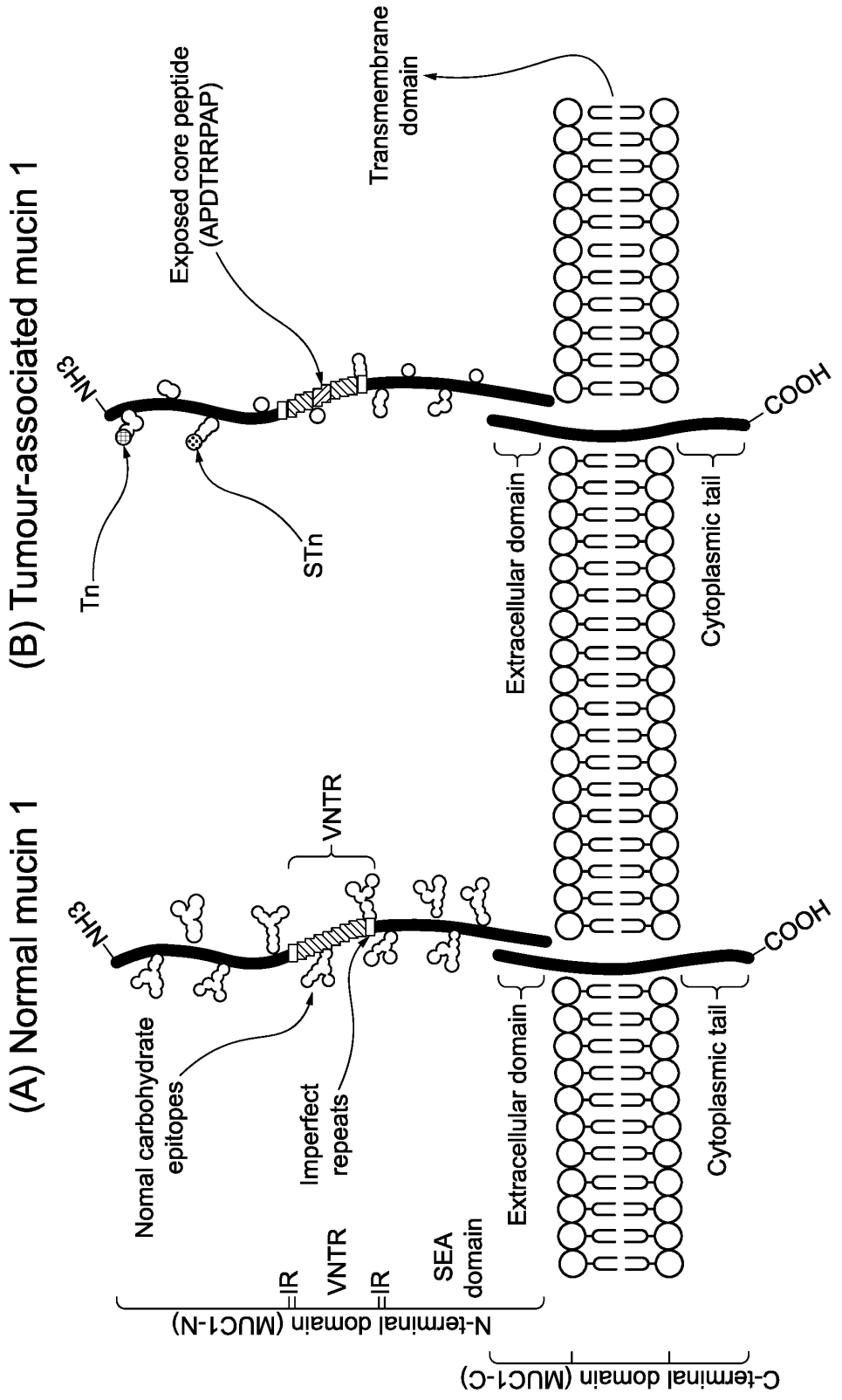

(A) Normal mucin 1
(B) Tumour-associated mucin 1
NH3
COOH
Nomal carbohydrate epitopes
Imperfect repeats
VNTR
Exposed core peptide (APDTRRPAP)
Transmembrane domain
Tn
STn
Extracellular domain
Cytoplasmic tail
IR
VNTR
IR
SEA domain
N-terminal domain (MUC1-N)
C-terminal domain (MUC1-C)

Fig. 1

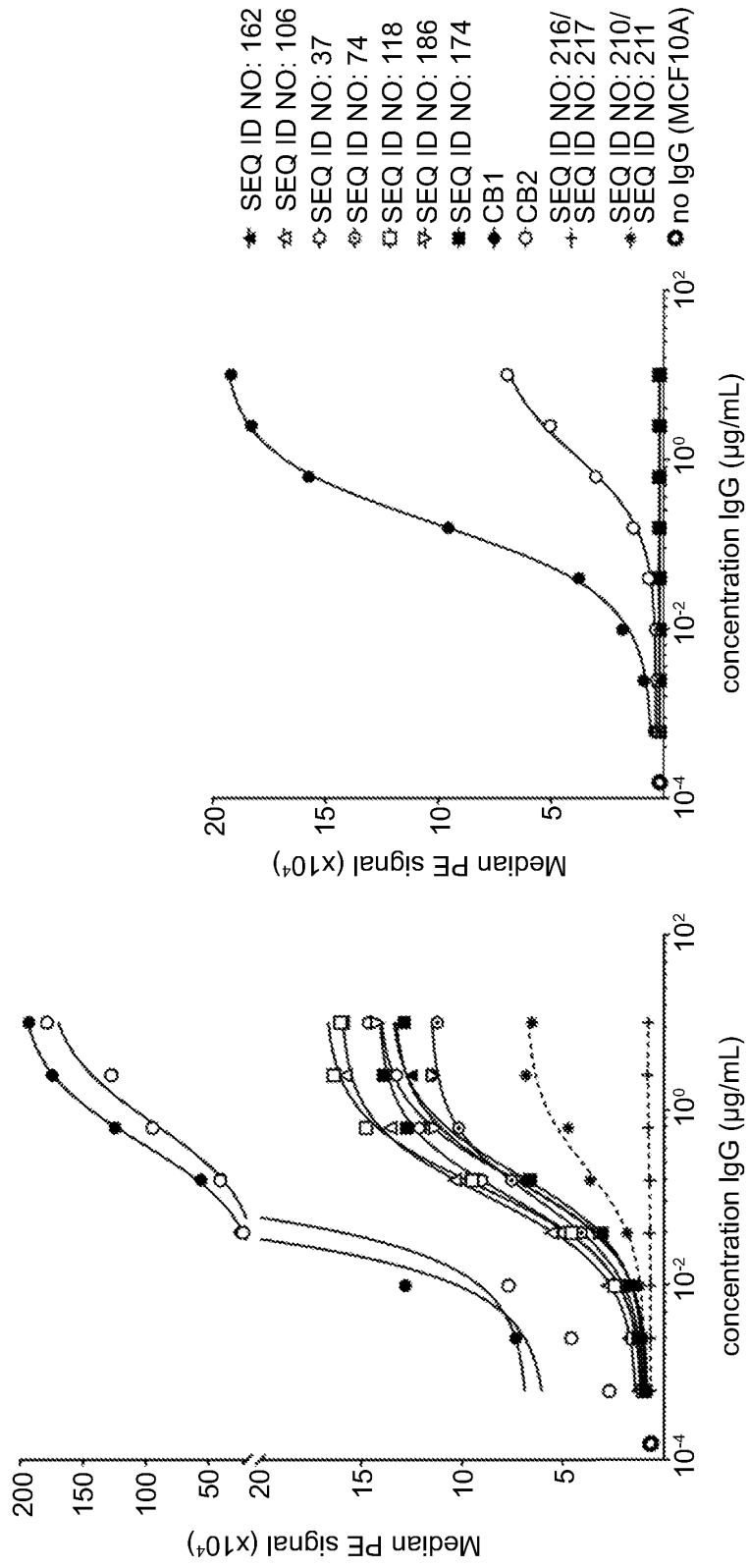

Median PE signal (x10⁴)
200
150
100
50
20
15
10
5
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
A
Median PE signal (x10⁴)
20
15
10
5
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
B
SEQ ID NO: 162
SEQ ID NO: 106
SEQ ID NO: 37
SEQ ID NO: 74
SEQ ID NO: 118
SEQ ID NO: 186
SEQ ID NO: 174
CB1
CB2
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MCF10A)

