FIG. 1

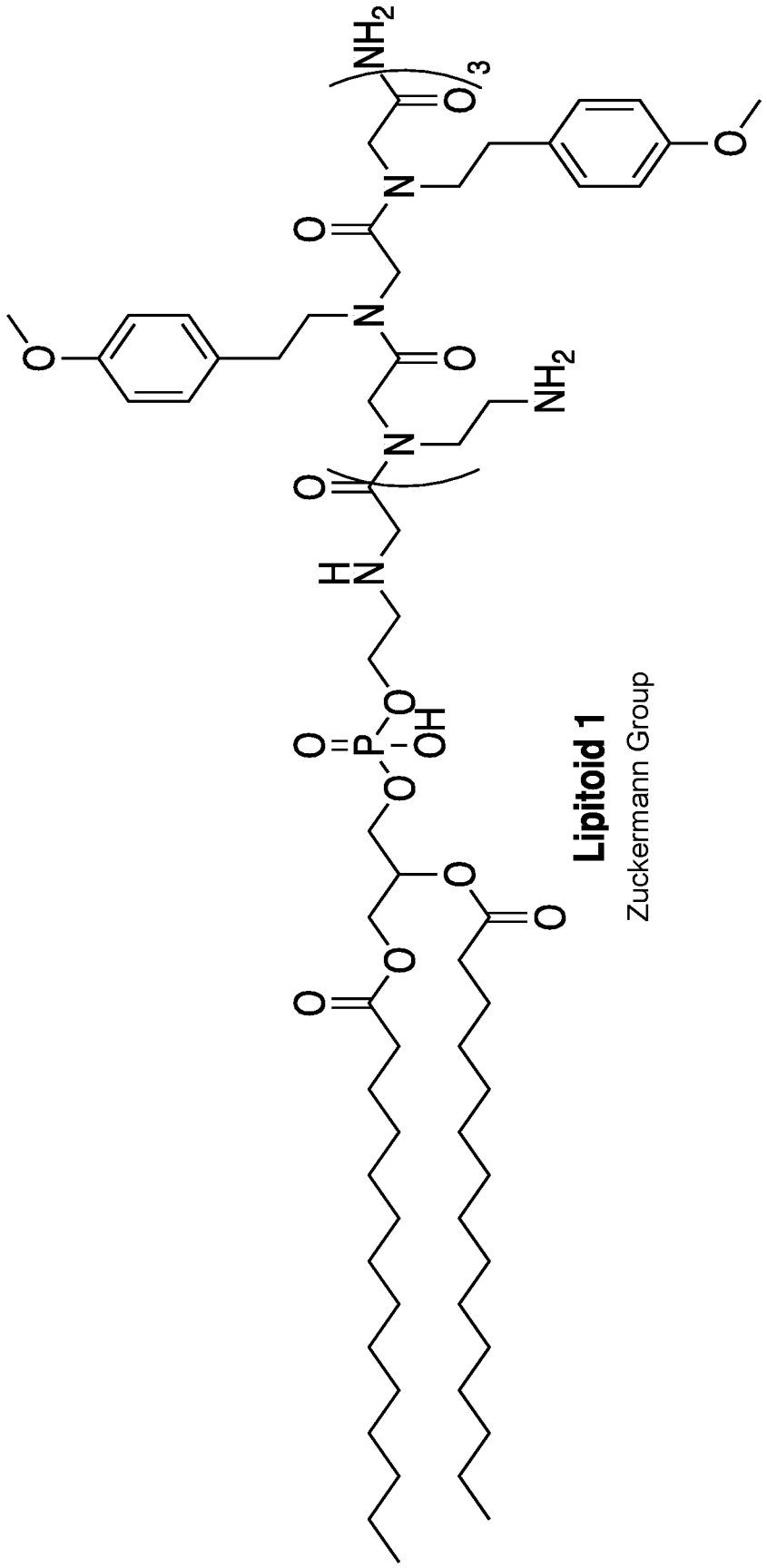
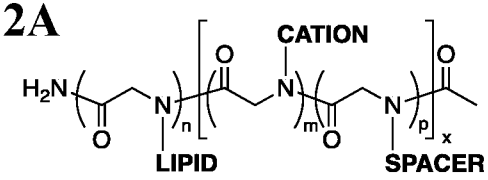
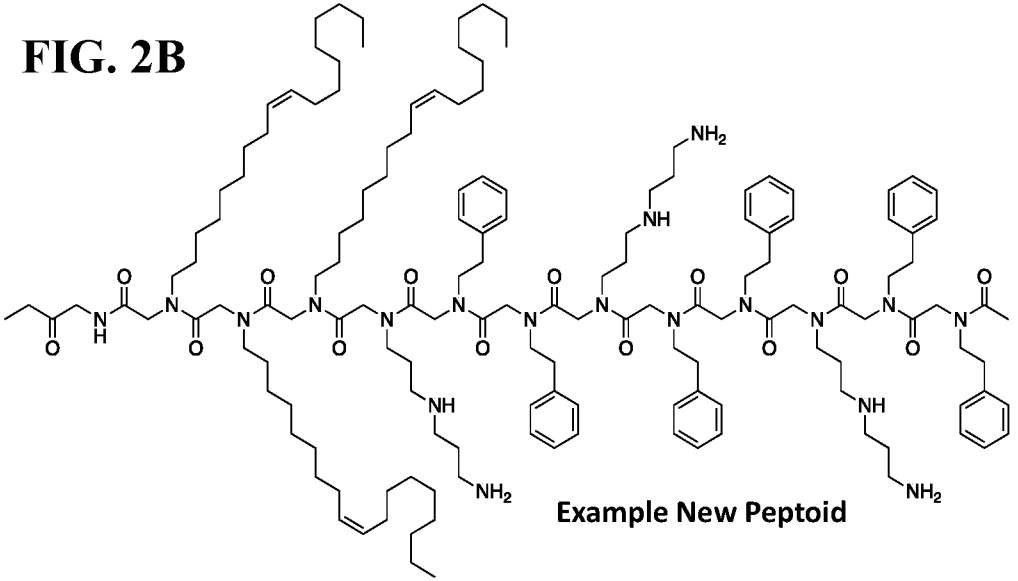


