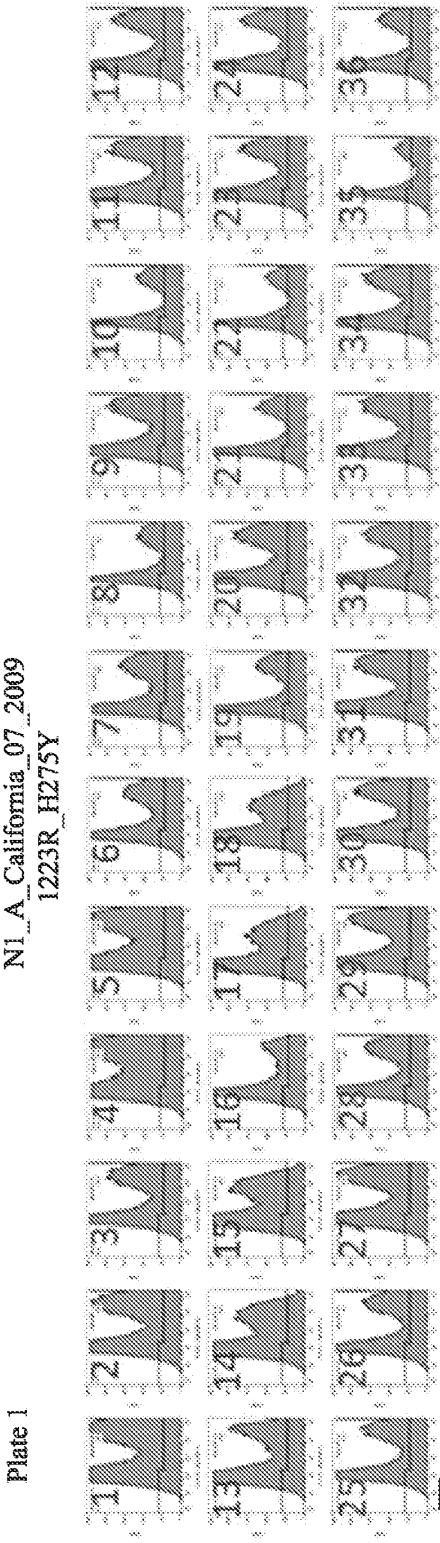
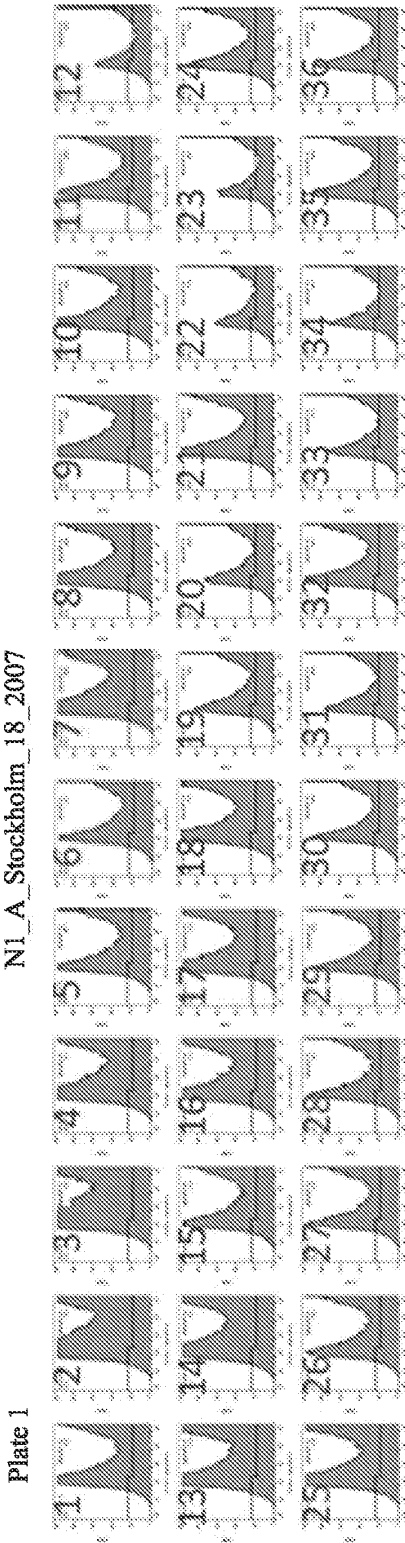
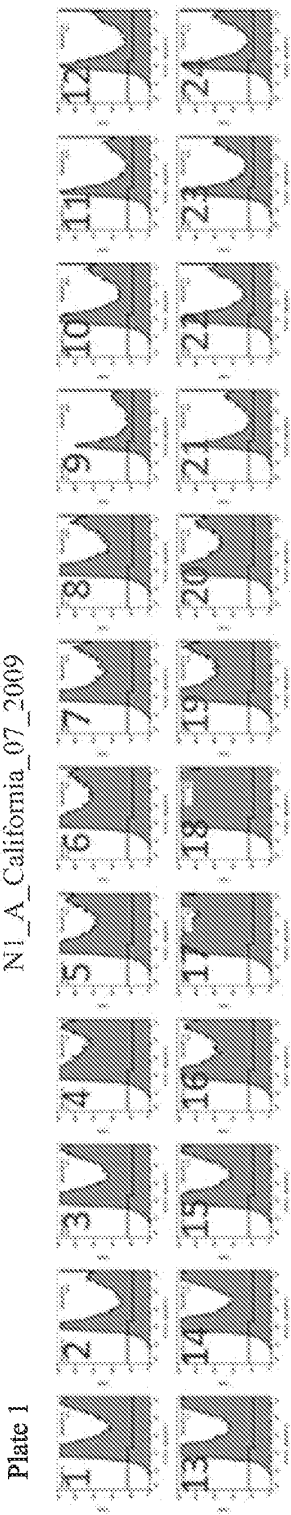


FIG. 77A



1	FNI3-rlgG 1-LS
2	FNI3-v8-rlgG 1-LS
3	FNI3-v9-rlgG 1-LS
4	FNI3-v10-rlgG 1-LS
5	FNI3-v11-rlgG 1-LS
6	FNI3-v12-rlgG 1-LS
7	FNI3-v13-rlgG 1-LS
8	FNI3-v14-rlgG 1-LS
9	FNI3-v15-rlgG 1-LS
10	FNI3-v16-rlgG 1-LS
11	FNI3-v17-rlgG 1-LS
12	FNI3-v18-rlgG 1-LS
13	FNI9-rlgG 1-LS
14	FNI9-v5-rlgG 1-LS
15	FNI9-v6-rlgG 1-LS
16	FNI9-v7-rlgG 1-LS
17	FNI9-v8-rlgG 1-LS
18	FNI9-v9-rlgG 1-LS
19	FNI9-v10-rlgG 1-LS
20	FNI9-v11-rlgG 1-LS
21	FNI9-v12-rlgG 1-LS
22	FNI9-v13-rlgG 1-LS
23	FNI9-v14-rlgG 1-LS
24	FNI9-v15-rlgG 1-LS
25	FNI17-v11-rlgG 1-LS
26	FNI17-v12-rlgG 1-LS
27	FNI17-v13-rlgG 1-LS
28	FNI17-v14-rlgG 1-LS
29	FNI17-v15-rlgG 1-LS
30	FNI17-v16-rlgG 1-LS
31	FNI19-rlgG 1-LS
32	FNI19-v1-rlgG 1-LS
33	FNI19-v2-rlgG 1-LS
34	FNI19-v3-rlgG 1-LS
35	FNI19-v4-rlgG 1-LS
36	FNI19-v5-rlgG 1-LS

FIG. 77A (cont'd)

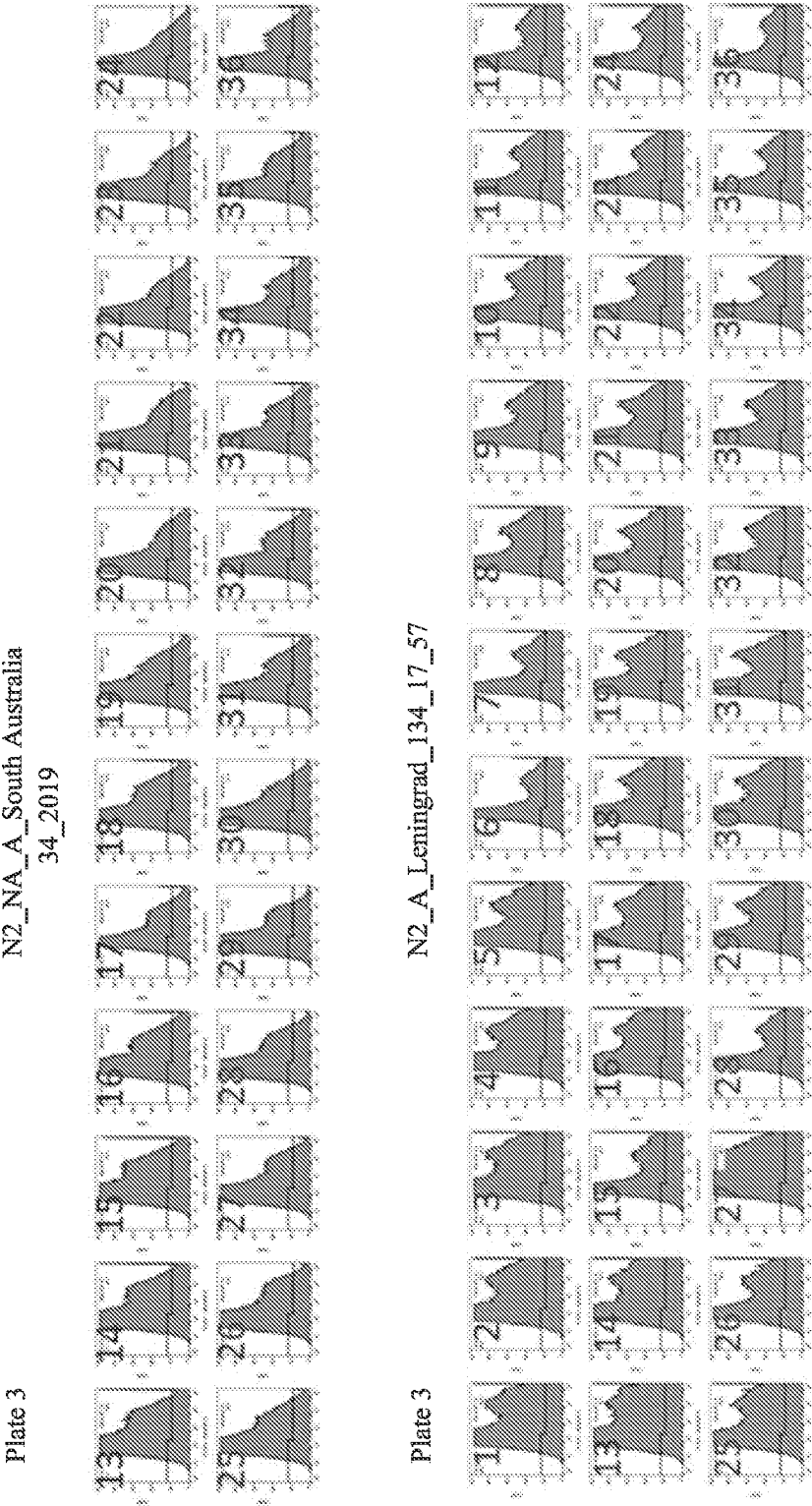
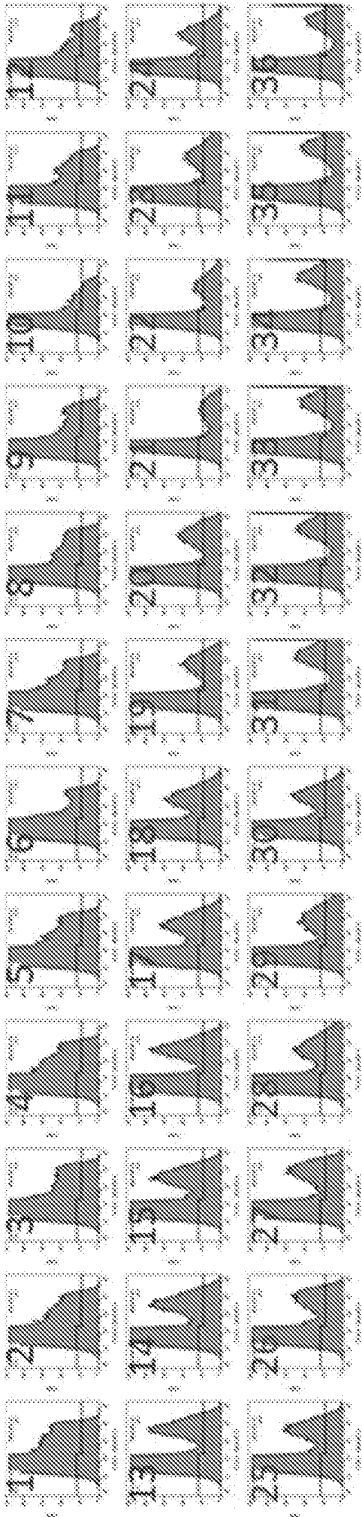


FIG. 77B

N2_A_Washington_01_2007

Plate 3



25	FNI17-v11-rlgG 1-LS
26	FNI17-v12-rlgG 1-LS
27	FNI17-v13-rlgG 1-LS
28	FNI17-v14-rlgG 1-LS
29	FNI17-v15-rlgG 1-LS
30	FNI17-v16-rlgG 1-LS
31	FNI19-rlgG 1-LS
32	FNI19-v1-rlgG 1-LS
33	FNI19-v2-rlgG 1-LS
34	FNI19-v3-rlgG 1-LS
35	FNI19-v4-rlgG 1-LS
36	FNI19-v5-rlgG 1-LS

13	FNI9-rlgG 1-LS
14	FNI9-v5-rlgG 1-LS
15	FNI9-v6-rlgG 1-LS
16	FNI9-v7-rlgG 1-LS
17	FNI9-v8-rlgG 1-LS
18	FNI9-v9-rlgG 1-LS
19	FNI17-rlgG 1-LS
20	FNI17-v6-rlgG 1-LS
21	FNI17-v7-rlgG 1-LS
22	FNI17-v8-rlgG 1-LS
23	FNI17-v9-rlgG 1-LS
24	FNI17-v10-rlgG 1-LS

1	FNI3-rlgG 1-LS
2	FNI3-v8-rlgG 1-LS
3	FNI3-v9-rlgG 1-LS
4	FNI3-v10-rlgG 1-LS
5	FNI3-v11-rlgG 1-LS
6	FNI3-v12-rlgG 1-LS
7	FNI3-v13-rlgG 1-LS
8	FNI3-v14-rlgG 1-LS
9	FNI3-v15-rlgG 1-LS
10	FNI3-v16-rlgG 1-LS
11	FNI3-v17-rlgG 1-LS
12	FNI3-v18-rlgG 1-LS

FIG. 77B (cont'd)

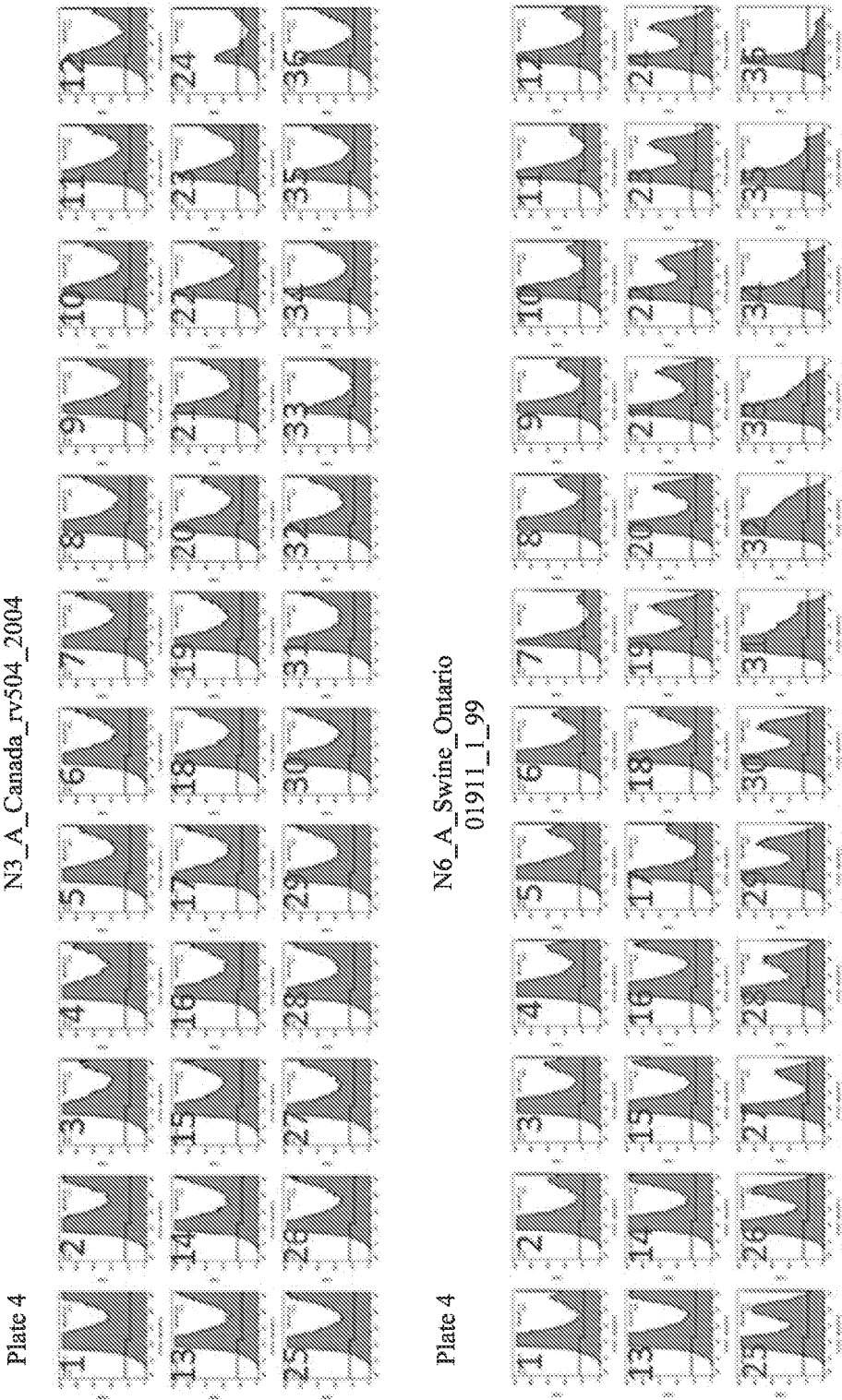
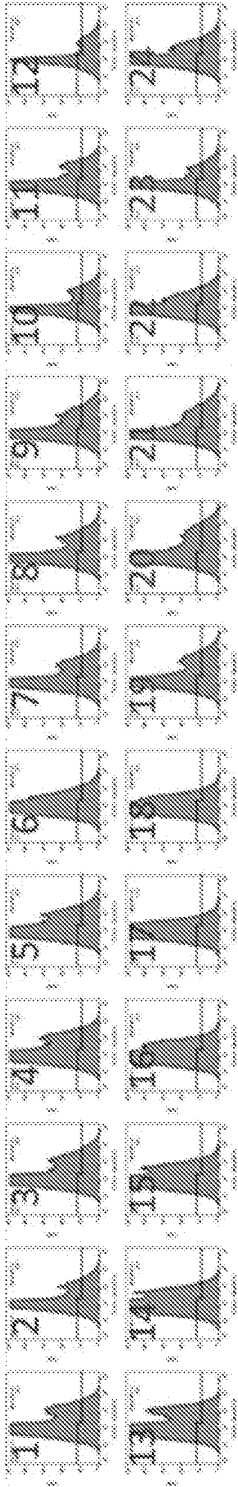


FIG. 77C

Plate 4N7_A_Netherlands_078_03



1	FNI3-rlgG 1-LS
2	FNI3-v8-rlgG 1-LS
3	FNI3-v9-rlgG 1-LS
4	FNI3-v10-rlgG 1-LS
5	FNI3-v11-rlgG 1-LS
6	FNI3-v12-rlgG 1-LS
7	FNI3-v13-rlgG 1-LS
8	FNI3-v14-rlgG 1-LS
9	FNI3-v15-rlgG 1-LS
10	FNI3-v16-rlgG 1-LS
11	FNI3-v17-rlgG 1-LS
12	FNI3-v18-rlgG 1-LS

13	FNI9-rlgG 1-LS
14	FNI9-v5-rlgG 1-LS
15	FNI9-v6-rlgG 1-LS
16	FNI9-v7-rlgG 1-LS
17	FNI9-v8-rlgG 1-LS
18	FNI9-v9-rlgG 1-LS
19	FNI17-rlgG 1-LS
20	FNI17-v6-rlgG 1-LS
21	FNI17-v7-rlgG 1-LS
22	FNI17-v8-rlgG 1-LS
23	FNI17-v9-rlgG 1-LS
24	FNI17-v10-rlgG 1-LS

25	FNI17-v11-rlgG 1-LS
26	FNI17-v12-rlgG 1-LS
27	FNI17-v13-rlgG 1-LS
28	FNI17-v14-rlgG 1-LS
29	FNI17-v15-rlgG 1-LS
30	FNI17-v16-rlgG 1-LS
31	FNI19-rlgG 1-LS
32	FNI19-v1-rlgG 1-LS
33	FNI19-v2-rlgG 1-LS
34	FNI19-v3-rlgG 1-LS
35	FNI19-v4-rlgG 1-LS
36	FNI19-v5-rlgG 1-LS

FIG. 77C (cont'd)

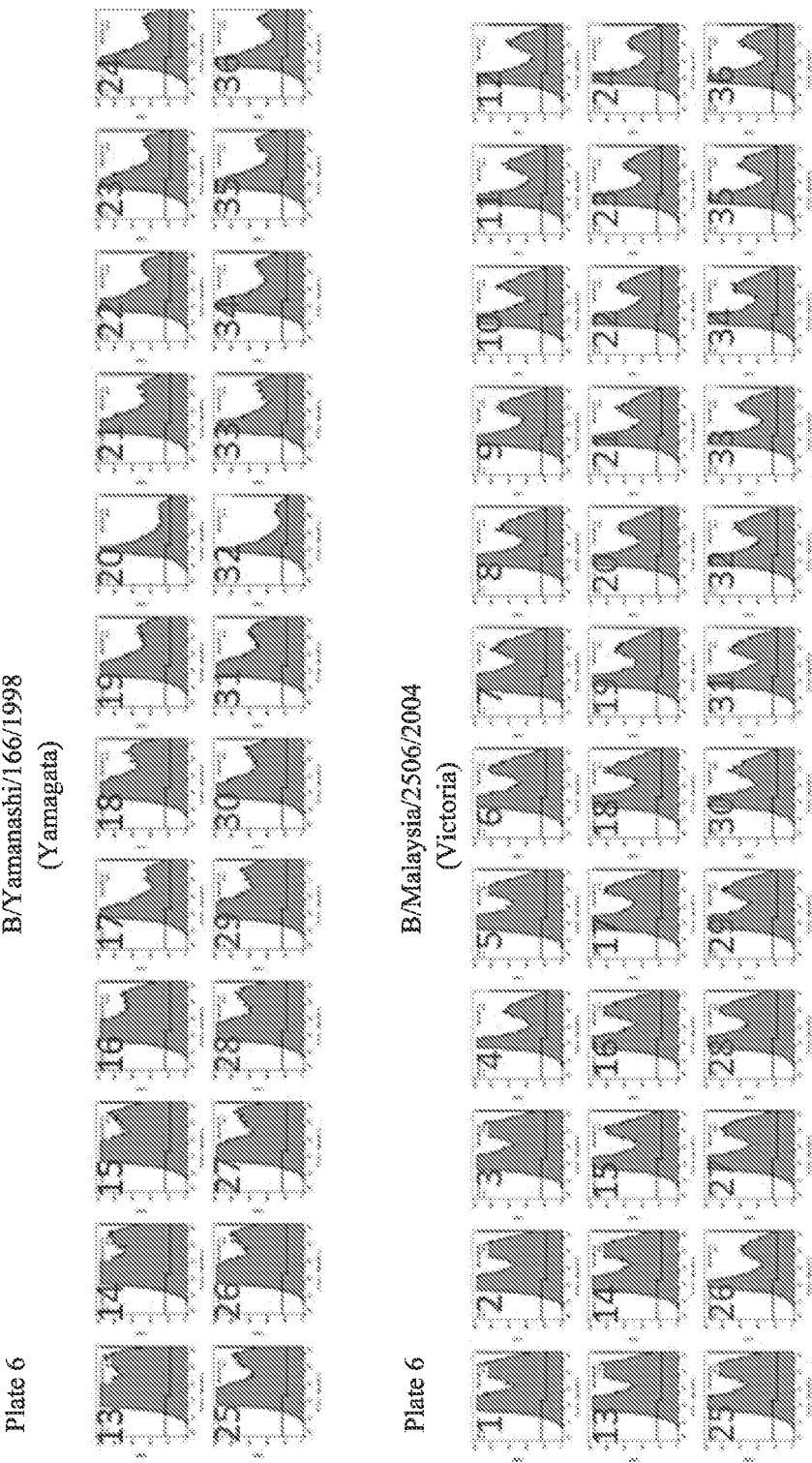
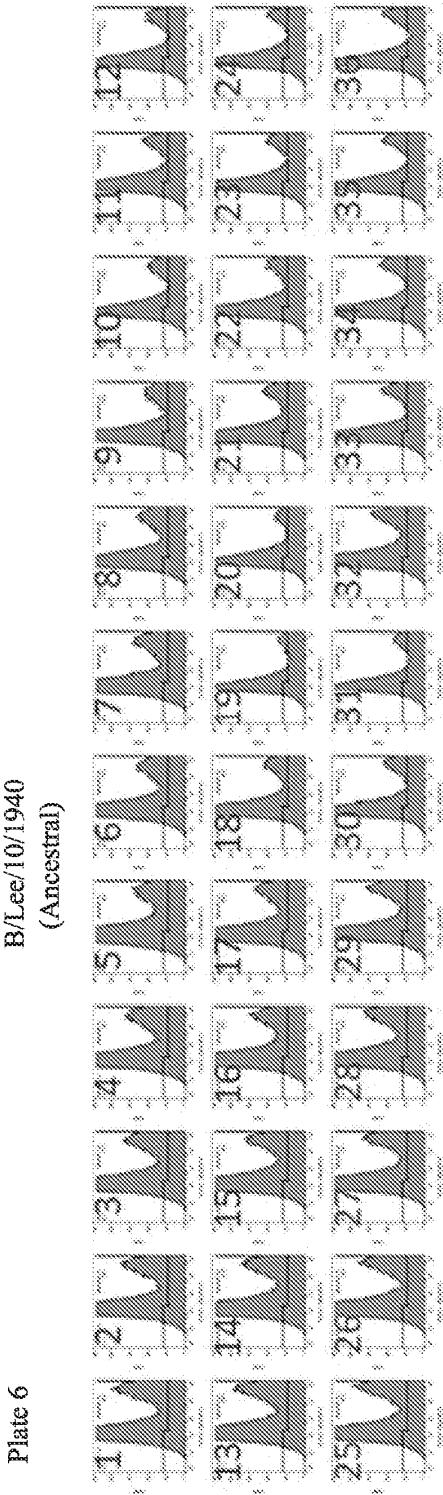


FIG. 77D



25	FNI17-v11-rlgG 1-LS
26	FNI17-v12-rlgG 1-LS
27	FNI17-v13-rlgG 1-LS
28	FNI17-v14-rlgG 1-LS
29	FNI17-v15-rlgG 1-LS
30	FNI17-v16-rlgG 1-LS
31	FNI19-rlgG 1-LS
32	FNI19-v1-rlgG 1-LS
33	FNI19-v2-rlgG 1-LS
34	FNI19-v3-rlgG 1-LS
35	FNI19-v4-rlgG 1-LS
36	FNI19-v5-rlgG 1-LS

13	FNI9-rlgG 1-LS
14	FNI9-v5-rlgG 1-LS
15	FNI9-v6-rlgG 1-LS
16	FNI9-v7-rlgG 1-LS
17	FNI9-v8-rlgG 1-LS
18	FNI9-v9-rlgG 1-LS
19	FNI17-rlgG 1-LS
20	FNI17-v6-rlgG 1-LS
21	FNI17-v7-rlgG 1-LS
22	FNI17-v8-rlgG 1-LS
23	FNI17-v9-rlgG 1-LS
24	FNI17-v10-rlgG 1-LS

1	FNI3-rlgG 1-LS
2	FNI3-v8-rlgG 1-LS
3	FNI3-v9-rlgG 1-LS
4	FNI3-v10-rlgG 1-LS
5	FNI3-v11-rlgG 1-LS
6	FNI3-v12-rlgG 1-LS
7	FNI3-v13-rlgG 1-LS
8	FNI3-v14-rlgG 1-LS
9	FNI3-v15-rlgG 1-LS
10	FNI3-v16-rlgG 1-LS
11	FNI3-v17-rlgG 1-LS
12	FNI3-v18-rlgG 1-LS

FIG. 77D (cont'd)

UCA-VH	QVQLVQSGAEVK	PGSSVK	KNVSKKAS	CGTFSSYAIS	SWVRQAPGQGLEWMGCI	PIFGTANYAQKFQ	
FNI3	.....	R	.....	A...NNV A	.....	H...SA...T	
FNI9	.....	E	.....	S...NNQ...	.....	F...S...PTS...R...	
FNI17	.....	R	.....	.....P	.....	.....TS...	
FNI19	.....	R	.....	E...NK...TLT	.....	.....S...	

