FIG. 1A

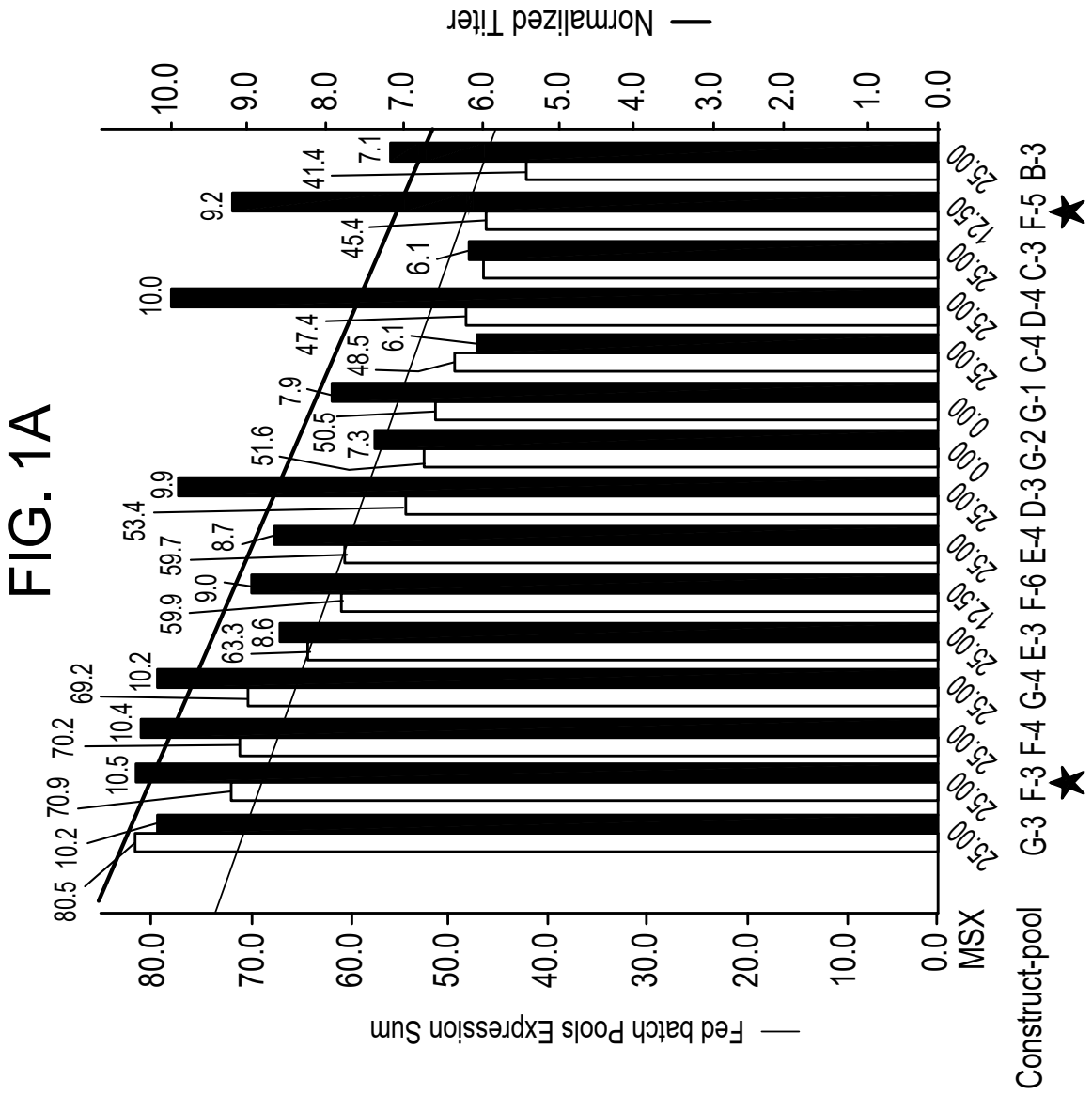

Fed batch Pools Expression Sum
Normalized Titer
Construct-pool
MSX
G-3 F-3 F-4 G-4 E-3 F-6 E-4 D-3 G-2 G-1 C-4 D-4 C-3 F-5 B-3
25.00 25.00 25.00 25.00 25.00 12.50 25.00 25.00 0.00 0.00 25.00 25.00 25.00 12.50 25.00
80.5 10.2 70.9 10.5 70.2 10.4 69.2 10.2 63.3 18.6 59.9 9.0 59.7 8.7 53.4 9.9 51.6 7.9 50.5 7.3 47.4 48.5 6.1 10.0 45.4 6.1 9.2 41.4 7.1
0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0

FIG. 1A cont.

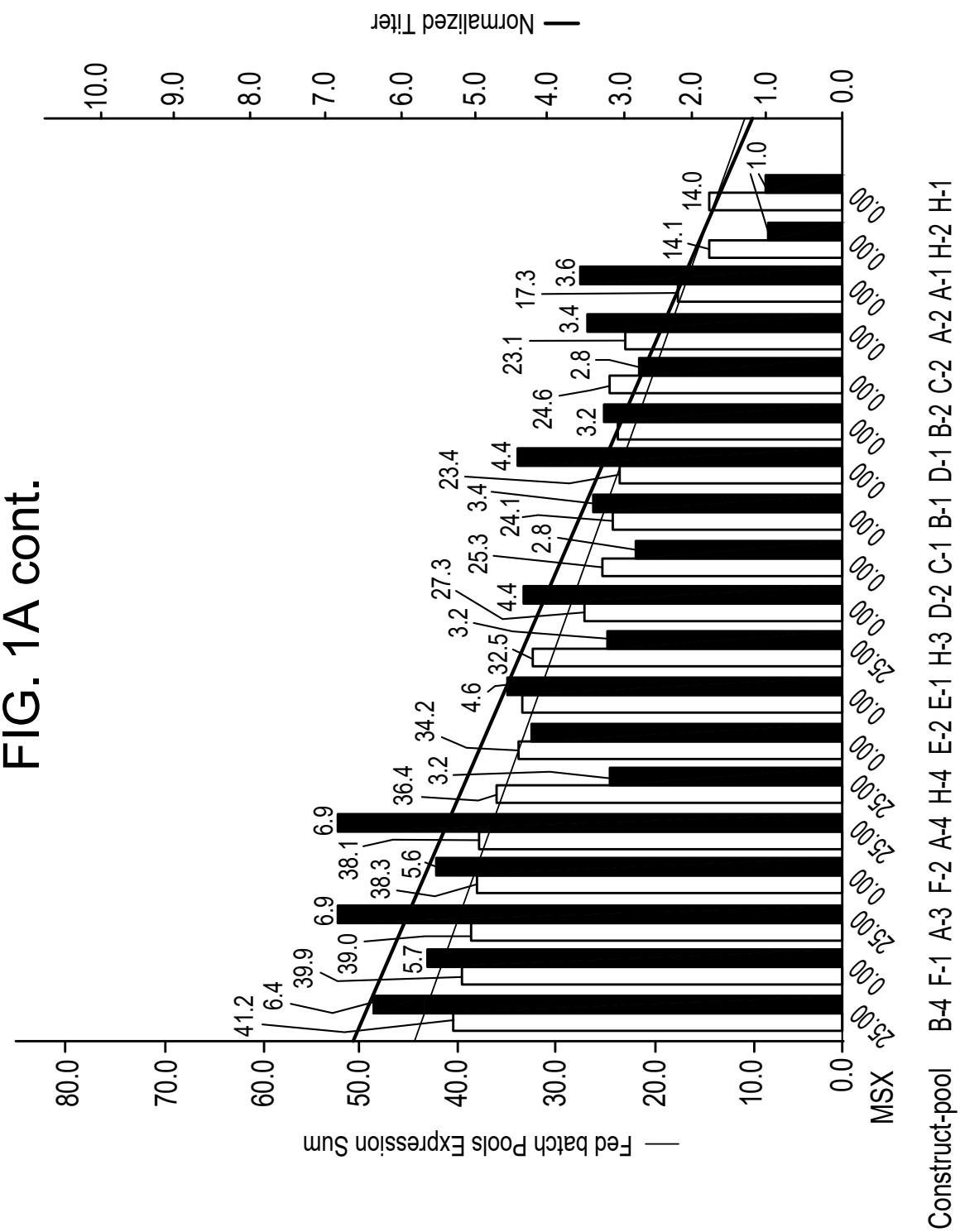

Fed batch Pools Expression Sum
Normalized Titer
MSX
Construct-pool
B-4 F-1 A-3 F-2 A-4 H-4 E-2 E-1 H-3 D-2 C-1 B-1 D-1 B-2 C-2 A-2 A-1 H-2 H-1