FIG. 2A



New *N*-lipidated Peptoids
(generalized structure)

FIG. 2B



Example New Peptoid

FIG. 2C

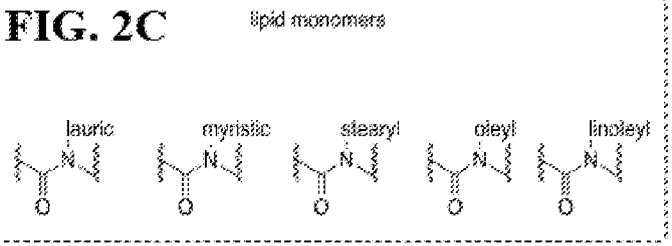


FIG. 2D

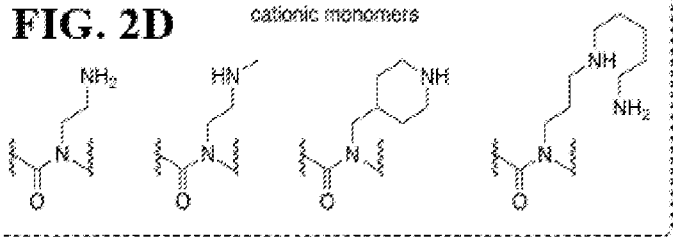


FIG. 2E

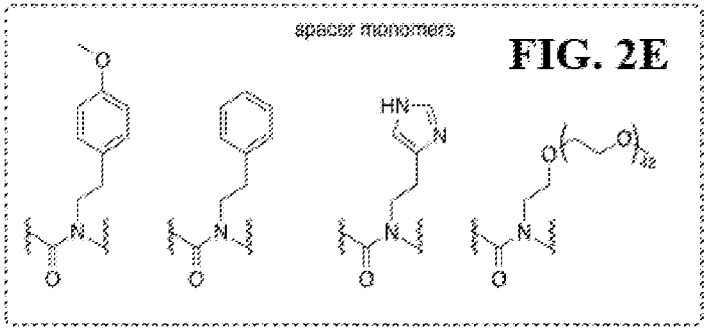
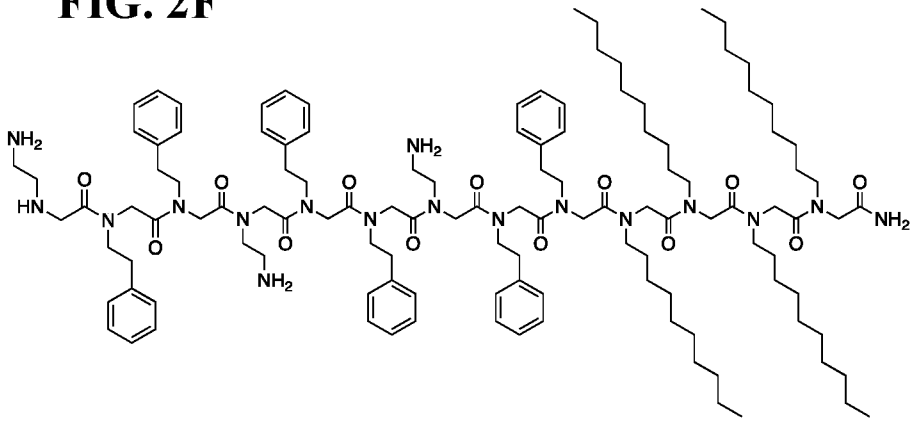