UCA-VH	RVTITADESTSTAYMELSSLRSED	TAVYY	95	CARAGSDYFNRD	LGWENYYFDY	WGCGTLVT	VSS	128
FNI3	..A.A...L.....NG.....S.....	95		.....	.....S.....	.....	.....	128
FNI9	...F.....T.V...D.....D.....	95		.....	.....AS.....	.....	.....	128
FNI17	..A.I...K...V.A.....S...F	95		.....	.....R.....D...EN	.....	.....	128
FNI19	..A.....T.....S.....S.....	95		.....	.....T.V.....D...PF	.....	.....A.	128

FIG. 78A

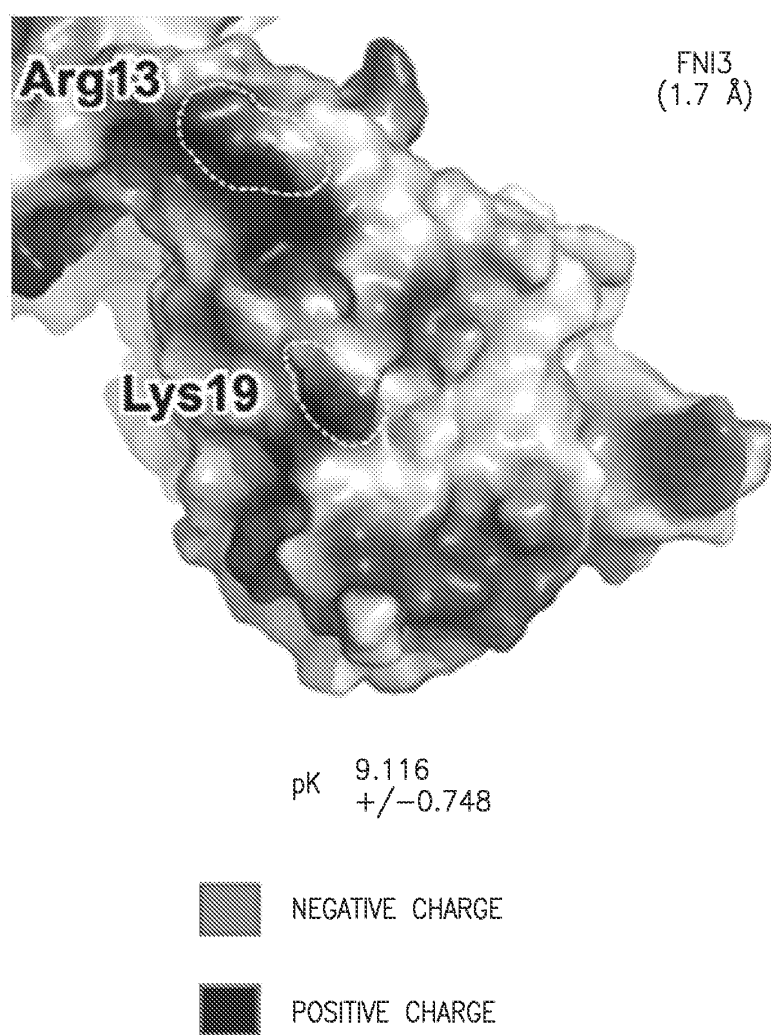


FIG. 78B

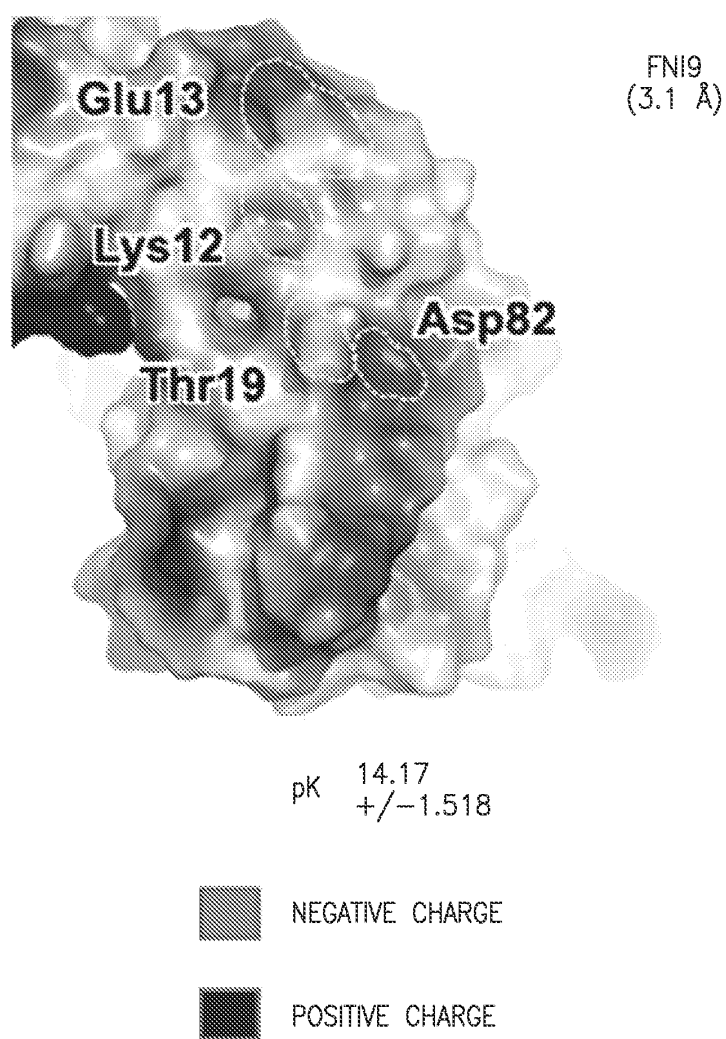


FIG. 78C

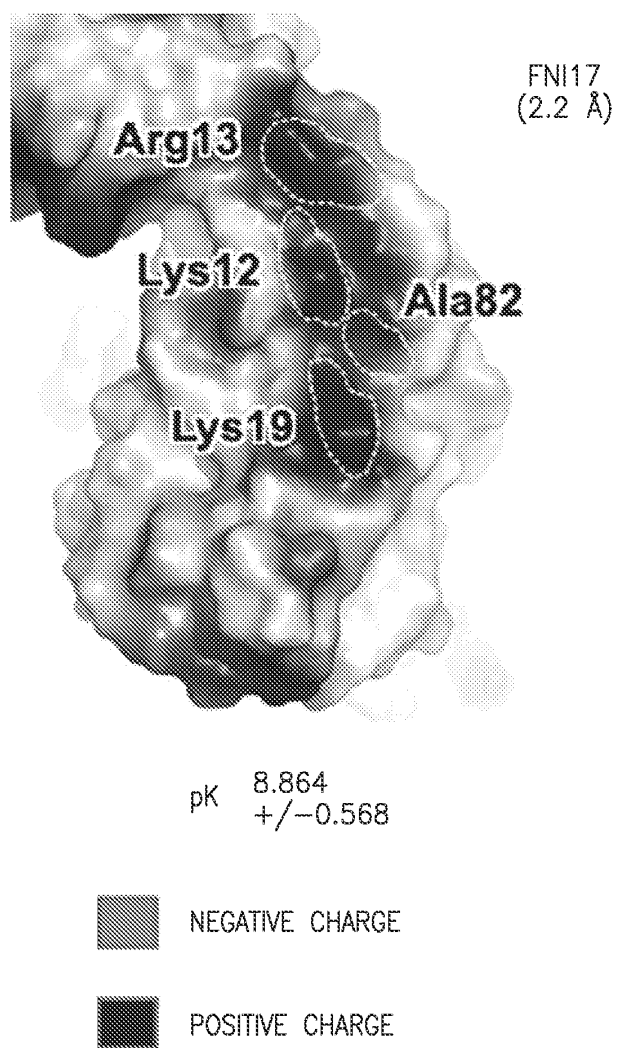


FIG. 78D

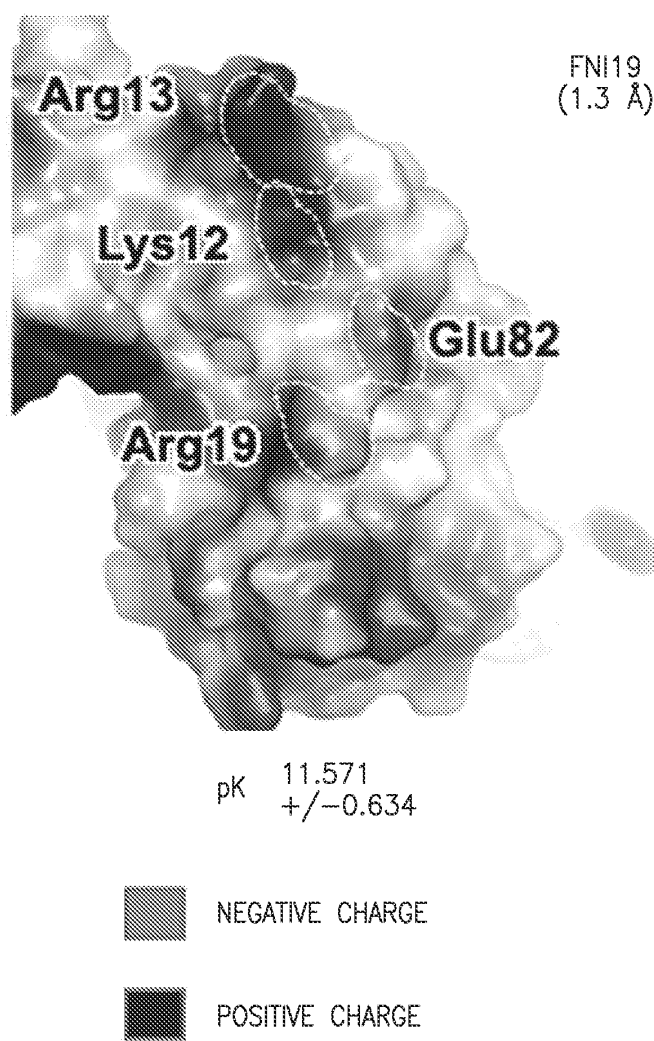


FIG. 78E

		HALF-LIFE (DAYS)	AUC (DAY* μ g/ml)	CL _{ss} (ml/DAY)	VOLUME (mL)
PK1	FNI17-LS	8.86 $\pm$ 0.57	551.38 $\pm$ 74.42	1.24 $\pm$ 0.23	16.02 $\pm$ 3.88
	FNI19-LS	11.75 $\pm$ 0.63	548.47 $\pm$ 77.01	1.51 $\pm$ 0.27	25.18 $\pm$ 4.10
PK2	FNI17-V19-LS	14.88 $\pm$ 3.27	582.60 $\pm$ 99.63	1.80 $\pm$ 0.25	39.02 $\pm$ 11.07
	FNI19-V3-LS	14.40 $\pm$ 2.13	732.05 $\pm$ 112.48	1.84 $\pm$ 0.25	38.53 $\pm$ 8.65

i.v INJECTION - 5mg/Kg

FIG. 79A

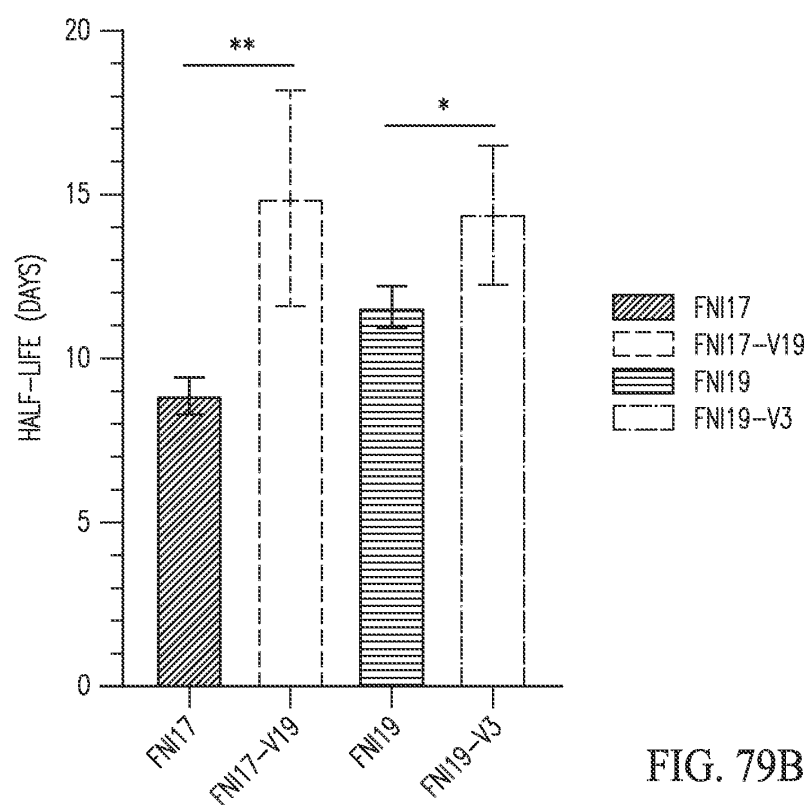
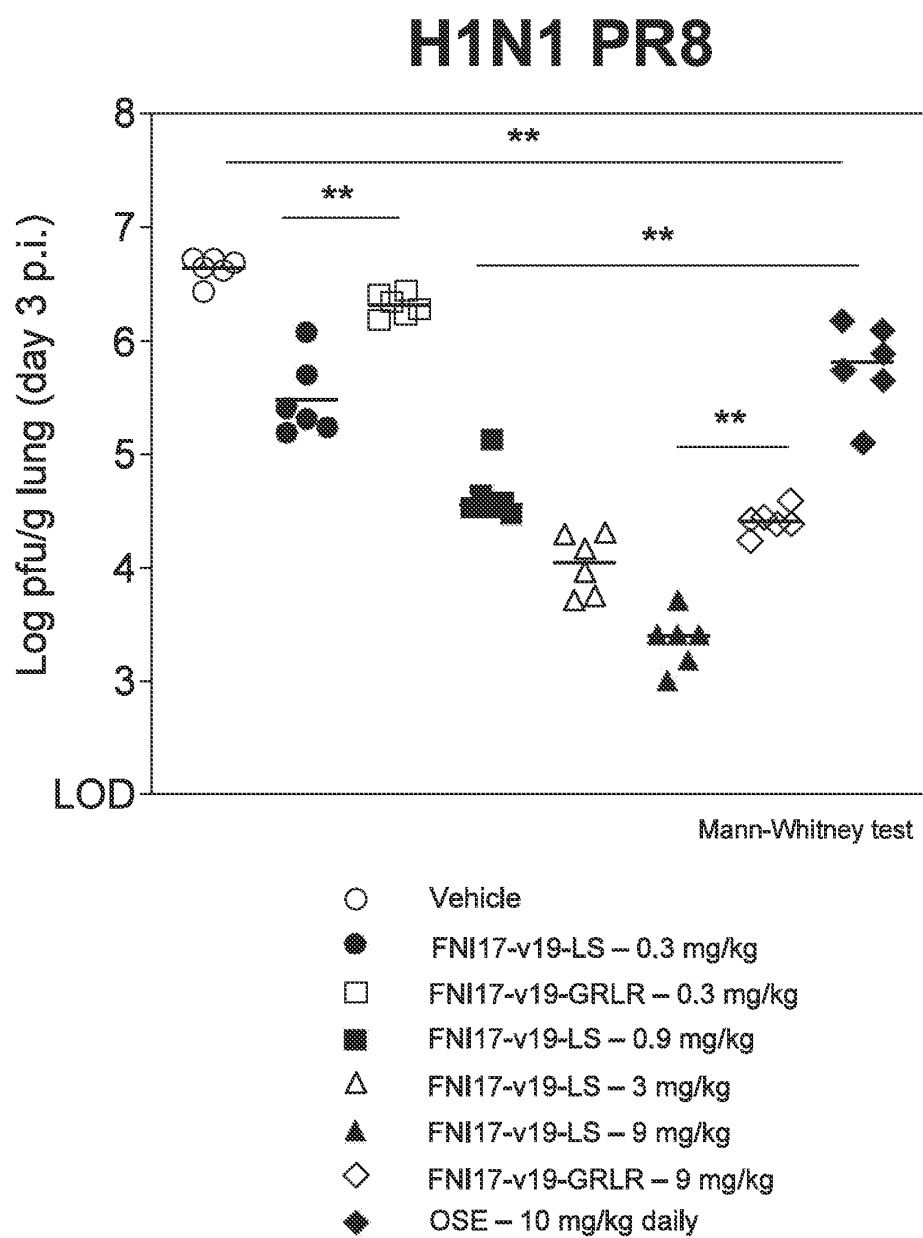
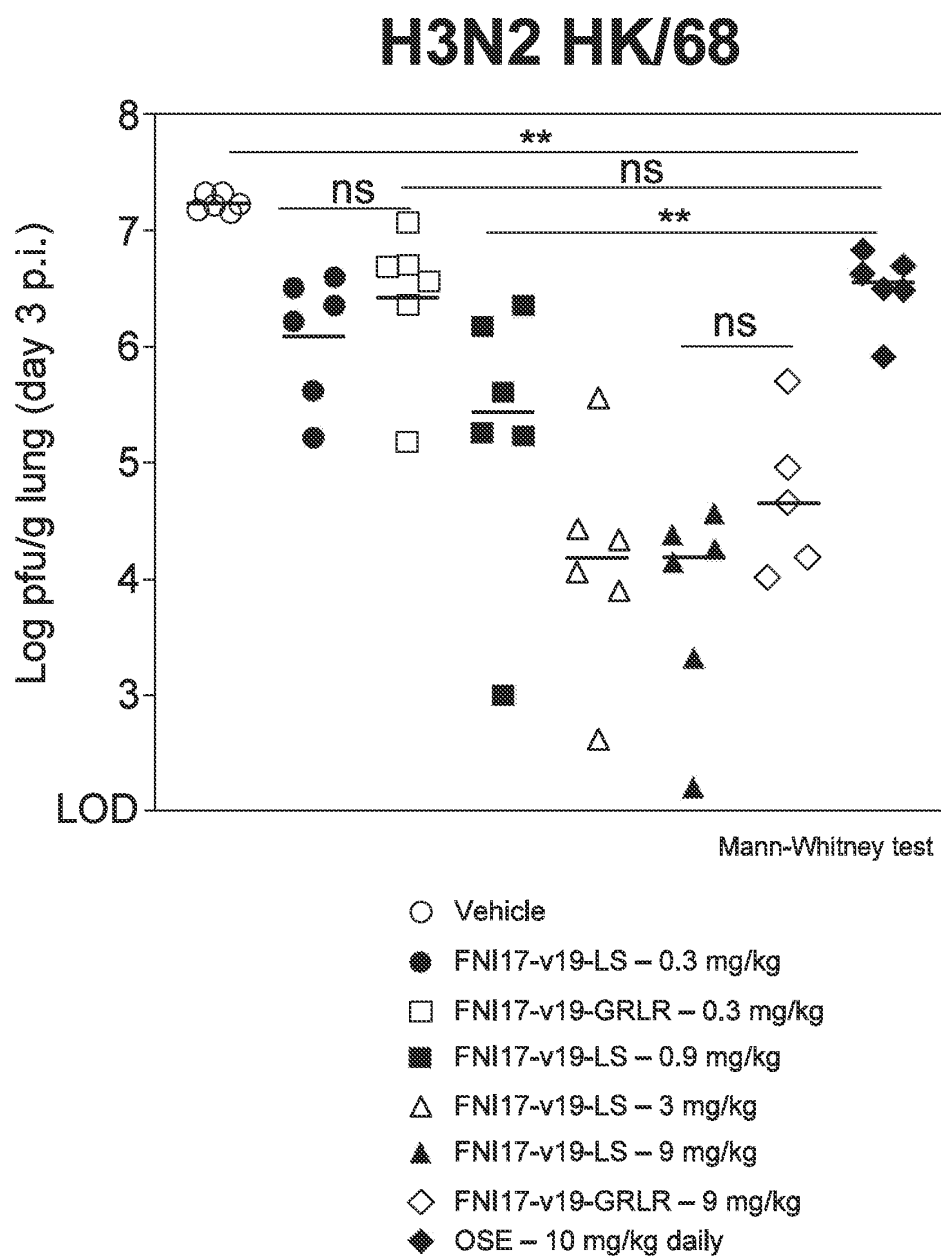


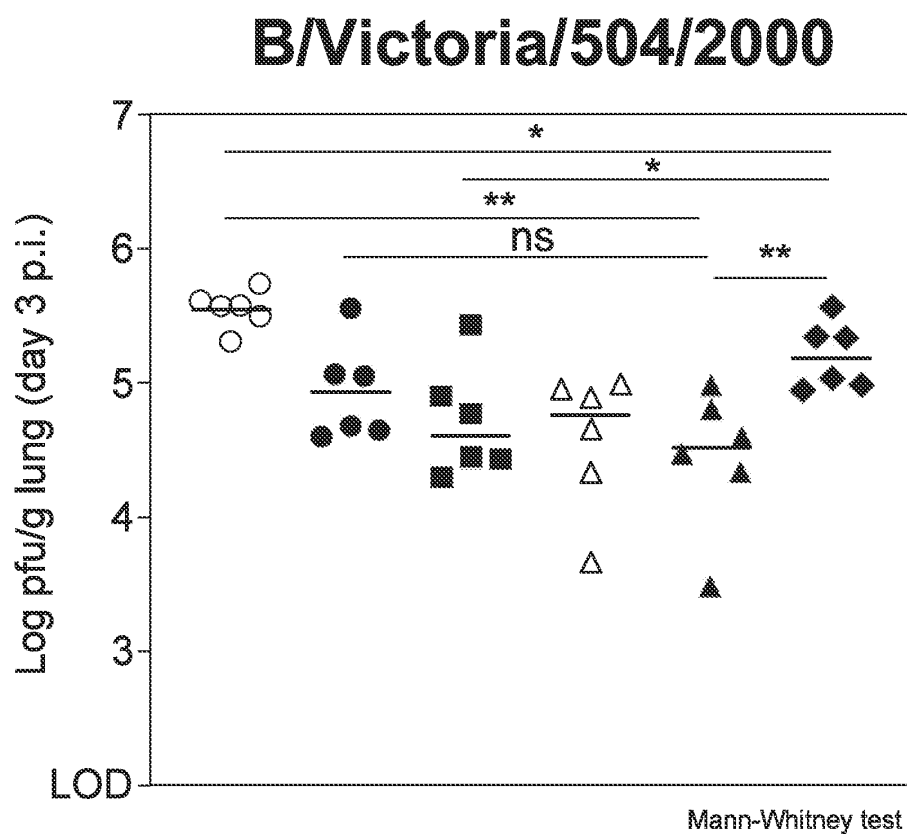
FIG. 79B

Group	Treatment	Influenza Infection	Endpoints		
Control	Vehicle Control	A/Puerto Rico/8/34	Day 3/4 Lung PFU		
FNI17-v19-rlgG1-LS	9 mg/kg				
FNI17-v19-rlgG1-LS	3 mg/kg				
FNI17-v19-rlgG1-LS	0.9 mg/kg				
FNI17-v19-rlgG1-LS	0.3 mg/kg				
Oseltamivir	10 mg/kg				
FNI17-v19-rlgG1-GRLR	9 mg/kg				
FNI17-v19-rlgG1-GRLR	0.3 mg/kg				
N=6 mice/group (48 mice total)					
Control	Vehicle Control	A/Hong Kong/8/68	Day 3/4 Lung PFU		
FNI17-v19-rlgG1-LS	9 mg/kg				
FNI17-v19-rlgG1-LS	3 mg/kg				
FNI17-v19-rlgG1-LS	0.9 mg/kg				
FNI17-v19-rlgG1-LS	0.3 mg/kg				
Oseltamivir	10 mg/kg				
FNI17-v19-rlgG1-GRLR	9 mg/kg				
FNI17-v19-rlgG1-GRLR	0.3 mg/kg				
N=6 mice/group (48 mice total)					
Control	Vehicle Control	B/Victoria/504/2000	Day 3/4 Lung PFU		
FNI17-v19-rlgG1-LS	9 mg/kg				
FNI17-v19-rlgG1-LS	3 mg/kg				
FNI17-v19-rlgG1-LS	0.9 mg/kg				
FNI17-v19-rlgG1-LS	0.3 mg/kg				
Oseltamivir	10 mg/kg				
N=6 mice/group (36 mice total)					
Control	Vehicle Control			B/Brisbane/60/2008	Day 3/4 Lung PFU
FNI17-v19-rlgG1-LS	9 mg/kg				
FNI17-v19-rlgG1-LS	3 mg/kg				
FNI17-v19-rlgG1-LS	0.9 mg/kg				
FNI17-v19-rlgG1-LS	0.3 mg/kg				
Oseltamivir	10 mg/kg				
N=6 mice/group (36 mice total)					