Fig. 2

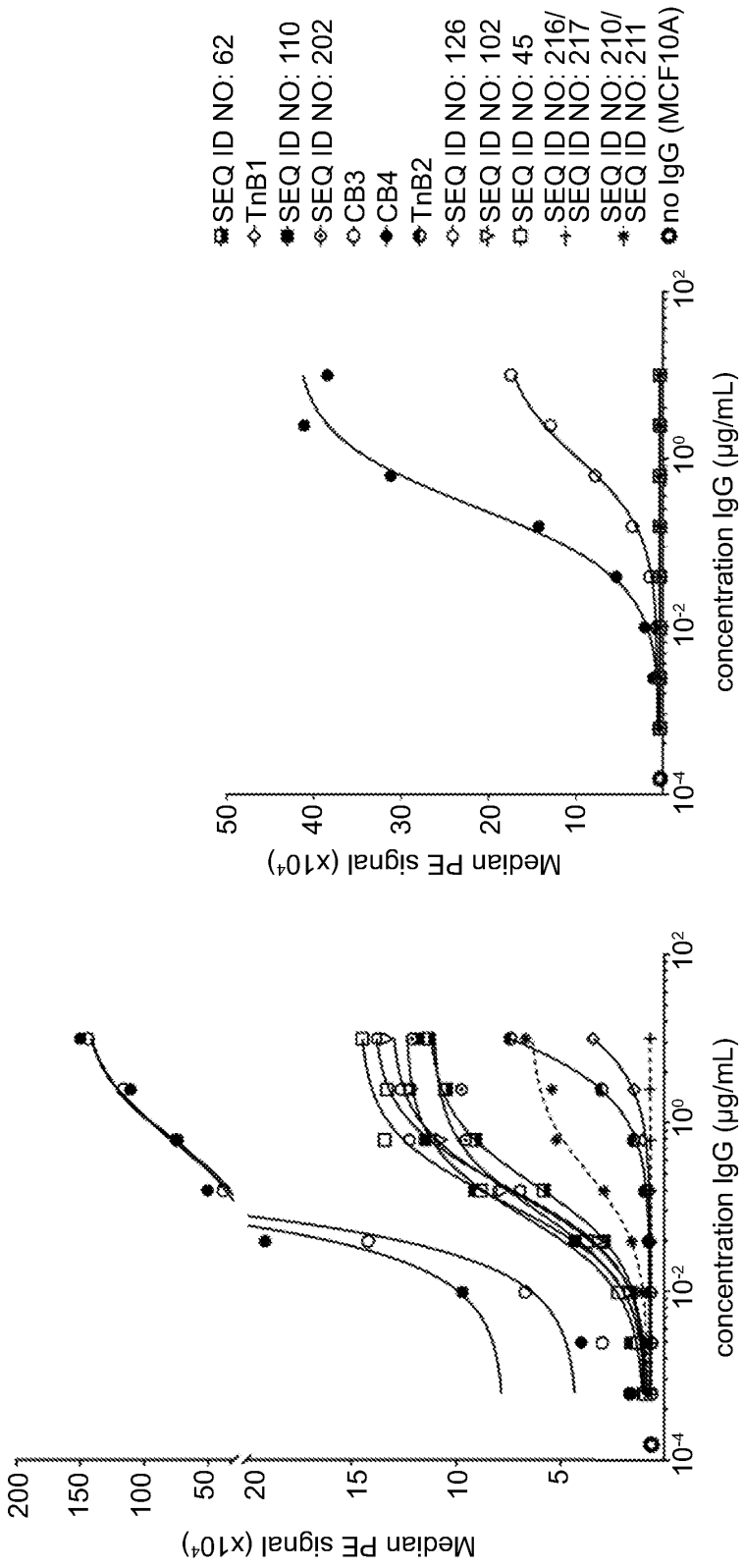

Median PE signal (x10⁴)
200
150
100
50
20
15
10
5
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
C
Median PE signal (x10⁴)
50
40
30
20
10
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
D
SEQ ID NO: 62
TnB1
SEQ ID NO: 110
SEQ ID NO: 202
CB3
CB4
TnB2
SEQ ID NO: 126
SEQ ID NO: 102
SEQ ID NO: 45
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MCF10A)

Fig. 2, Cont'd

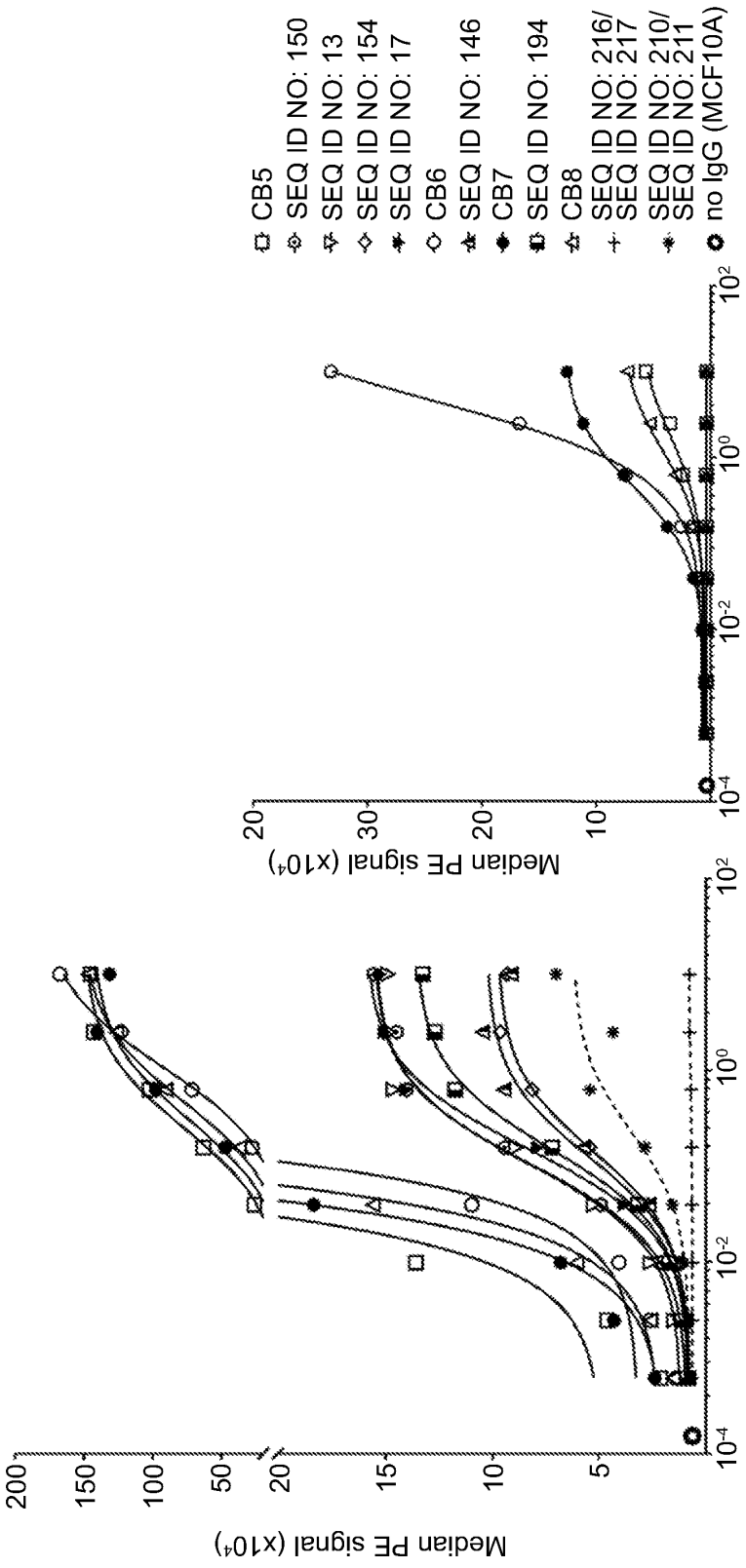

Median PE signal (x10⁴)
200
150
100
50
20
15
10
5
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
E
Median PE signal (x10⁴)
20
30
20
10
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
F
CB5
SEQ ID NO: 150
SEQ ID NO: 13
SEQ ID NO: 154
SEQ ID NO: 17
CB6
SEQ ID NO: 146
CB7
SEQ ID NO: 194
CB8
SEQ ID NO: 216/
SEQ ID NO: 217
SEQ ID NO: 210/
SEQ ID NO: 211
no IgG (MCF10A)

Fig. 2, Cont'd

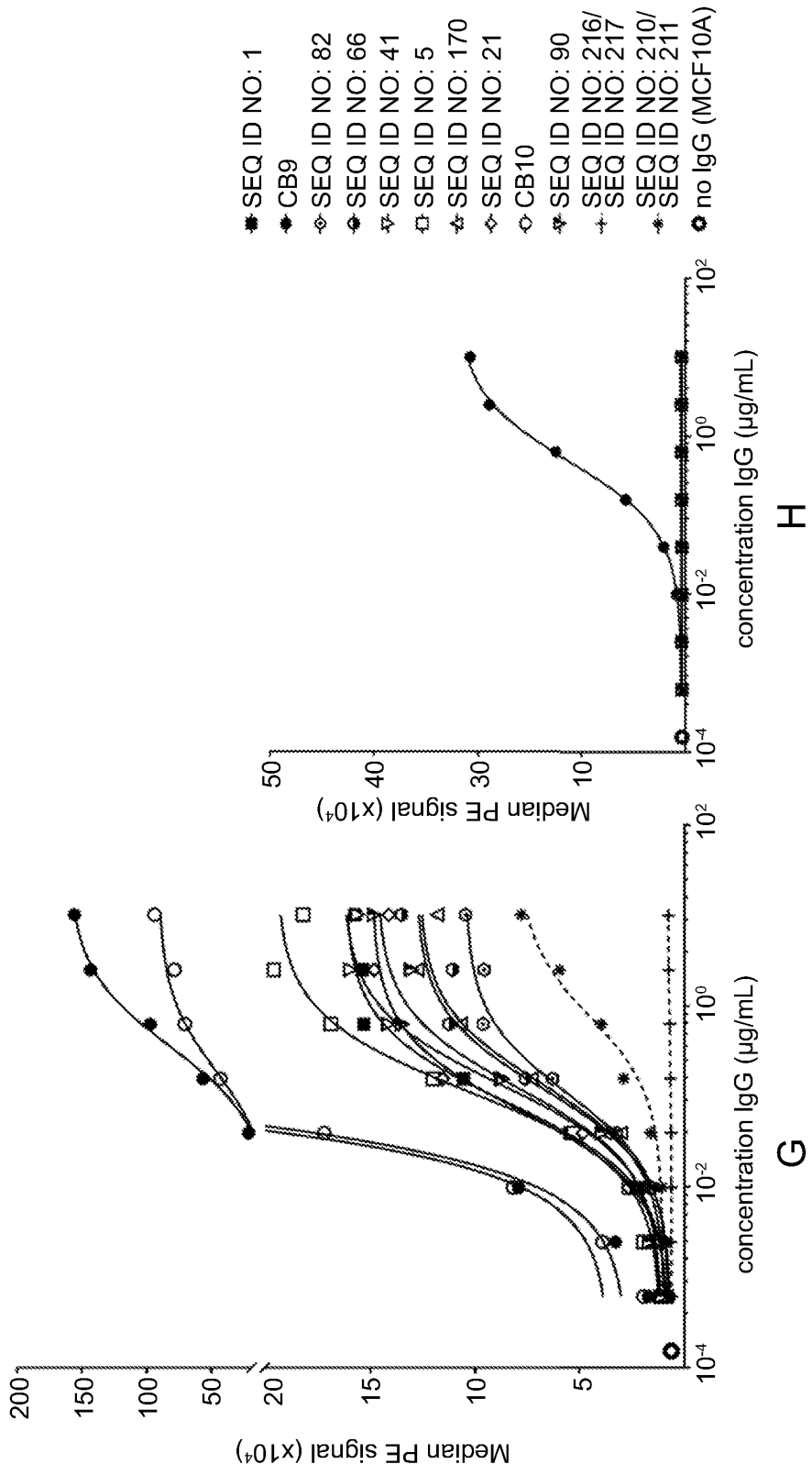

SEQ ID NO: 1
CB9
SEQ ID NO: 82
SEQ ID NO: 66
SEQ ID NO: 41
SEQ ID NO: 5
SEQ ID NO: 170
SEQ ID NO: 21
CB10
SEQ ID NO: 90
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MCF10A)
Median PE signal (x10⁴)
concentration IgG (µg/mL)
G
H