FIG. 2F



Compound 8

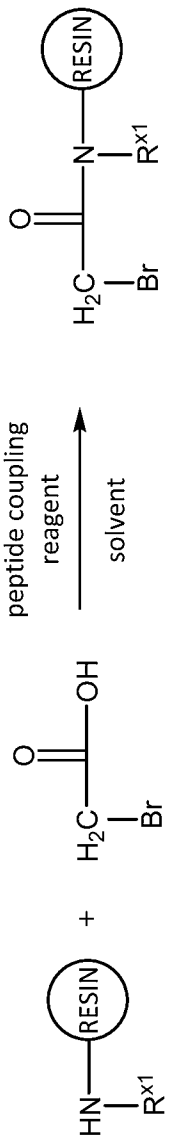


FIG. 3A

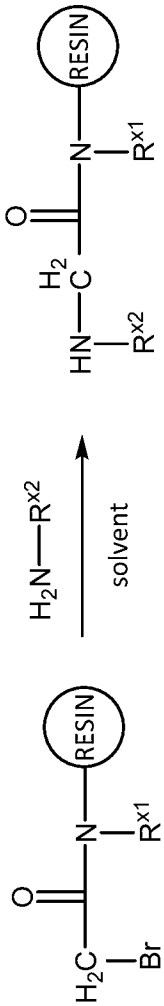


FIG. 3B

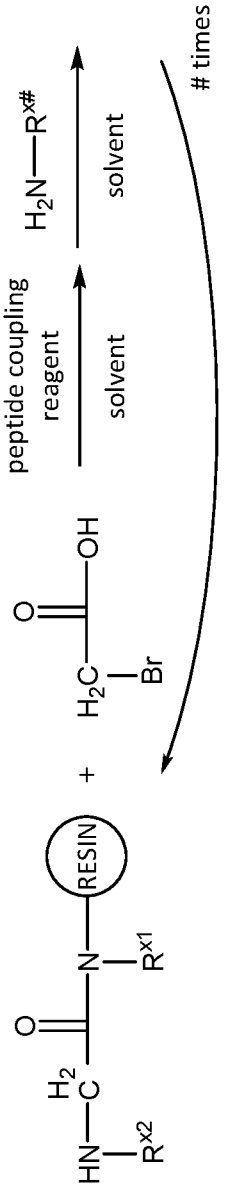


FIG. 3C

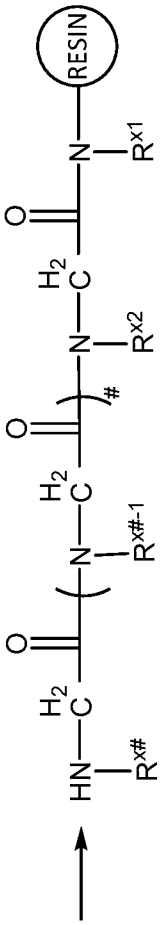


FIG. 3D

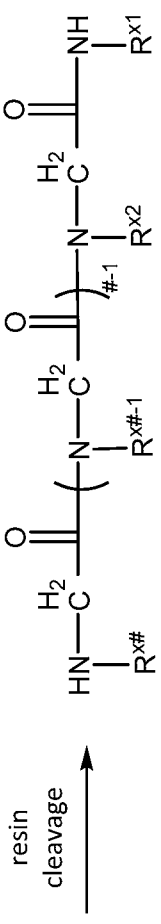


FIG. 3E

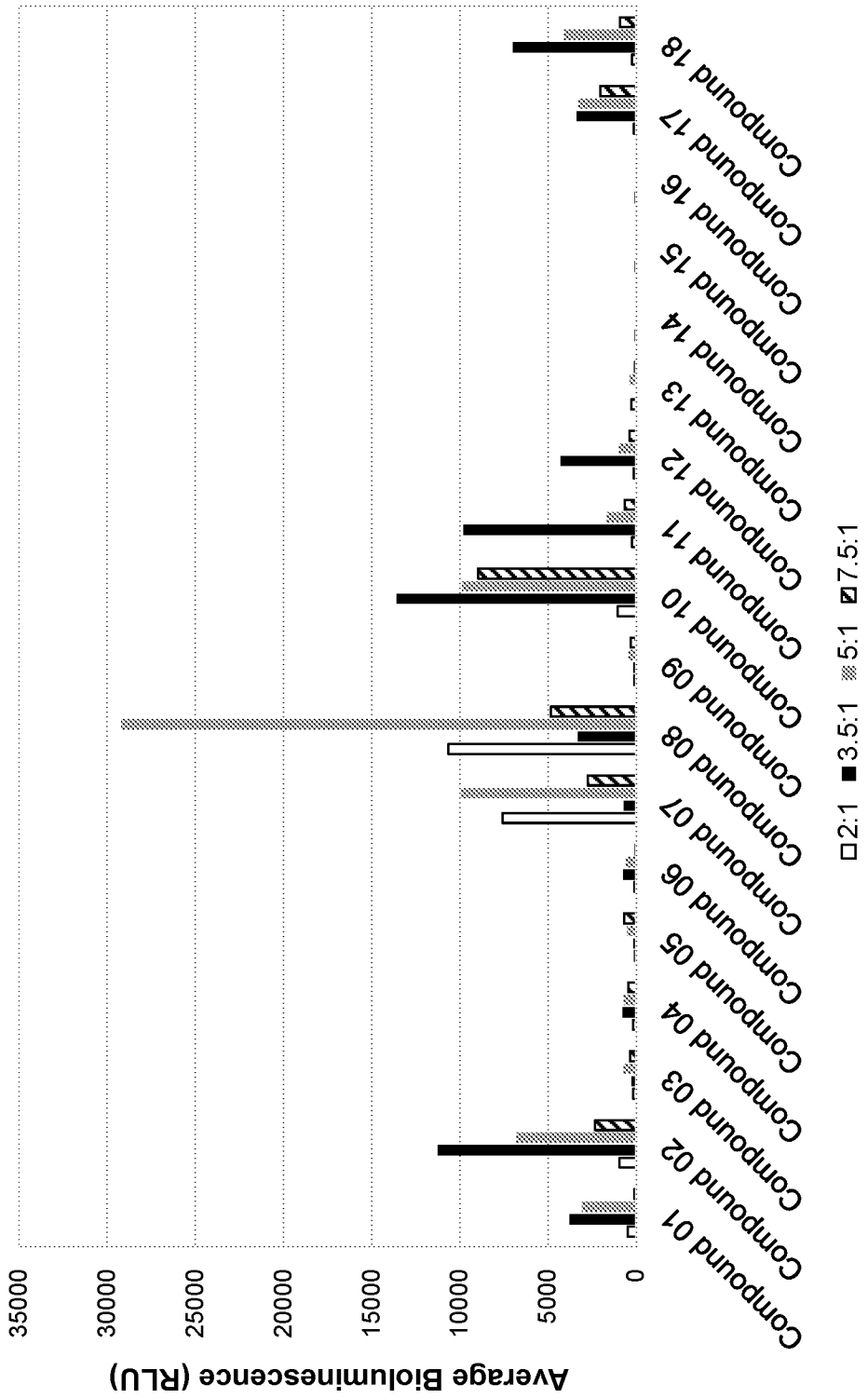

Average Bioluminescence (RLU)
35000
30000
25000
20000
15000
10000
5000
0
Compound 01
Compound 02
Compound 03
Compound 04
Compound 05
Compound 06
Compound 07
Compound 08
Compound 09
Compound 10
Compound 11
Compound 12
Compound 13
Compound 14
Compound 15
Compound 16
Compound 17
Compound 18
2:1
3.5:1
5:1
7.5:1

