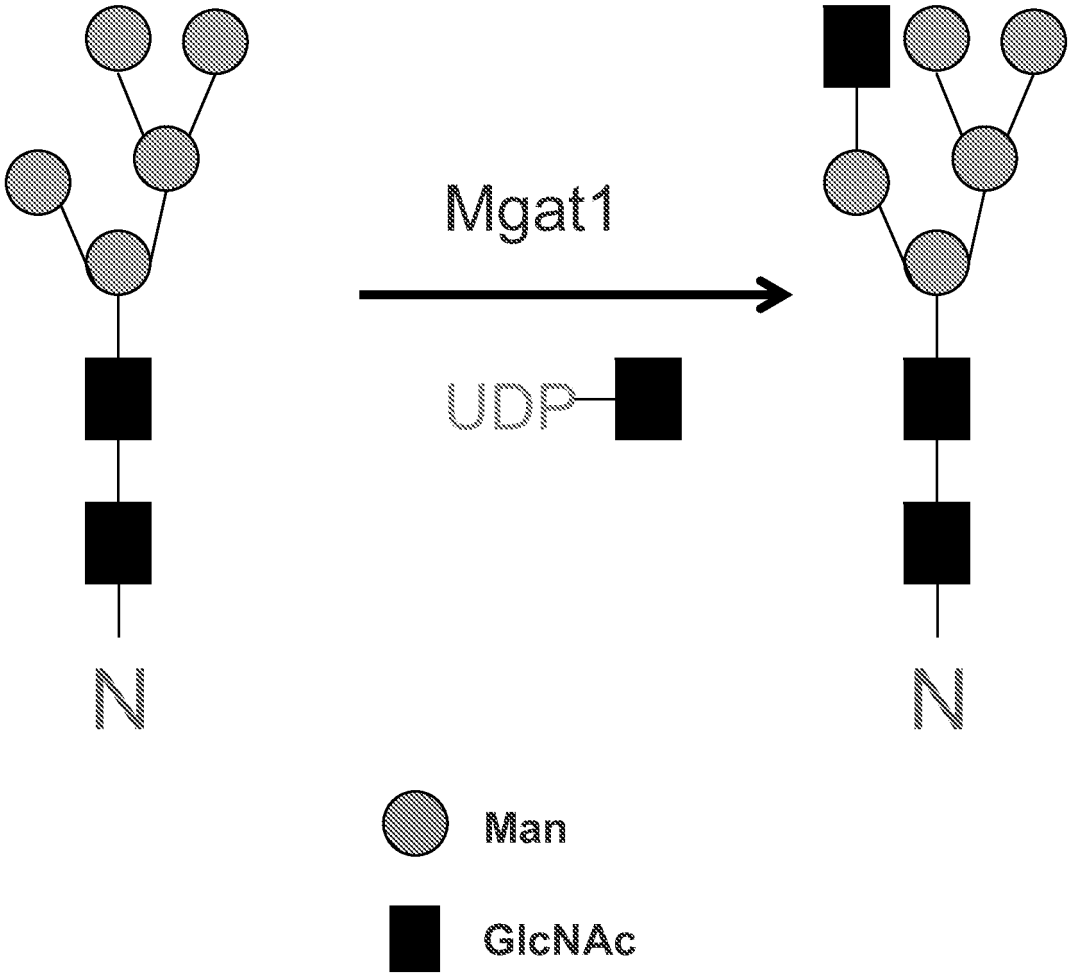
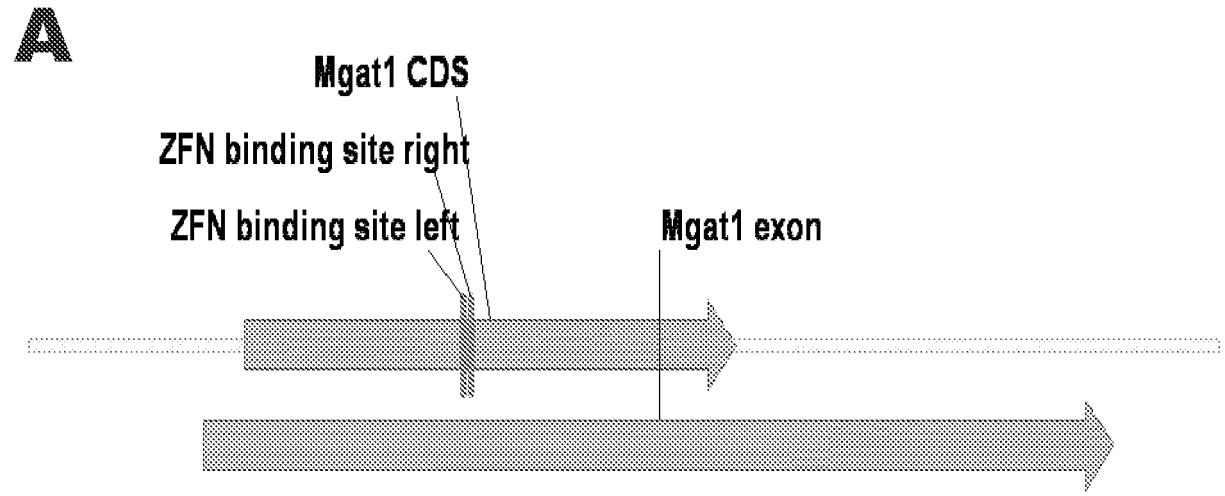