FIG. 1B

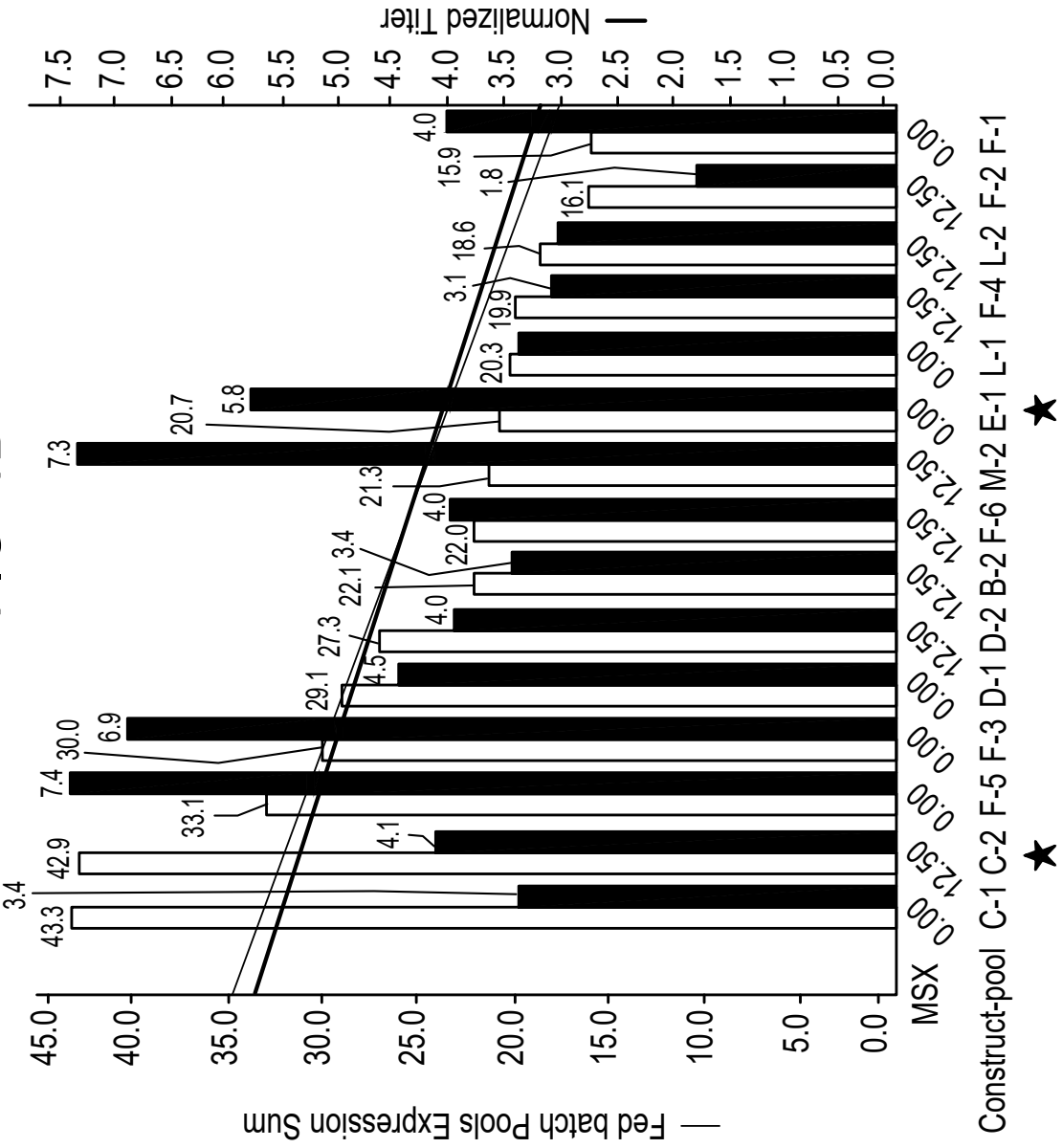

Normalized Titer
Fed batch Pools Expression Sum
MSX
0.00
12.50
Construct-pool C-1 C-2 F-5 F-3 D-1 D-2 B-2 F-6 M-2 E-1 L-1 F-4 L-2 F-2 F-1
★
★
3.4
43.3
42.9
7.4
30.0
6.9
33.1
4.1
29.1
27.3
4.5
22.1
3.4
4.0
21.3
4.0
22.0
7.3
20.7
5.8
20.3
19.9
3.1
18.6
16.1
1.8
15.9
4.0

FIG. 1B cont.

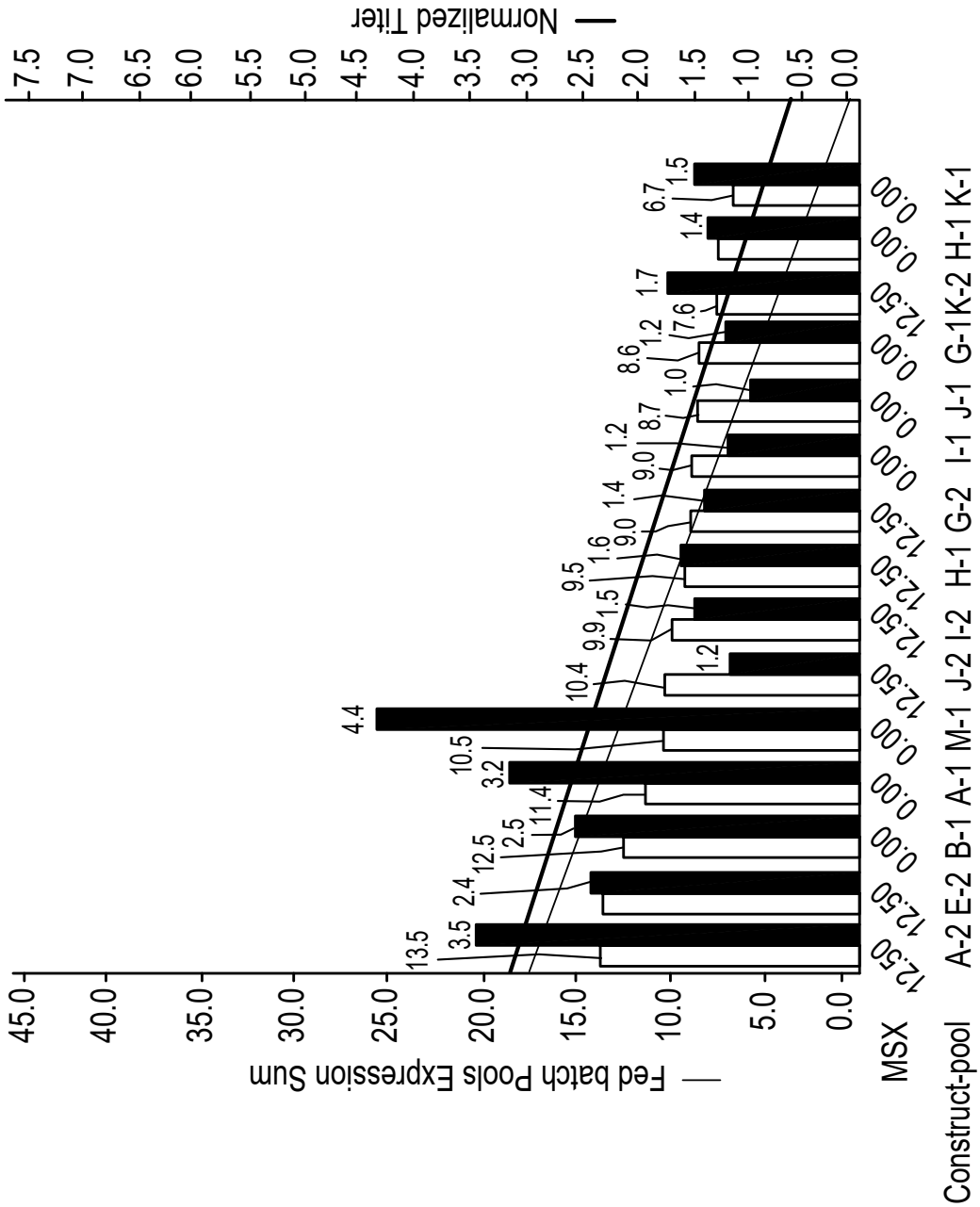

Normalized Titer
Fed batch Pools Expression Sum
MSX
Construct-pool
A-2 E-2 B-1 A-1 M-1 J-2 I-2 H-1 G-2 I-1 J-1 G-1 K-2 H-1 K-1