FIG. 4

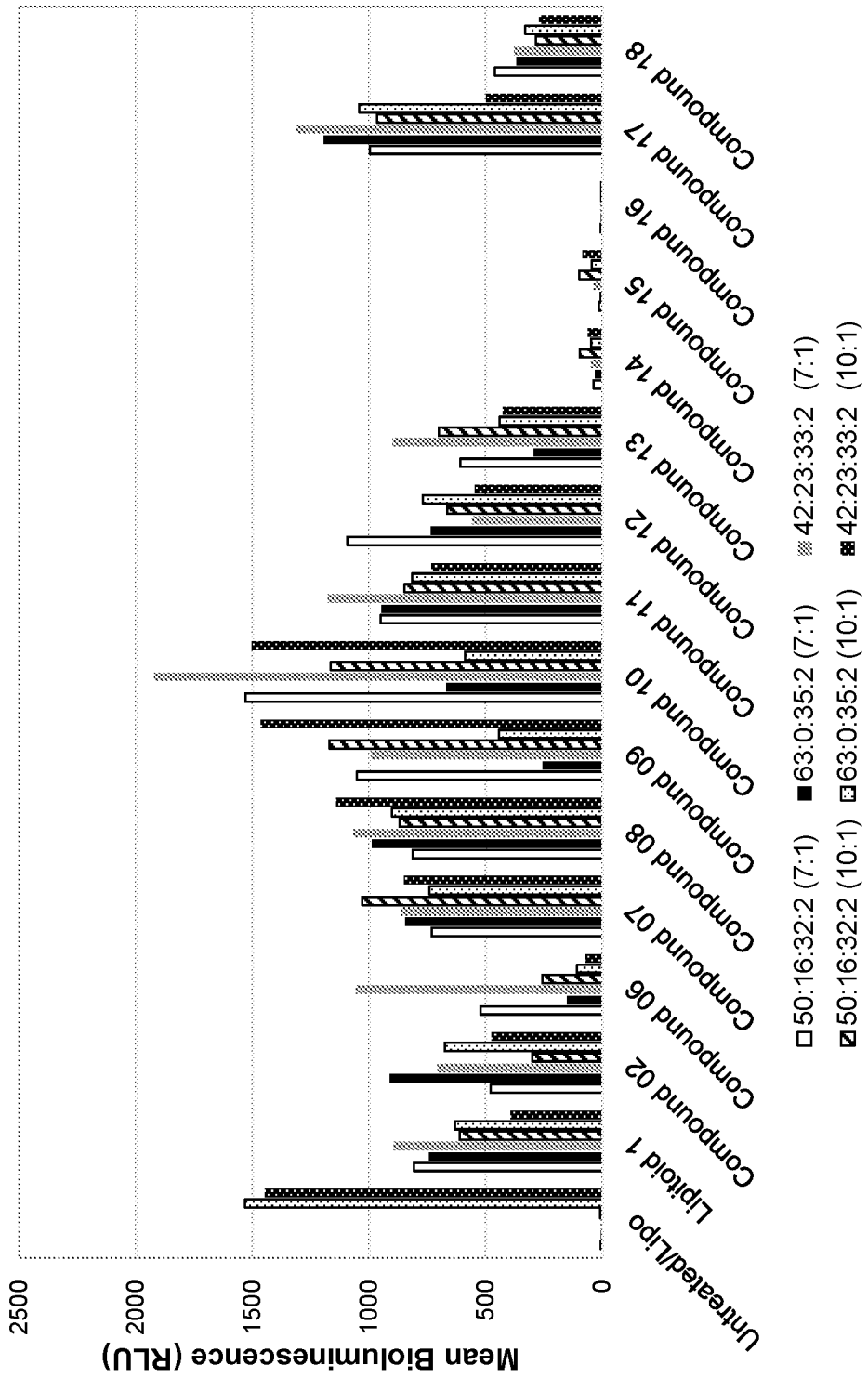

Mean Bioluminescence (RLU)
2500
2000
1500
1000
500
0
Untreated/Lipo
Liptioid 1
Compound 02
Compound 06
Compound 07
Compound 08
Compound 09
Compound 10
Compound 11
Compound 12
Compound 13
Compound 14
Compound 15
Compound 16
Compound 17
Compound 18
50:16:32:2 (7:1)
63:0:35:2 (7:1)
42:23:33:2 (7:1)
50:16:32:2 (10:1)
63:0:35:2 (10:1)
42:23:33:2 (10:1)