FIG. 1


A
Mgat1 CDS
ZFN binding site right
ZFN binding site left
Mgat1 exon

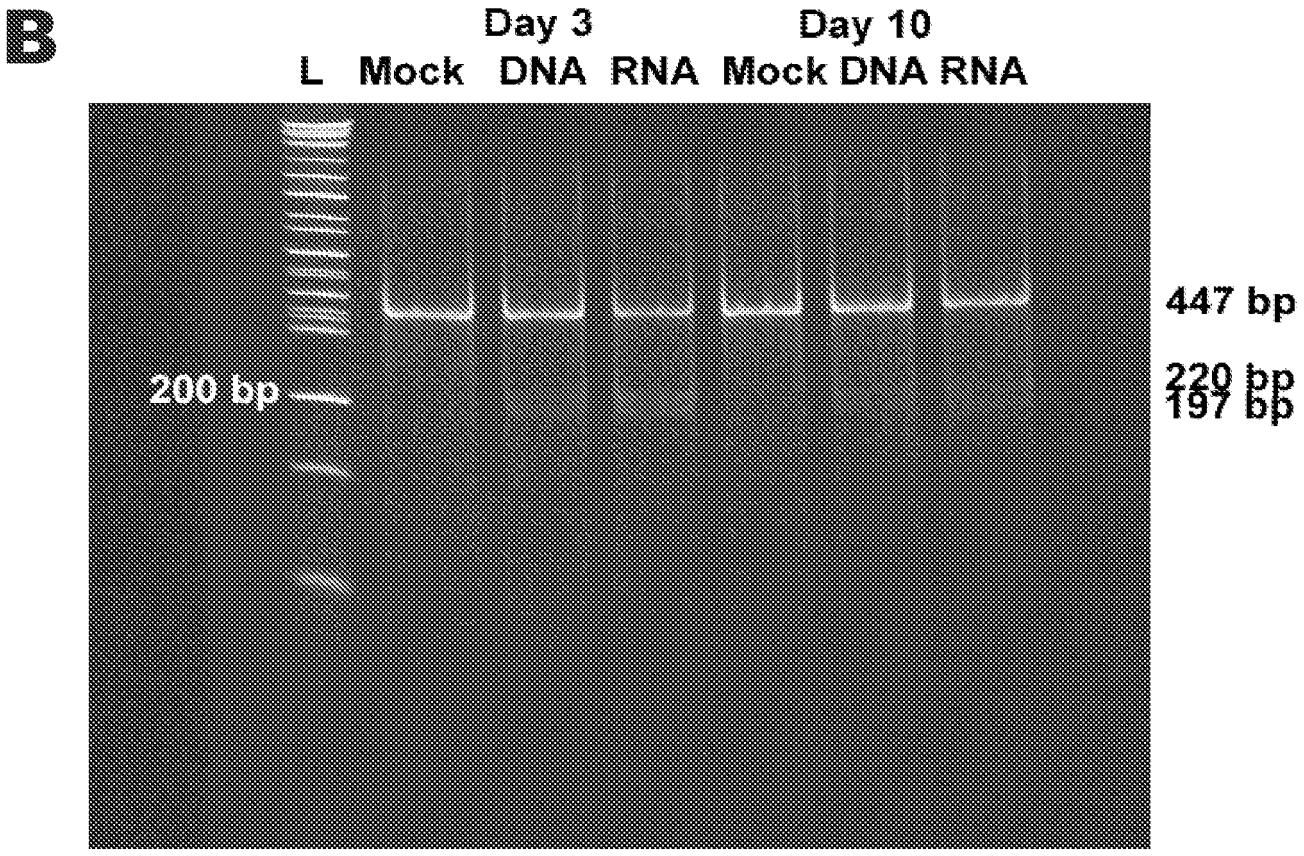

B
Day 3
Day 10
L Mock DNA RNA Mock DNA RNA
200 bp
447 bp
220 bp
197 bp

FIG. 2