FIG. 1C

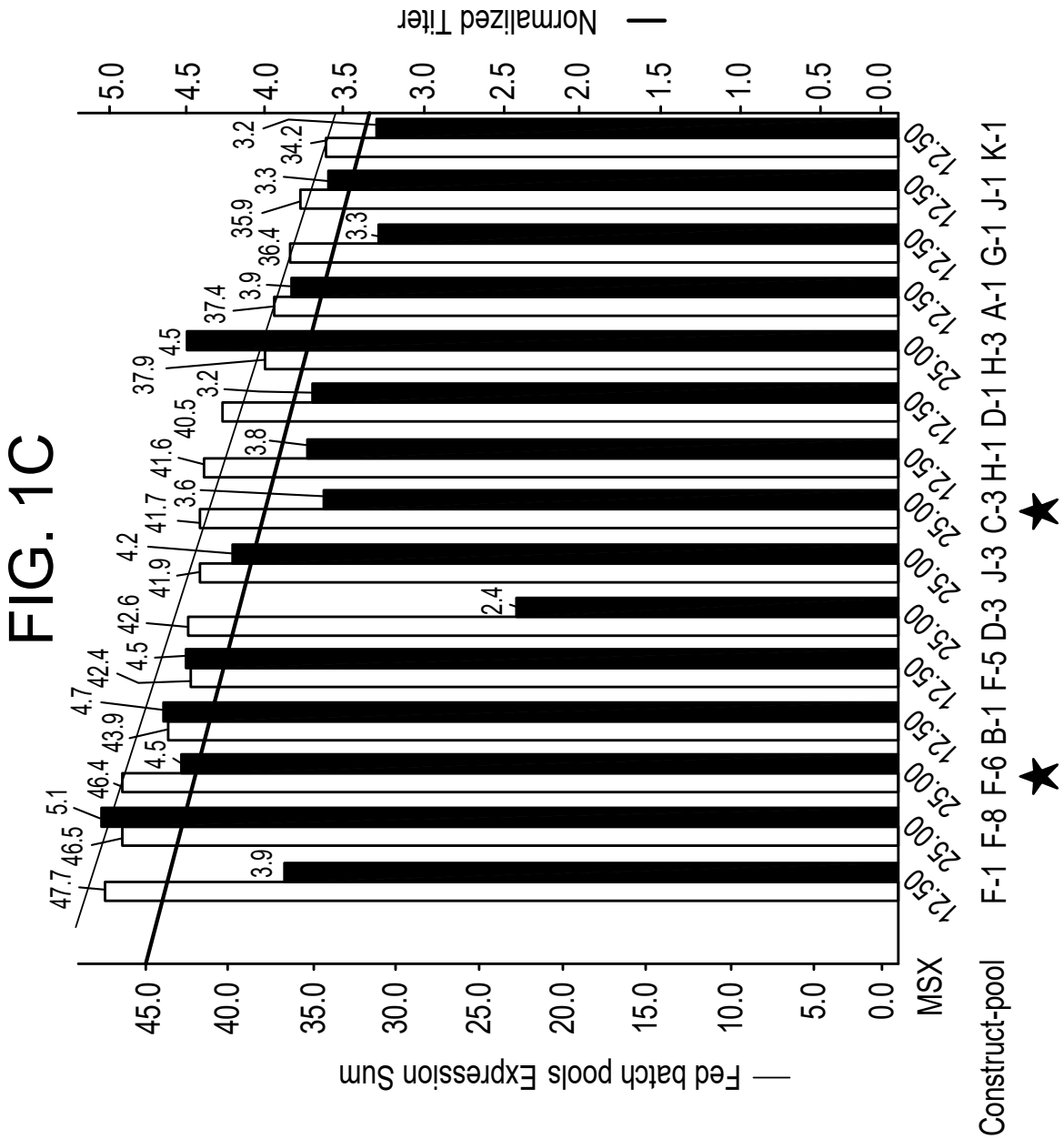

Fed batch pools Expression Sum
Normalized Titer
Construct-pool
MSX
F-1 F-8 F-6 B-1 F-5 D-3 J-3 C-3 H-1 D-1 H-3 A-1 G-1 J-1 K-1
12.50
25.00
12.50
25.00
12.50
25.00

FIG. 1C cont.