FIG. 80

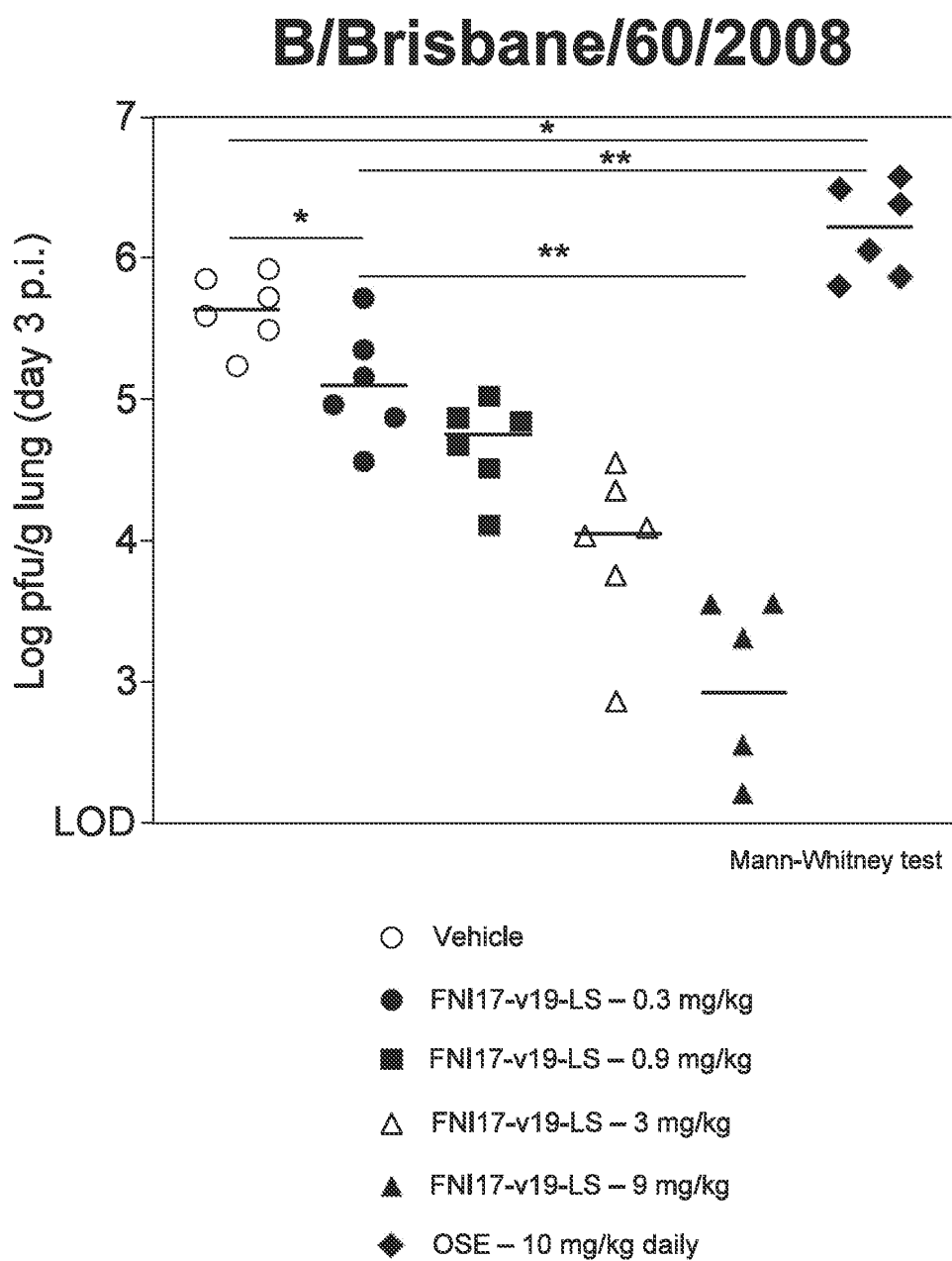
**FIG. 81A**

**FIG. 81B**



- Vehicle
- FNI17-v19-LS – 0.3 mg/kg
- FNI17-v19-LS – 0.9 mg/kg
- △ FNI17-v19-LS – 3 mg/kg
- ▲ FNI17-v19-LS – 9 mg/kg
- ◆ OSE – 10 mg/kg daily

FIG. 81C

**FIG. 81D**

Setting	Prophylaxis
Age range	7-11 weeks
mAb delivery	I.V.
Injection/Timing	Single / Day -1
Virus	H1N1 PR8
Infection route	I.N.
Viral input	5LD50

FIG. 82

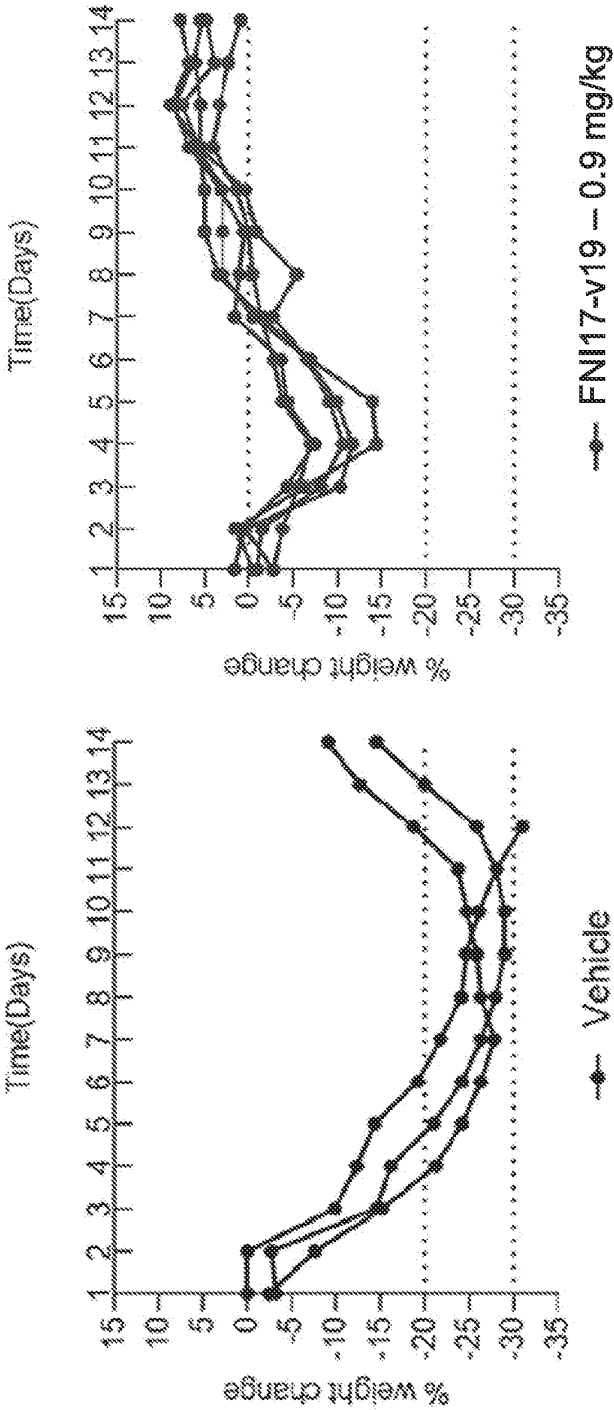


FIG. 83A

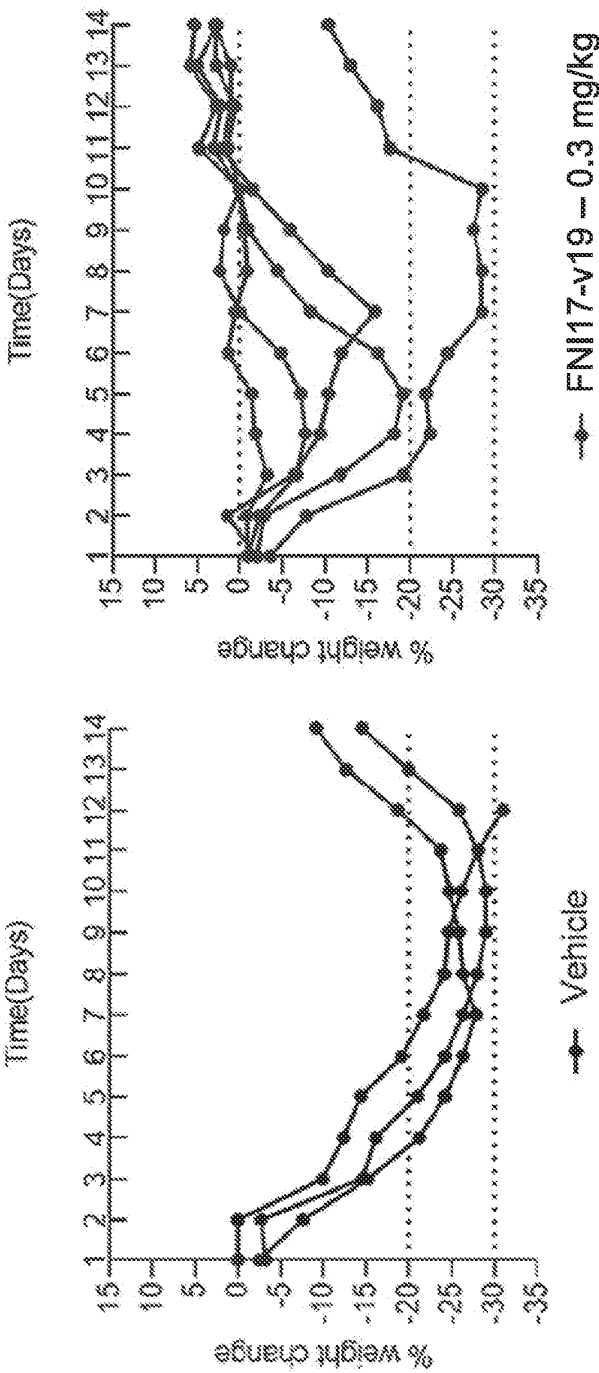


FIG. 83B

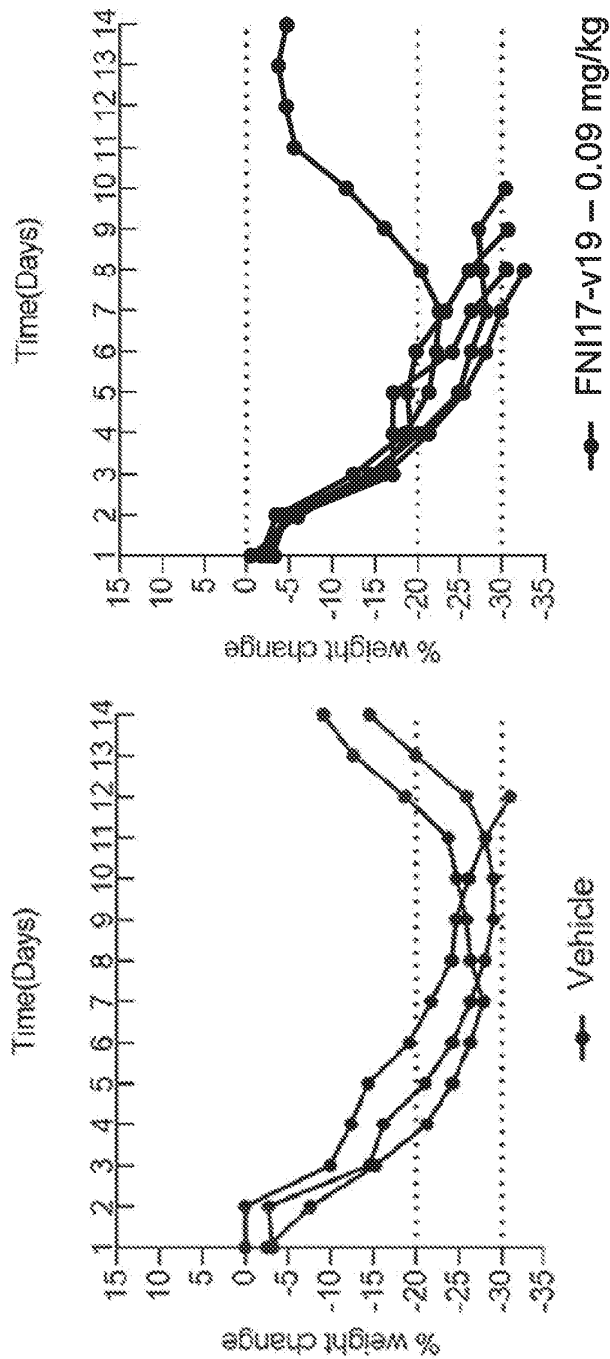


FIG. 83C

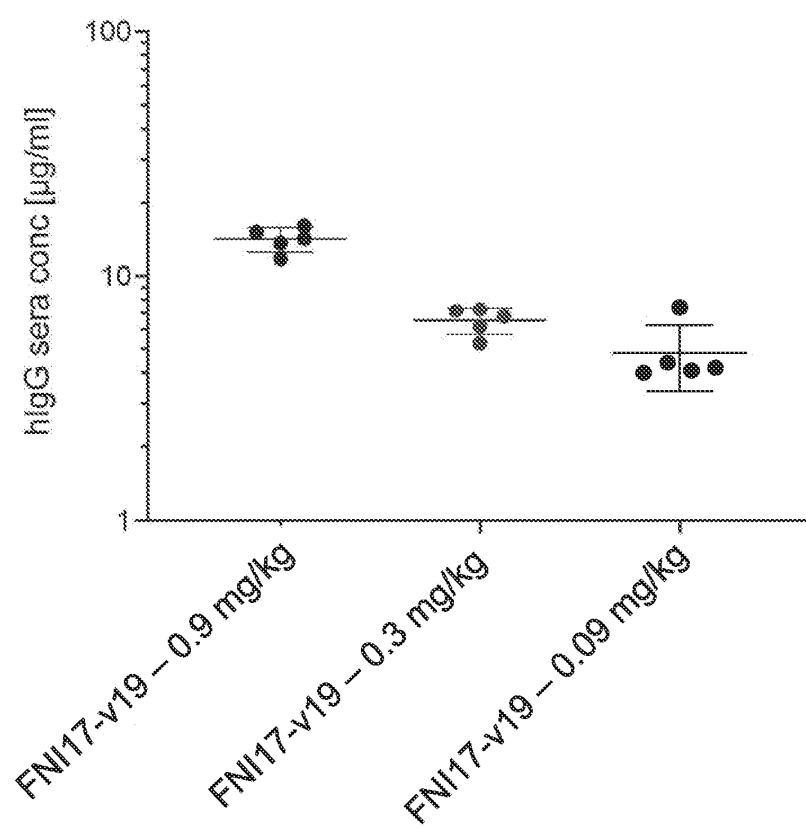
**FIG. 84**



FIG. 85

N1 A/Swine/Jiangsu/J004/2018

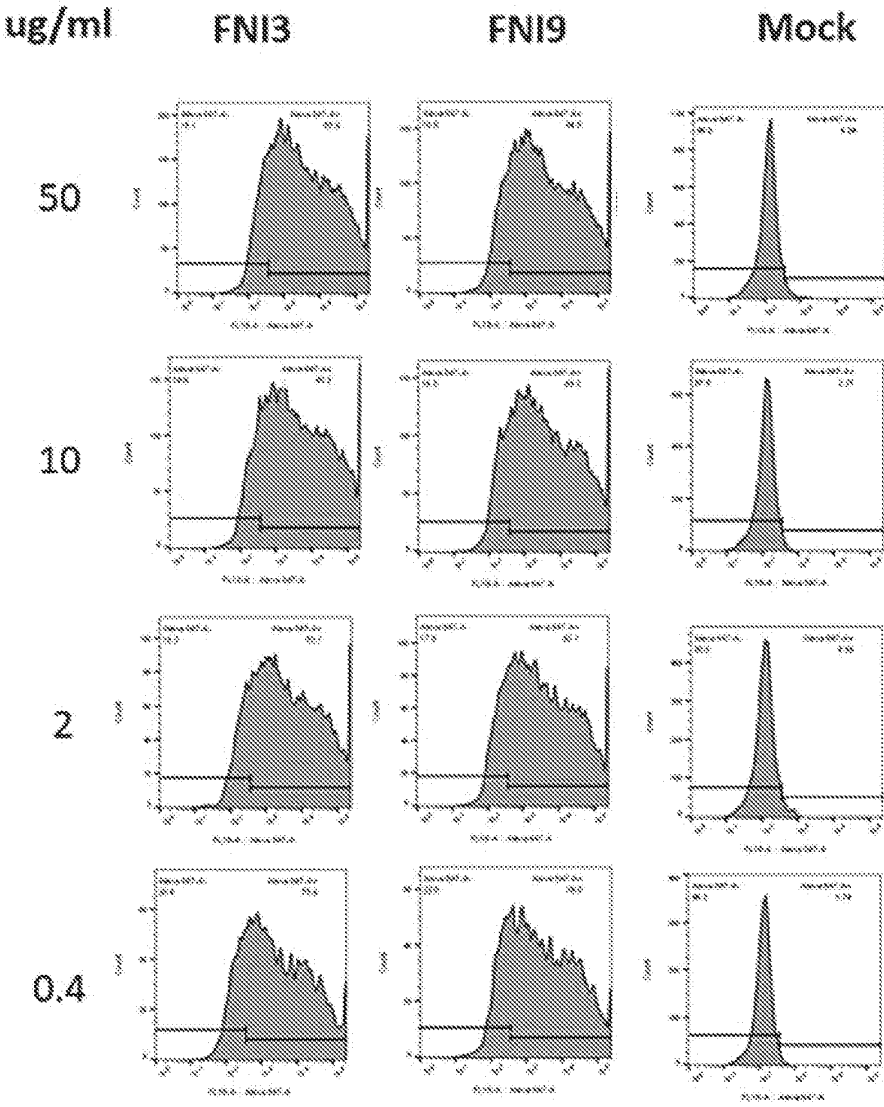


FIG. 86

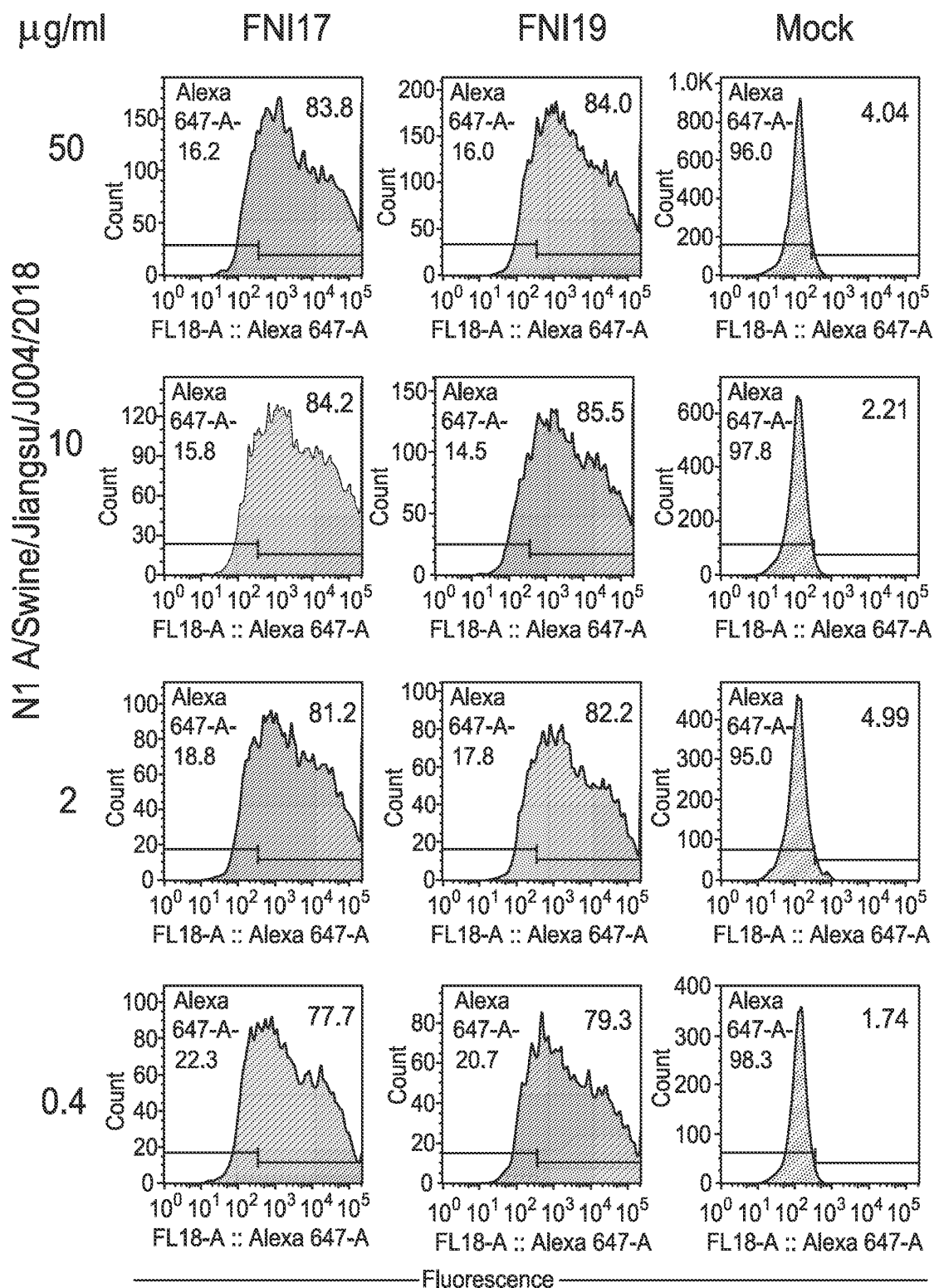


FIG. 86 (cont'd)

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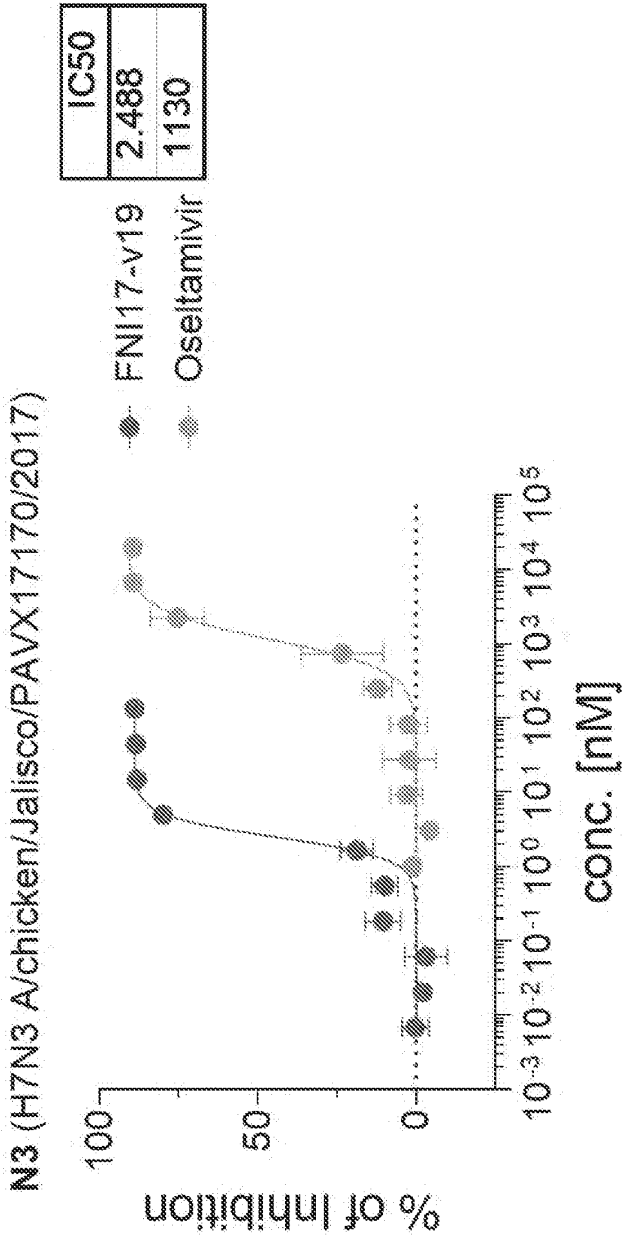


FIG. 87A

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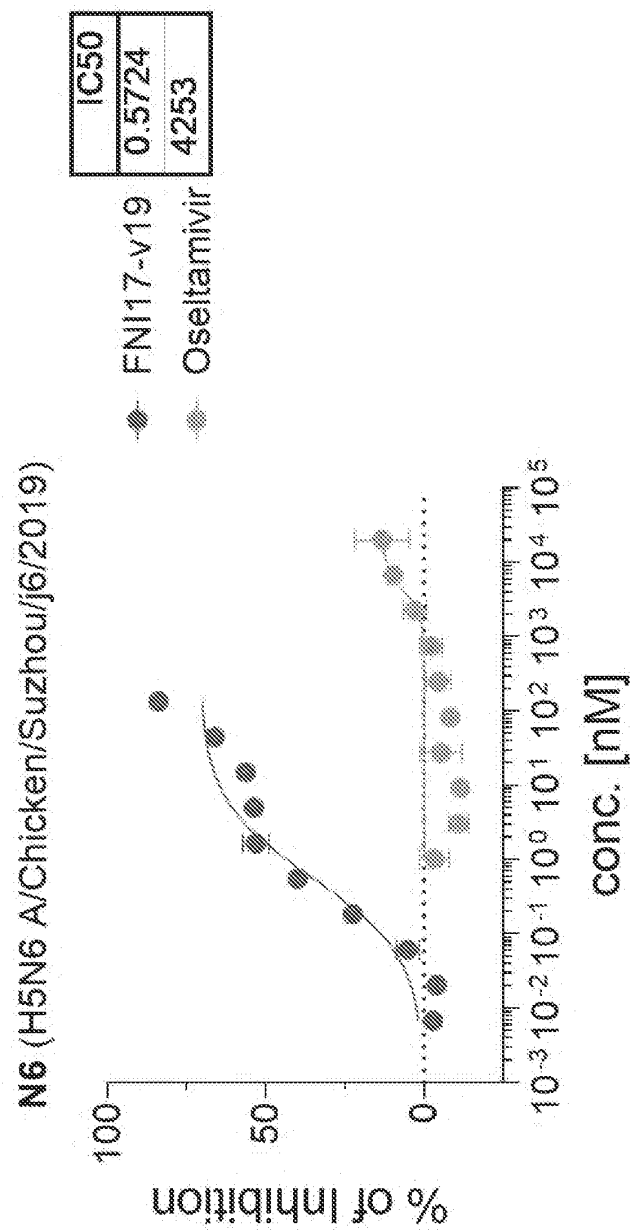


FIG. 87B

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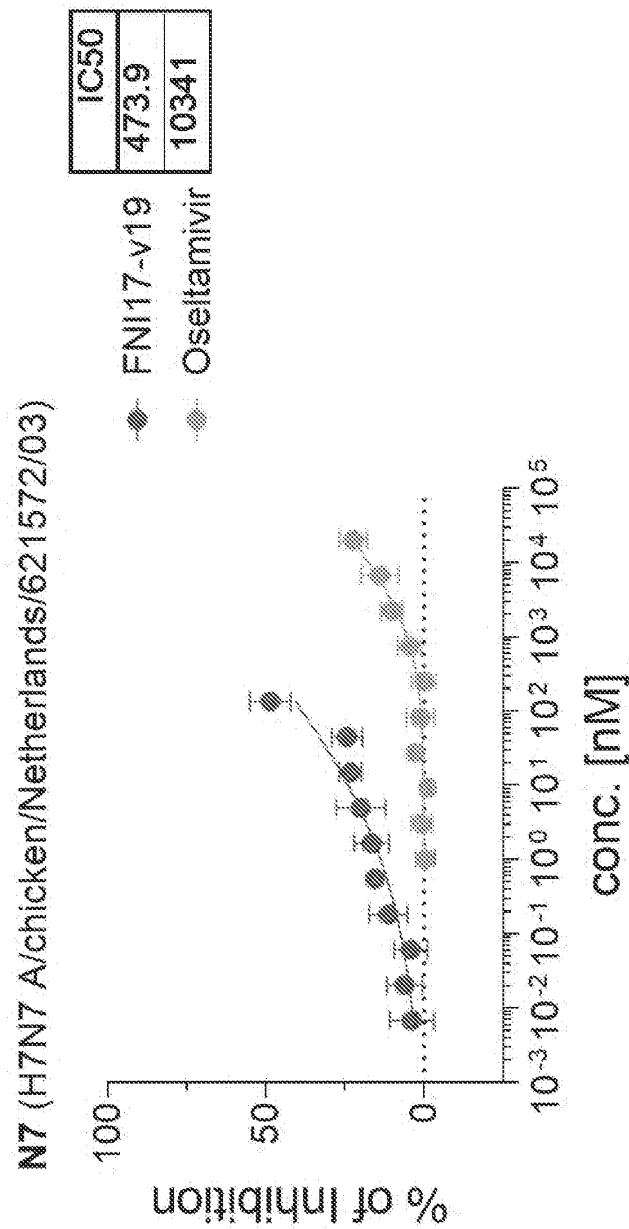