FIG. 5

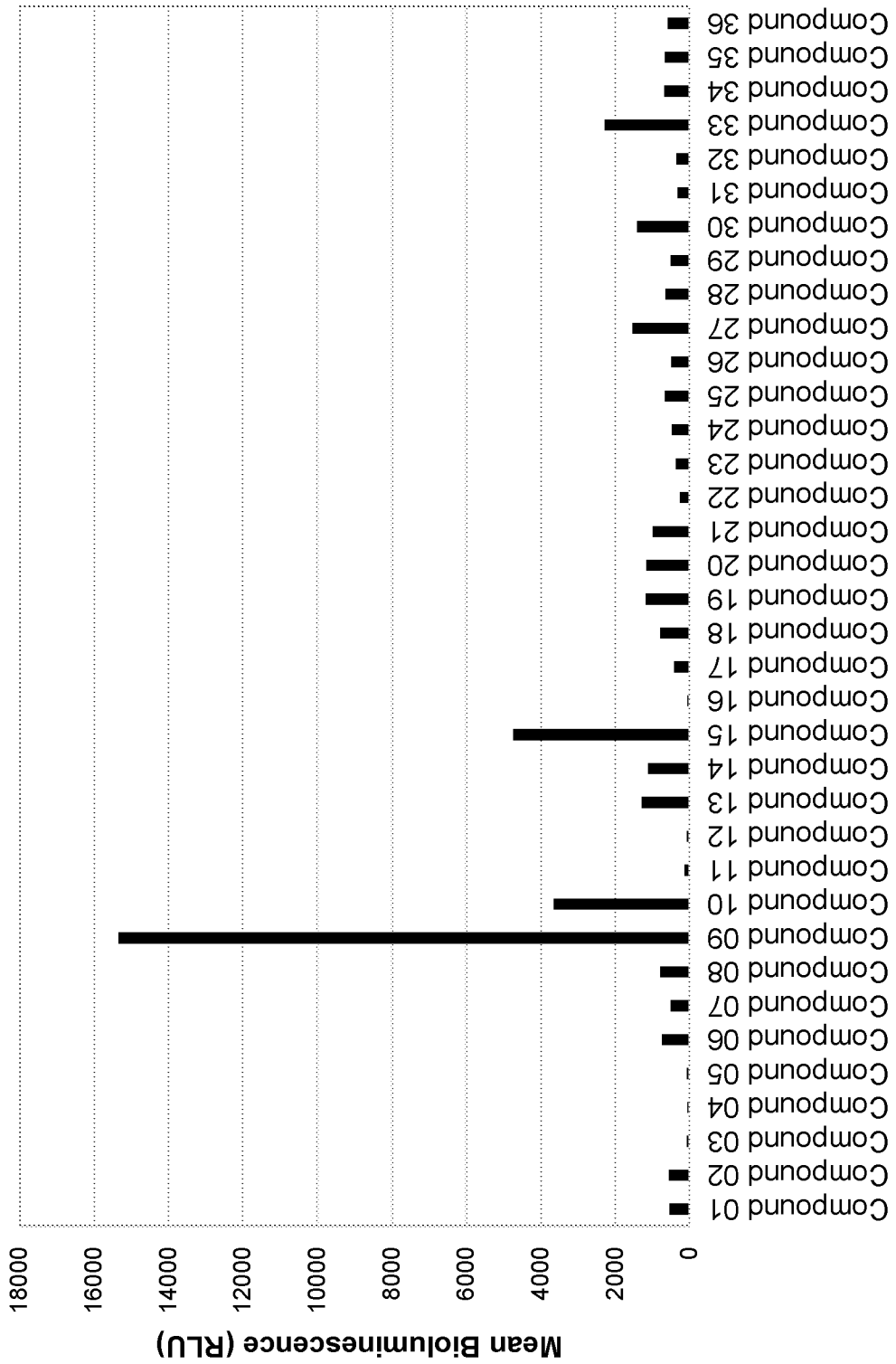

Mean Bioluminescence (RLU)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Compound 01
Compound 02
Compound 03
Compound 04
Compound 05
Compound 06
Compound 07
Compound 08
Compound 09
Compound 10
Compound 11
Compound 12
Compound 13
Compound 14
Compound 15
Compound 16
Compound 17
Compound 18
Compound 19
Compound 20
Compound 21
Compound 22
Compound 23
Compound 24
Compound 25
Compound 26
Compound 27
Compound 28
Compound 29
Compound 30
Compound 31
Compound 32
Compound 33
Compound 34
Compound 35
Compound 36