Fig. 2, Cont'd

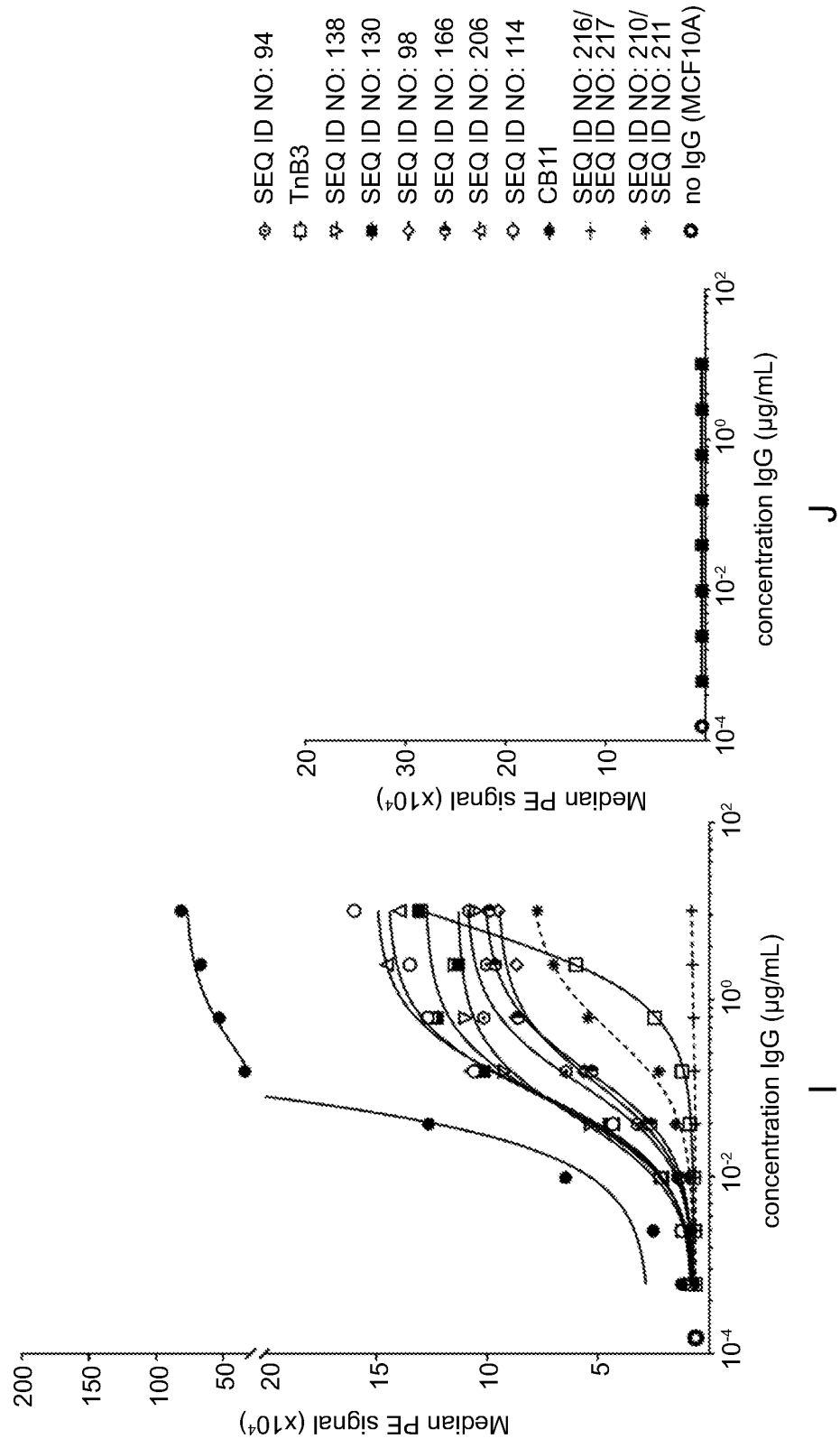

SEQ ID NO: 94
TnB3
SEQ ID NO: 138
SEQ ID NO: 130
SEQ ID NO: 98
SEQ ID NO: 166
SEQ ID NO: 206
SEQ ID NO: 114
CB11
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MCF10A)
Median PE signal (x10⁴)
concentration IgG (µg/mL)
I
J

Fig. 2, Cont'd

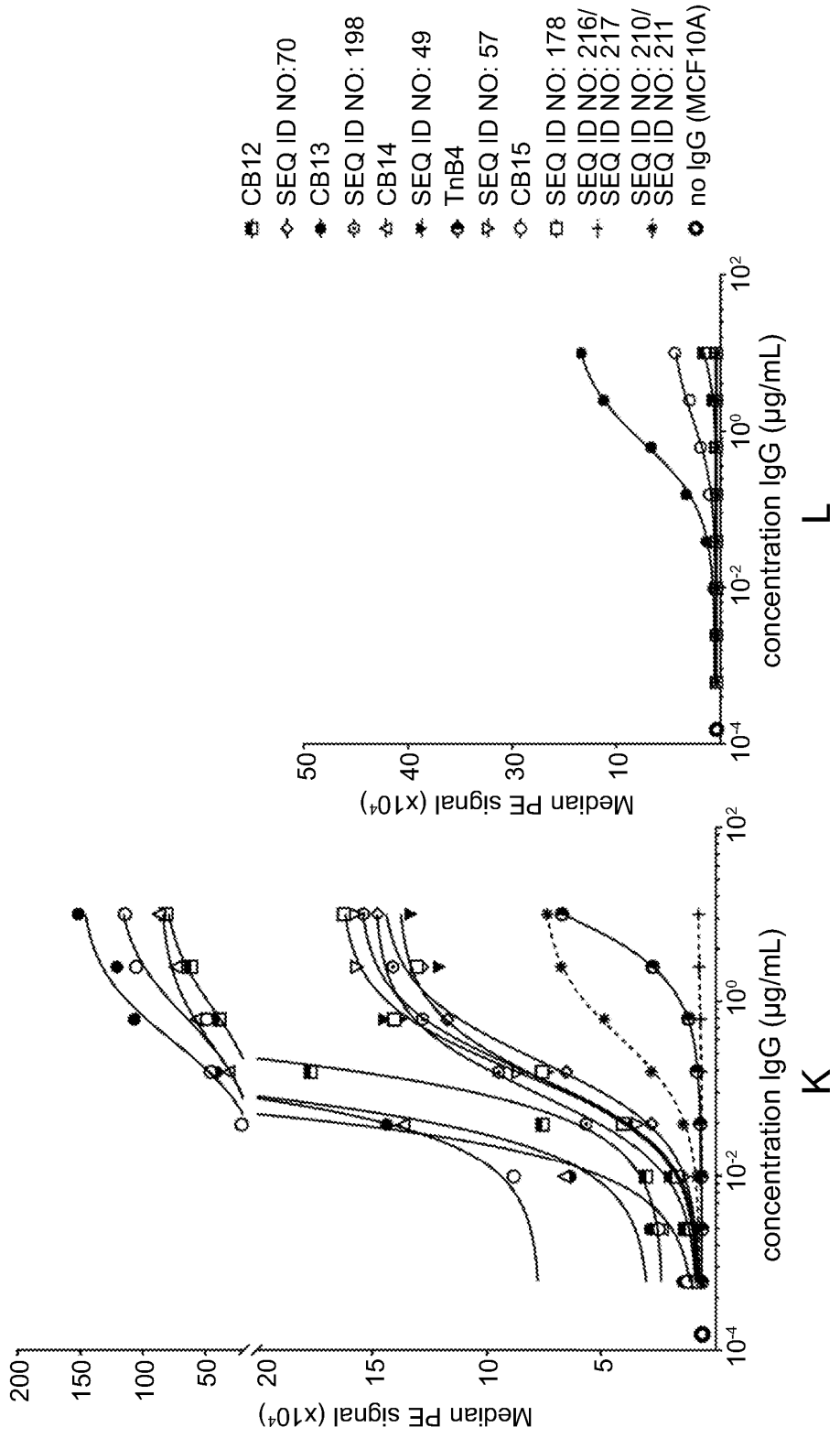

CB12
SEQ ID NO:70
CB13
SEQ ID NO: 198
CB14
SEQ ID NO: 49
TnB4
SEQ ID NO: 57
CB15
SEQ ID NO: 178
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MCF10A)
Median PE signal (x10⁴)
concentration IgG (µg/mL)
K
L

Fig. 2, Cont'd

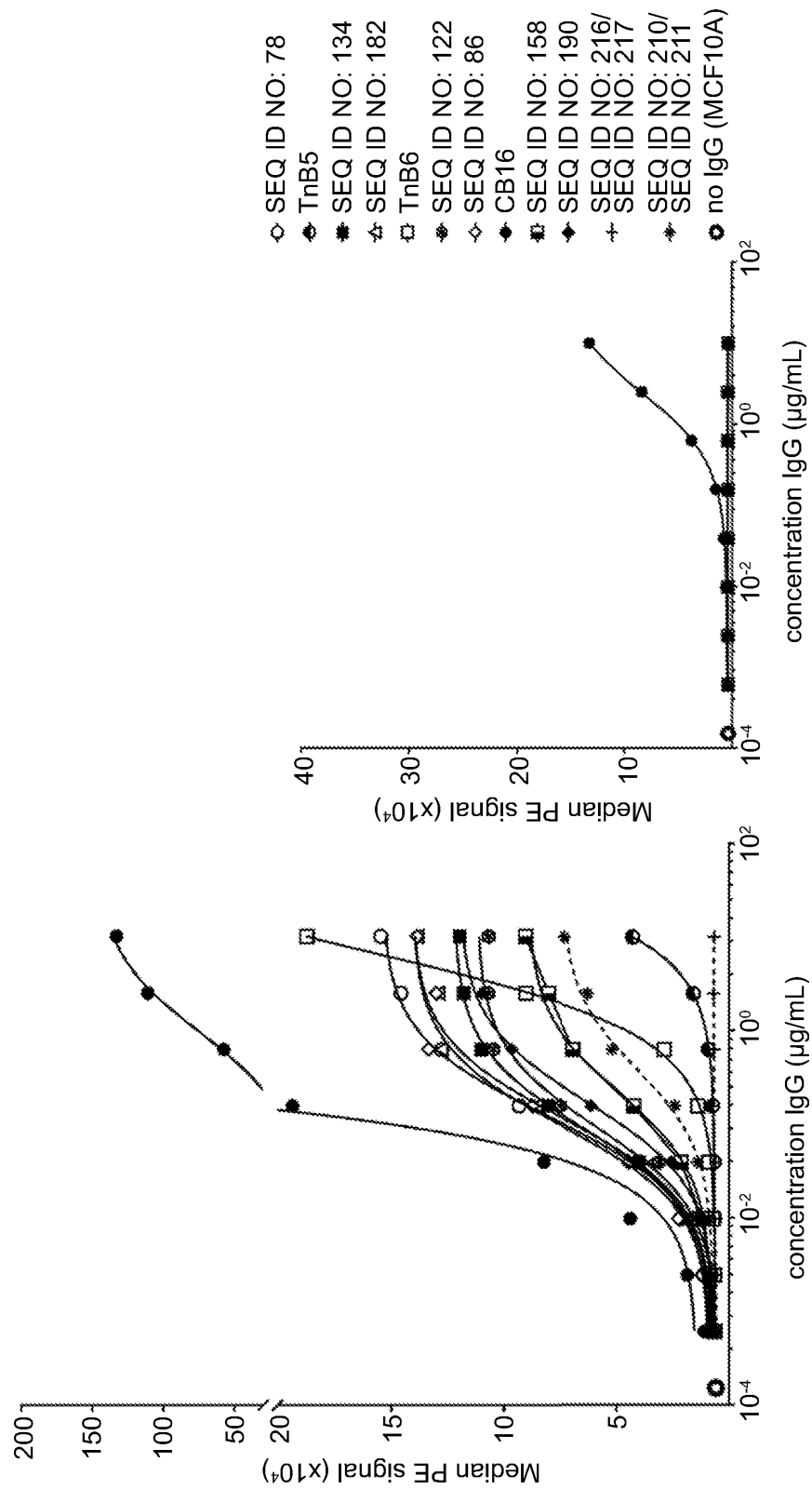

SEQ ID NO: 78
TnB5
SEQ ID NO: 134
SEQ ID NO: 182
TnB6
SEQ ID NO: 122
SEQ ID NO: 86
CB16
SEQ ID NO: 158
SEQ ID NO: 190
SEQ ID NO: 216/
SEQ ID NO: 217
SEQ ID NO: 210/
SEQ ID NO: 211
no IgG (MCF10A)
Median PE signal (x10⁴)
concentration IgG (µg/mL)
M
N