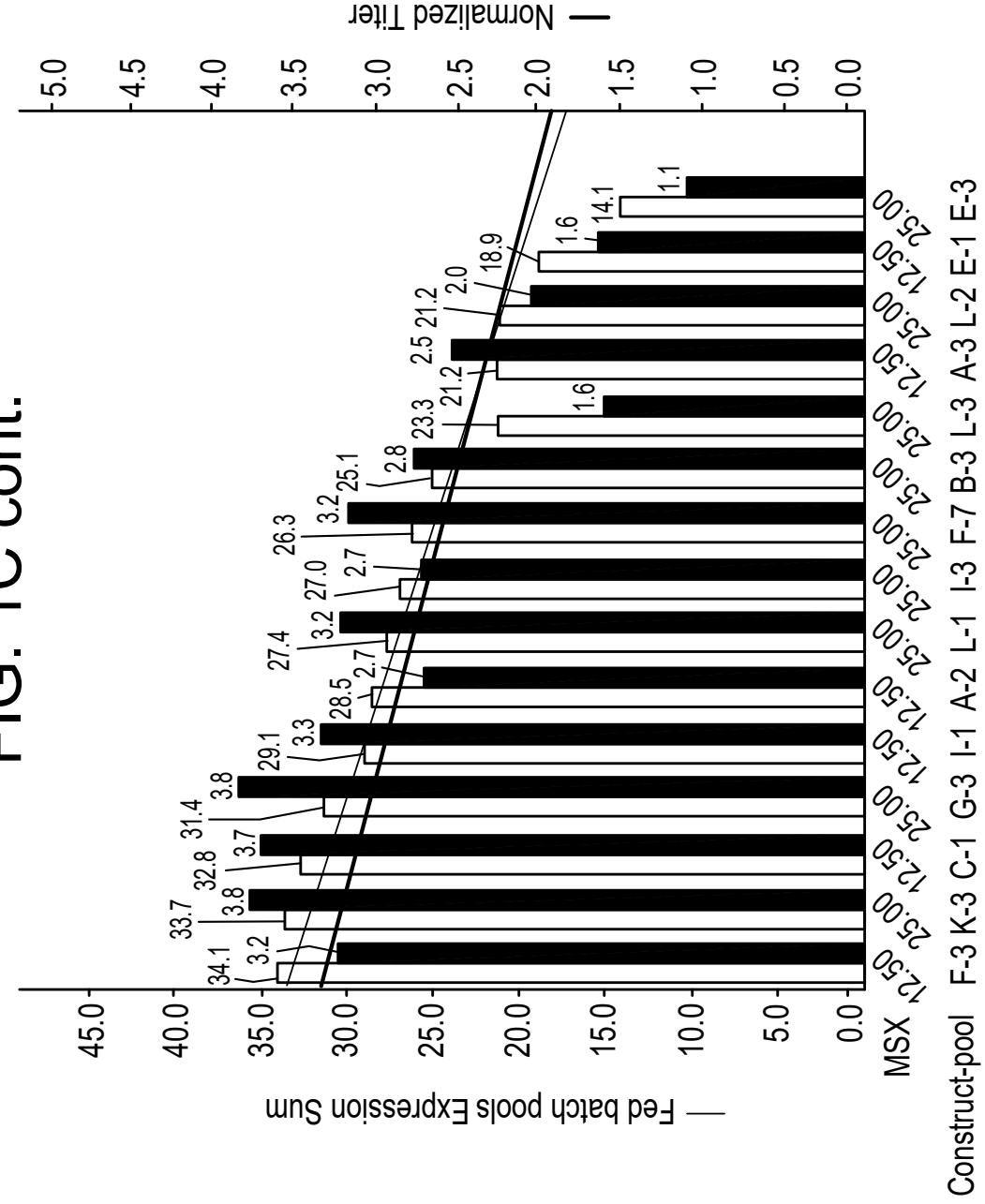

Fed batch pools Expression Sum
Normalized Titer
Construct-pool
MSX
F-3 K-3 C-1 G-3 I-1 A-2 L-1 I-3 F-7 B-3 L-3 A-3 L-2 E-1 E-3
12.50
25.00
34.1
3.2
33.7
3.8
32.8
3.7
31.4
3.8
29.1
3.3
28.5
2.7
27.4
3.2
27.0
2.7
26.3
3.2
25.1
2.8
23.3
1.6
21.2
2.5
21.2
2.0
18.9
1.6
14.1
1.1

FIG. 2A

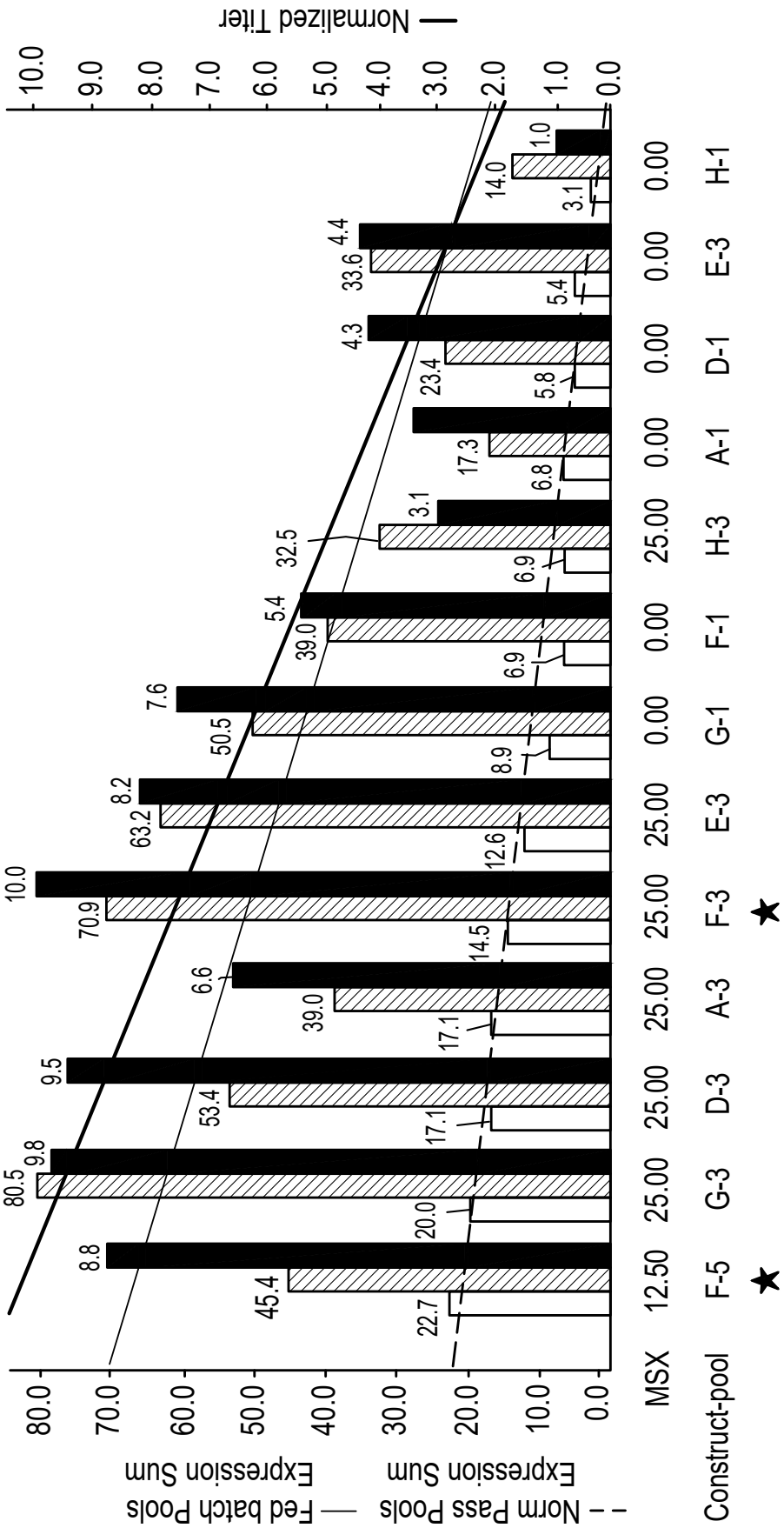

Normalized Titer
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Fed batch Pools
Expression Sum
Norm Pass Pools
Expression Sum
Construct-pool
MSX
12.50
F-5
25.00
G-3
25.00
D-3
25.00
A-3
25.00
F-3
25.00
E-3
0.00
G-1
0.00
F-1
25.00
H-3
0.00
A-1
0.00
D-1
0.00
E-3
0.00
H-1
80.5
9.8
8.8
45.4
22.7
20.0
9.5
53.4
17.1
6.6
39.0
17.1
10.0
70.9
14.5
8.2
63.2
12.6
7.6
50.5
8.9
5.4
39.0
6.9
32.5
3.1
6.9
17.3
6.8
4.3
23.4
5.8
4.4
33.6
5.4
14.0
3.1
1.0