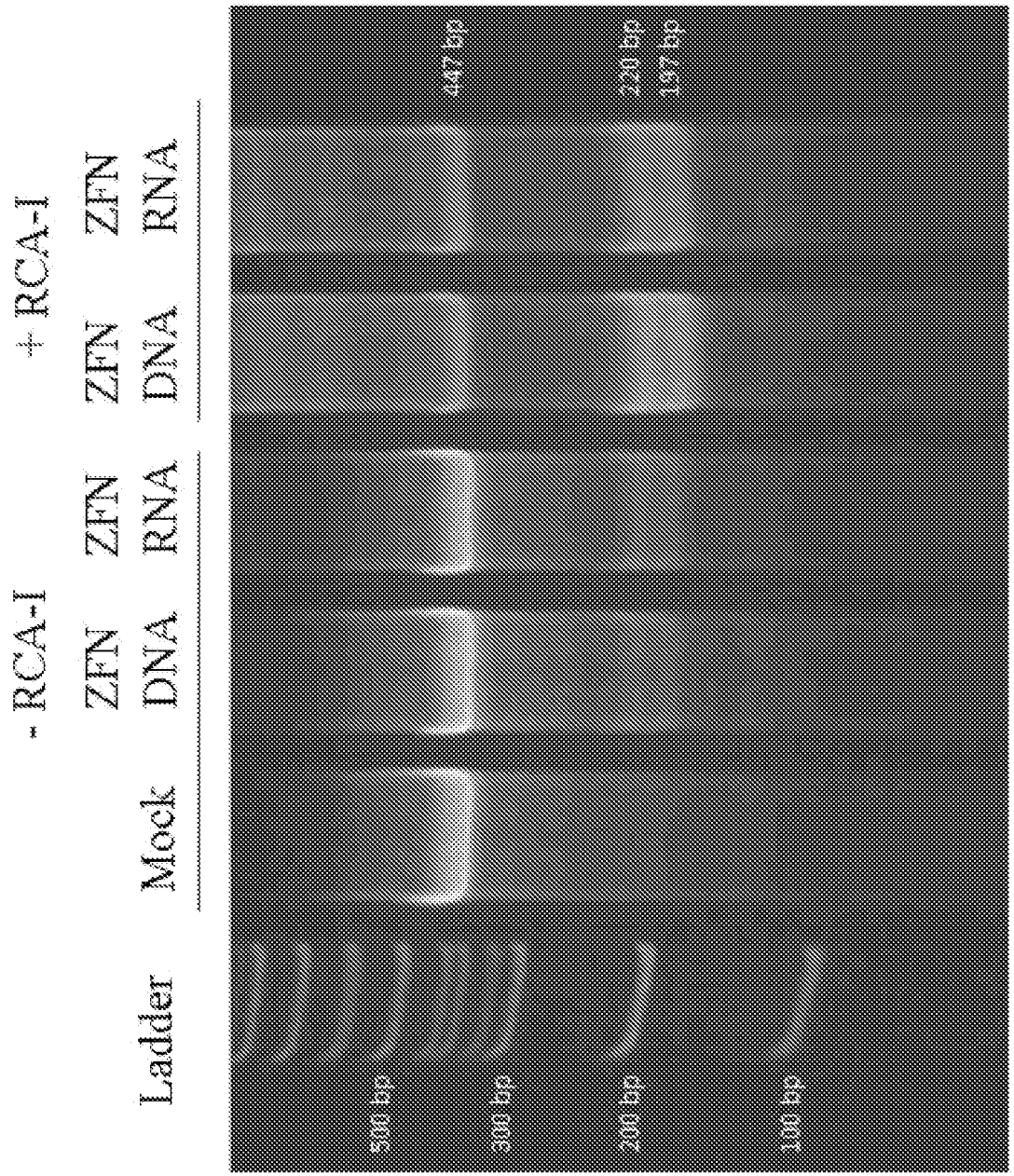

- RCA-I
+ RCA-I
Ladder
Mock
ZFN DNA
ZFN RNA
ZFN DNA
ZFN RNA
500 bp
400 bp
300 bp
200 bp
100 bp
447 bp
220 bp
197 bp
Percentage modified
3.8
5.5
35.7
33.2