FIG. 6A

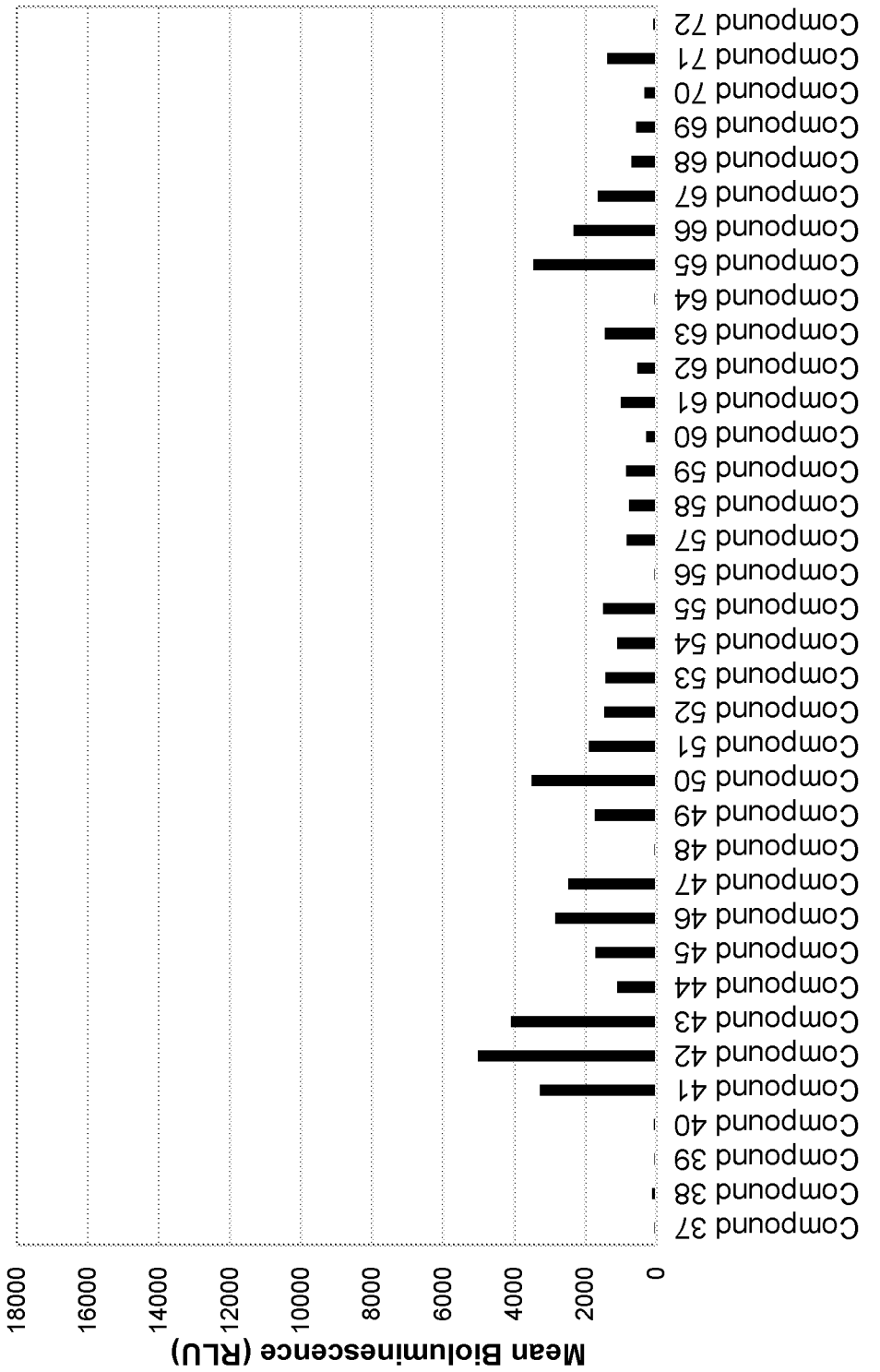

Mean Bioluminescence (RLU)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Compound 37
Compound 38
Compound 39
Compound 40
Compound 41
Compound 42
Compound 43
Compound 44
Compound 45
Compound 46
Compound 47
Compound 48
Compound 49
Compound 50
Compound 51
Compound 52
Compound 53
Compound 54
Compound 55
Compound 56
Compound 57
Compound 58
Compound 59
Compound 60
Compound 61
Compound 62
Compound 63
Compound 64
Compound 65
Compound 66
Compound 67
Compound 68
Compound 69
Compound 70
Compound 71
Compound 72