FIG. 2B

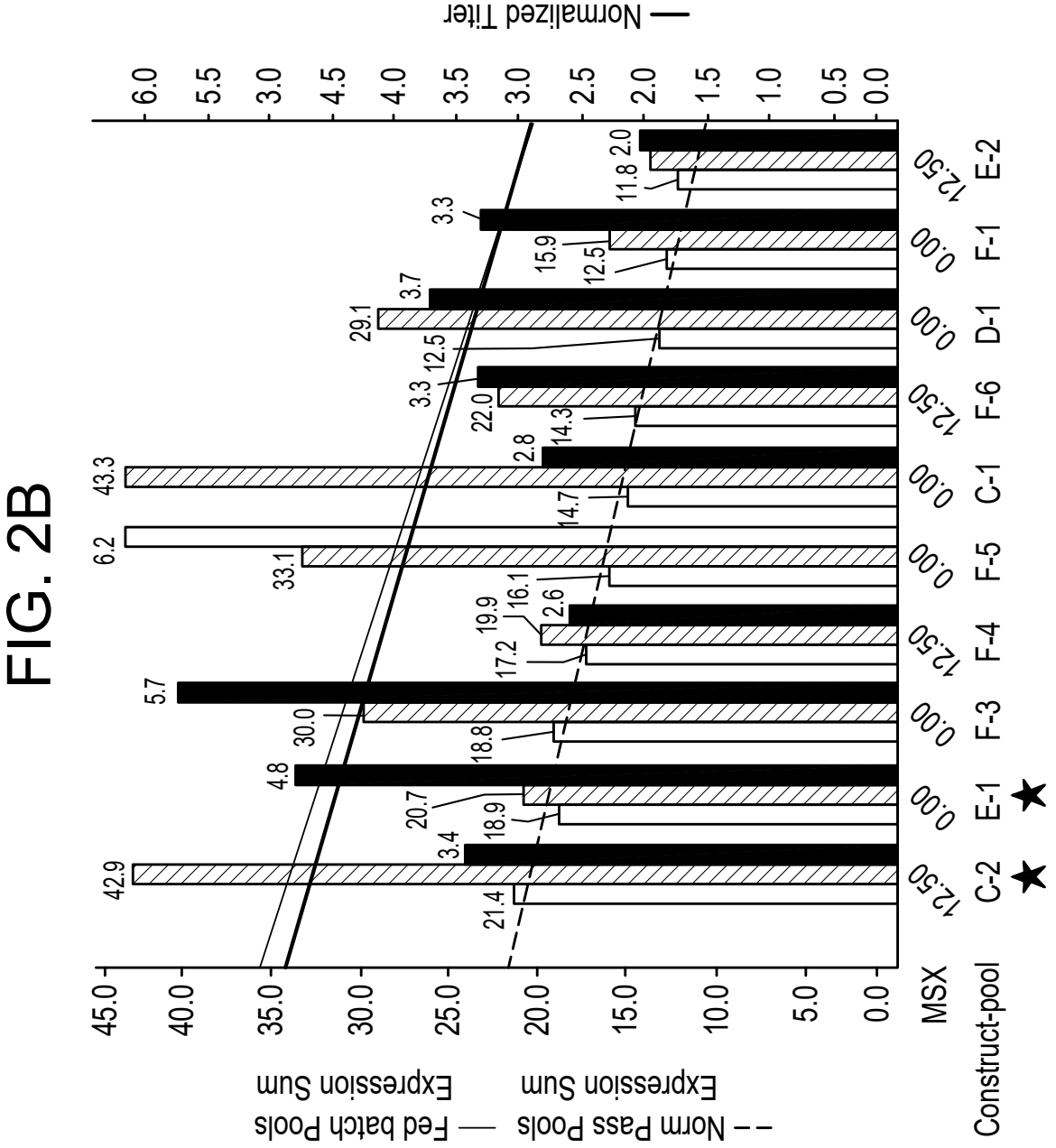

Normalized Titer
Expression Sum
Fed batch Pools
Norm Pass Pools
Expression Sum
Construct-pool
MSX
C-2
E-1
F-3
F-4
F-5
C-1
F-6
D-1
F-1
E-2
12.50
0.00
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
6.0
5.5
3.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

FIG. 2B cont.

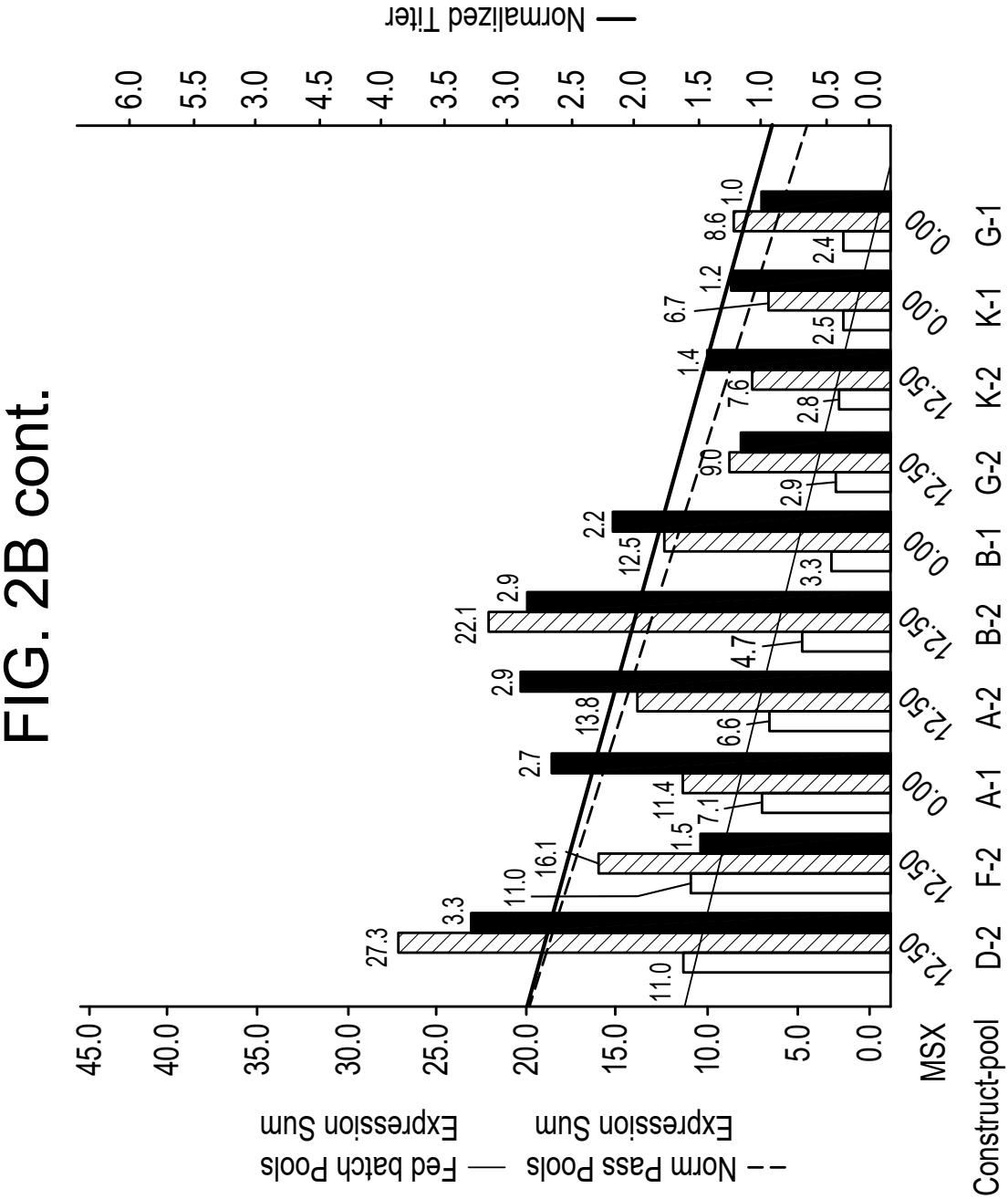

Normalized Titer
Norm Pass Pools
Fed batch Pools
Expression Sum
Expression Sum
Construct-pool
MSX
D-2
F-2
A-1
A-2
B-2
B-1
G-2
K-2
K-1
G-1
1:2.50
0.00
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
6.0
5.5
3.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
27.3
3.3
11.0
16.1
1.5
11.4
7.1
2.7
13.8
6.6
2.9
22.1
2.9
4.7
2.2
12.5
3.3
1.4
9.0
2.9
6.7
7.6
2.8
1.2
2.5
8.6
2.4
1.0