FIG. 87C

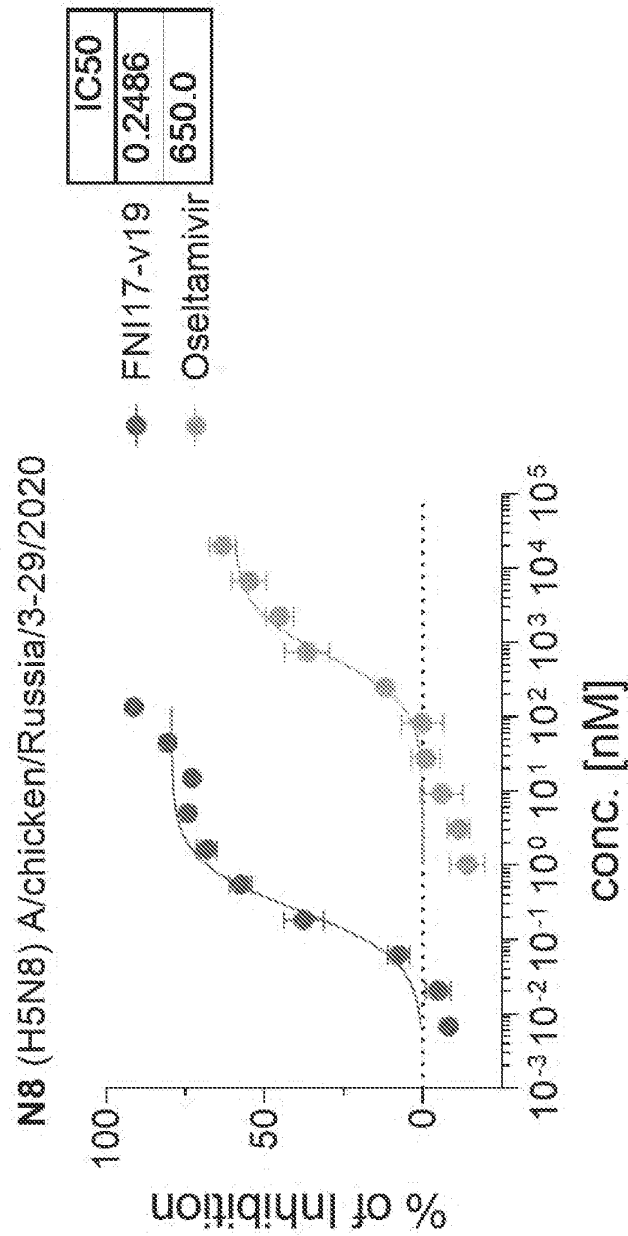
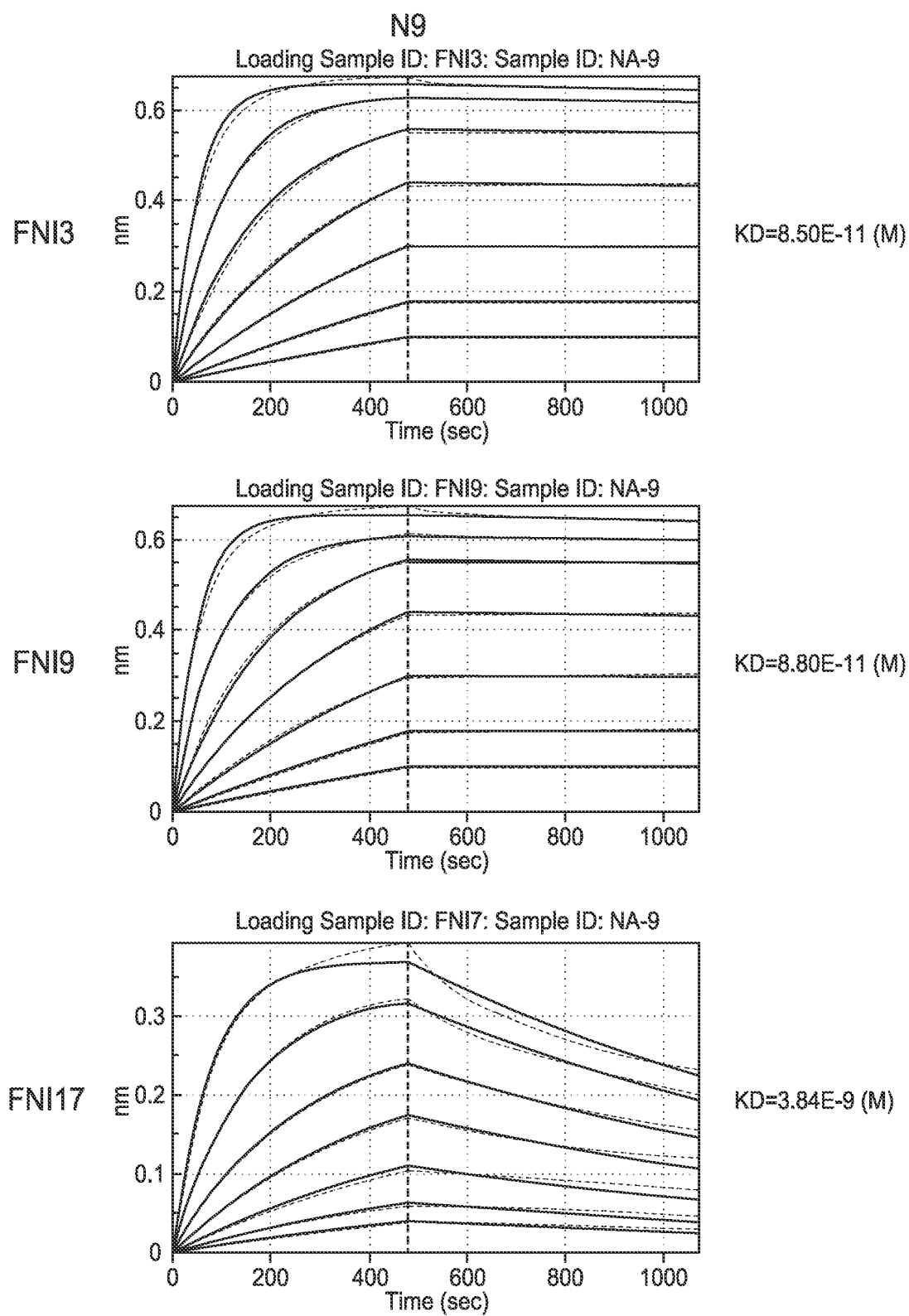


FIG. 87D

**FIG. 88**

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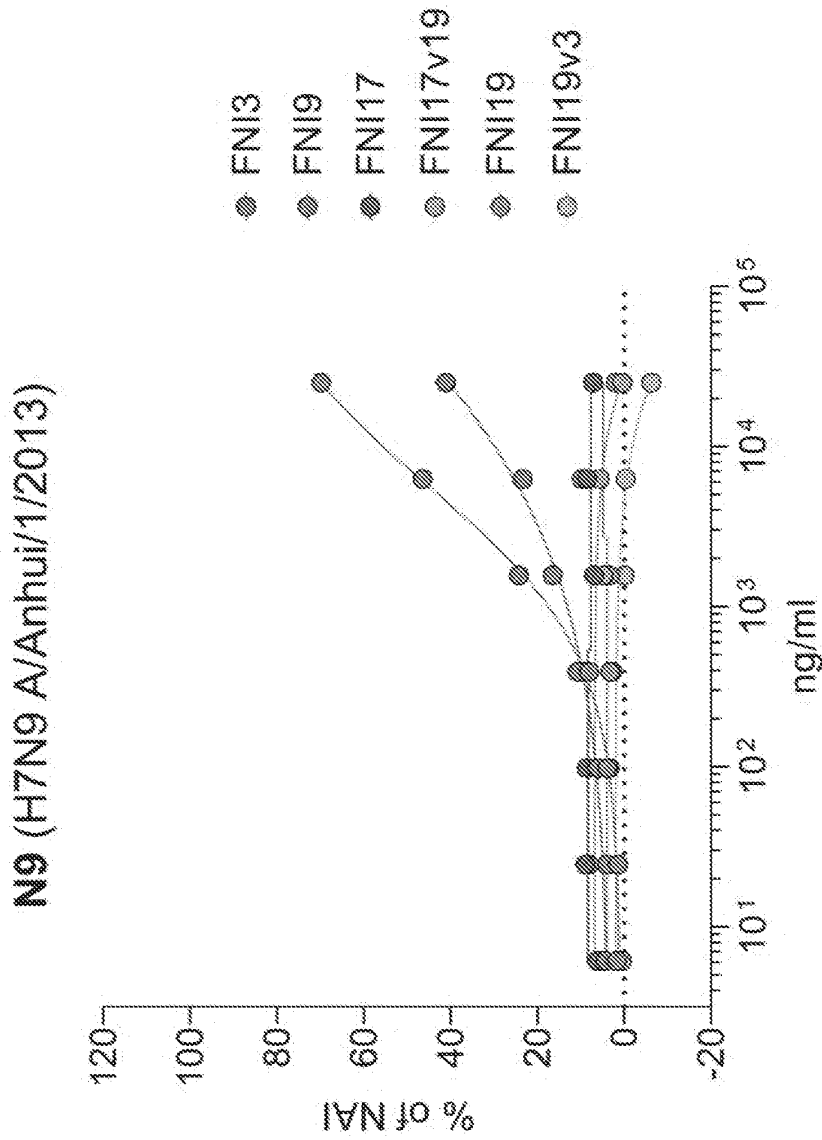


FIG. 89

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Activation of Jurkat-FcγRIIIa (V158)
Expi-CHO expressing N9 (H7N9 A/Anhui/1/2013)

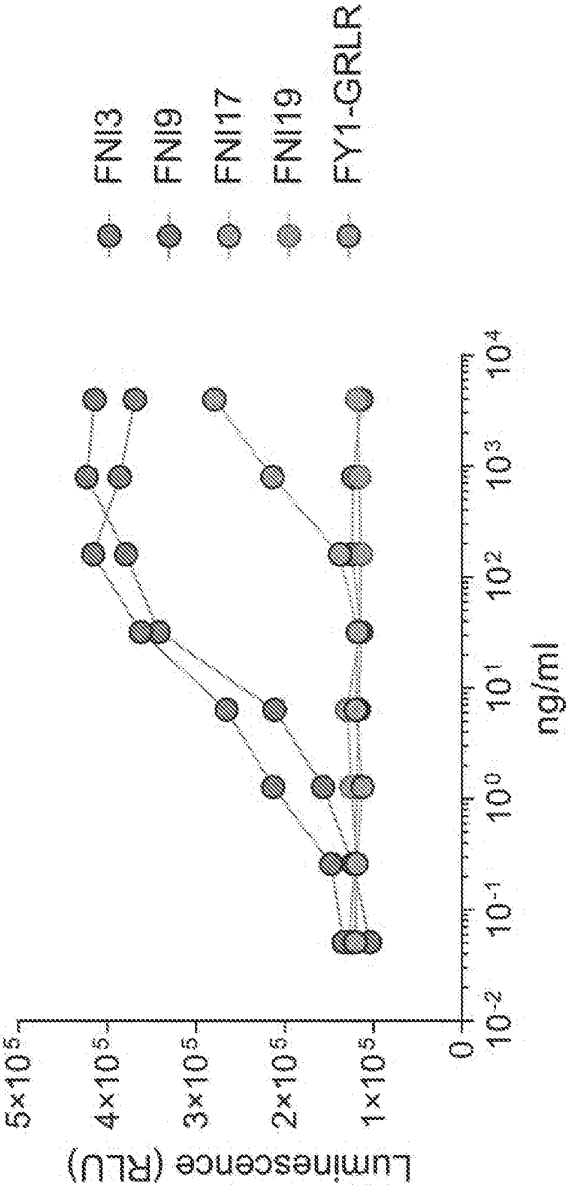


FIG. 90

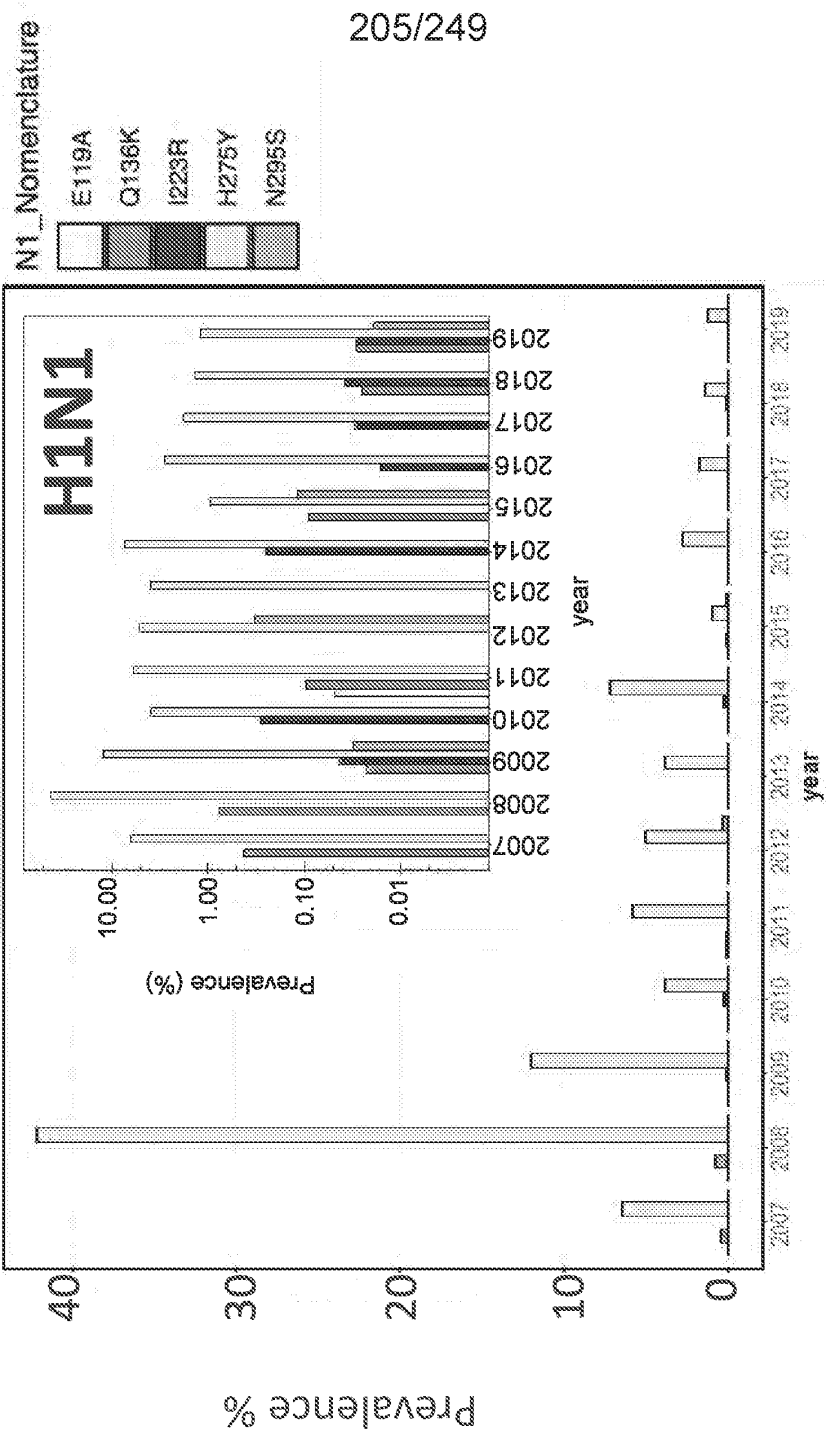


FIG. 91A

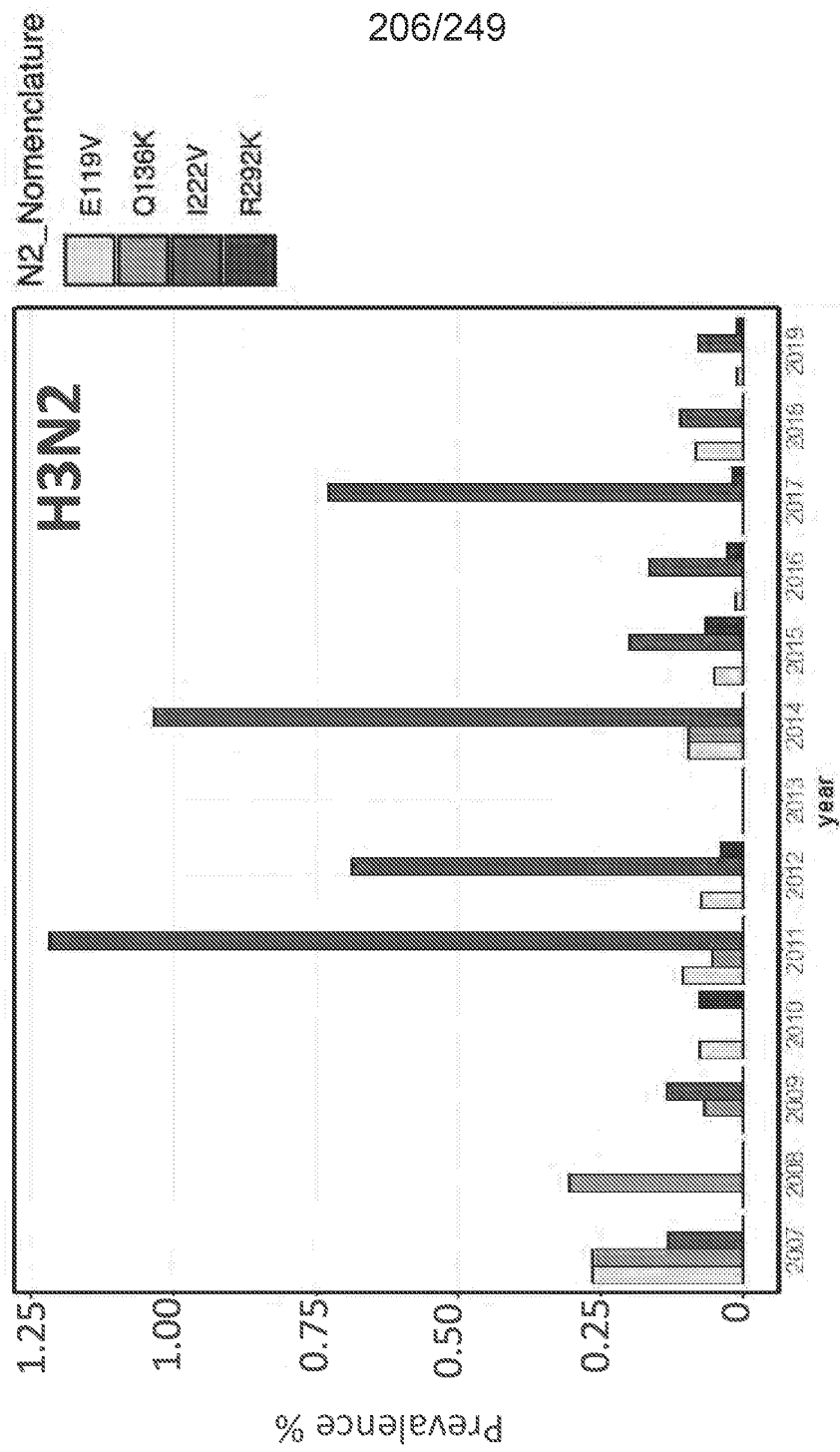


FIG. 91B

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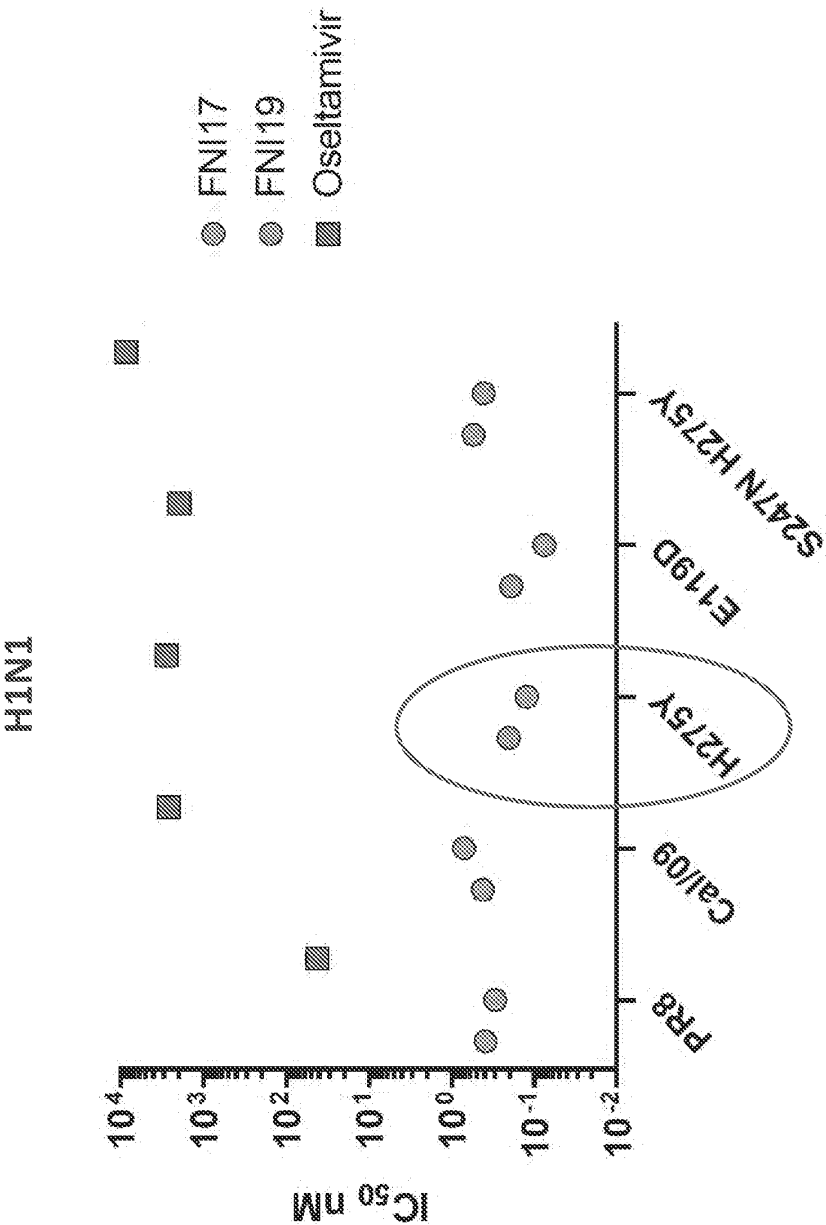


FIG. 92A

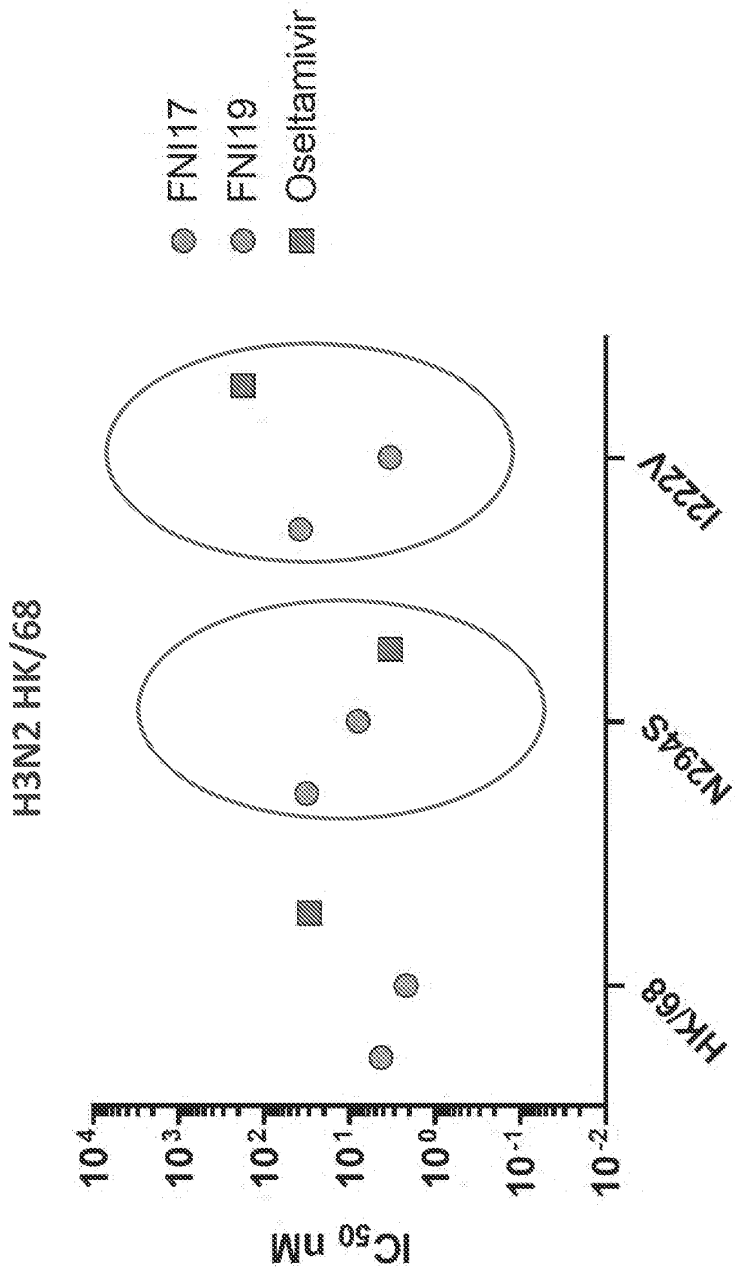
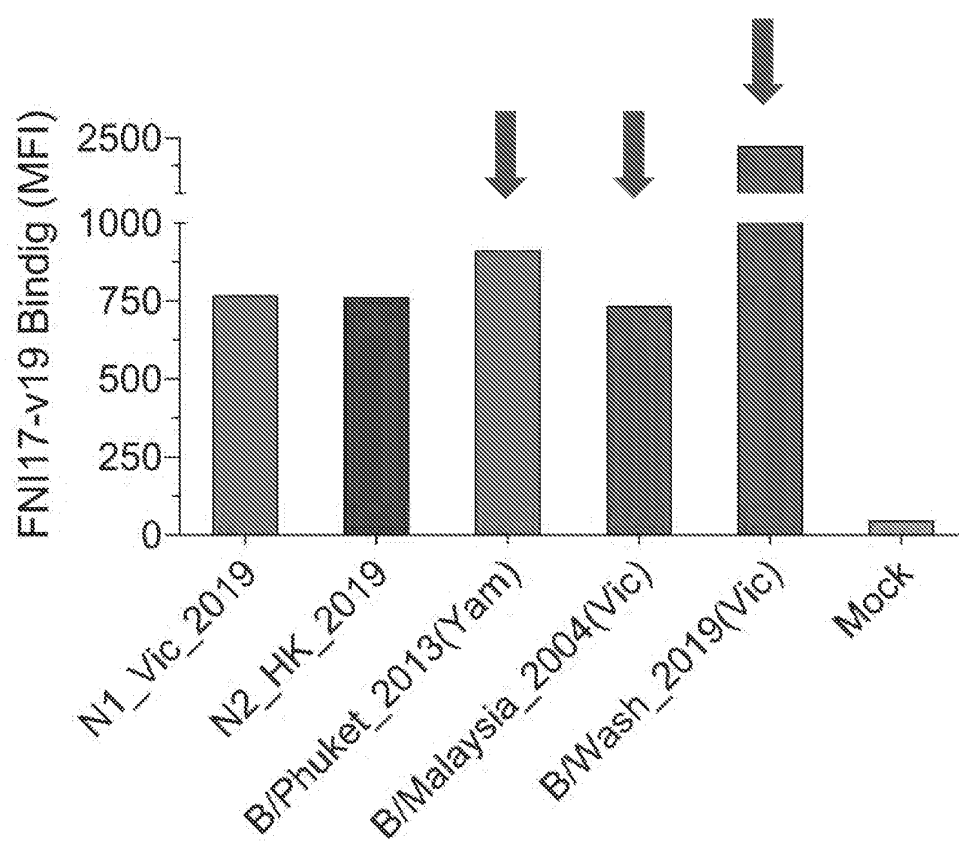