FIG. 3

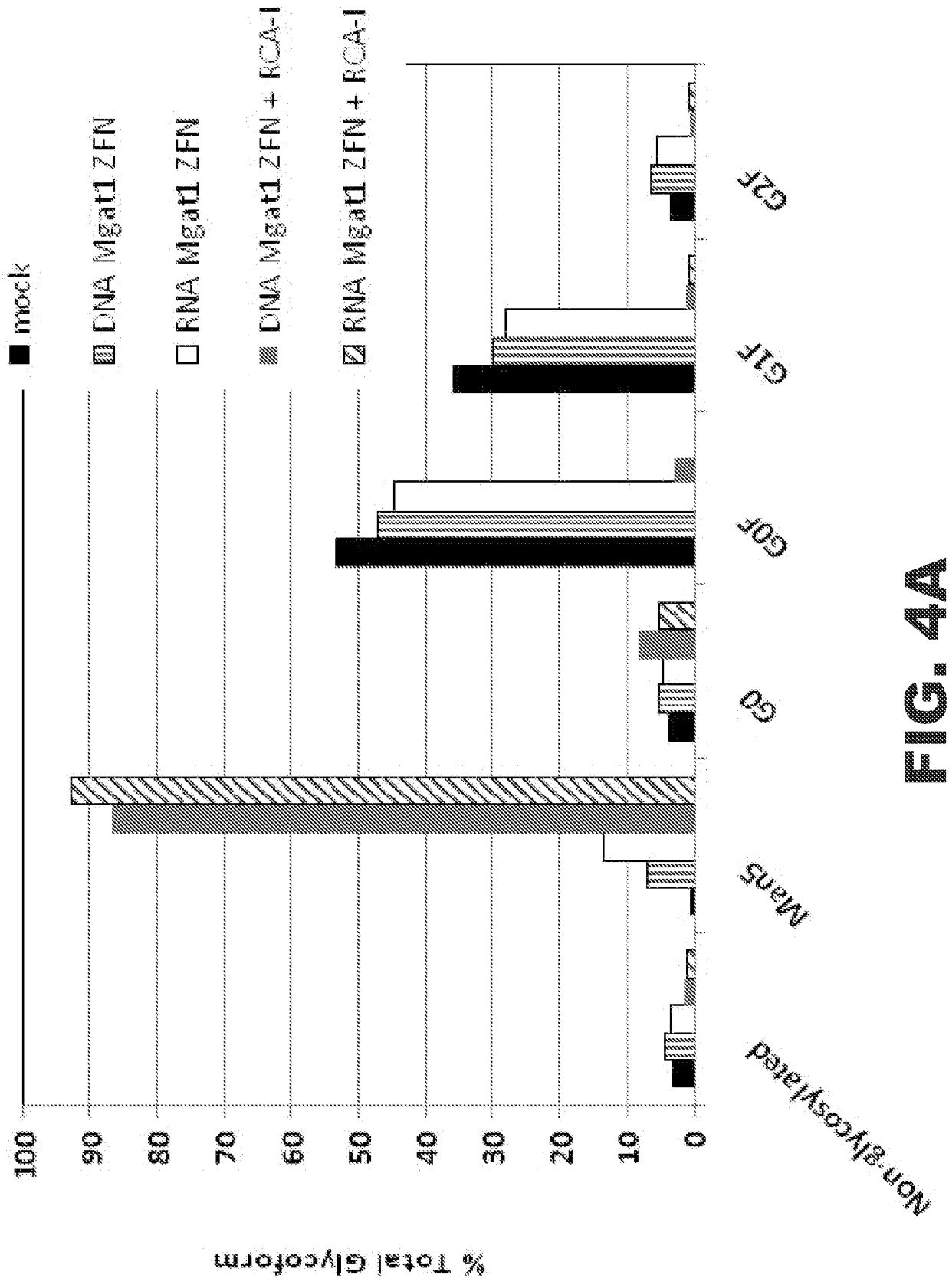

mock
DNA Mgat1 ZFN
RNA Mgat1 ZFN
DNA Mgat1 ZFN + RCA-I
RNA Mgat1 ZFN + RCA-I
% Total Glycoform
100
90
80
70
60
50
40
30
20
10
0
Non-glycosylated
Man5
G0
G0F
G1F
G2F