FIG. 2C

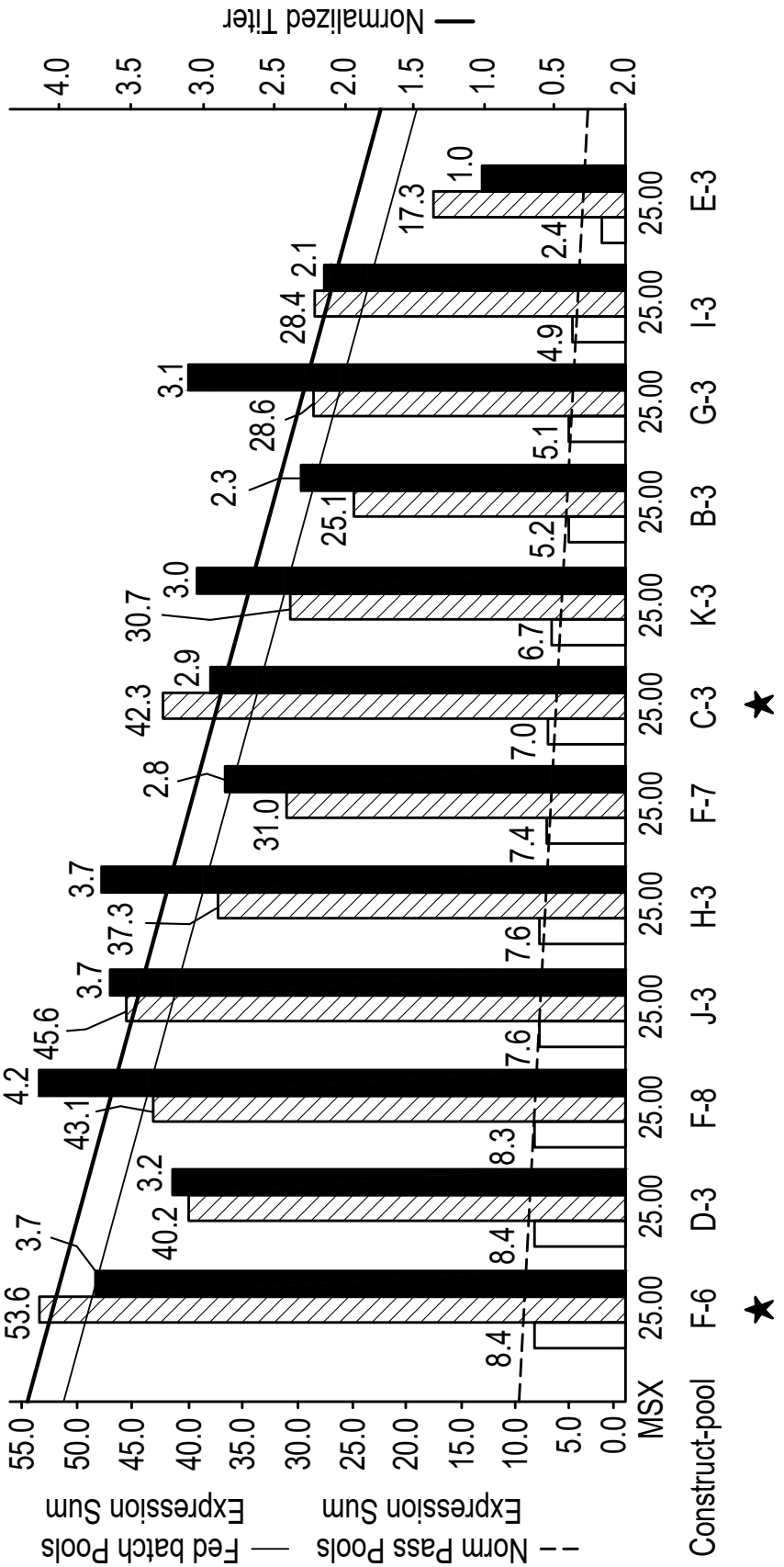

Normalized Titer
Expression Sum
Norm Pass Pools
Fed batch Pools
Construct-pool
MSX
F-6
D-3
F-8
J-3
H-3
F-7
C-3
K-3
B-3
G-3
I-3
E-3
25.00
53.6
40.2
43.1
45.6
37.3
31.0
42.3
30.7
25.1
28.6
28.4
17.3
3.7
3.2
4.2
3.7
3.7
2.8
2.9
3.0
2.3
3.1
2.1
1.0
8.4
8.4
8.3
7.6
7.6
7.4
7.0
6.7
5.2
5.1
4.9
2.4

FIG. 3A

Fed Batch

	MSX_uM	LC1_Expression	HC1_Expression	HC2_Expression	LC1_HC1_Ratio	LC1_HC2_Ratio	HC1_HC2_Ratio	Sum_Expression	Effective _Titer__SEC	HMW_SEC	Main_peak_SEC	LMW_SEC	Pre_peaks	Main_peak_nrCE
HMW_SEC	-0.05	0.17	0.52	-0.23	-0.46	0.38	0.84	0.2	0.42	1	0.72	-0.89	-0.72	0.68
Effective _Titer__SEC	-0.06	0.65	0.88	0.54	-0.27	0.11	0.3	0.8	1	0.42	0.42	-0.52	-0.52	0.5
Sum_Expression	0.07	0.93	0.77	0.75	0.18	0.35	0.06	1	0.8	0.2	0.28	-0.36	-0.31	0.28
HC1_HC2_Ratio	-0.09	0.05	0.47	-0.39	-0.49	0.45	1	0.06	0.3	0.84	0.72	-0.83	-0.77	0.73
LC1_HC2_Ratio	-0.04	0.57	0.1	-0.29	0.45	1	0.45	0.35	0.11	0.38	0.51	-0.55	-0.37	0.3
LC1_HC1_Ratio	0	0.43	-0.4	0.08	1	0.46	-0.49	0.18	-0.27	-0.46	-0.21	0.33	0.39	-0.41
HC2_Expression	0.05	0.58	0.6	1	0.08	-0.29	-0.39	0.75	0.64	-0.23	-0.12	0.15	0.02	0.01
HC1_Expression	0.04	0.6	1	0.6	-0.4	0.1	0.47	0.77	0.88	0.52	0.49	-0.59	-0.62	0.62
LC1_Expression	0.05	1	0.6	0.58	0.43	0.57	0.05	0.93	0.65	0.17	0.25	-0.33	-0.21	0.16
MSX_uM	1	0.05	0.04	0.05	0	-0.04	-0.09	0.07	-0.06	-0.05	0.04	0.03	0.03	0.01

FIG. 3B

Norm Pass

	MSX_uM	LC1_Expression	HC1_Expression	HC2_Expression	LC1_HC1_Ratio	LC1_HC2_Ratio	HC1_HC2_Ratio	Sum_Expression	Effective _Titer__SEC	HMW_SEC	Main_peak_SEC	LMW_SEC	Pre_peaks	Main_peak_nrCE
HMW_SEC	-0.09	0.39	0.63	0.11	-0.53	0.42	0.78	0.45	0.44	1	0.55	-0.81	-0.59	0.53
Effective _Titer__SEC	-0.23	0.72	0.86	0.65	-0.29	0.49	0.64	0.84	1	0.44	0.5	-0.64	-0.45	0.43
Sum_Expression	-0.07	0.95	0.87	0.67	0.02	0.74	0.65	1	0.84	0.45	0.58	-0.62	-0.52	0.51
HC1_HC2_Ratio	-0.17	0.6	0.79	0.17	-0.39	0.63	1	0.65	0.64	0.78	0.68	-0.83	-0.69	0.66
LC1_HC2_Ratio	0.09	0.87	0.57	0.18	0.37	1	0.63	0.74	0.49	0.42	0.63	-0.66	-0.66	0.6
LC1_HC1_Ratio	0.26	0.24	-0.37	-0.16	1	0.37	-0.39	0.02	-0.29	-0.53	-0.08	0.34	0.05	-0.07
HC2_Expression	-0.14	0.54	0.7	1	-0.16	0.18	0.17	0.67	0.65	0.11	0.05	-0.13	0.02	-0.03
HC1_Expression	-0.08	0.76	1	0.7	-0.37	0.57	0.79	0.87	0.86	0.63	0.51	-0.69	-0.46	0.45
LC1_Expression	0	1	0.76	0.54	0.24	0.87	0.6	0.95	0.72	0.39	0.59	-0.58	-0.56	0.54
MSX_uM	1	0	-0.08	-0.14	0.26	0.09	-0.17	-0.07	-0.23	-0.09	-0.02	0.1	0.07	0