FIG. 6B

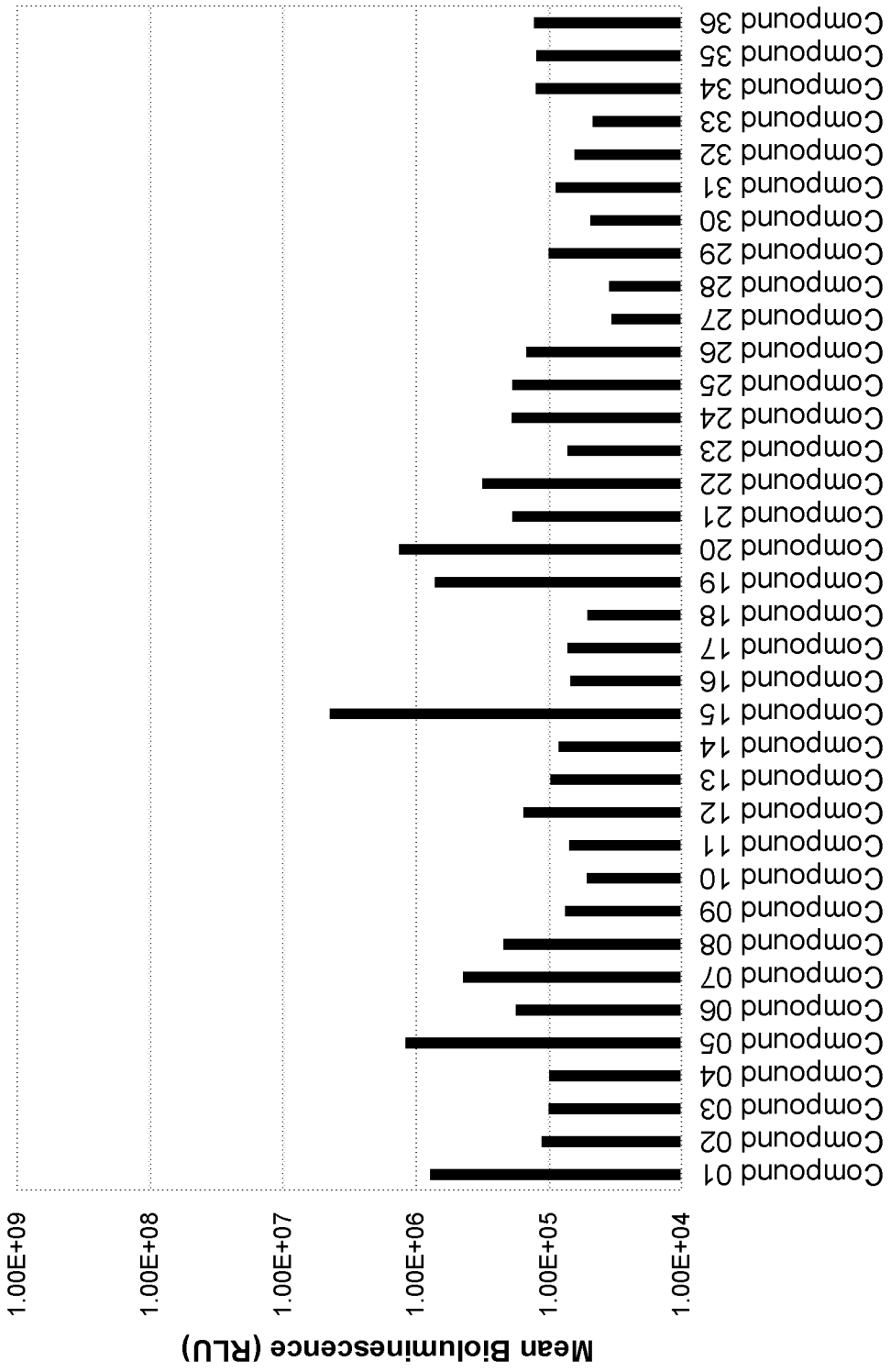

Mean Bioluminescence (RLU)
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
Compound 01
Compound 02
Compound 03
Compound 04
Compound 05
Compound 06
Compound 07
Compound 08
Compound 09
Compound 10
Compound 11
Compound 12
Compound 13
Compound 14
Compound 15
Compound 16
Compound 17
Compound 18
Compound 19
Compound 20
Compound 21
Compound 22
Compound 23
Compound 24
Compound 25
Compound 26
Compound 27
Compound 28
Compound 29
Compound 30
Compound 31
Compound 32
Compound 33
Compound 34
Compound 35
Compound 36

FIG. 7A

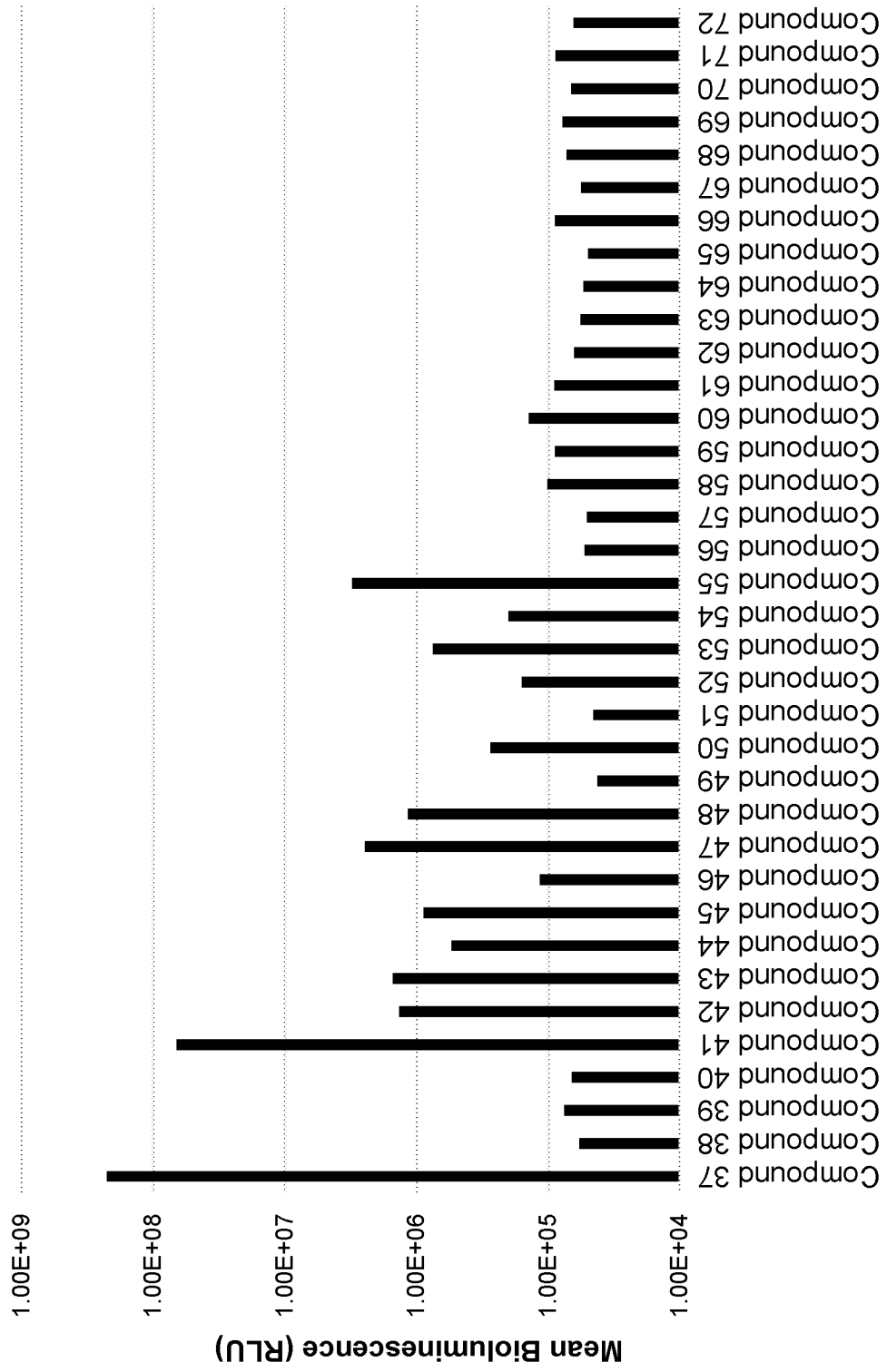

Mean Bioluminescence (RLU)
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
Compound 37
Compound 38
Compound 39
Compound 40
Compound 41
Compound 42
Compound 43
Compound 44
Compound 45
Compound 46
Compound 47
Compound 48
Compound 49
Compound 50
Compound 51
Compound 52
Compound 53
Compound 54
Compound 55
Compound 56
Compound 57
Compound 58
Compound 59
Compound 60
Compound 61
Compound 62
Compound 63
Compound 64
Compound 65
Compound 66
Compound 67
Compound 68
Compound 69
Compound 70
Compound 71
Compound 72