Fig. 2, Cont'd

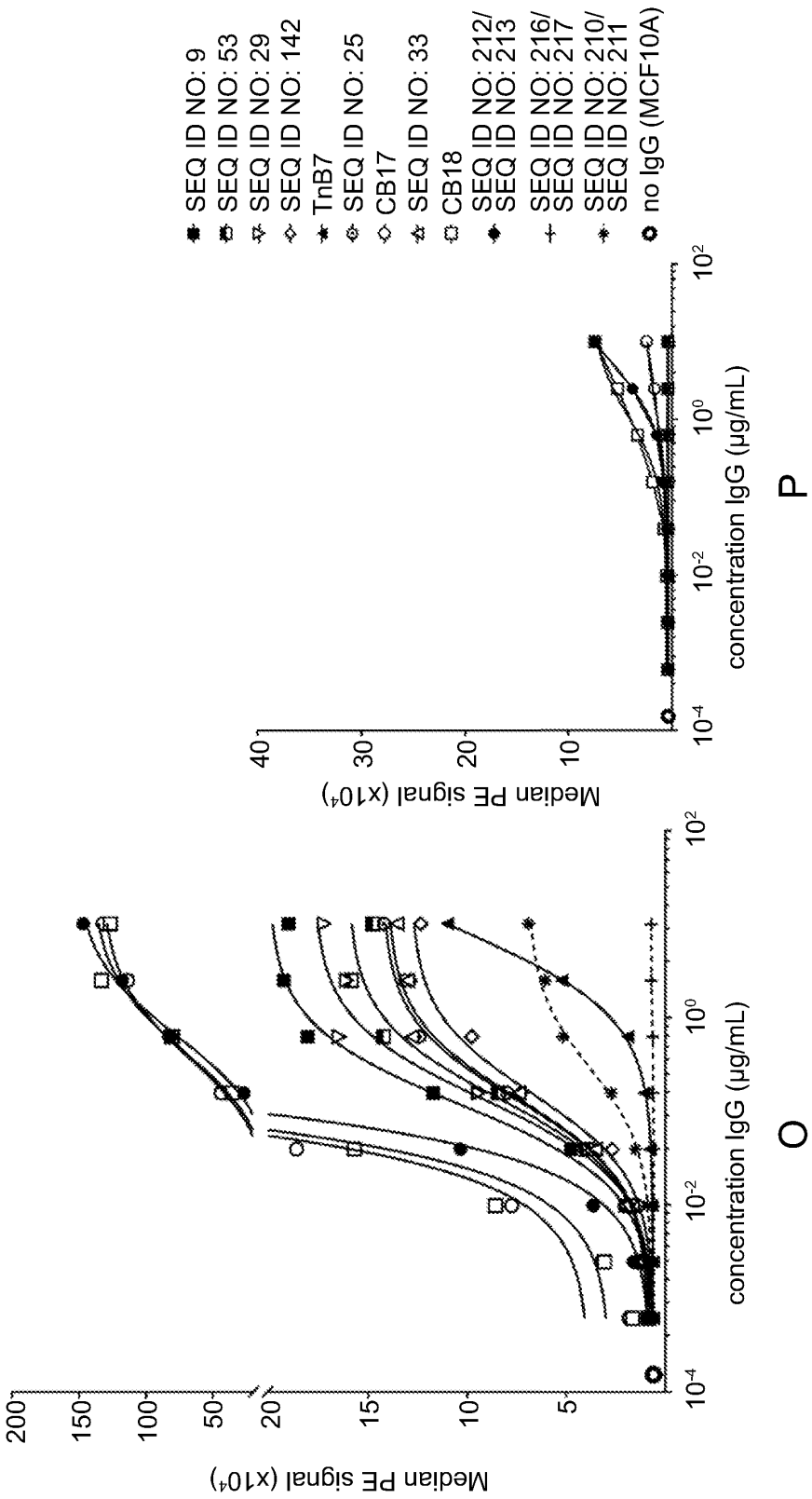

SEQ ID NO: 9
SEQ ID NO: 53
SEQ ID NO: 29
SEQ ID NO: 142
TnB7
SEQ ID NO: 25
CB17
SEQ ID NO: 33
CB18
SEQ ID NO: 212/ SEQ ID NO: 213
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MCF10A)
Median PE signal (x10⁴)
concentration IgG (µg/mL)
O
P

Fig. 2, Cont'd

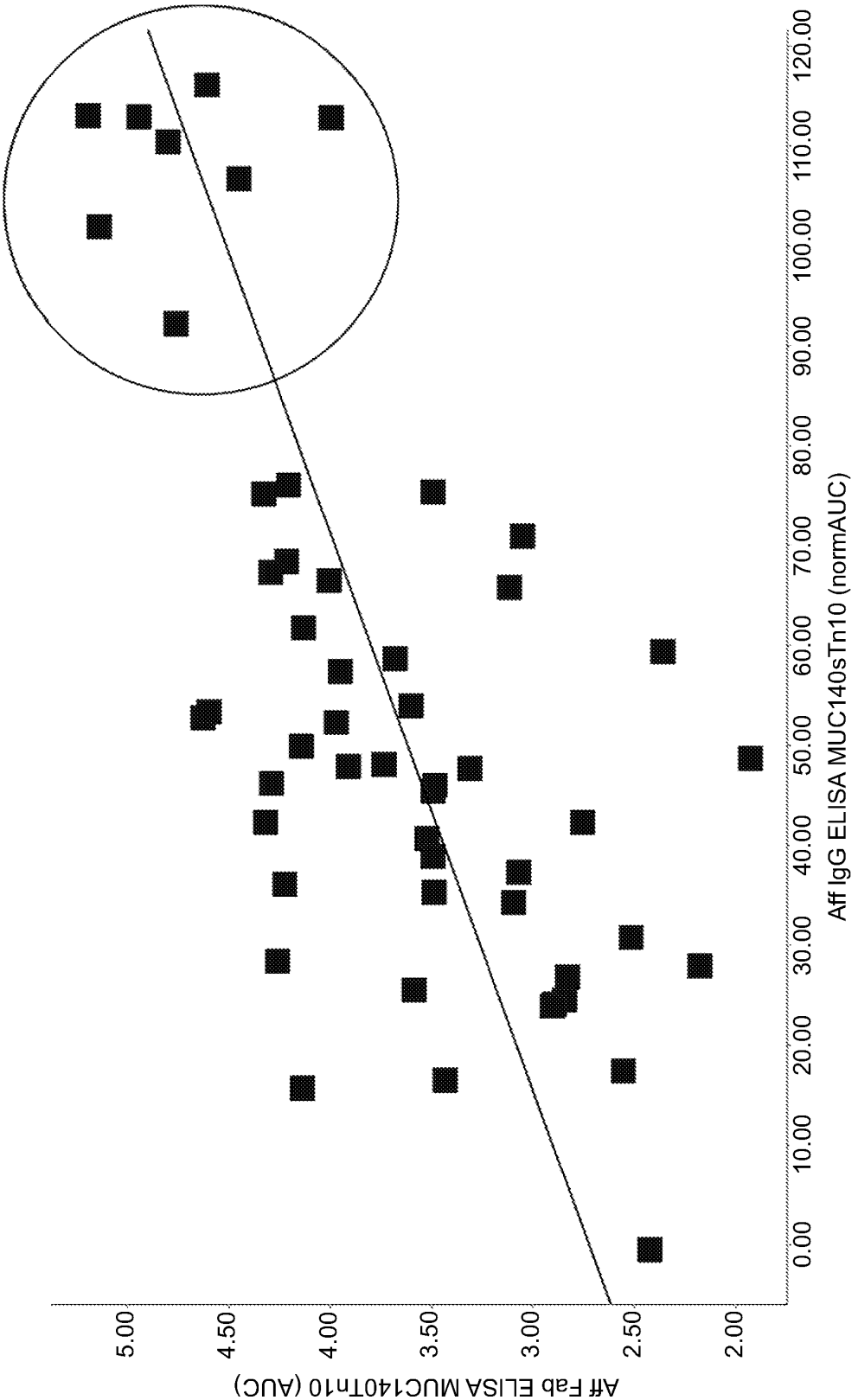

Aff Fab ELISA MUC140Tn10 (AUC)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
Aff IgG ELISA MUC140sTn10 (normAUC)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00

Fig. 3

	EC50 to MUC1-Tn glycopeptides in array (µg/ml)											
SEQ ID NO	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12
78			37.930	0.034				0.032	0.032		0.041	
1			73.990	0.033				0.040	0.044		0.046	
82				0.145				0.196	0.167		0.227	
86				0.057				0.061	0.050		0.068	
90				0.118				0.120	0.102		0.126	
9			21.620	0.031			63.970	0.034	0.039		0.041	
13				0.153				0.145	0.134		0.158	
118				0.097				0.142	0.102		0.143	
94				0.034				0.033	0.033		0.040	
98				0.116				0.263	0.102		0.395	
102				0.087				0.101	0.102		0.111	
106			99.300	0.037				0.036	0.032		0.043	
110				0.127				0.153	0.139		0.164	
114				0.087				0.085	0.076		0.090	
17				0.098				0.104	0.102		0.126	
142				0.089				0.108	0.091		0.126	
134				0.110				0.113	0.095		0.131	
138				0.116				0.106	0.096		0.123	
122				0.108				0.121	0.100		0.133	
126				0.143				0.168	0.153		0.195	
21				0.051				0.061	0.058		0.071	
146				0.081				0.104	0.086		0.116	
154				0.130				0.162	0.106		0.196	
158				0.095				0.242	0.088		0.235	
25			38.640	0.100				0.113	0.119		0.129	
41				0.100				0.114	0.113		0.134	
170				0.116				0.123	0.127		0.141	
198				0.111				0.121	0.121		0.137	
194				0.100				0.099	0.082		0.109	
178				0.103				0.095	0.090		0.108	
33				0.076				0.079	0.071		0.088	
62				0.042				0.070	0.045		0.097	
202				0.104				0.125	0.119		0.142	
190				0.102				0.108	0.120		0.122	
150				0.126				0.135	0.098		0.157	
70				0.127				0.149	0.151		0.161	
53				0.112				0.122	0.126		0.131	
29				0.104				0.121	0.118		0.126	
5				0.116				0.123	0.113		0.127	
45			52.180	0.084				0.088	0.083		0.093	
162				0.037				0.043	0.037		0.063	
66				0.110				0.123	0.123		0.138	
182				0.093				0.098	0.085		0.110	
174				0.178				0.174	0.144		0.192	
130				0.125				0.116	0.117		0.140	
74				0.111				0.118	0.096		0.137	
206				0.068				0.084	0.066		0.088	
57				0.112				0.114	0.109		0.123	
166				0.108				1.855	0.095		1.680	
37				0.157				0.144	0.130		0.158	
186				0.118				0.203	0.132		0.213	
49				0.102				0.124	0.120		0.132	