FIG. 4

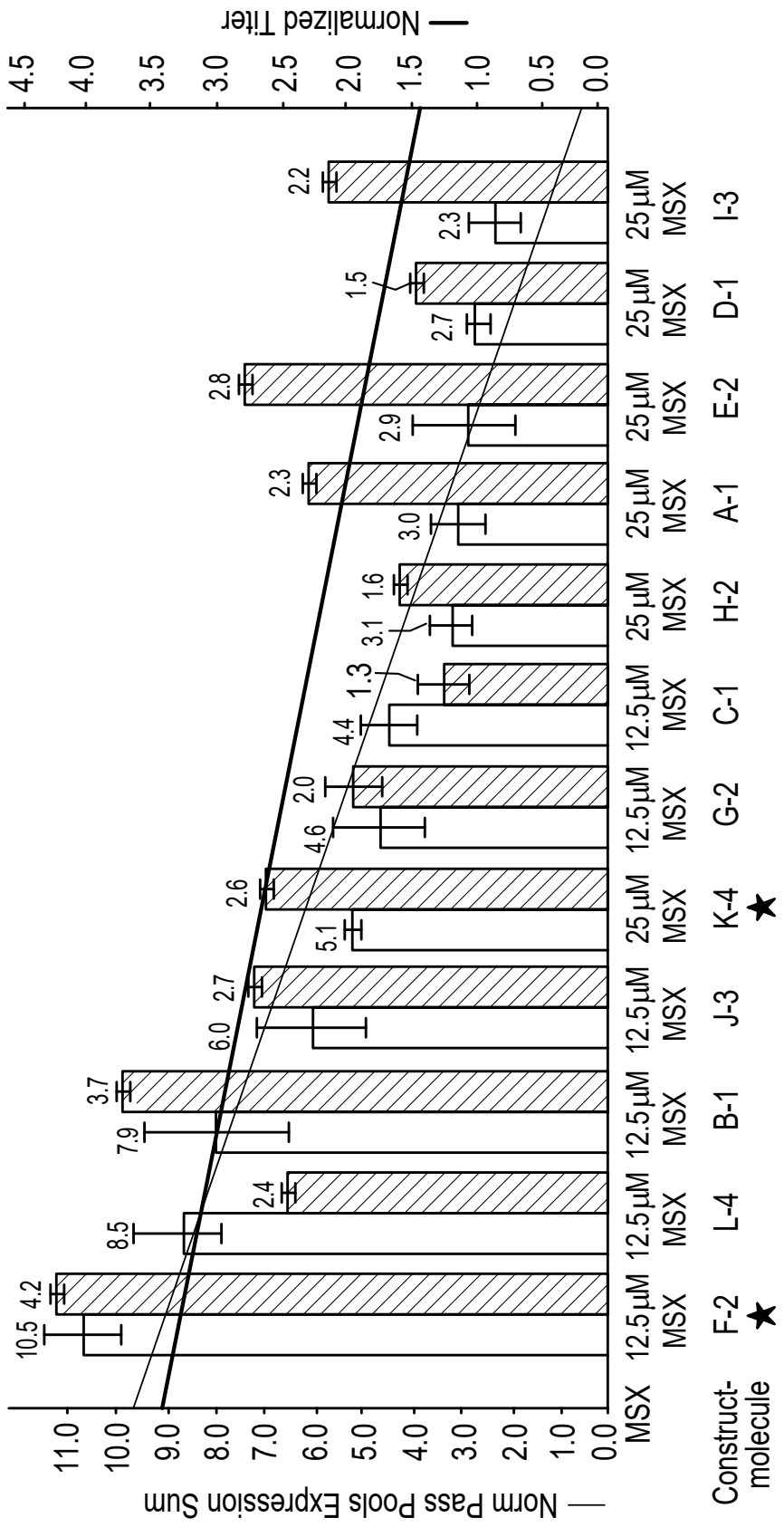

Norm Pass Pools Expression Sum
Normalized Titer
Construct-molecule
MSX
12.5 µM MSX F-2 ★
12.5 µM MSX L-4
12.5 µM MSX B-1
12.5 µM MSX J-3
25 µM MSX K-4 ★
12.5 µM MSX G-2
12.5 µM MSX C-1
25 µM MSX H-2
25 µM MSX A-1
25 µM MSX E-2
25 µM MSX D-1
25 µM MSX I-3

FIG. 5A

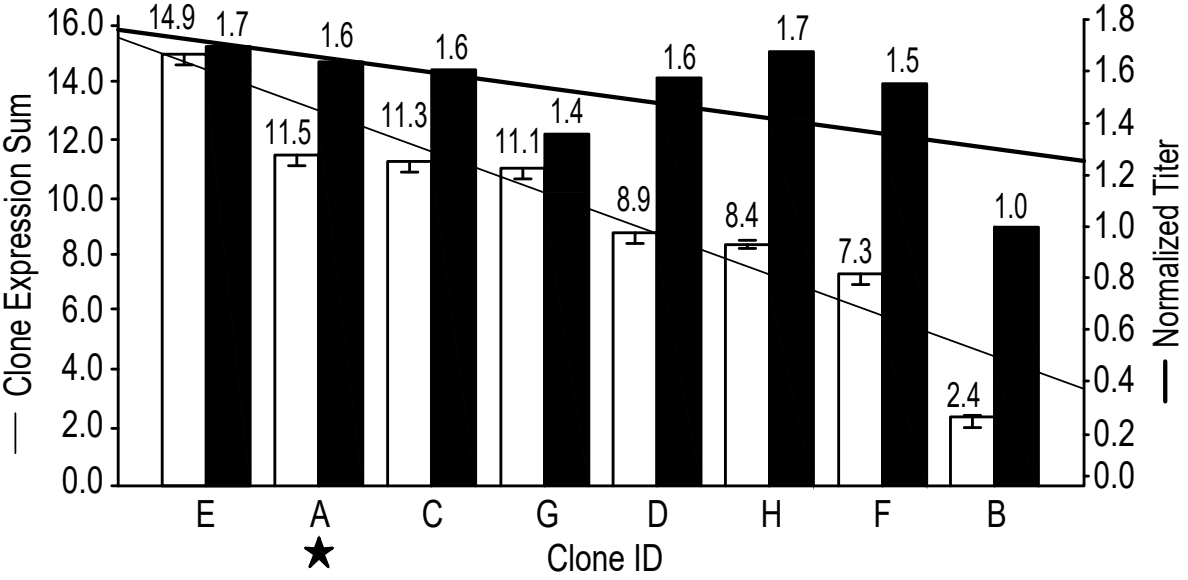

Clone Expression Sum
Normalized Titer
Clone ID
E
A
C
G
D
H
F
B
14.9
1.7
11.5
1.6
11.3
1.6
11.1
1.4
8.9
1.6
8.4
1.7
7.3
1.5
2.4
1.0