FIG. 92B

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**FIG. 93**

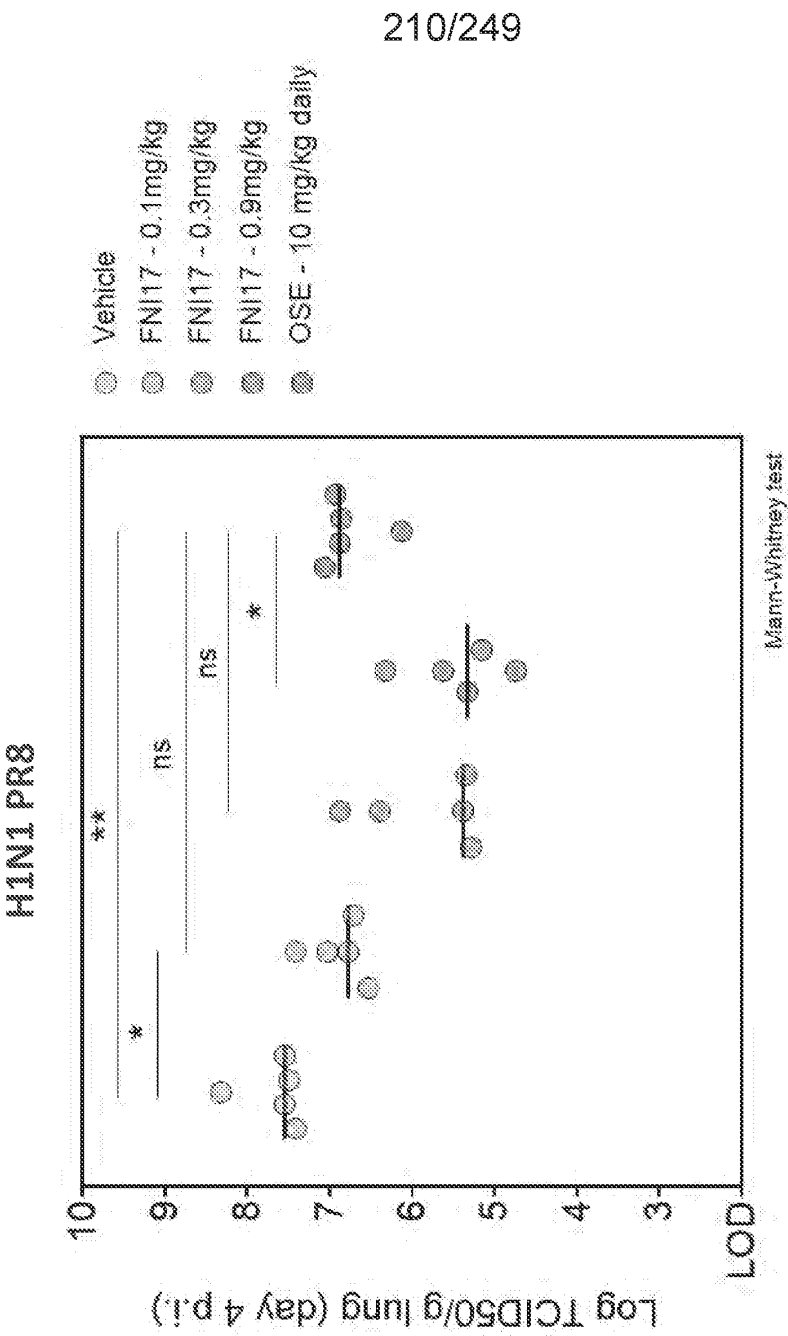


FIG. 94A

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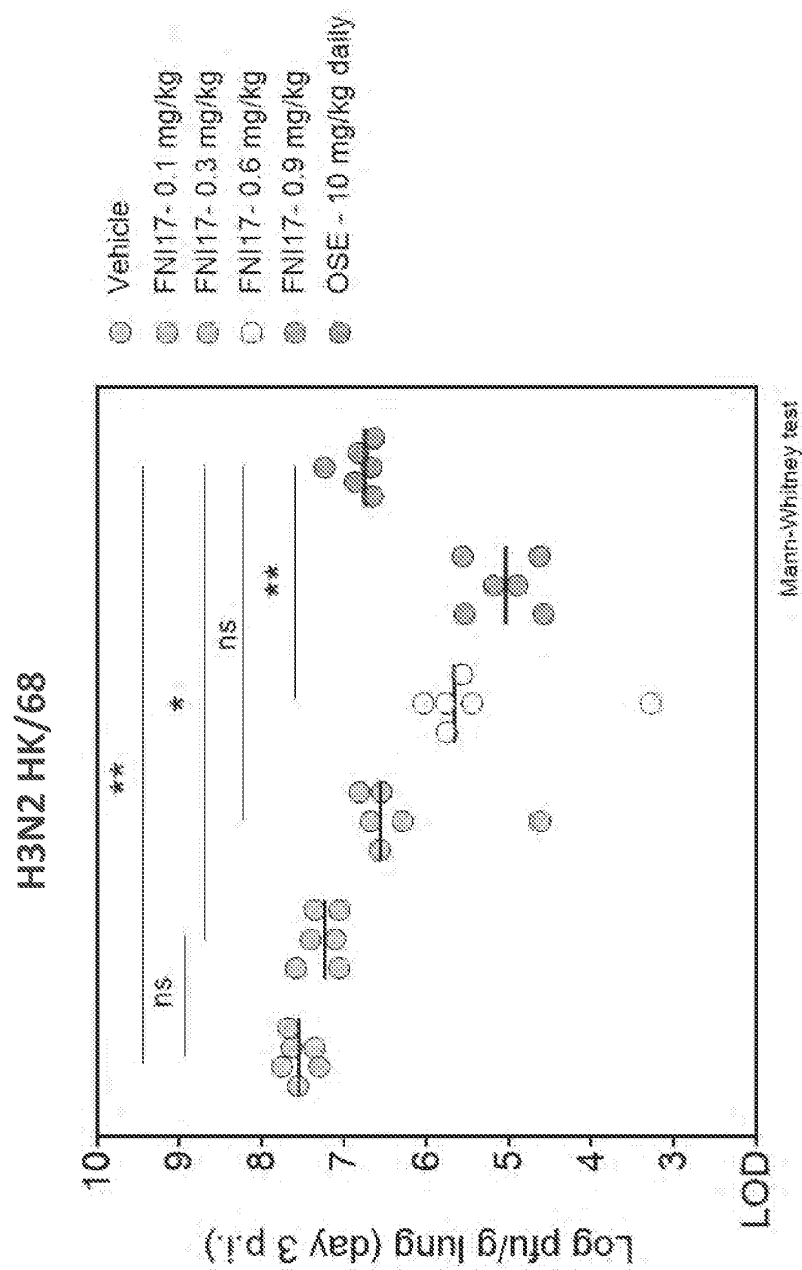
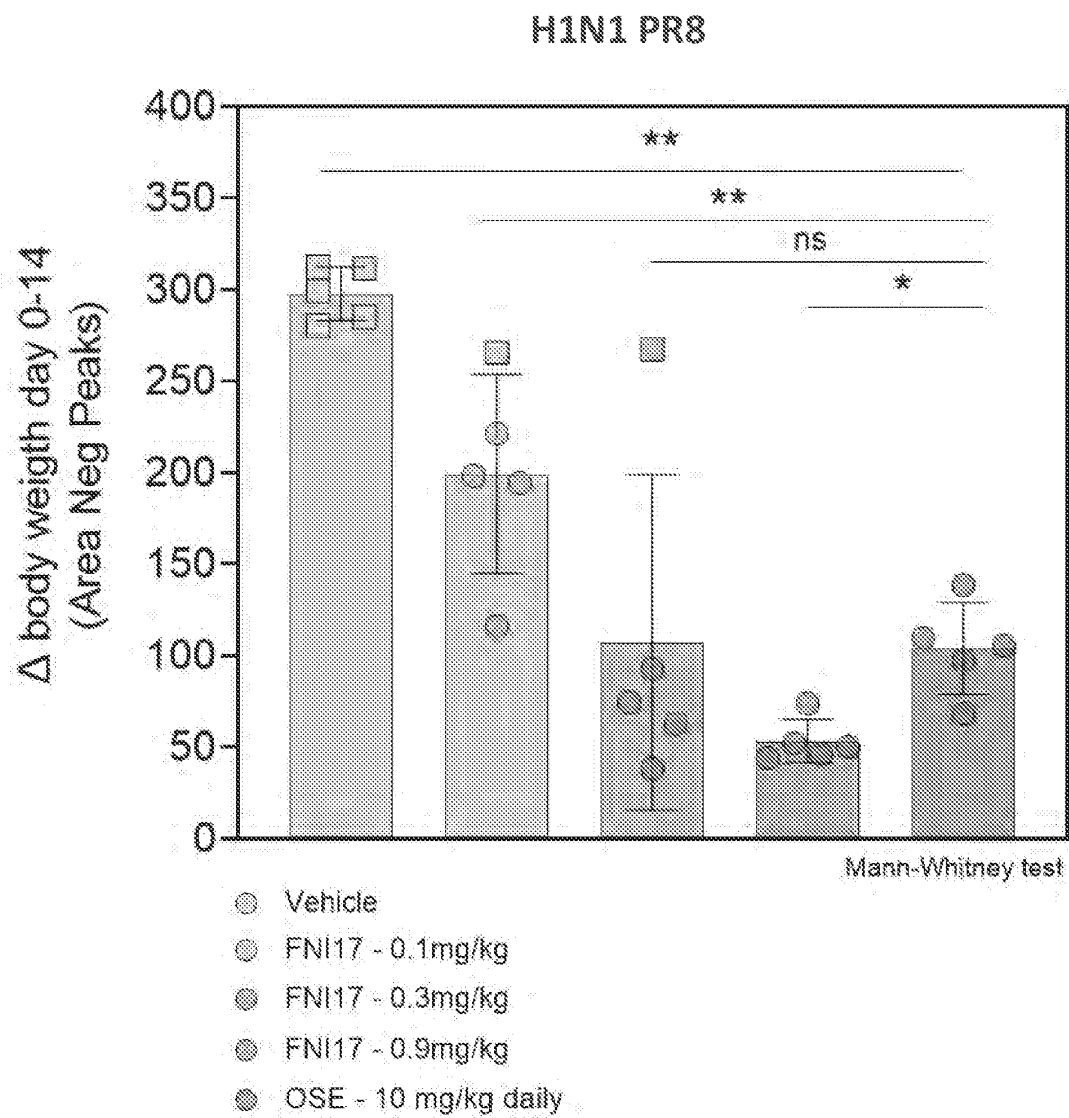
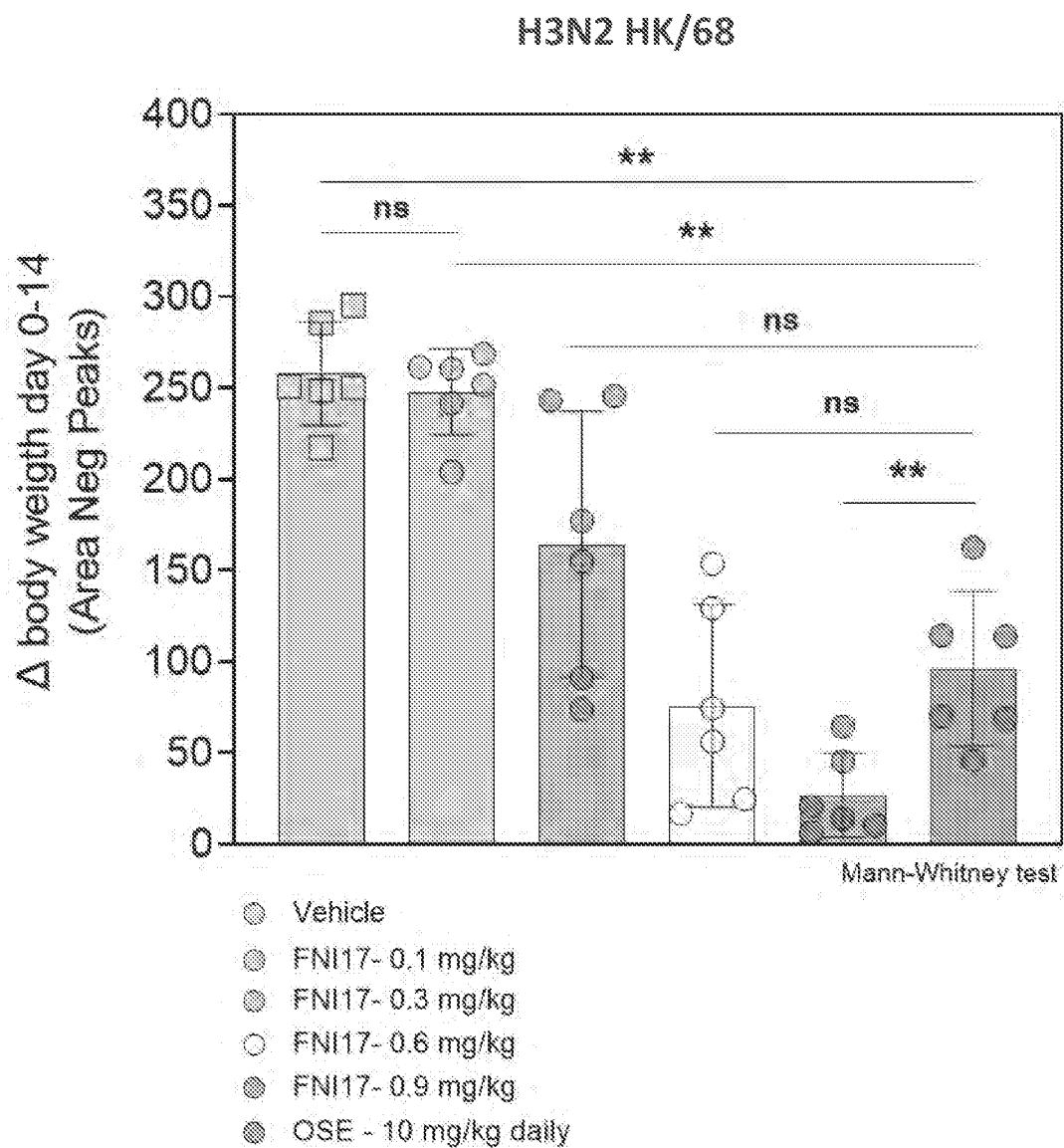


FIG. 94B

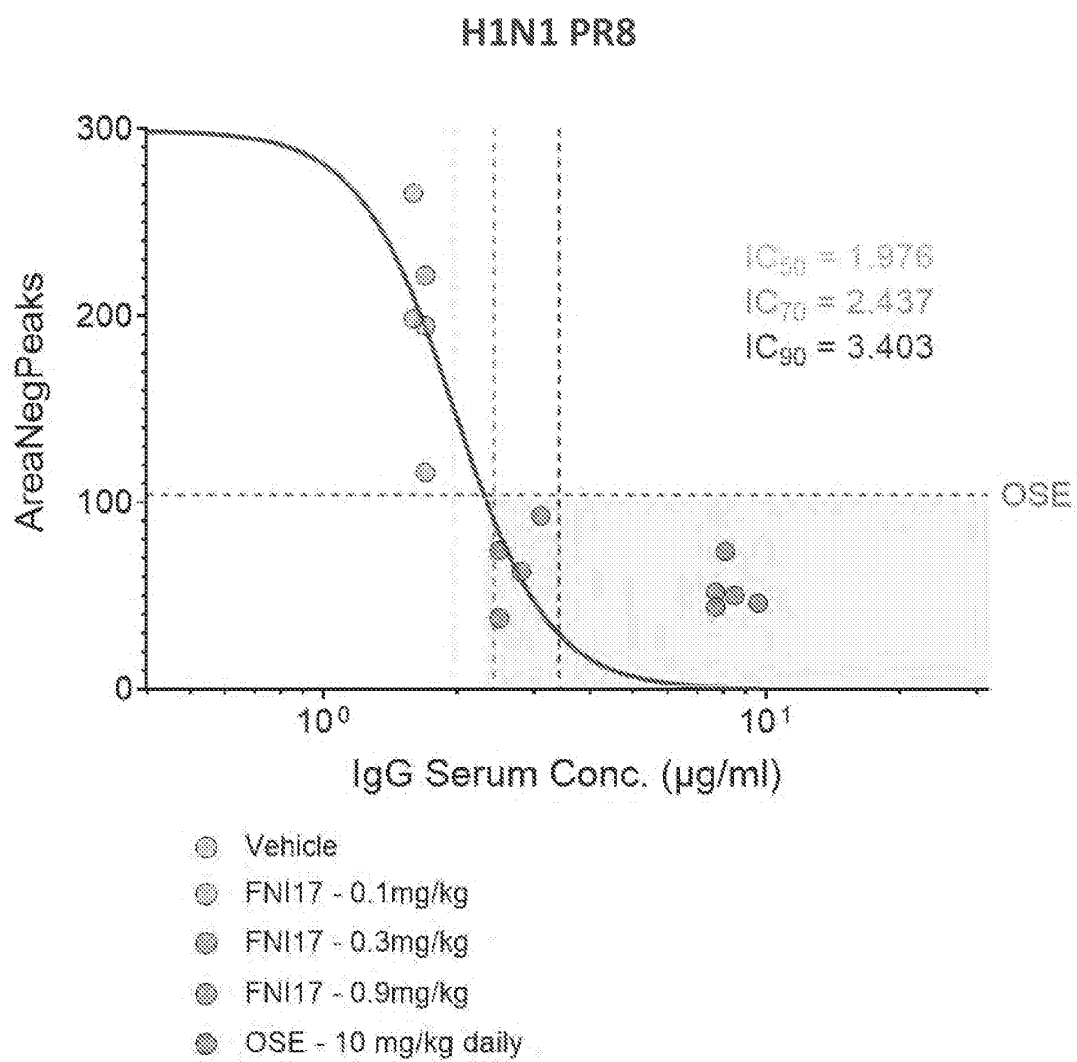
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**FIG. 95A**

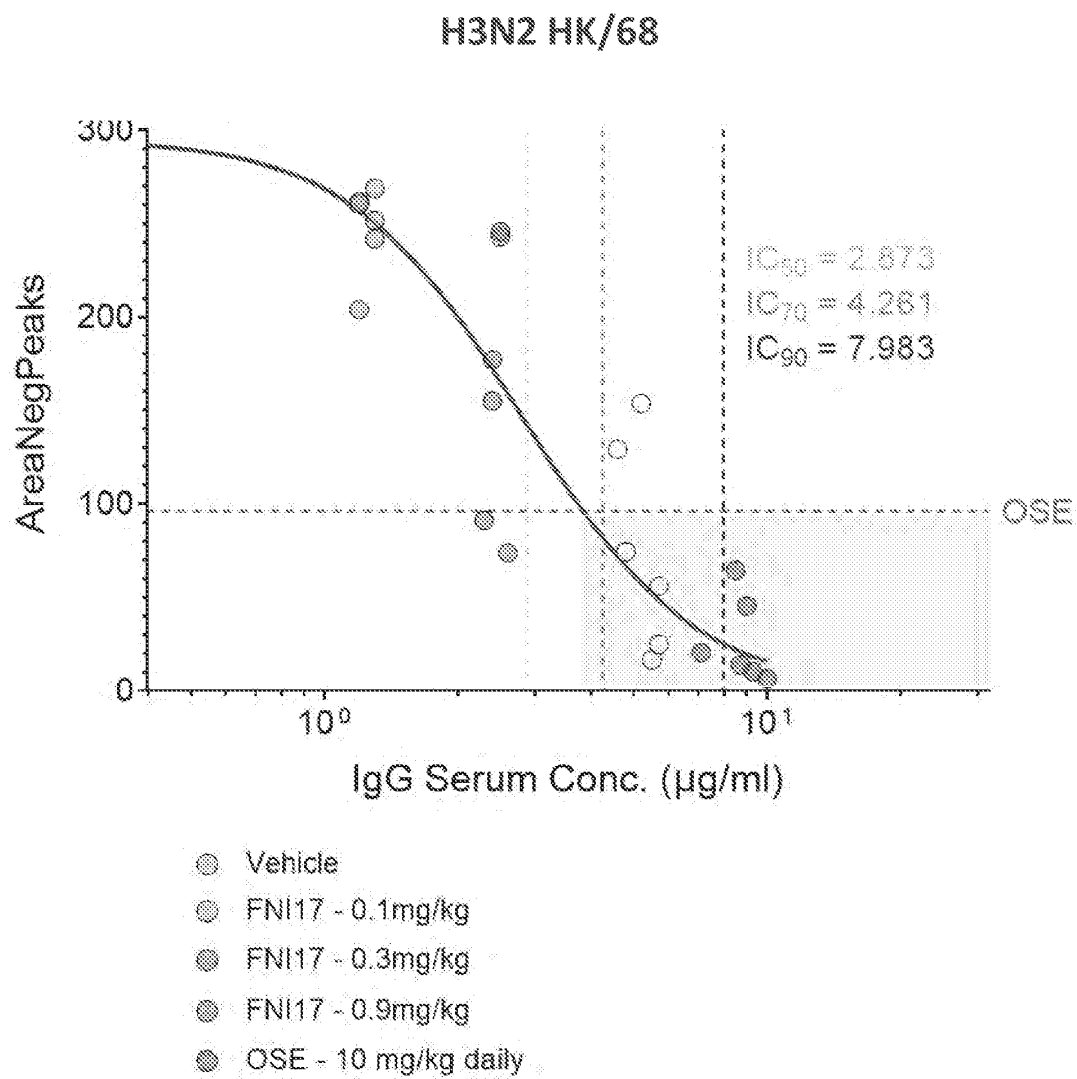
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**FIG. 95B**

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**FIG. 96A**

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**FIG. 96B**

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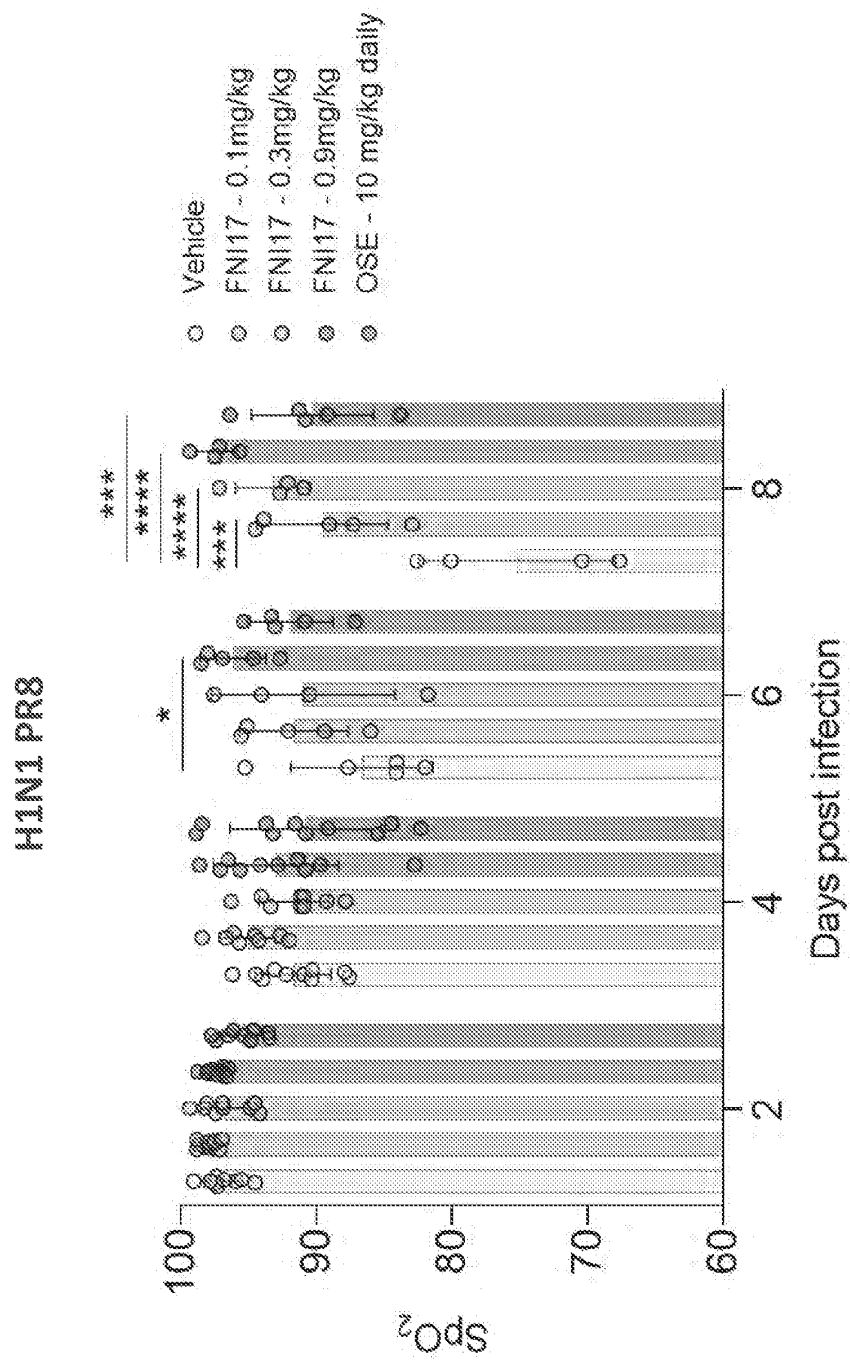