Fig. 4

EC50 to MUC1-STn glycopeptides in array (µg/ml)											
S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
			0.039					0.067		0.477	
			0.038					0.122		0.711	
			0.173					0.830		58.640	
			0.074					0.105		13.070	
			0.126					0.207		67.390	
			0.031					0.046		0.053	
			0.156					0.279		15.860	
			0.123					0.363			
			0.040					0.116		9.355	
			0.131					0.869		55.260	
			0.095					0.223		7.146	
			0.042					0.078		7.894	
			0.155					0.363		33.690	
			0.094					0.174		19.340	
			0.120					0.256		97.480	
			0.130					0.435			
			0.122					0.253		31.990	
			0.095					0.178			
0.339			0.144					0.583			
			0.160					0.286		46.900	
			0.066					0.138		8.118	
			0.095					0.358			
			0.177					12.16			
			0.148					1.414			
			0.110					0.216		37.580	
			0.117					0.290			
			0.124					0.187		20.320	
			0.128					0.201		14.980	
			0.127					1.129		34.580	
			0.098					0.108		0.335	
			0.088					0.197		54.780	
			0.042					0.335		80.710	
			0.116					0.277			
			0.108					0.323		42.810	
			0.148					0.294		14.400	
			0.140					0.306		80.320	
			0.135					0.227		24.020	
			0.118					0.220		6.965	
			0.120					0.137		0.296	
			0.089					0.135		4.064	
			0.045					0.226		71.510	
			0.118					0.494		40.920	
			0.103					0.227		2.103	
			0.204					0.269		22.870	
			0.137					0.230		27.220	
			0.131					0.337			
			0.077					0.122		14.020	
			0.119					0.160		0.939	
			0.151					0.550		134.500	
			0.156					0.269			
			0.137					0.314			
			0.115					0.271		85.210	

Fig. 4, Cont'd

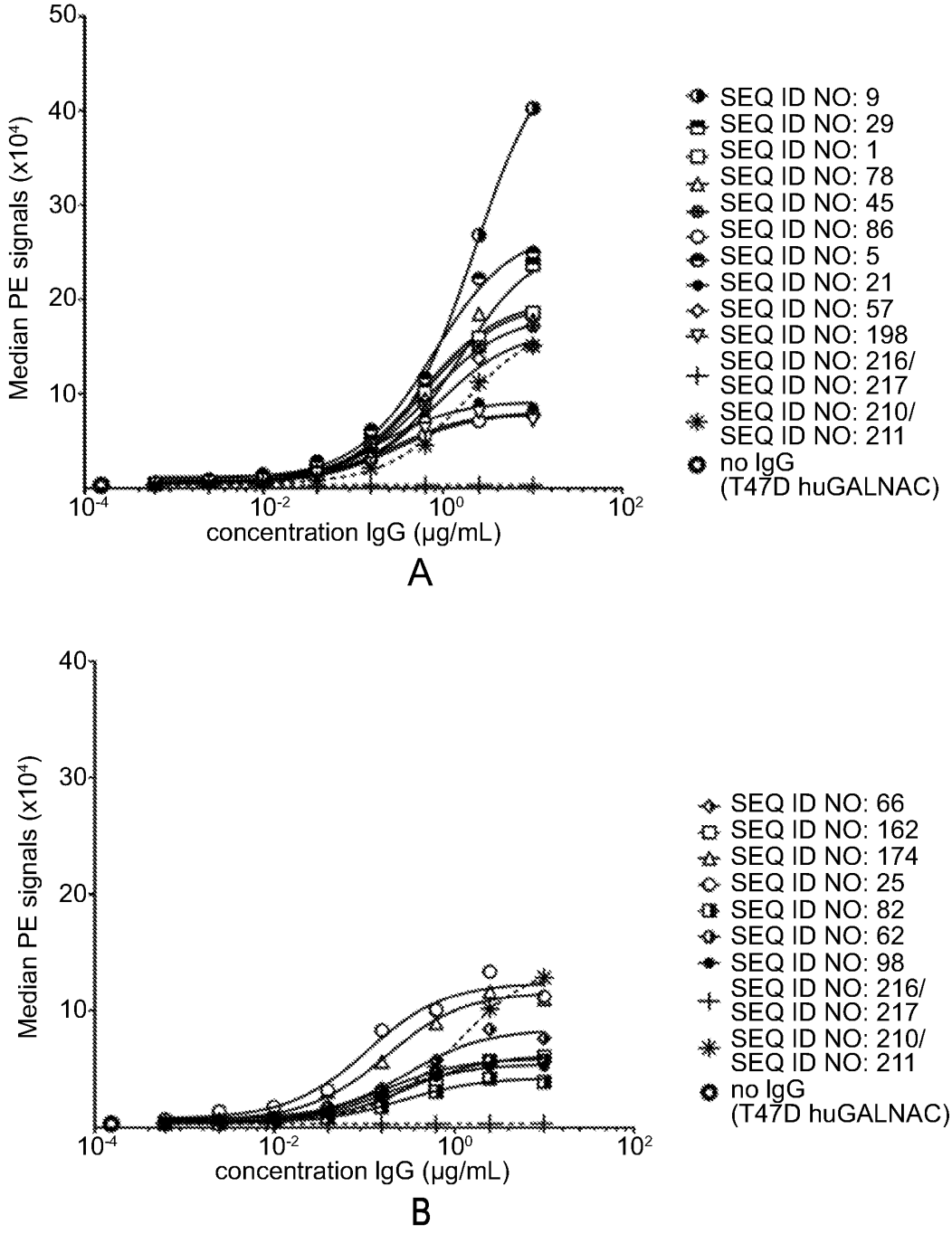
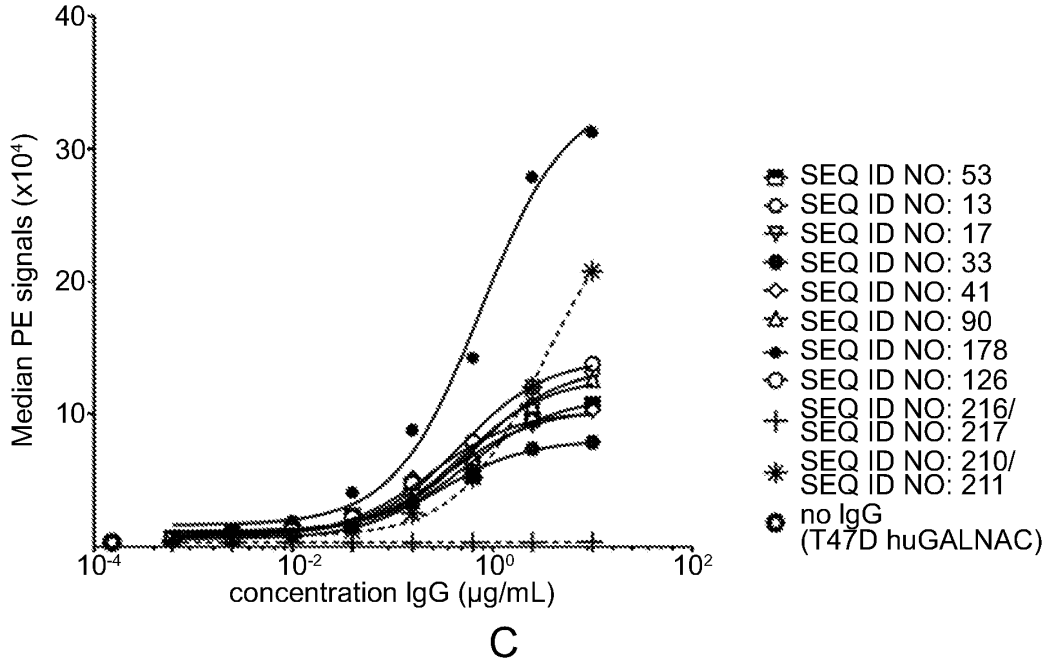
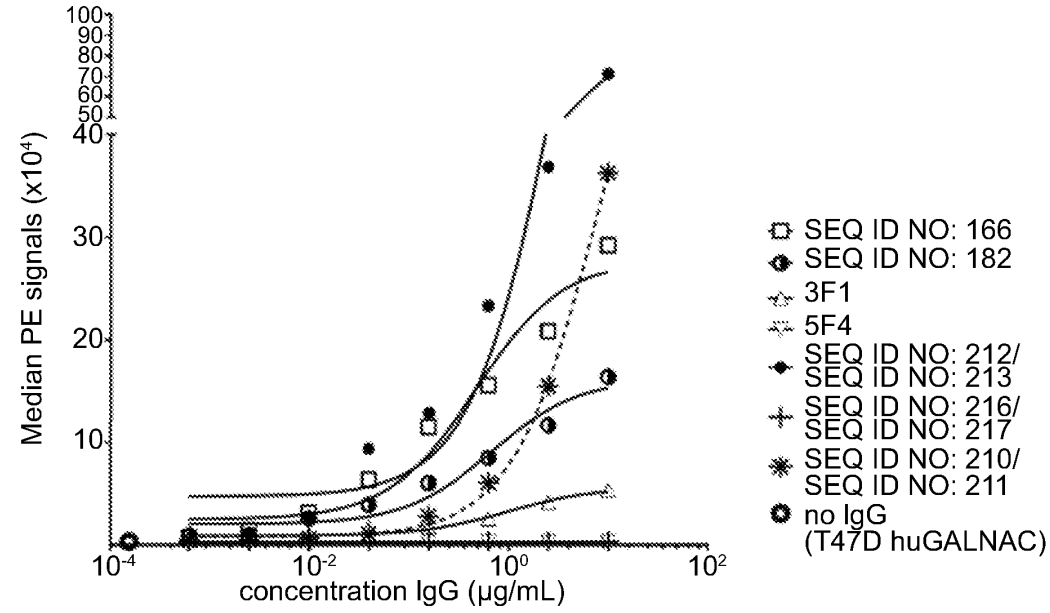