FIG. 5B

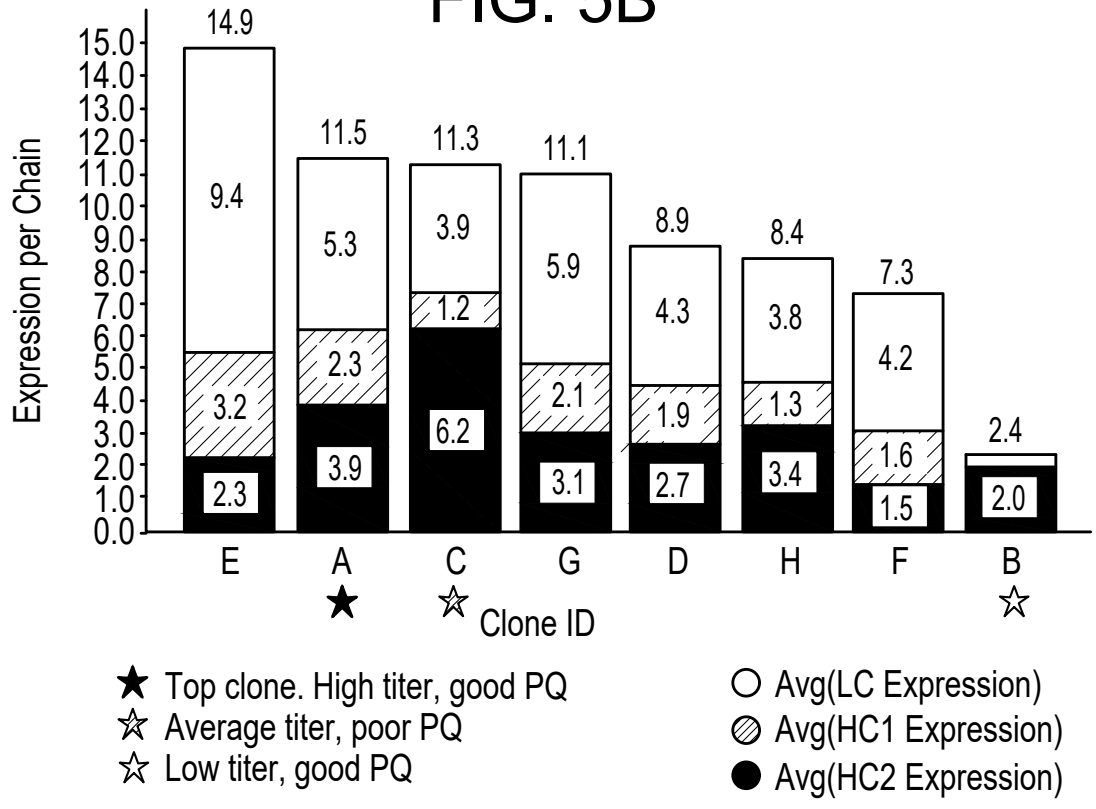

Expression per Chain
Clone ID
E
A
C
G
D
H
F
B
14.9
9.4
3.2
2.3
11.5
5.3
2.3
3.9
11.3
3.9
1.2
6.2
11.1
5.9
2.1
3.1
8.9
4.3
1.9
2.7
8.4
3.8
1.3
3.4
7.3
4.2
1.6
1.5
2.4
2.0
★ Top clone. High titer, good PQ
☆ Average titer, poor PQ
☆ Low titer, good PQ
○ Avg(LC Expression)
▨ Avg(HC1 Expression)
● Avg(HC2 Expression)

FIG. 5C

Single Cell Clones

	LC1_Expression	HC1_Expression	HC2_Expression	Expression_Sum	LC1_HC1_Ratio	LC1_HC2_Ratio	HC1_HC2_Ratio	Titer__Day_10.	Titer__Day_13.	SEC_HMW.	SEC_MP.	SEC_LMW.	nr_CE_Pre_Peaks	nr_CE_MP.
SEC_HMW.	-0.26	-0.2	0.12	-0.03	0.29	-0.41	-0.37	0	0.1	1	-0.57	0.43	0.33	-0.45
Titer__Day_13.	0.39	0.4	0.23	0.51	-0.31	0.29	0.31	0.98	1	0.1	0.38	-0.5	-0.07	-0.07
Titer__Day_10.	0.27	0.29	0.27	0.42	-0.31	0.2	0.2	1	0.98	0	0.33	-0.43	0	-0.12
HC1_HC2_Ratio	0.76	0.72	-0.5	0.25	-0.35	0.96	1	0.2	0.31	-0.37	0.69	-0.71	-0.51	0.46
LC1_HC2_Ratio	0.79	0.61	-0.56	0.21	-0.16	1	0.95	0.2	0.29	-0.41	0.7	-0.72	-0.53	0.49
LC1_HC1_Ratio	-0.25	-0.61	-0.32	-0.44	1	-0.16	-0.35	-0.31	-0.31	0.29	-0.35	0.34	0.07	-0.06
Expression_Sum	0.66	0.72	0.58	1	-0.44	-0.21	-0.25	0.42	0.51	-0.03	0.42	-0.5	-0.17	0.13
HC2_Expression	-0.09	0.07	1	0.58	-0.32	-0.56	-0.5	0.27	0.23	0.12	-0.14	0.12	0.3	-0.29
HC1_Expression	0.84	1	0.07	0.72	-0.61	0.61	0.72	0.29	0.4	-0.2	0.67	-0.73	-0.48	0.43
LC1_Expression	1	0.84	-0.09	0.66	-0.25	0.79	0.76	0.27	0.39	-0.26	0.76	-0.83	-0.61	0.57

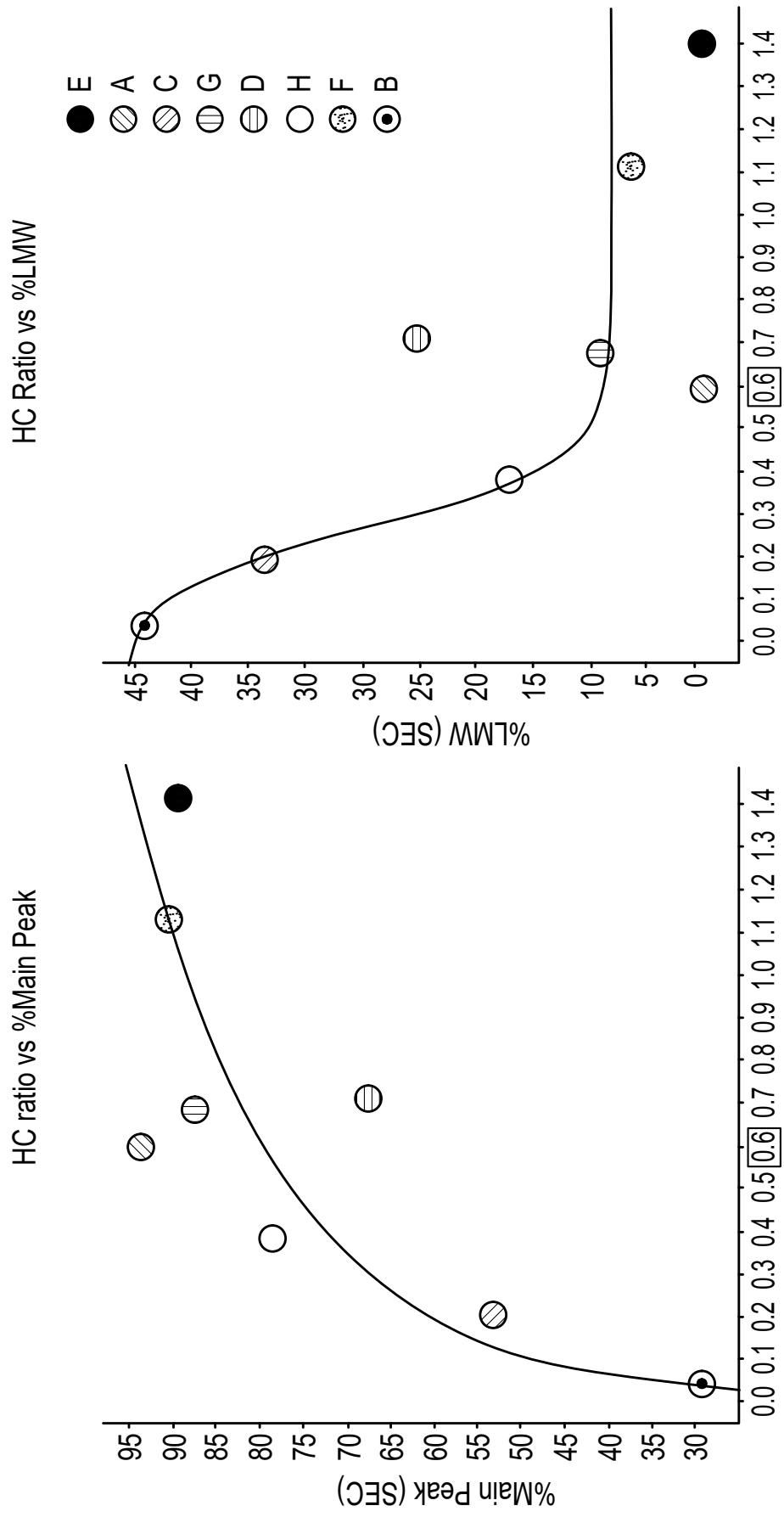

HC ratio vs %Main Peak
%Main Peak (SEC)
95 90 85 80 75 70 65 60 55 50 45 40 35 30
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4
HC1: HC2 Ratio
HC Ratio vs %LMW
%LMW (SEC)
45 40 35 30 25 20 15 10 5 0
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4
HC1: HC2 Ratio
E
A
C
G
D
H
F
B

FIG. 5D