FIG. 97A

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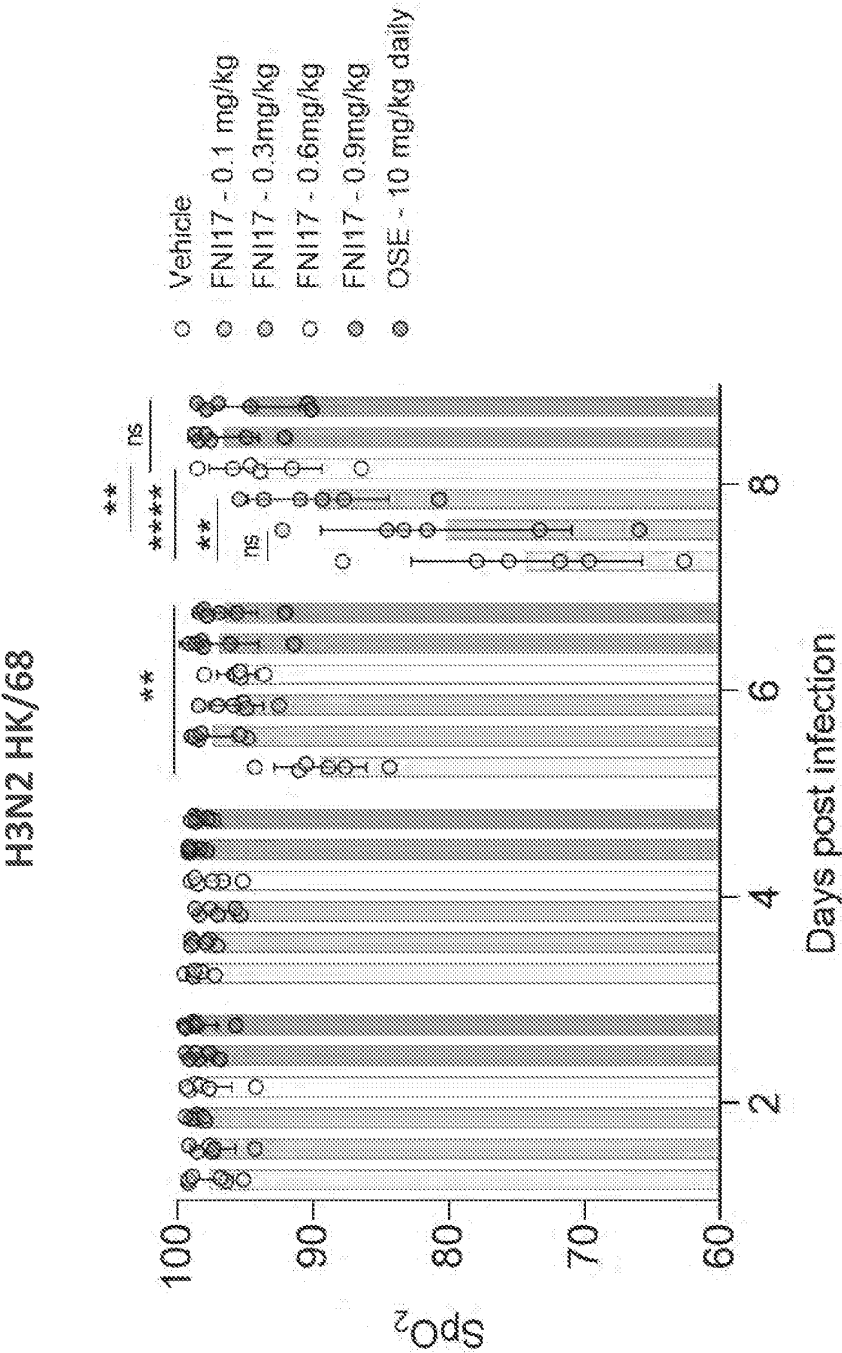


FIG. 97B

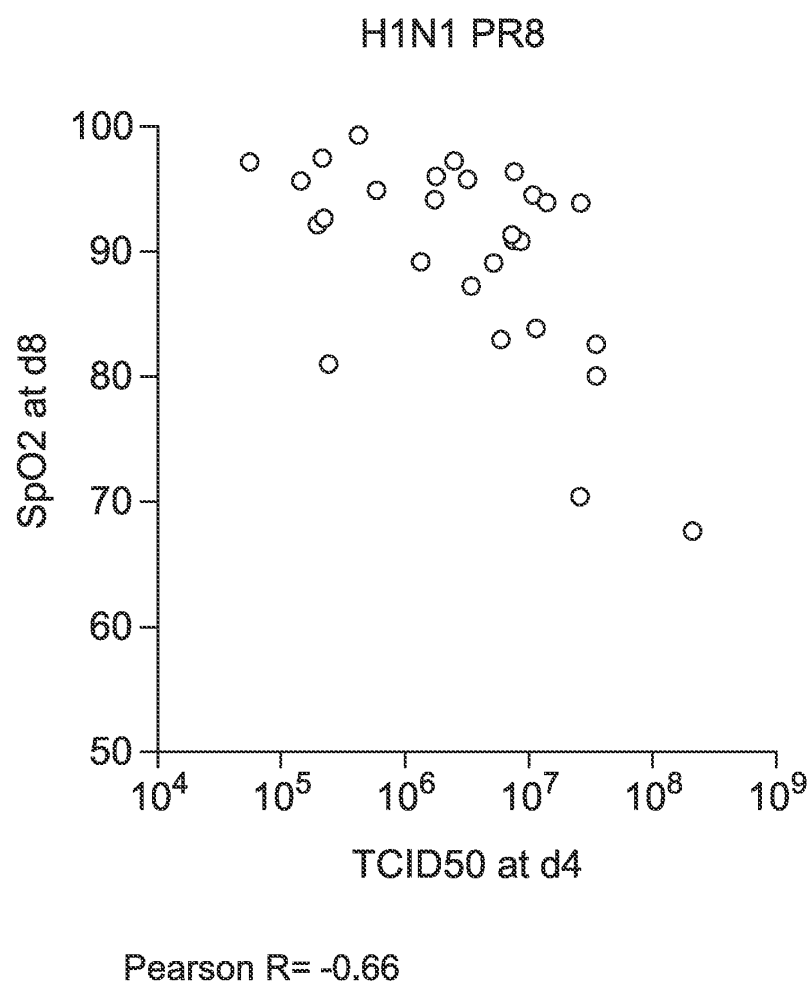


FIG. 98A

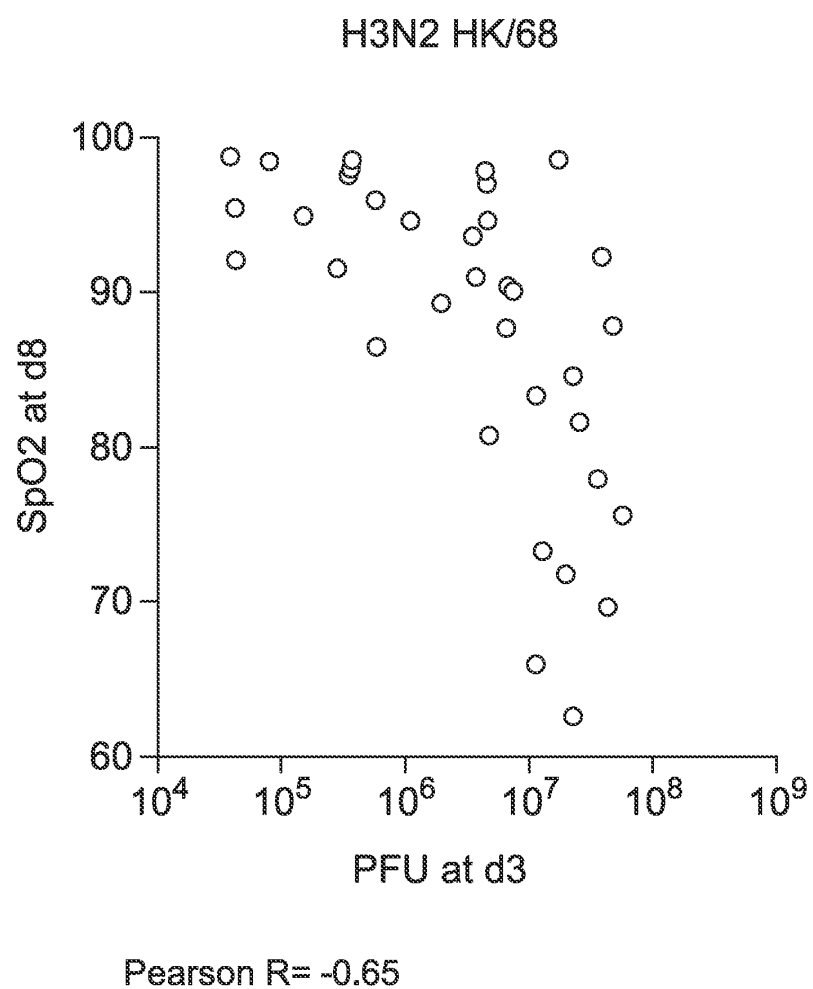
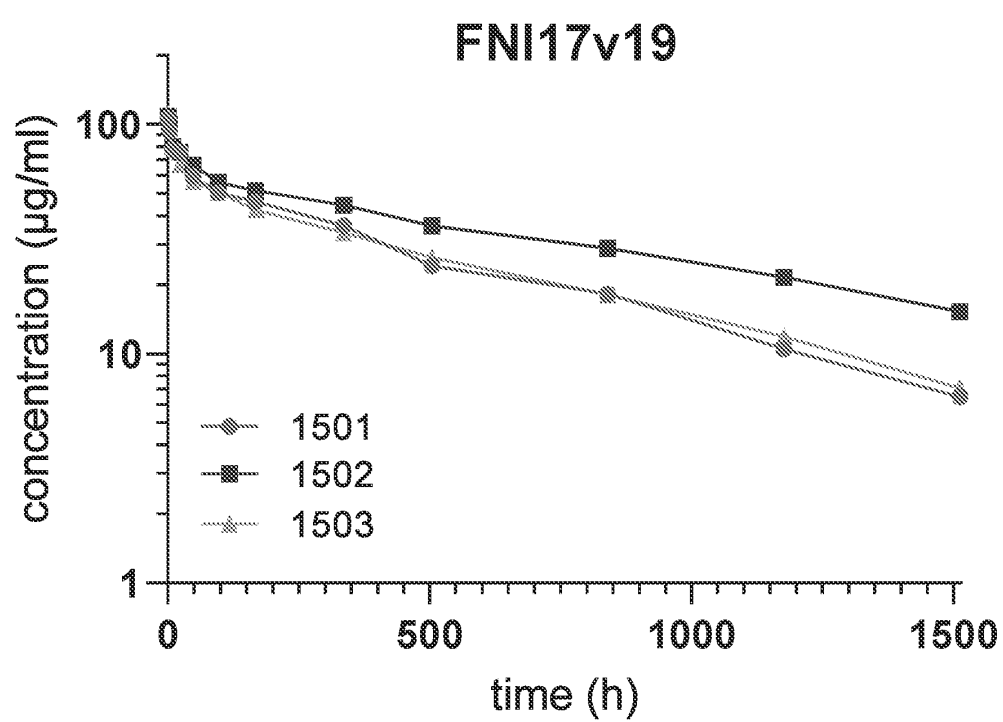
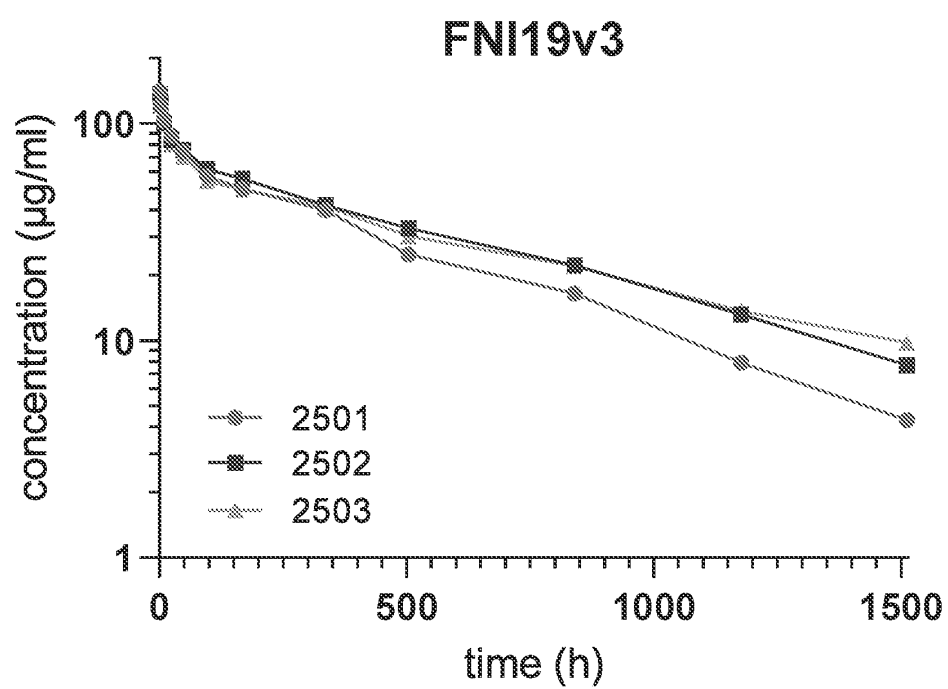


FIG. 98B

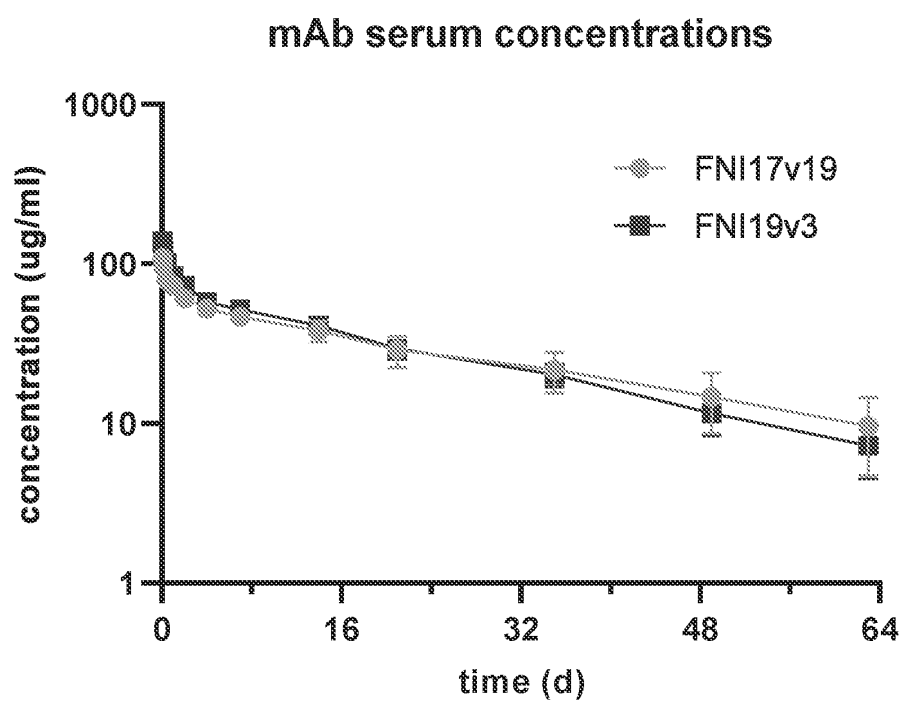
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**FIG. 99A**

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**FIG. 99B**

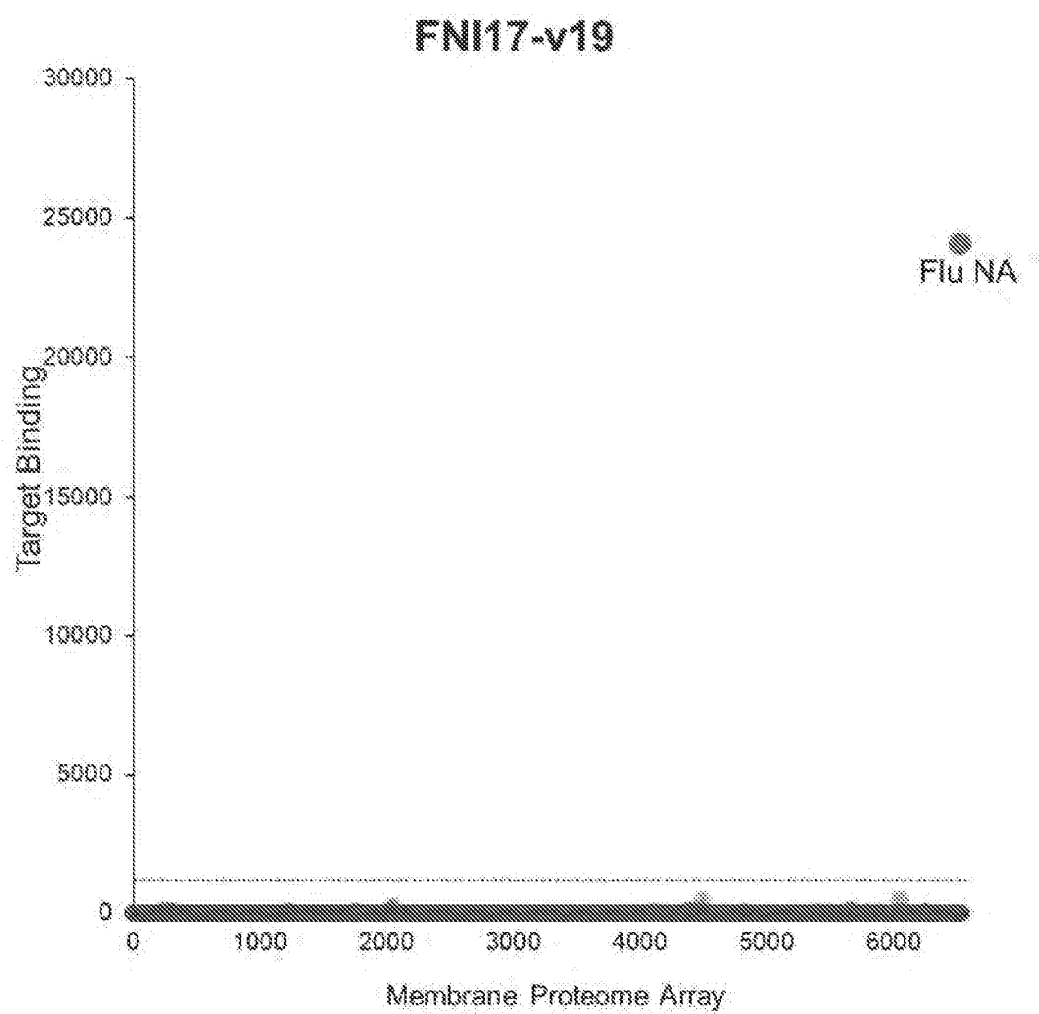
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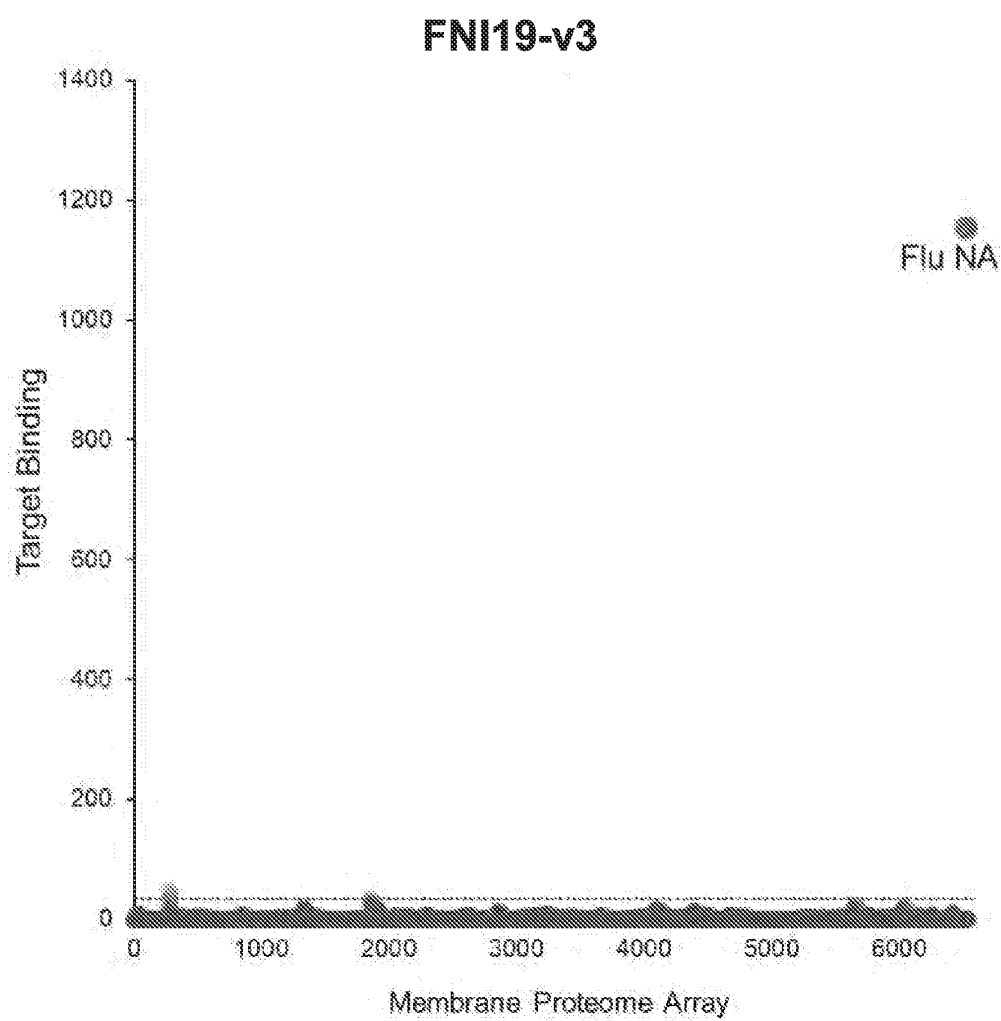
**FIG. 99C**

	FNI17v19	FNI19v3	FM08_LS
$T_{1/2}$	24.8	19.8	27.2
C_{min}	9.6 ¹	7.3 ¹	12.5 ²
V_z	86.4	72.7	65.4 ³
Cl	0.105	0.098	0.070 ³
AUC_{last}	1710	1734	1640

$T_{1/2}$ in d, C_{min} in $\mu\text{g/ml}$, V_z in ml/kg , Cl in ml/h/kg , AUC_{last} in $\mu\text{g.h/ml}$
1: at 64d; 2: at 56d; 3: assuming 3.5kg

FIG. 100

**FIG. 101A**

**FIG. 101B**

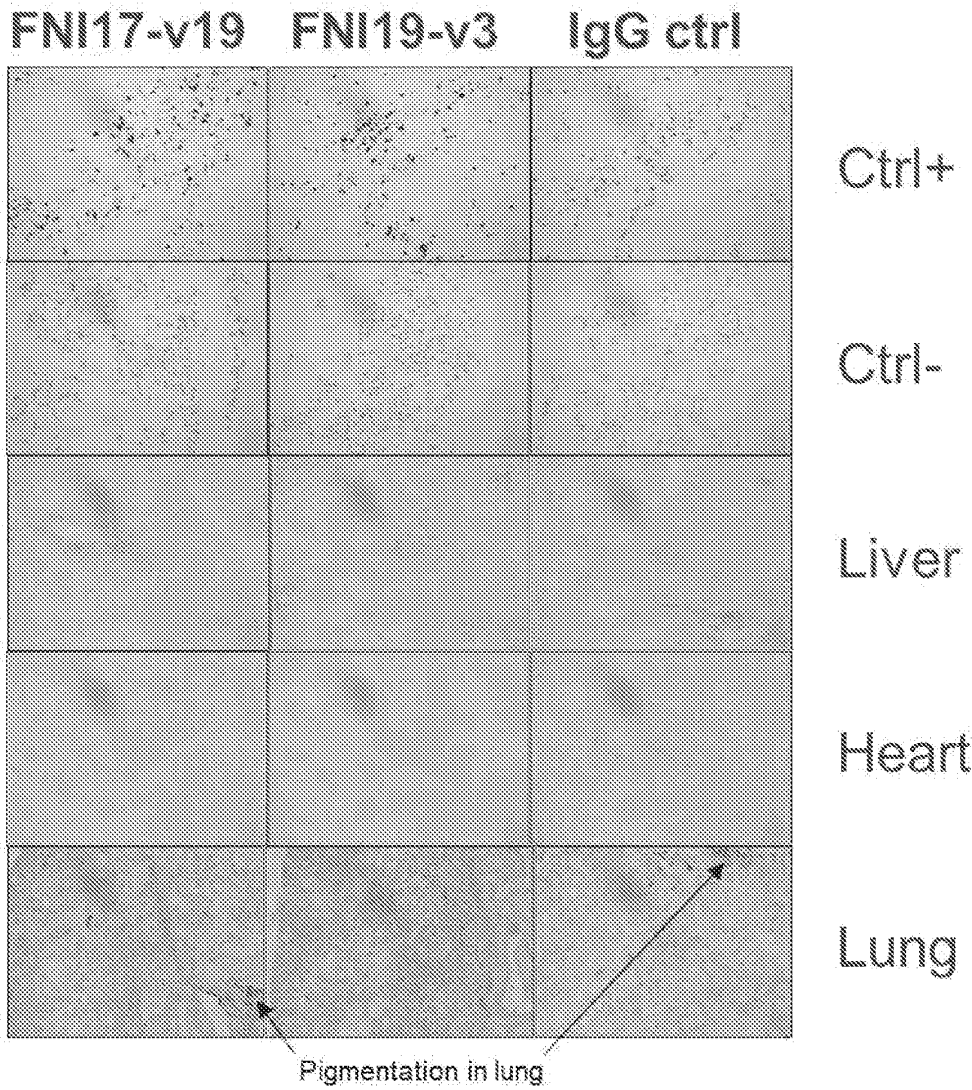


FIG. 102

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N1 A/California/07/09

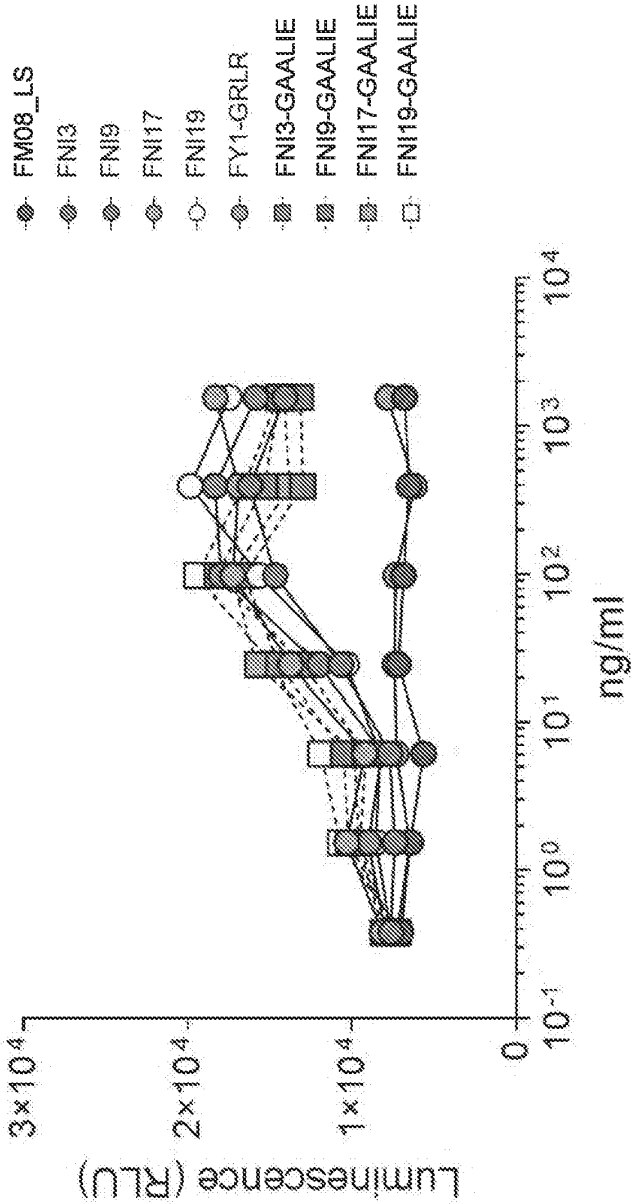


FIG. 103A

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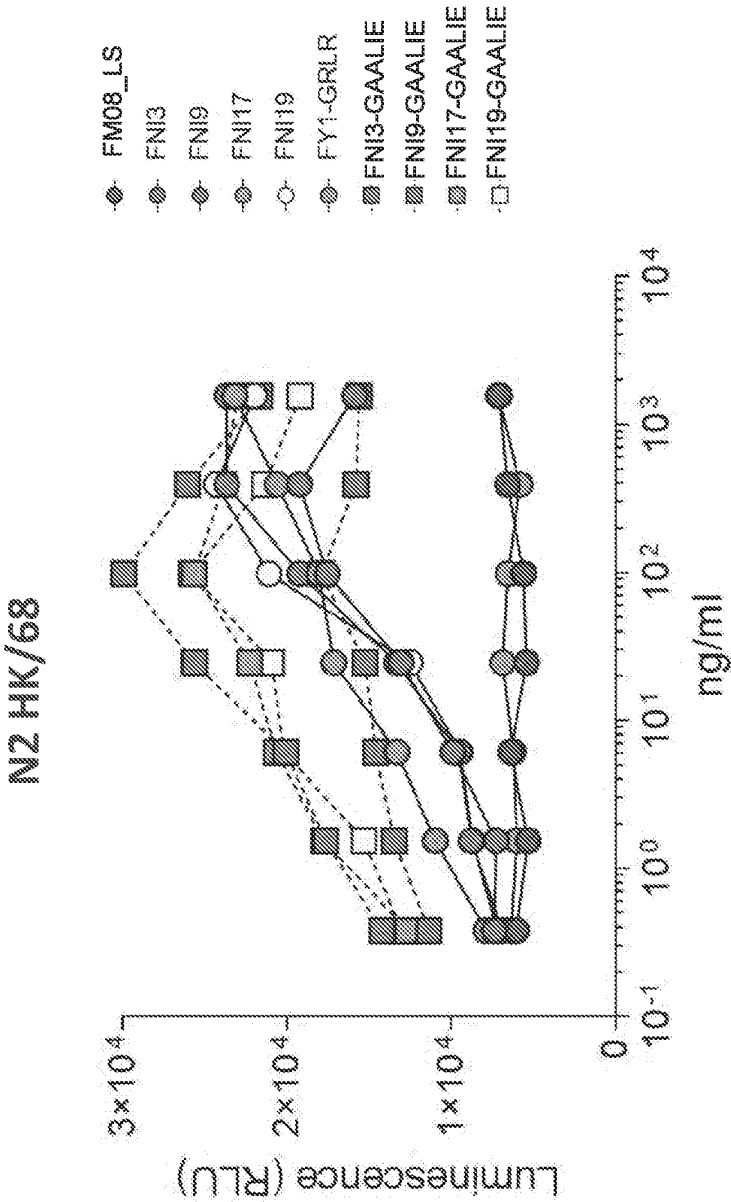