Median PE signals (x10⁴)
50
40
30
20
10
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
SEQ ID NO: 9
SEQ ID NO: 29
SEQ ID NO: 1
SEQ ID NO: 78
SEQ ID NO: 45
SEQ ID NO: 86
SEQ ID NO: 5
SEQ ID NO: 21
SEQ ID NO: 57
SEQ ID NO: 198
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (T47D huGALNAC)
A
Median PE signals (x10⁴)
40
30
20
10
10⁻⁴
10⁻²
10⁰
10²
concentration IgG (µg/mL)
SEQ ID NO: 66
SEQ ID NO: 162
SEQ ID NO: 174
SEQ ID NO: 25
SEQ ID NO: 82
SEQ ID NO: 62
SEQ ID NO: 98
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (T47D huGALNAC)
B

Fig. 5

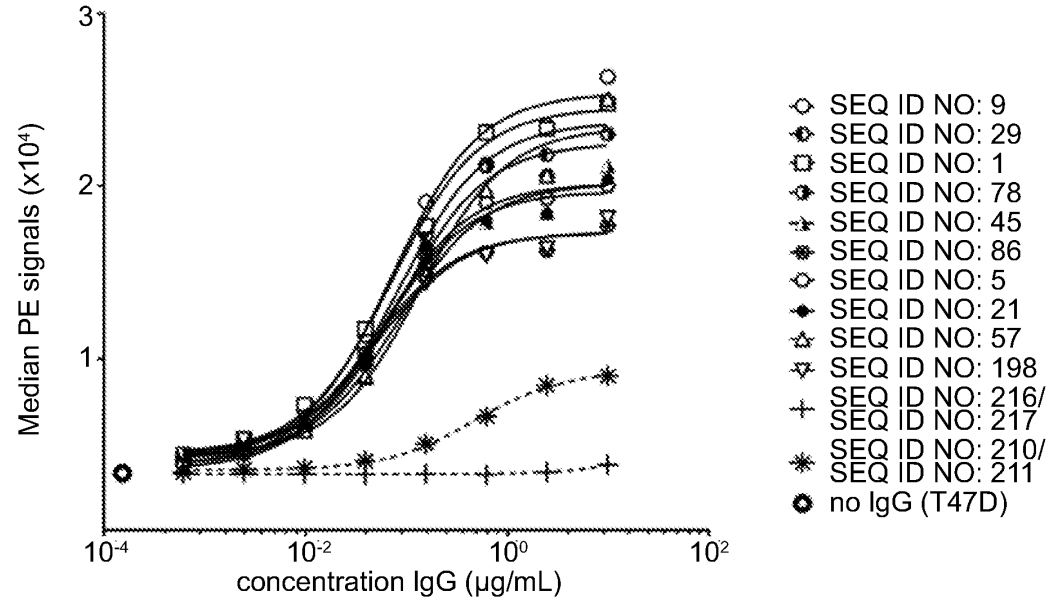


C

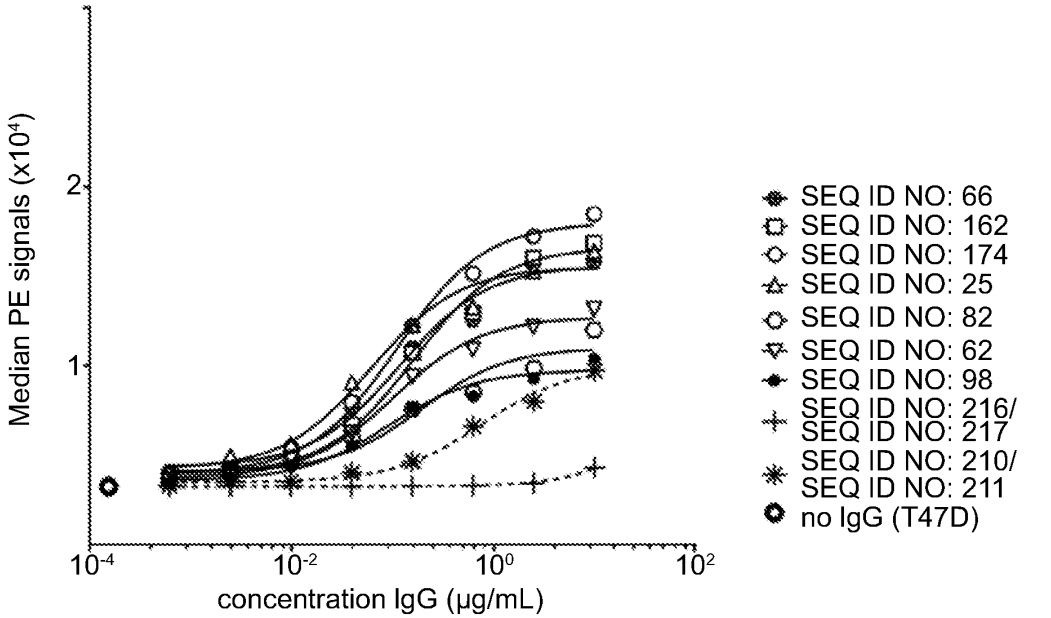


D

Fig. 5, Cont'd

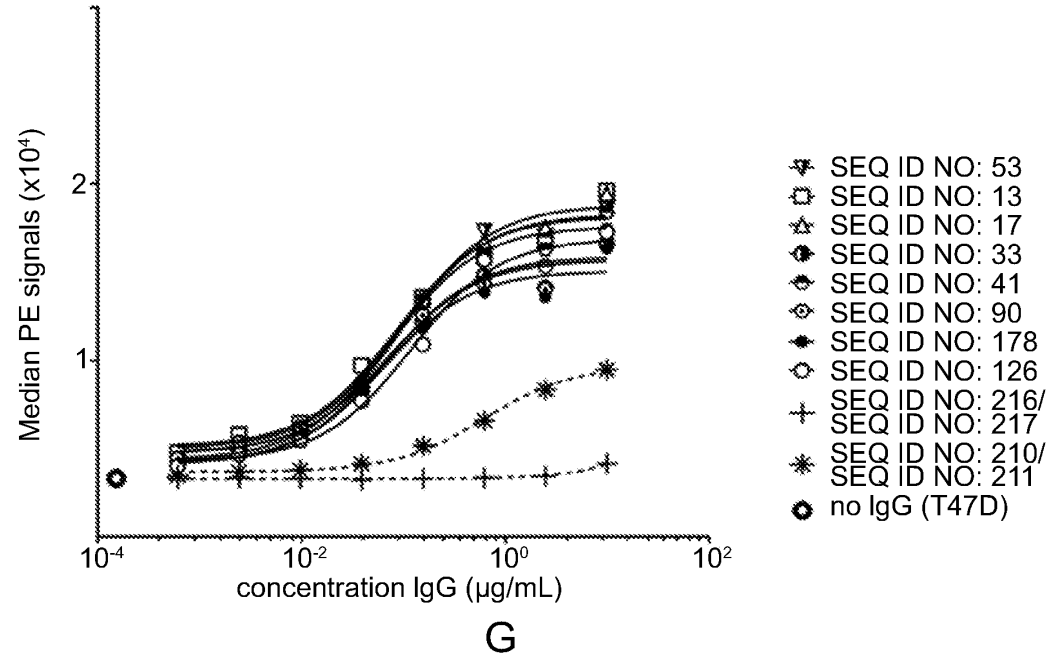


E

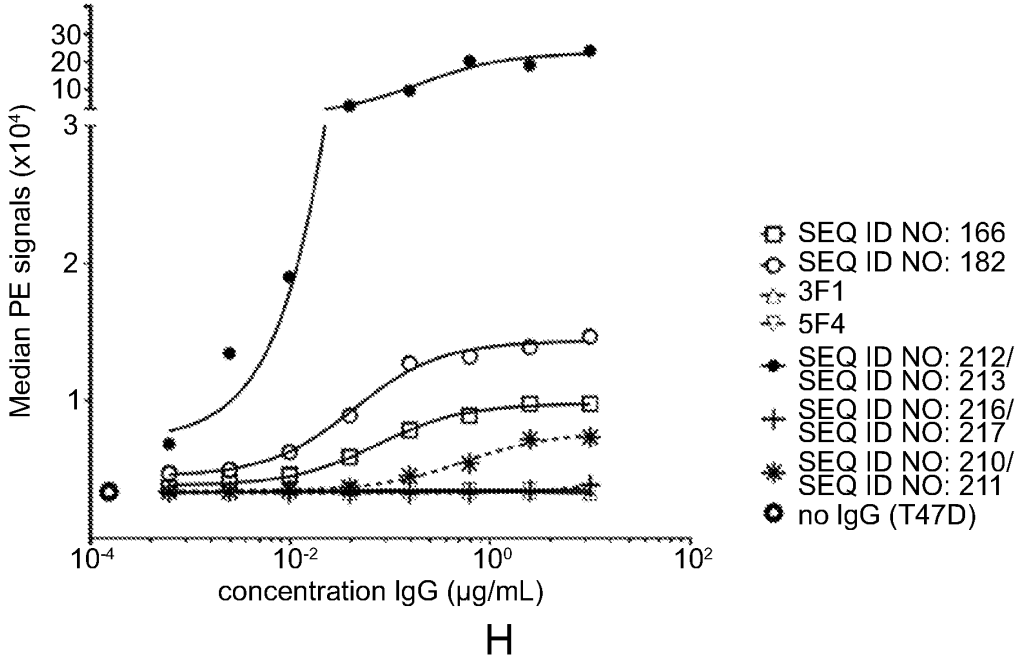