FIG. 7B

Total Lipid:mRNA mass ratio	Mass % Lipitoid										
	20 %	40%	50%	60%	70%	80%	20 %	40%	50%	60%	70%	80%
8:1	337	3378	6172	4394	3671	3610	219	1704	4348	2973	4167	2290
7:1	101	7187	10183	10010	10336	8285	117	6142	8148	10035	8205	7991
6:1	66	5945	10907	10271	10814	8440	117	7702	9563	9941	8052	6314
5:1	21	2021	4521	6644	7482	4330	81	2399	4468	6494	5706	3235
8:1	57	2400	4463	5641	6472	5273	69	838	2136	4672	4225	3168
7:1	103	2634	3911	4819	4973	4851	100	440	1760	2015	2541	821
6:1	36	1182	3736	5446	5771	3753	50	547	784	1611	1524	429
5:1	40	1285	1325	3637	4551	2334	30	433	985	2261	2709	1665

cholesterol: DOPE ratio	
0.5:1	1:1
1.5:1	2:1

FIG. 8A

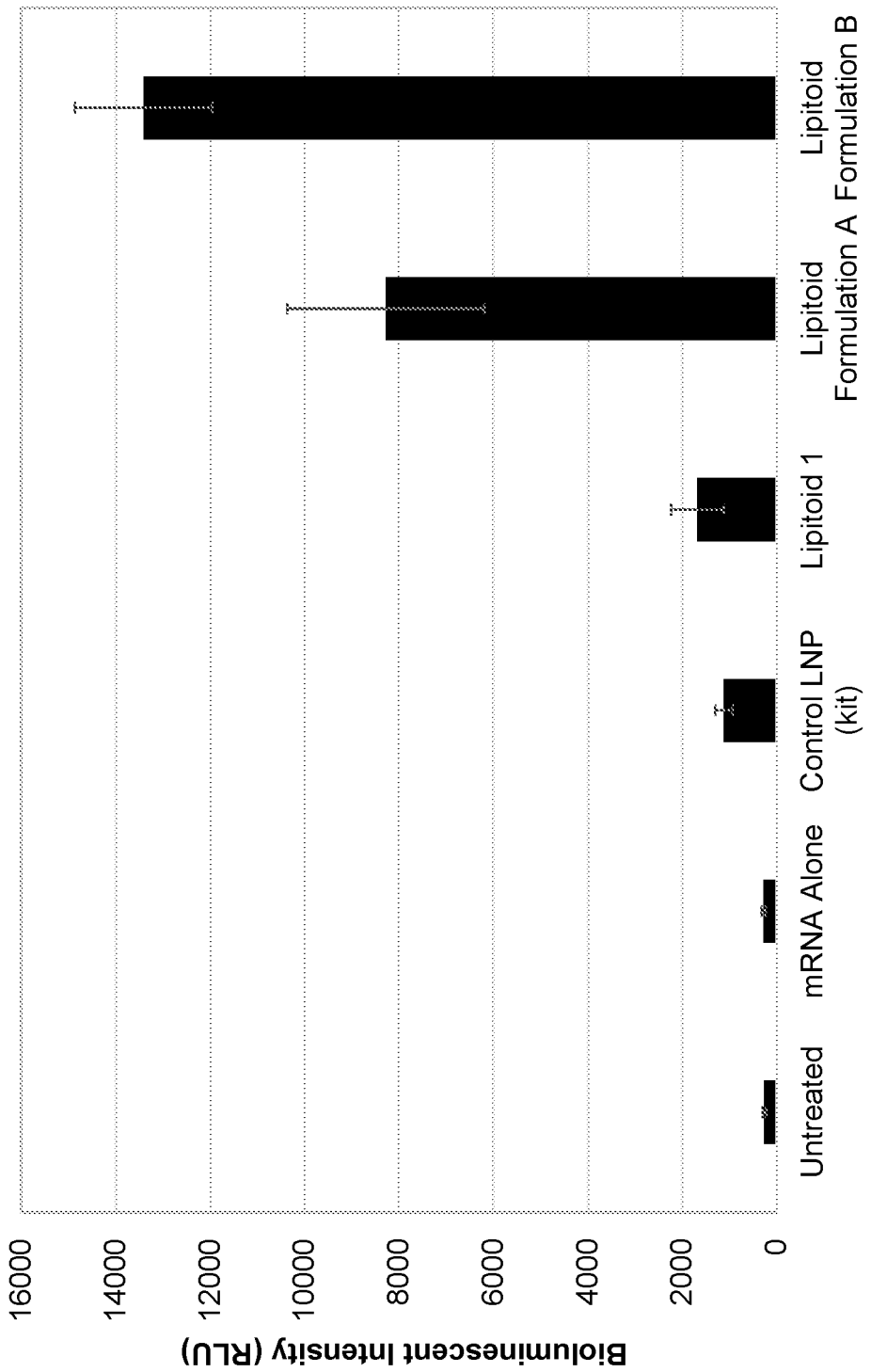

Bioluminescent Intensity (RLU)
16000
14000
12000
10000
8000
6000
4000
2000
0
Untreated
mRNA Alone
Control LNP (kit)
Lipitoid 1
Lipitoid Formulation A
Lipitoid Formulation B

FIG. 8B