FIG. 103B

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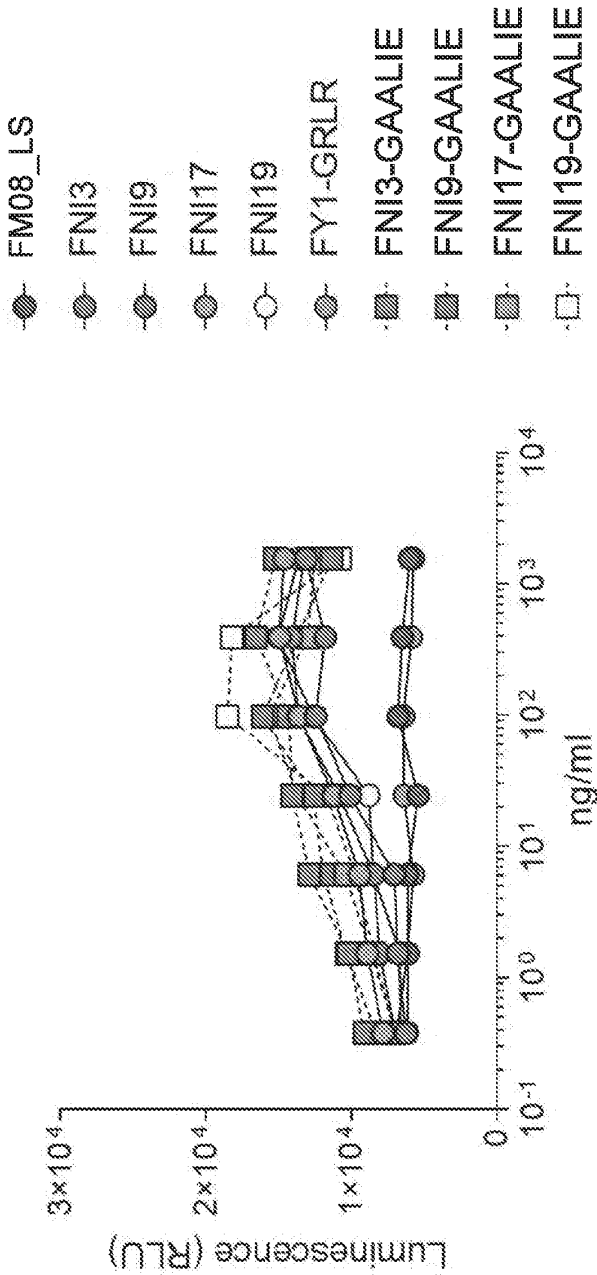
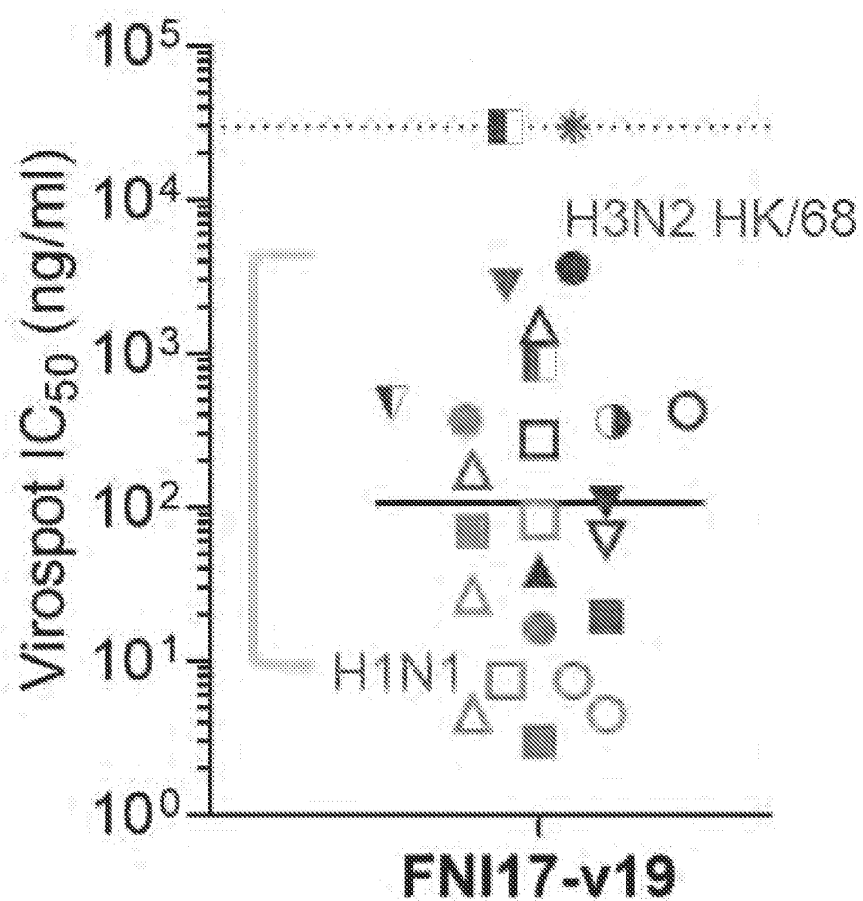


FIG. 103C

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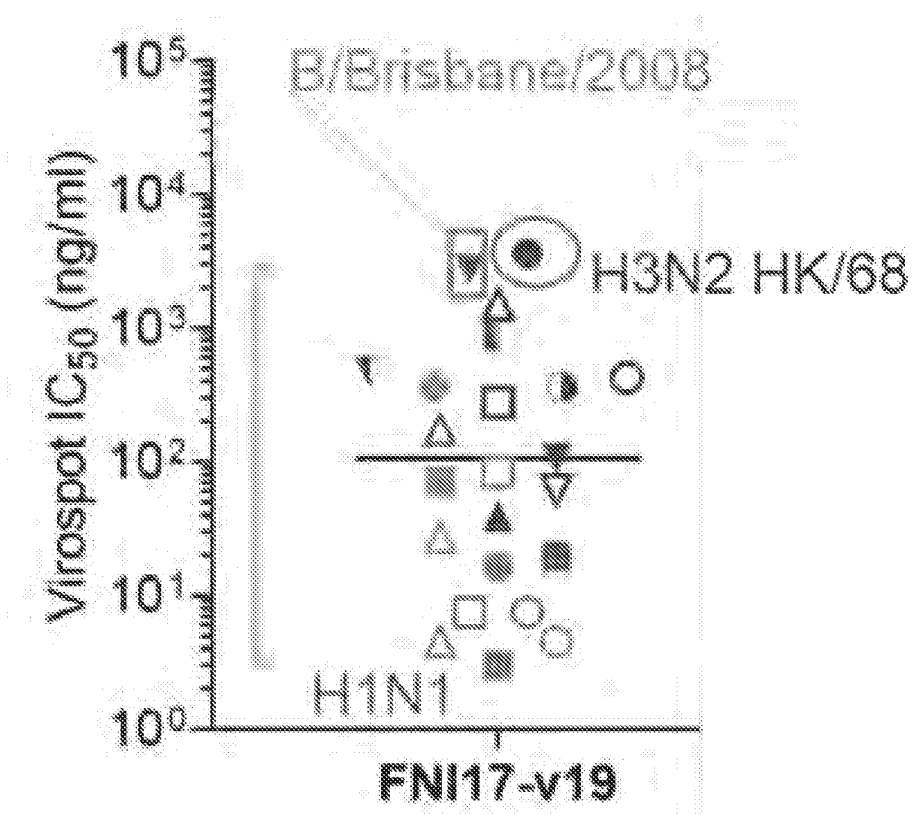
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□ A/New Jersey/8/1976	● A/Aichi/2/1968	▼ A/Fukui/45/2004
△ A/Mississippi/3/2001	● A/Bilthoven/21793/1972	▼ A/Brisbane/10/2007
■ A/Netherlands/602/2009	○ A/Netherlands/233/1982	▲ A/Texas/50/2012
● A/Brisbane/02/2018	△ A/Shanghai/11/1987	□ A/Singapore/2016
○ A/Michigan/45/2015	▼ A/Nanchang/933/1995	■ A/SouthAustralia/34/2019
△ B/Harbin/7/1994	△ B/Perth/211/2001	
■ B/Malaysia/2506/2004	● B/Hubei-wujiagang/158/2009	
▼ B/Brisbane/33/2008	□ B/Wisconsin/01/2010	
■ B/Colorado/06/2017	○ B/Massachusetts/02/2012	
* B/Washington/02/2019	■ B/Phuket/3073/2013	

H1N1; H3N2; B/Victoria-lineage; B/Yamagata-lineage

FIG. 104 (Cont'd)

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**FIG. 105**

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□ A/New Jersey/8/1976	● A/Aichi/2/1968	▼ A/Fukui/45/2004
△ A/Mississippi/3/2001	● A/Bilthoven/21793/1972	▼ A/Brisbane/10/2007
■ A/Netherlands/602/2009	○ A/Netherlands/233/1982	▲ A/Texas/50/2012
● A/Brisbane/02/2018	△ A/Shanghai/11/1987	□ A/Singapore/2016
○ A/Michigan/45/2015	▼ A/Nanchang/933/1995	■ A/SouthAustralia/34/2019
△ B/Harbin/7/1994	△ B/Perth/211/2001	
■ B/Malaysia/2506/2004	● B/Hubei-wujiagang/158/2009	
▼ B/Brisbane/33/2008	□ B/Wisconsin/01/2010	
■ B/Colorado/06/2017	○ B/Massachusetts/02/2012	
* B/Washington/02/2019	■ B/Phuket/3073/2013	

H1N1; H3N2; B/Victoria-lineage; B/Yamagata-lineage

FIG. 105 (cont'd)

H3N2 HK/68

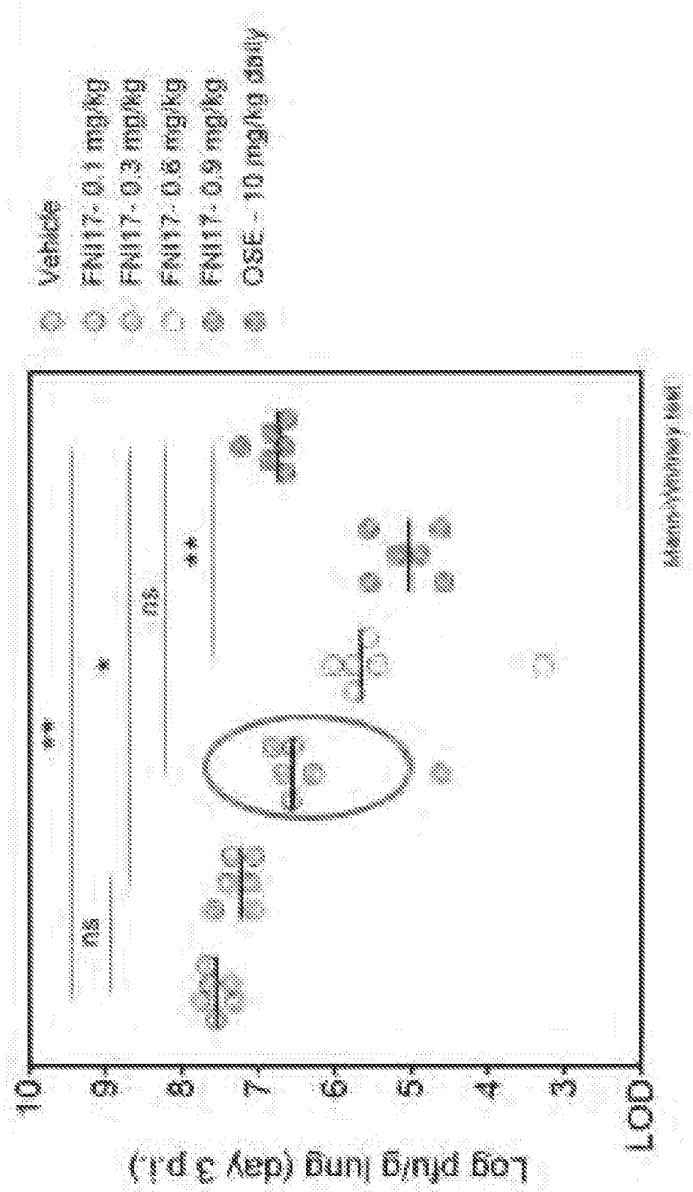


FIG. 106A

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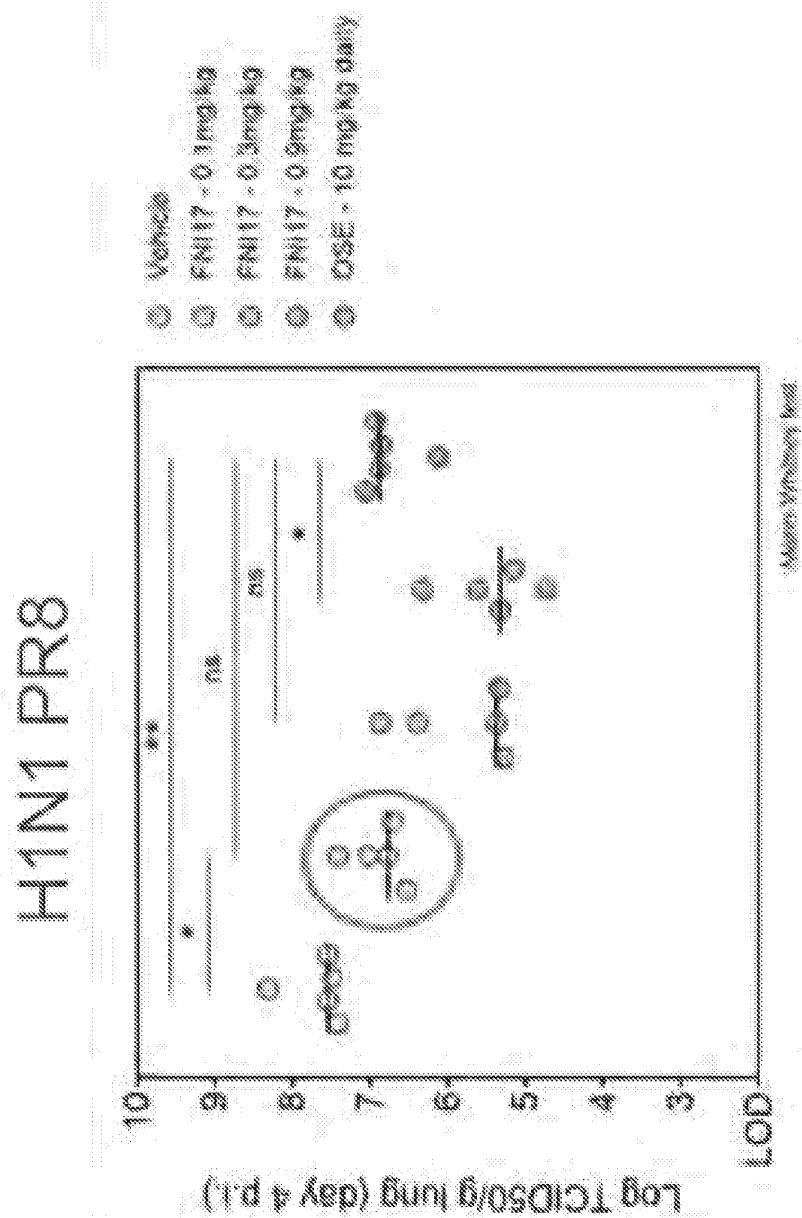


FIG. 106B

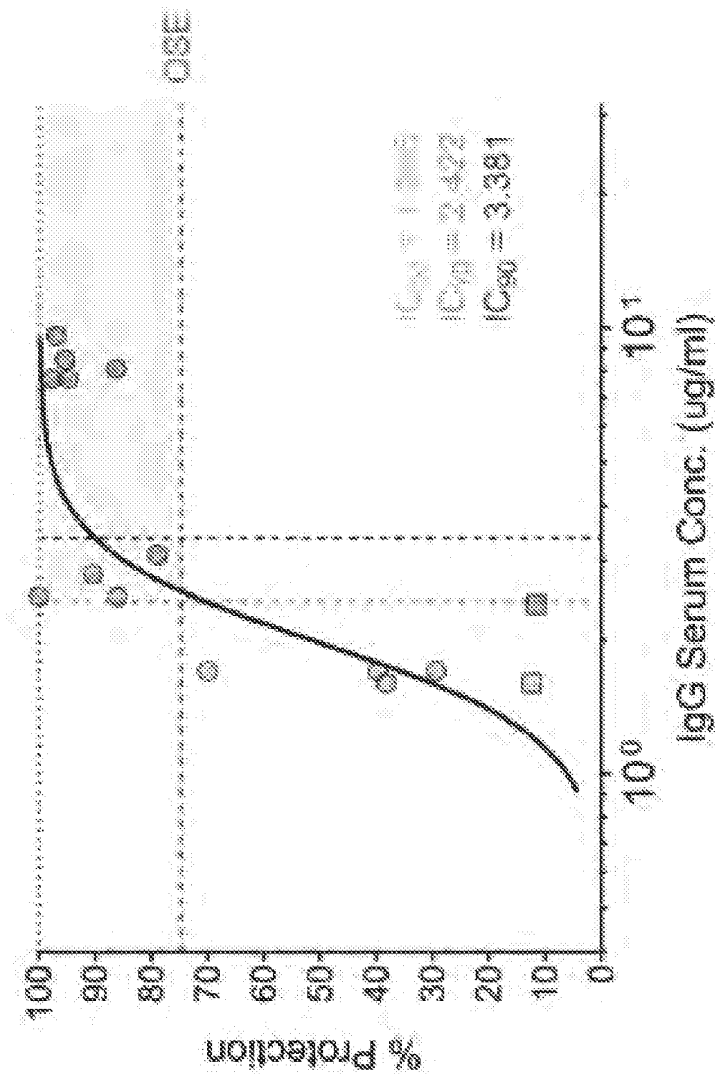
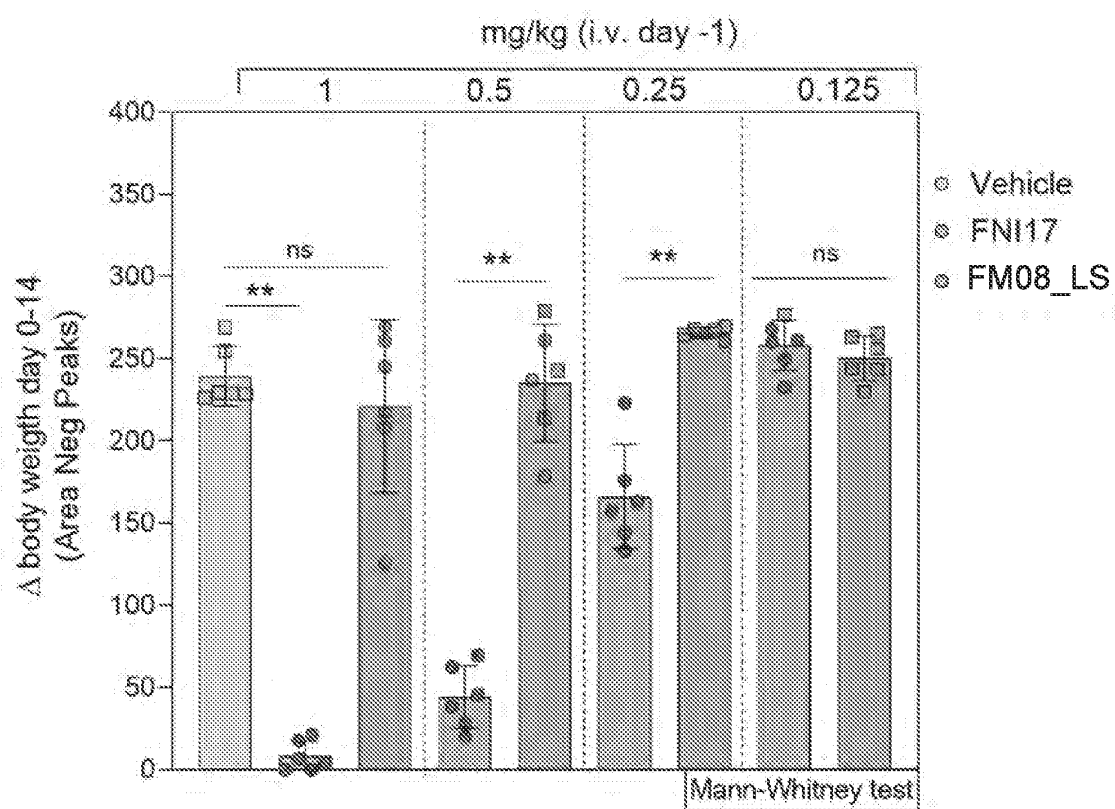