F

Fig. 5, Cont'd

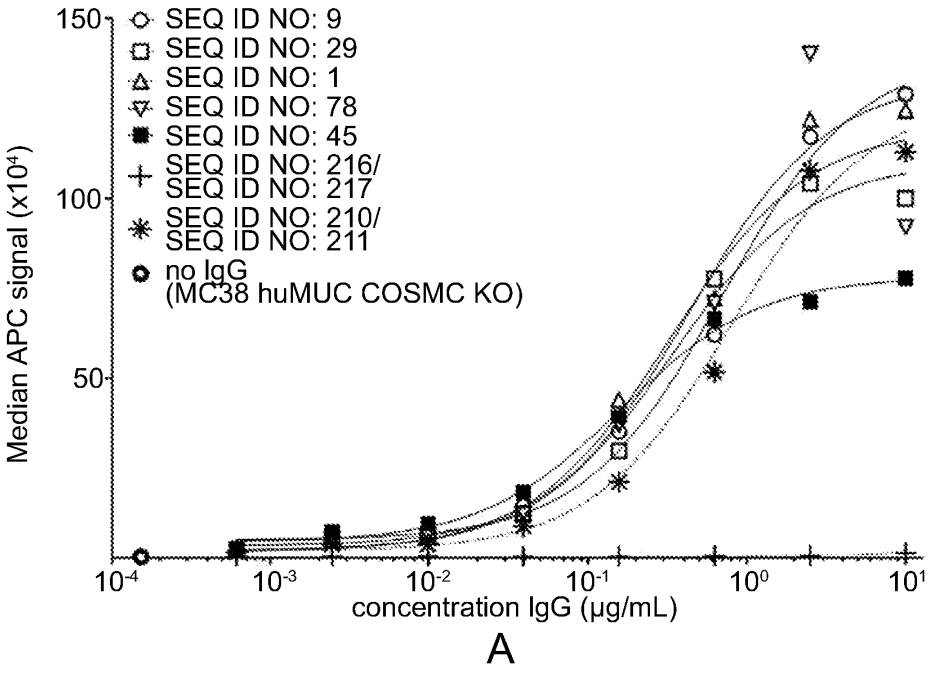


G

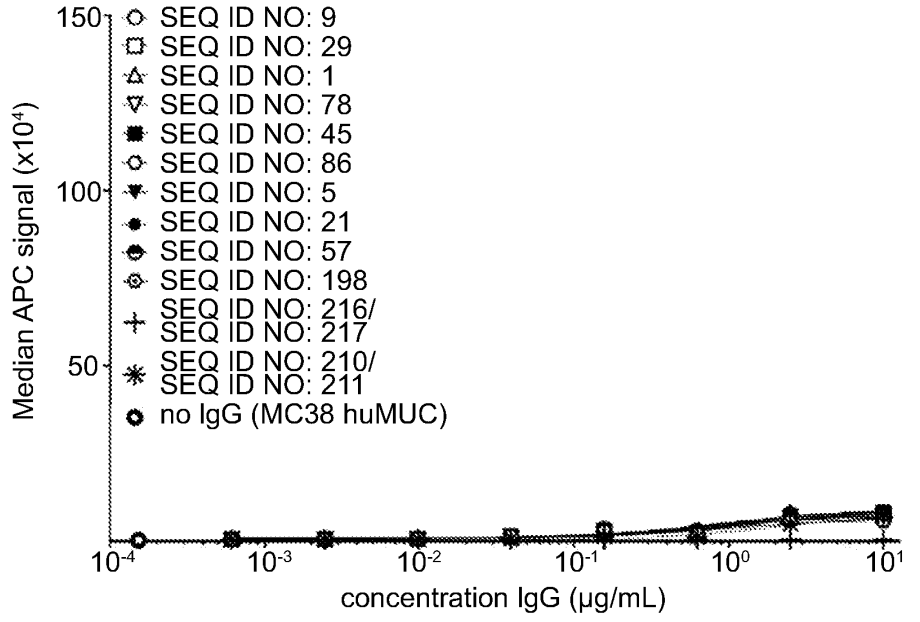


H

Fig. 5, Cont'd

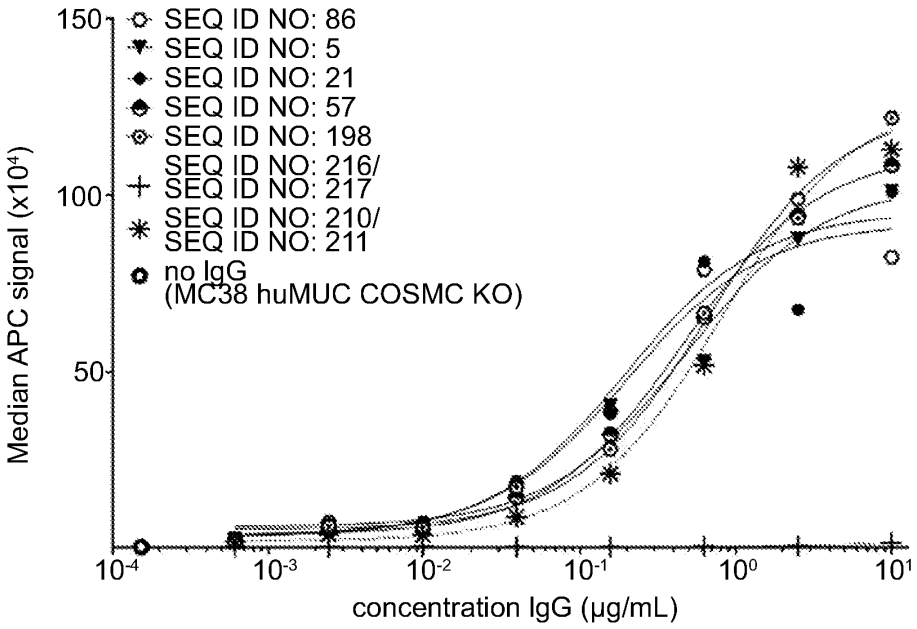

150
100
50
Median APC signal (x10⁴)
SEQ ID NO: 9
SEQ ID NO: 29
SEQ ID NO: 1
SEQ ID NO: 78
SEQ ID NO: 45
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MC38 huMUC COSMC KO)
10⁻⁴ 10⁻³ 10⁻² 10⁻¹ 10⁰ 10¹
concentration IgG (µg/mL)

A

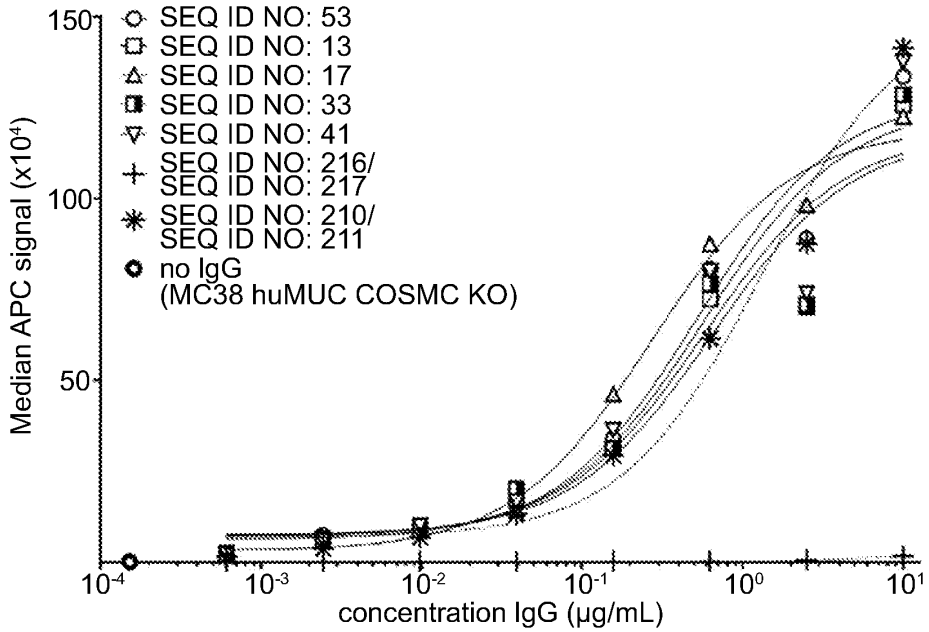

150
100
50
Median APC signal (x10⁴)
SEQ ID NO: 9
SEQ ID NO: 29
SEQ ID NO: 1
SEQ ID NO: 78
SEQ ID NO: 45
SEQ ID NO: 86
SEQ ID NO: 5
SEQ ID NO: 21
SEQ ID NO: 57
SEQ ID NO: 198
SEQ ID NO: 216/ SEQ ID NO: 217
SEQ ID NO: 210/ SEQ ID NO: 211
no IgG (MC38 huMUC)
10⁻⁴ 10⁻³ 10⁻² 10⁻¹ 10⁰ 10¹
concentration IgG (µg/mL)

B

Fig. 6

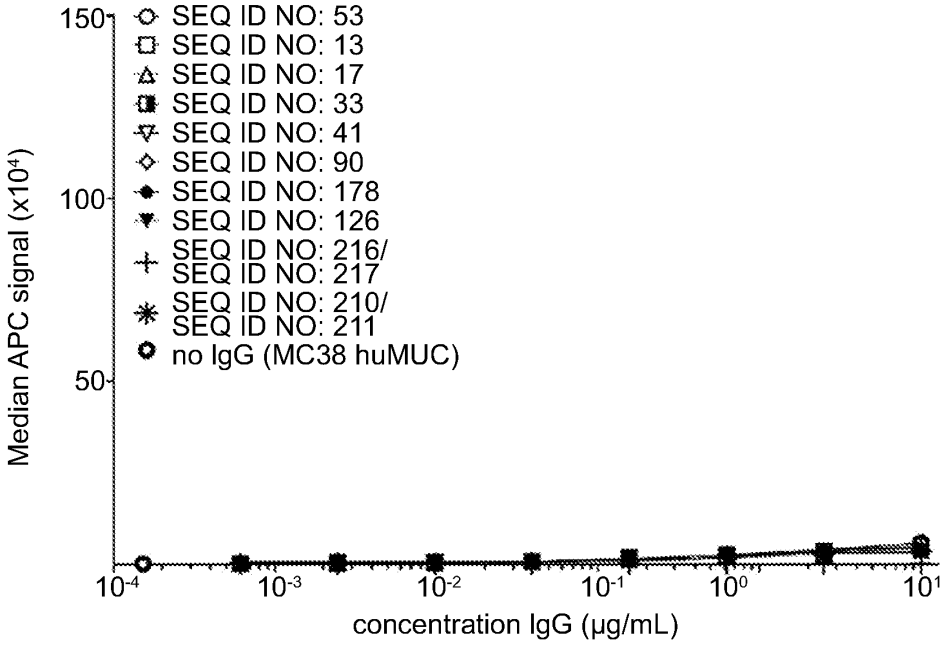


C

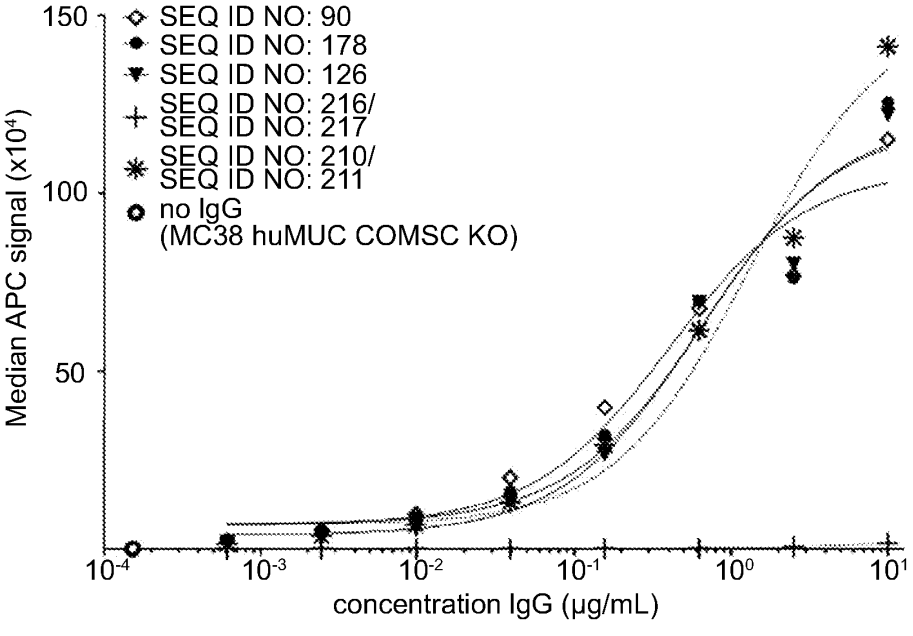


D

Fig. 6, Cont'd

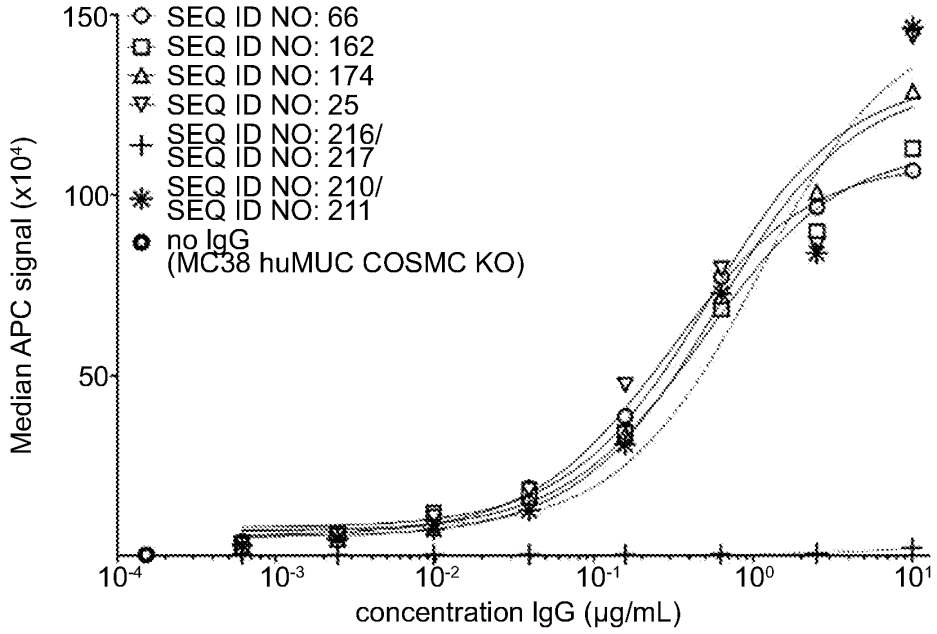


E

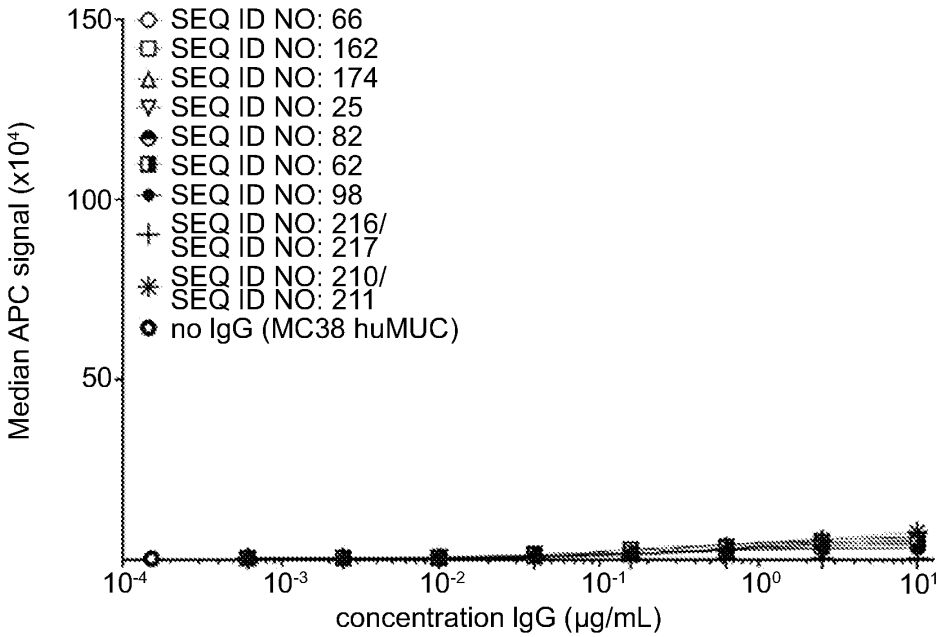


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Fig. 6, Cont'd

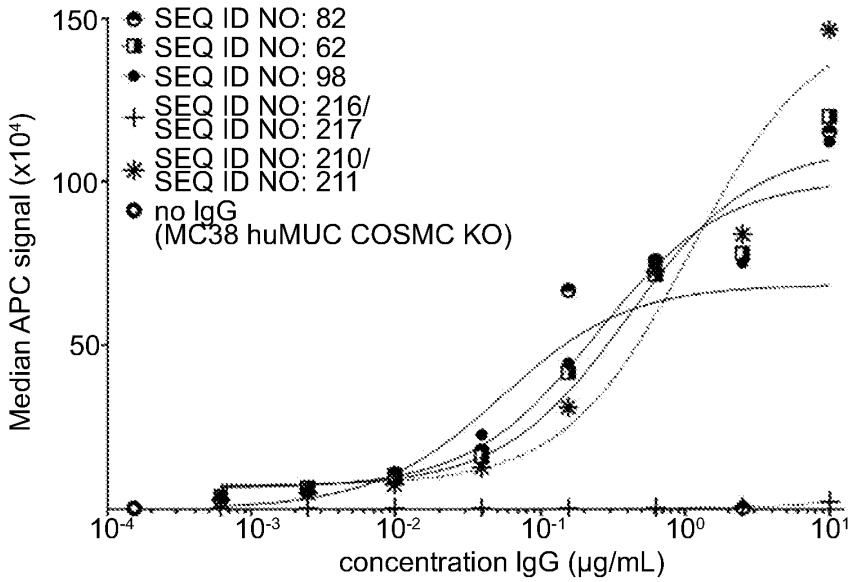


G

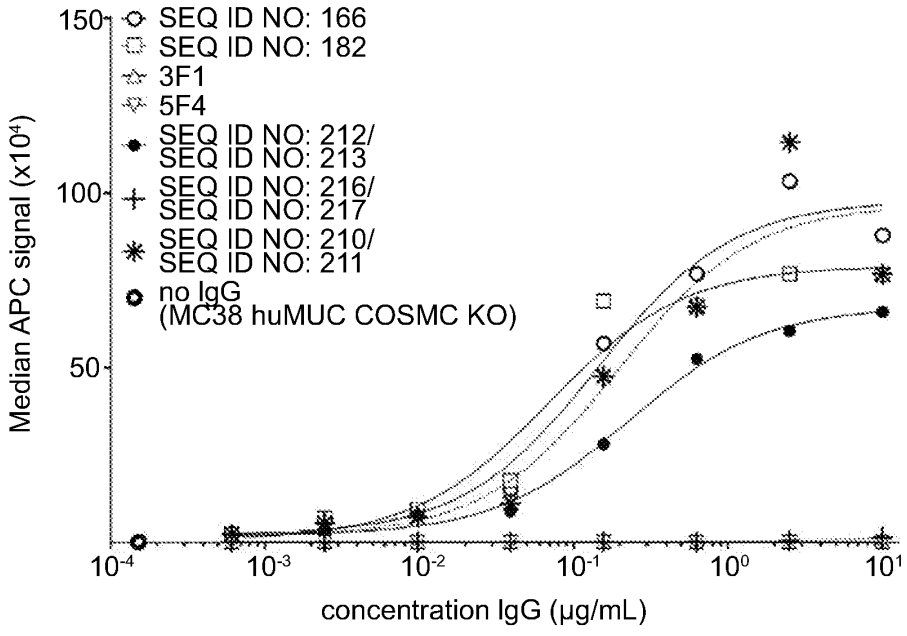


H

Fig. 6, Cont'd

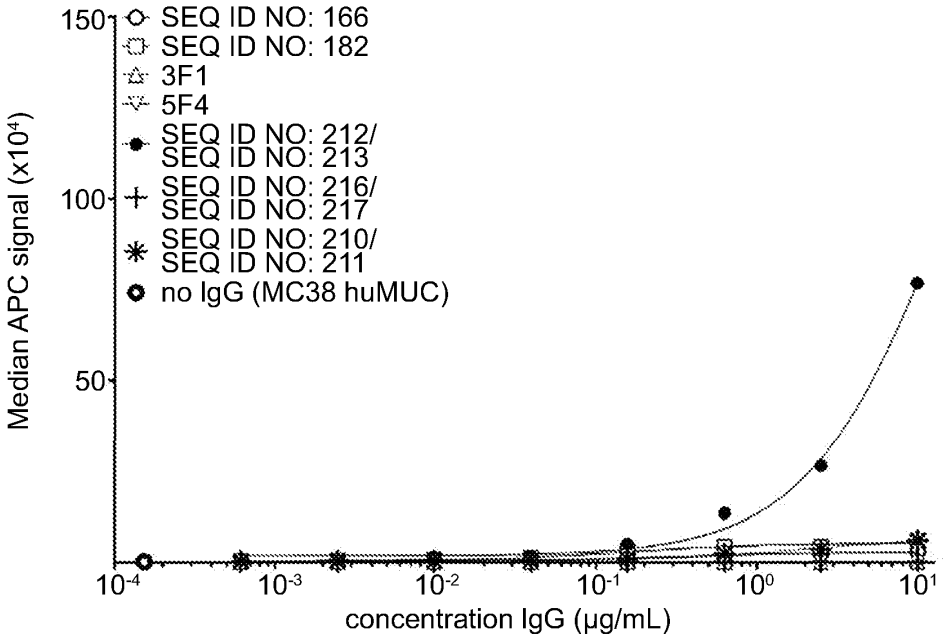


I



J

Fig. 6, Cont'd


150
100
50
Median APC signal (x10⁴)
SEQ ID NO: 166
SEQ ID NO: 182
3F1
5F4
SEQ ID NO: 212/
SEQ ID NO: 213
SEQ ID NO: 216/
SEQ ID NO: 217
SEQ ID NO: 210/
SEQ ID NO: 211
no IgG (MC38 huMUC)
10⁻⁴
10⁻³
10⁻²
10⁻¹
10⁰
10¹
concentration IgG (µg/mL)

K

Fig. 6, Cont'd