FIG. 107

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**FIG. 108**

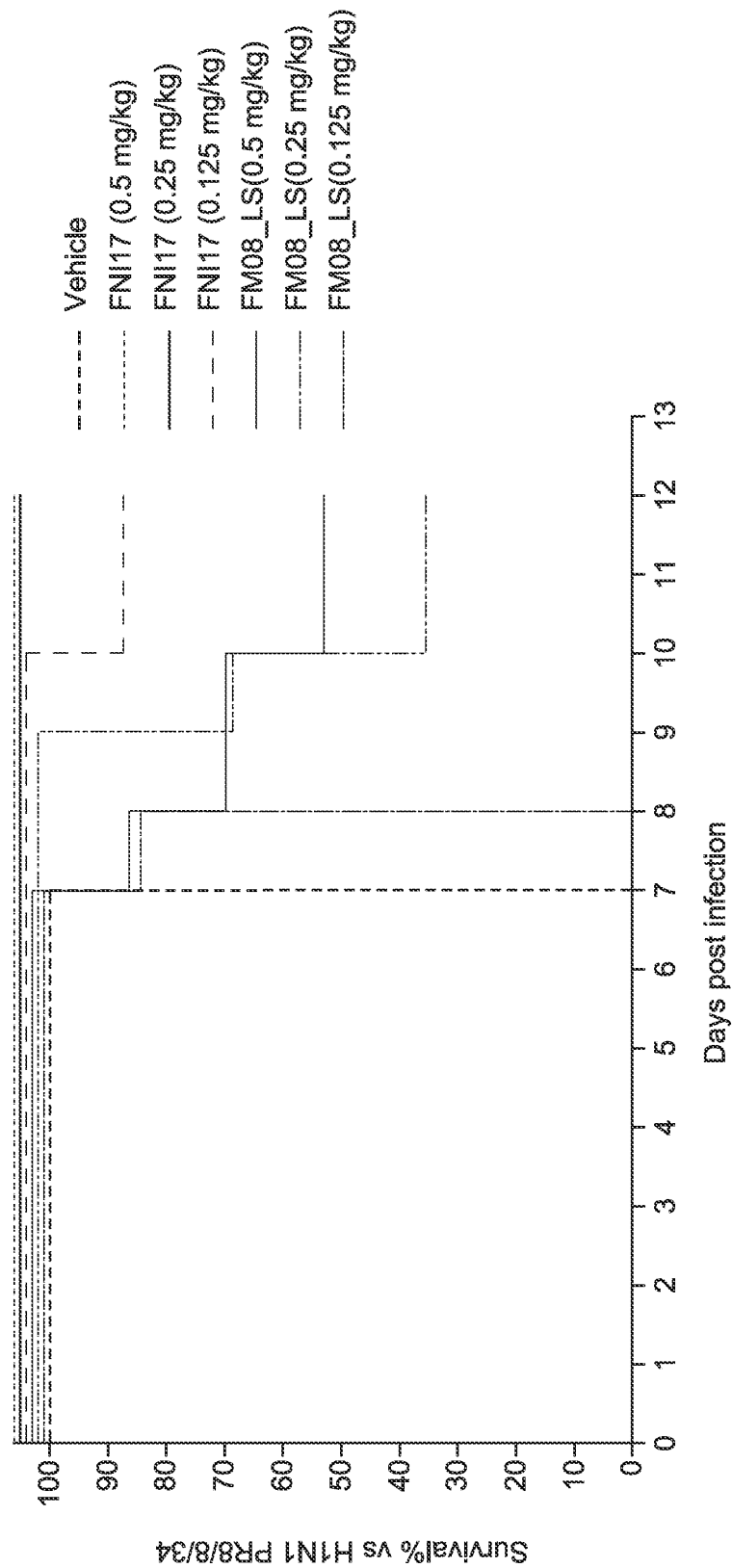


FIG. 109

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mAb name	VH	VK	Titer	Gain/loss
FNi3-rIgG1-LS	FNi3-VH-WT	FNi3-VK-WT	75.064	
FNi3-v8-rIgG1-LS	FNi3-VH-WT	FNi3-VK-FR123GL	95.036	27%
FNi3-v9-rIgG1-LS	FNi3-VH-WT	FNi3-VK-FR12GL	181.42	142%
FNi3-v10-rIgG1-LS	FNi3-VH-FR124GL	FNi3-VK-WT	138.72	85%
FNi3-v11-rIgG1-LS	FNi3-VH-FR124GL	FNi3-VK-FR123GL	238.583	218%
FNi3-v12-rIgG1-LS	FNi3-VH-FR124GL	FNi3-VK-FR12GL	209.362	179%
FNi3-v13-rIgG1-LS	FNi3-VH-N925/G935	FNi3-VK-WT	96.217	28%
FNi3-v14-rIgG1-LS	FNi3-VH-N925/G935	FNi3-VK-FR123GL	153.183	104%
FNi3-v15-rIgG1-LS	FNi3-VH-N925/G935	FNi3-VK-FR12GL	314.734	319%
FNi3-v16-rIgG1-LS	FNi3-VH-FR124GL-N925/G935	FNi3-VK-WT	95.293	27%
FNi3-v17-rIgG1-LS	FNi3-VH-FR124GL-N925/G935	FNi3-VK-FR123GL	97.102	29%
FNi3-v18-rIgG1-LS	FNi3-VH-FR124GL-N925/G935	FNi3-VK-FR12GL	390.099	420%
FNi9-rIgG1-LS	FNi9-VH-WT	FNi9-VK-WT	168.122	
FNi9-v5-rIgG1-LS	FNi9-VH-WT	FNi9-VK-FR123GL	306.765	81%
FNi9-v6-rIgG1-LS	FNi9-VH-WT	FNi9-VK-FR123GL-25	320.145	89%
FNi9-v7-rIgG1-LS	FNi9-VH-FR124GL	FNi9-VK-WT	236.713	40%
FNi9-v8-rIgG1-LS	FNi9-VH-FR124GL	FNi9-VK-FR123GL	328.115	94%
FNi9-v9-rIgG1-LS	FNi9-VH-FR124GL	FNi9-VK-FR123GL-25	279.512	65%
FNi17-rIgG1-LS	FNi17-VH-WT	FNi17-VK-WT	176.697	
FNi17-v6-rIgG1-LS	FNi17-VH-WT	FNi17-VK-FR123GL	255.505	45%
FNi17-v7-rIgG1-LS	FNi17-VH-WT	FNi17-VK-FR12GL	150.947	-20%
FNi17-v8-rIgG1-LS	FNi17-VH-WT	FNi17-VK-W97A	168.236	-5%
FNi17-v9-rIgG1-LS	FNi17-VH-WT	FNi17-VK-W97L	148.657	-16%
FNi17-v10-rIgG1-LS	FNi17-VH-WT	FNi17-VK-W97Y	148.657	-16%
FNi17-v11-rIgG1-LS	FNi17-VH-FR124GL	FNi17-VK-WT	319.752	81%
FNi17-v12-rIgG1-LS	FNi17-VH-FR124GL	FNi17-VK-FR123GL	349.17	98%
FNi17-v13-rIgG1-LS	FNi17-VH-FR124GL	FNi17-VK-FR12GL	260.621	47%
FNi17-v14-rIgG1-LS	FNi17-VH-FR124GL	FNi17-VK-W97A	265.246	50%
FNi17-v15-rIgG1-LS	FNi17-VH-FR124GL	FNi17-VK-W97L	237.796	35%
FNi17-v16-rIgG1-LS	FNi17-VH-FR124GL	FNi17-VK-W97Y	188.11	6%
FNi19-rIgG1-LS	FNi19-VH-WT	FNi19-VK-WT	205.82	
FNi19-v1-rIgG1-LS	FNi19-VH-WT	FNi19-VK-FR123GL	88.641	57%
FNi19-v2-rIgG1-LS	FNi19-VH-WT	FNi19-VK-FR12GL	70.735	-66%
FNi19-v3-rIgG1-LS	FNi19-VH-FR124GL	FNi19-VK-WT	309.323	50%
FNi19-v4-rIgG1-LS	FNi19-VH-FR124GL	FNi19-VK-FR123GL	151.412	-26%
FNi19-v5-rIgG1-LS	FNi19-VH-FR124GL	FNi19-VK-FR12GL	150.92	-27%

FIG. 110

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Normalization vs wt of MFI values

	FNI3	FNI3-v8	FNI3-v9	FNI3-v10	FNI3-v11	FNI3-v12
N1 A Stockholm 18 2007	1.00	0.79	0.74	0.93	0.97	0.89
N1 A California 07 2009 I223R H275Y	1.00	0.93	0.90	0.84	0.85	0.82
N1 A California 07 2009	1.00	0.94	0.96	0.74	0.81	0.73
N1 NA A swine Hebel 0116 2017	1.00	0.97	0.98	0.86	1.03	0.94
N1 NA A swine Jiangsu J004 2018	1.00	0.87	0.85	0.84	0.76	0.84
N2 NA A South Australia 34 2019	1.00	0.95	0.90	0.89	0.93	0.89
N2 A Leningrad 134 17 57	1.00	0.93	0.91	0.90	0.89	0.85
N2 A Washington 01 2007	1.00	1.13	1.38	0.94	1.03	1.02
N3 A Canada rv504 2004	1.00	1.01	0.83	0.85	0.97	0.99
N6 A Swine Ontario 01911 1 99	1.00	1.00	0.98	0.86	0.91	0.82
N7 A Netherlands 078 03	1.00	0.99	1.18	0.91	0.86	0.63
N8 A harbor seal New hampshire 179629 2011	1.00	0.93	0.77	0.80	0.71	0.46
N9 A Anhui 1 2013	1.00	0.96	0.97	0.85	0.94	0.89
B/Yamanashi/166/1998(Yamagata)	1.00	0.90	0.82	0.92	0.87	0.91
B/Malaysia/2506/2004(Victoria)	1.00	0.94	0.90	0.83	0.84	0.84
B/Lee/10/1940(Ancestral)	1.00	0.93	0.90	0.86	0.77	0.80

FIG. 111

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Normalization vs wt of MFI values

	FN13-v13	FN13-v14	FN13-v15	FN13-v16	FN13-v17	FN13-v18
N1 A Stockholm 18 2007	0.86	0.96	0.96	0.95	1.02	1.05
N1 A California 07 2009 I223R H275Y	0.84	0.87	0.91	0.93	0.95	0.97
N1 A California 07 2009	0.79	0.86	0.84	0.94	0.89	1.00
N1 NA A swine Hebel 0116 2017	0.85	0.99	1.00	1.02	1.02	1.02
N1 NA A swine Jiangsu J004 2018	0.76	0.82	0.86	0.84	0.90	0.95
N2 NA A South Australia 34 2019	0.88	0.93	0.88	0.89	0.92	0.93
N2 A Leningrad 134 17 57	0.83	0.84	0.86	0.88	0.91	0.98
N2 A Washington 01 2007	0.98	1.22	1.26	0.83	0.94	1.14
N3 A Canada rv504 2004	0.95	1.01	1.03	0.99	0.97	0.97
N6 A Swine Ontario 01911 1 99	0.84	0.93	0.98	0.90	0.95	1.01
N7 A Netherlands 078 03	0.94	1.16	1.09	0.87	0.93	0.96
N8 A harbor seal New hampshire 179629 2011	0.81	0.84	0.70	0.79	0.93	0.70
N9 A Anhui 1 2013	0.90	0.94	0.88	0.92	0.87	0.97
B/Yamanashi/166/1998(Yamagata)	0.84	0.90	0.90	0.93	0.92	0.94
B/Malaysia/2506/2004(Victoria)	0.79	0.83	0.84	0.87	0.88	0.92
B/Lee/10/1940(Ancestral)	0.84	0.81	0.82	0.84	0.86	0.89

FIG. 111 (cont'd)

Normalization vs wt of MFI values

	FNI9	FNI9-v5	FNI9-v6	FNI9-v7	FNI9-v8	FNI9-v9
N1 A Stockholm 18 2007	1.00	0.97	0.93	0.98	1.02	1.00
N1 A California 07 2009 I223R H275Y	1.00	0.48	0.46	0.82	0.41	0.40
N1 A California 07 2009	1.00	1.03	0.98	0.80	0.66	0.51
N1 NA A swine Hebel 0116 2017	1.00	1.00	0.93	0.95	0.97	1.00
N1 NA A swine Jiangsu J004 2018	1.00	0.97	0.99	0.86	0.88	0.90
N2 NA A South Australia 34 2019	1.00	1.04	0.96	0.88	0.84	0.89
N2 A Leningrad 134 17 57	1.00	0.96	0.89	0.89	0.83	0.85
N2 A Washington 01 2007	1.00	0.85	0.81	0.86	0.74	0.89
N3 A Canada rv504 2004	1.00	1.05	0.90	0.90	1.04	0.96
N6 A Swine Ontario 01911 1 99	1.00	1.01	0.94	0.89	0.87	0.84
N7 A Netherlands 078 03	1.00	0.68	0.70	0.64	0.57	0.59
N8 A harbor seal New hampshire 179629 2011	1.00	0.78	0.79	0.72	0.58	0.64
N9 A Anhui 1 2013	1.00	0.79	0.74	0.65	0.71	0.62
B/Yamanashi/166/1998(Yamagata)	1.00	1.03	1.04	0.88	0.96	1.00
B/Malaysia/2506/2004(Victoria)	1.00	1.00	0.94	0.91	0.92	0.91
B/Lee/10/1940(Ancestral)	1.00	0.98	0.96	0.85	0.90	0.88

FIG. 112

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Normalization vs wt of MFI values

	FNI17	FNI17-v6	FNI17-v7	FNI17-v8	FNI17-v9	FNI17-v10
N1 A Stockholm 18 2007	1.00	1.00	1.08	0.92	1.08	1.12
N1 A California 07 2009 1223R_H275Y	1.00	1.00	1.03	1.03	1.06	1.10
N1 A California 07 2009	1.00	0.99	1.18	1.27	1.29	1.30
N1 NA A swine Hebei 0116 2017	1.00	0.99	0.96	1.00	0.95	1.04
N1 NA A swine Jiangsu J004 2018	1.00	1.07	1.04	1.09	1.13	1.09
N2 NA A South Australia 34 2019	1.00	1.21	1.13	0.86	0.81	0.88
N2 A Leningrad 134 17 57	1.00	1.01	1.02	1.06	1.12	1.15
N2 A Washington 01 2007	1.00	1.35	1.16	0.96	1.23	0.68
N3 A Canada rv504 2004	1.00	1.00	1.03	1.12	1.13	1.08
N6 A Swine Ontario 01911 1 99	1.00	1.30	1.12	0.71	0.69	0.71
N7 A Netherlands 078 03	1.00	1.24	0.91	0.51	0.60	0.53
N8 A harbor seal New_hampshire_179629_2011	1.00	0.87	0.91	2.27	1.75	0.84
N9 A Anhui 1 2013	1.00	1.20	1.14	0.92	0.86	0.82
B/Yamanashi/166/1998(Yamagata)	1.00	0.92	0.96	0.98	1.00	0.99
B/Malaysia/2506/2004(Victoria)	1.00	1.01	1.01	1.05	1.07	1.11
B/Leel/10/1940(Ancestral)	1.00	0.92	1.03	1.09	1.12	1.13

FIG. 113

Normalization vs wt of MFI values

	FN17-v11	FN17-v12	FN17-v13	FN17-v14	FN17-v15	FN17-v16
N1 A Stockholm 18_2007	1.12	1.04	1.05	1.05	1.03	1.01
N1 A California 07_2009_1223R_H275Y	1.15	1.10	1.06	1.06	1.00	1.06
N1 A California 07_2009	1.28	1.30	1.26	1.33	1.24	1.22
N1_NA_A swine Hebei 0116_2017	1.01	1.03	0.99	1.01	0.95	0.93
N1_NA_A swine Jiangsu 3004_2018	1.21	1.06	1.12	1.08	1.10	1.12
N2_NA_A South Australia 34_2019	1.13	1.19	1.18	0.96	0.98	0.92
N2 A Leningrad 134_17_57	1.30	1.19	0.94	1.08	1.11	1.03
N2 A Washington 01_2007	0.83	1.06	1.17	1.04	1.17	0.72
N3 A Canada rv504_2004	1.21	1.14	1.11	1.14	1.10	1.12
N6 A Swine Ontario 01911_1_99	1.00	1.15	1.16	0.96	0.81	0.86
N7 A Netherlands 078_03	0.82	1.11	1.20	0.50	0.59	0.59
N8 A harbor seal New_hampshire_179629_2011	0.74	0.77	0.84	2.15	1.82	0.85
N9 A Anhui 1_2013	1.05	1.43	1.39	1.10	0.99	0.93
B/Yamanashi/166/1998(Yamagata)	1.19	1.12	1.14	1.08	1.07	1.08
B/Malaysia/2506/2004(Victoria)	1.27	1.16	1.12	1.09	1.05	1.03
B/Lee/10/1940(Ancestral)	1.41	1.32	1.32	1.21	1.24	1.17

FIG. 113 (cont'd)

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Normalization vs wt of MFI values

	FNI19	FNI19-v1	FNI19-v2	FNI19-v3	FNI19-v4	FNI19-v5
N1 A Stockholm 18 2007	1.00	1.00	1.05	1.06	1.11	1.14
N1 A California 07 2009 J223R_H275Y	1.00	1.02	1.03	1.02	1.06	1.12
N1 A California 07 2009	1.00	1.01	1.03	0.98	1.05	0.95
N1 NA A swine Hebei 0116 2017	1.00	0.99	0.97	1.03	1.06	1.08
N1 NA A swine Jiangsu J004 2018	1.00	0.95	1.02	1.04	1.05	1.09
N2 NA A South Australia 34 2019	1.00	1.02	0.98	1.01	0.98	1.04
N2 A Leningrad 134 17 57	1.00	1.05	1.05	1.04	1.16	1.24
N2 A Washington 01 2007	1.00	1.06	1.04	0.93	1.05	1.01
N3 A Canada rv504 2004	1.00	1.02	1.04	1.05	1.17	1.19
N6 A Swine Ontario 01911 1 99	1.00	0.96	0.74	1.07	0.96	0.95
N7 A Netherlands 078 03	1.00	0.95	0.96	1.12	1.05	1.00
N8 A harbor seal New hampshire 179629 2011	1.00	0.94	0.78	0.85	0.85	0.62
N9 A Anhui 1 2013	1.00	1.05	0.87	1.05	0.93	0.96
B/Yamanashi/166/1998(Yamagata)	1.00	0.96	1.08	1.03	1.13	1.18
B/Malaysia/2506/2004(Victoria)	1.00	1.05	1.07	1.00	1.13	1.17
B/Lee/10/1940(Ancestral)	1.00	0.96	1.04	1.11	1.09	1.19

FIG. 114

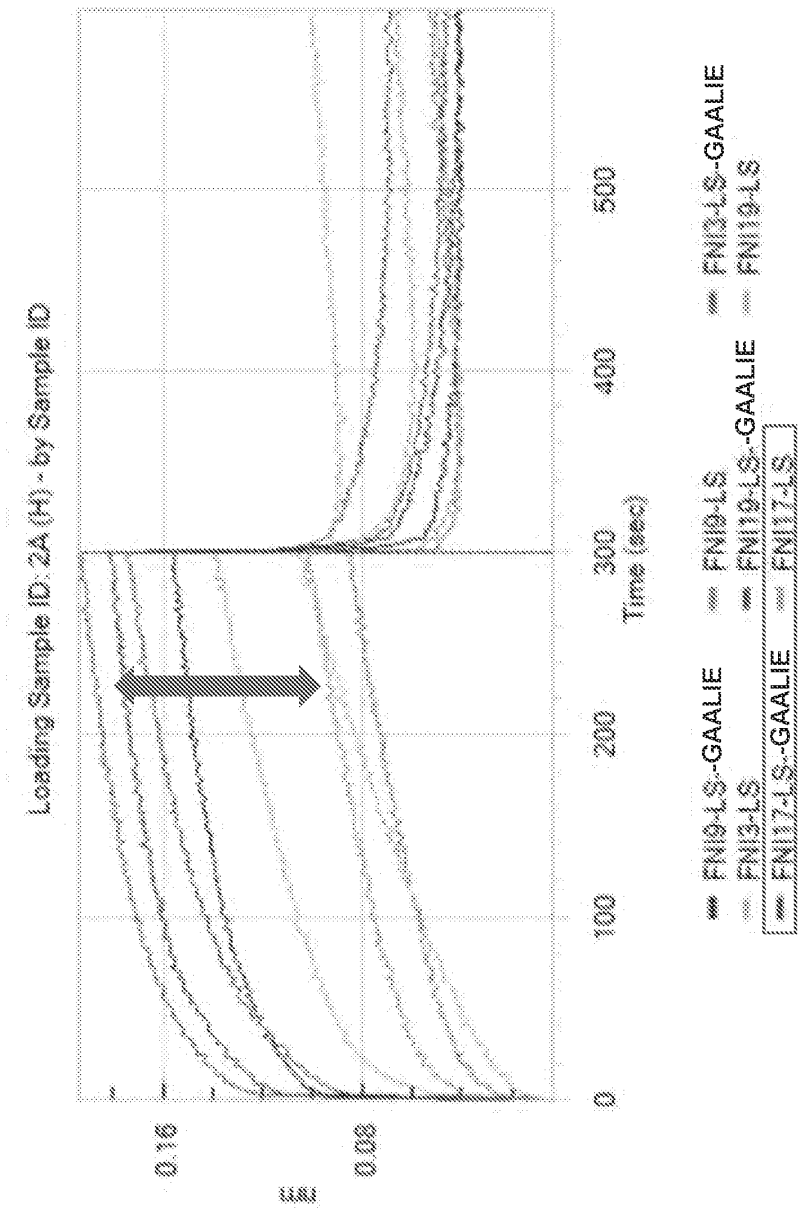


FIG. 115A

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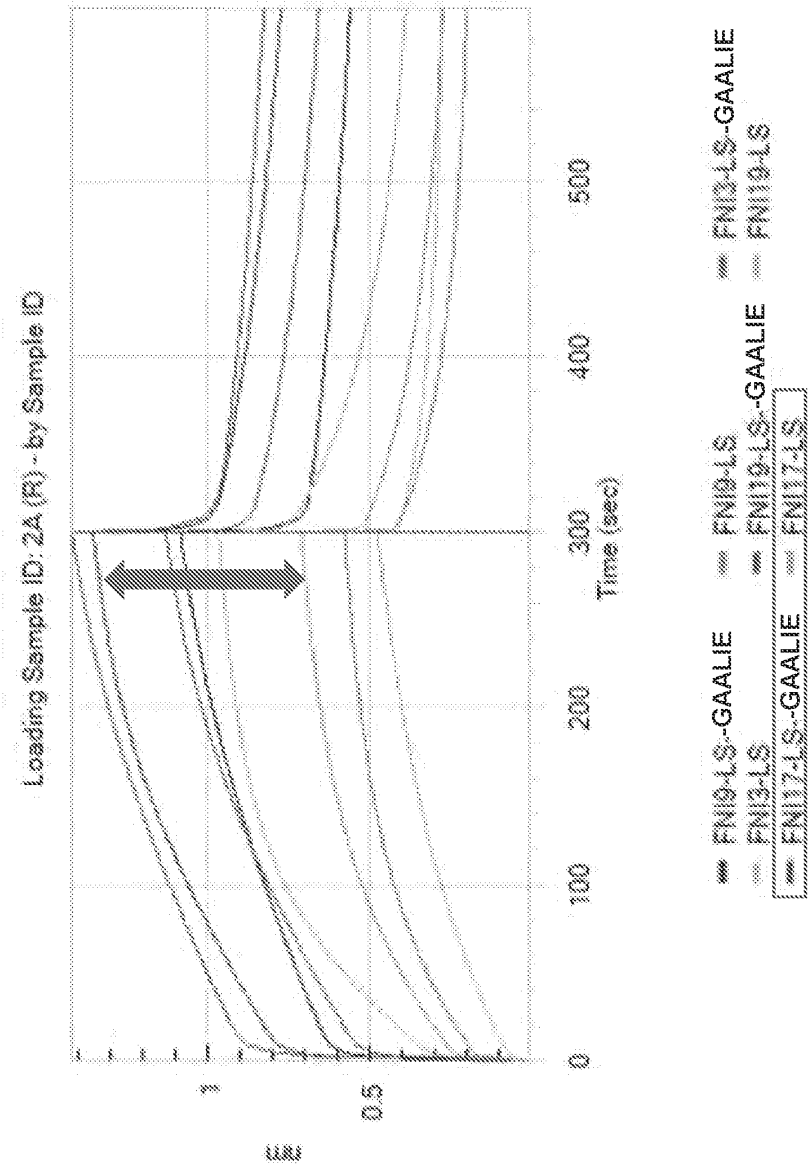


FIG. 115B

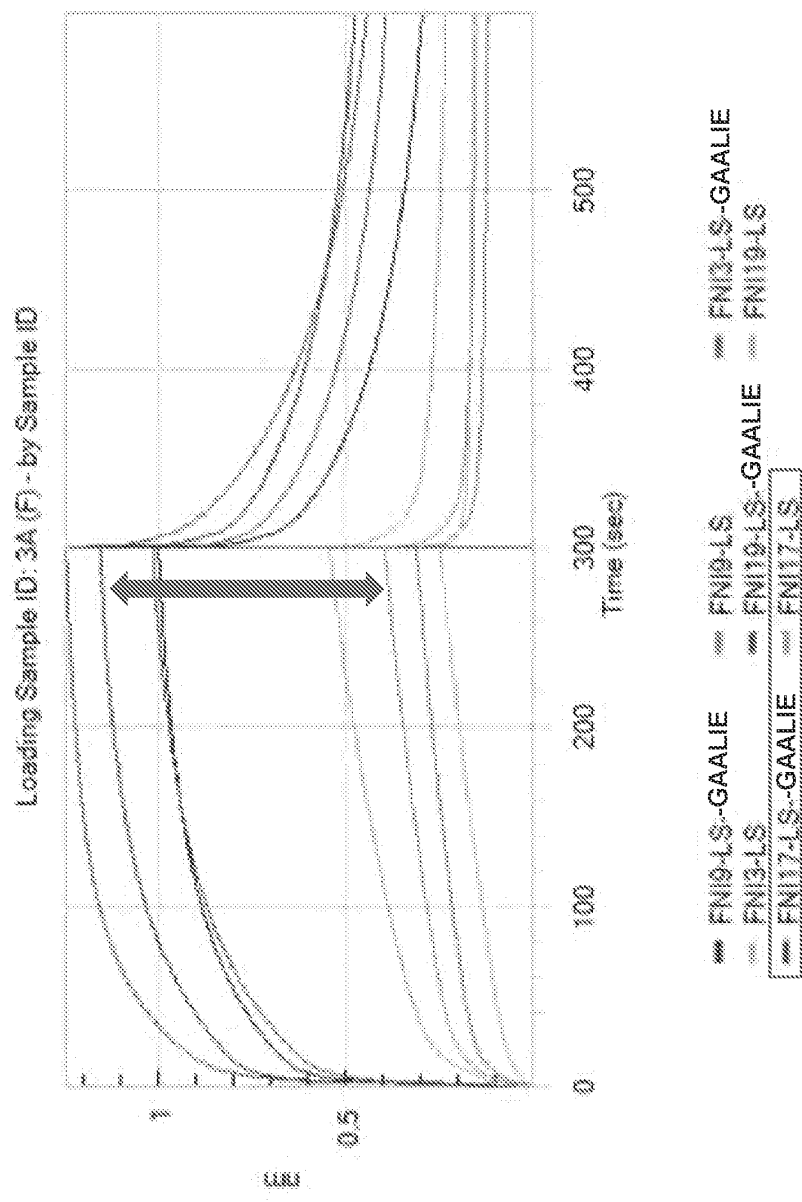


FIG. 115C

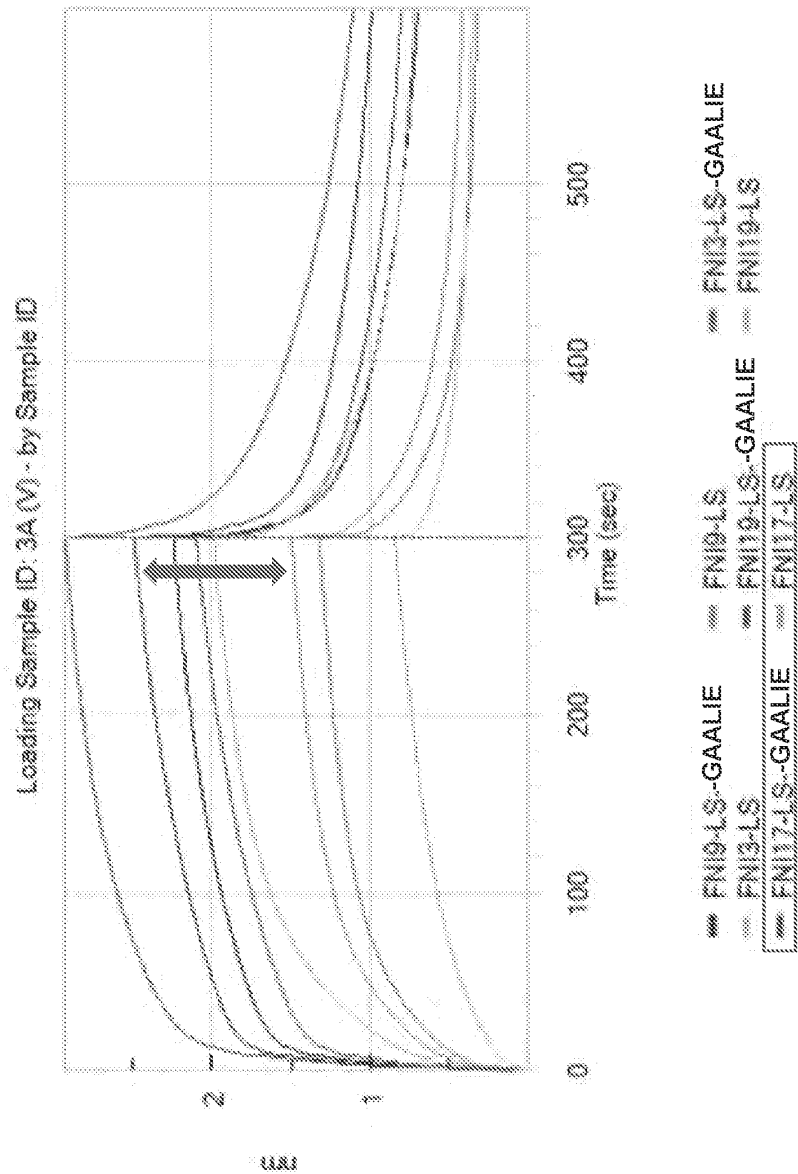


FIG. 115D