FIG. 4A

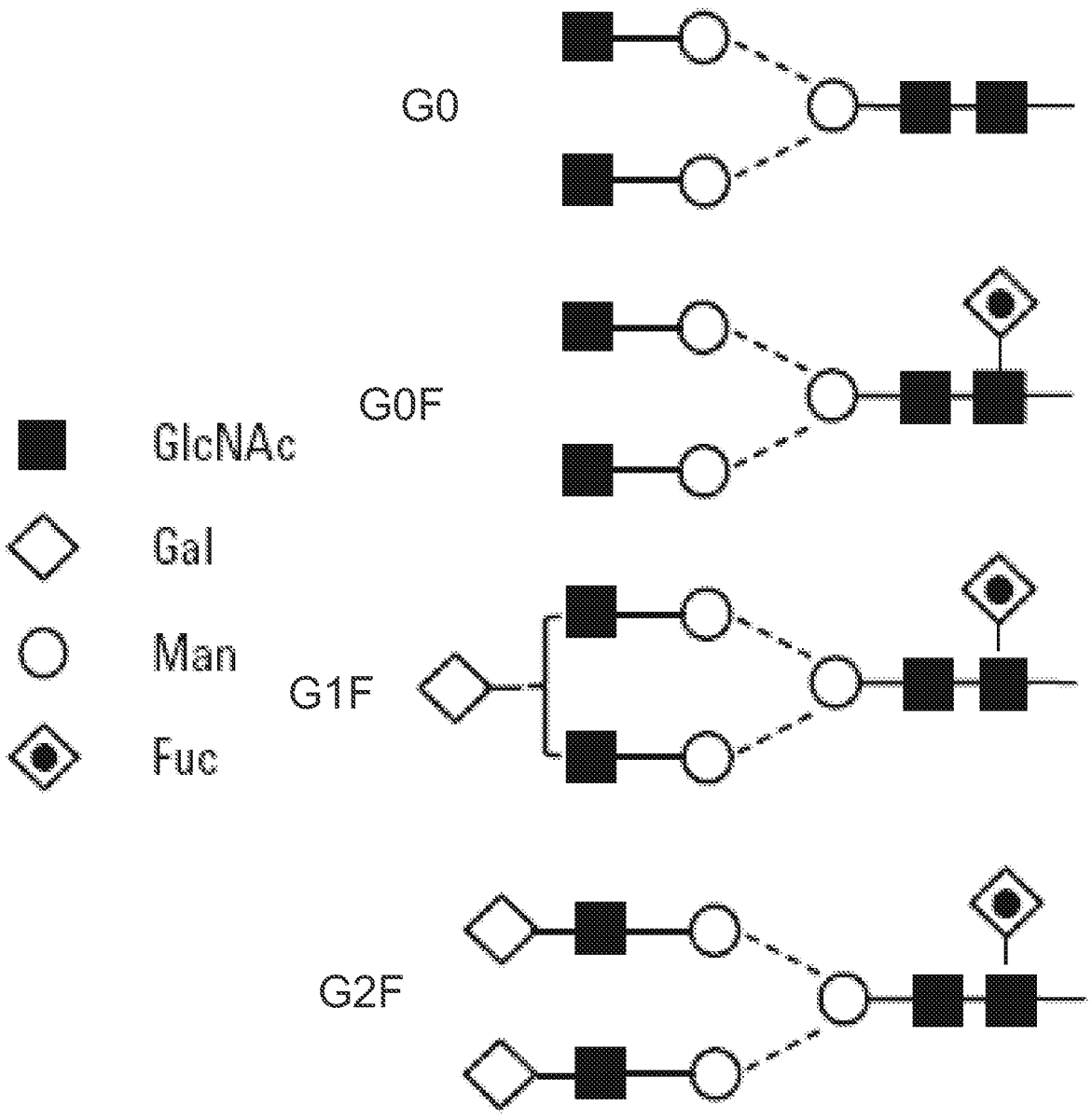


FIG. 4B


SEQ ID NO:
wildtype AAGTTCAAGTTCCCAGCAGCTGTGGTAGTGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 2
#15 AAGTTCAAGTTCCCAGCAGCTGTGGTAGTGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 2
#46 AAGTTCAAGTTCCCAGCAGCTGTGGTAGTGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 2
#73 AAGTTCAAGT----------AGCTGTGGTAGTGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 3
#92 AAGTTCAAGTTCC-----AGCTGTGGTAGTGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 4
#21 AAGTTCAAGT-----------------------TGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 5
#25 AAGTTCAAGTTCA---AGCTGTGGTAGTGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 6
#27 AAGTTCAAGTT---GAAGATCT-GGCCACCTACC 7
#37 AAGTTCAAGTTCC--GCAGCTGTGGTAGTGGAGGACGATCTGGAGGTGGCACCAGACTTCTTTGAGTACTTCCAGGCCACCTACC 8

FIG. 5

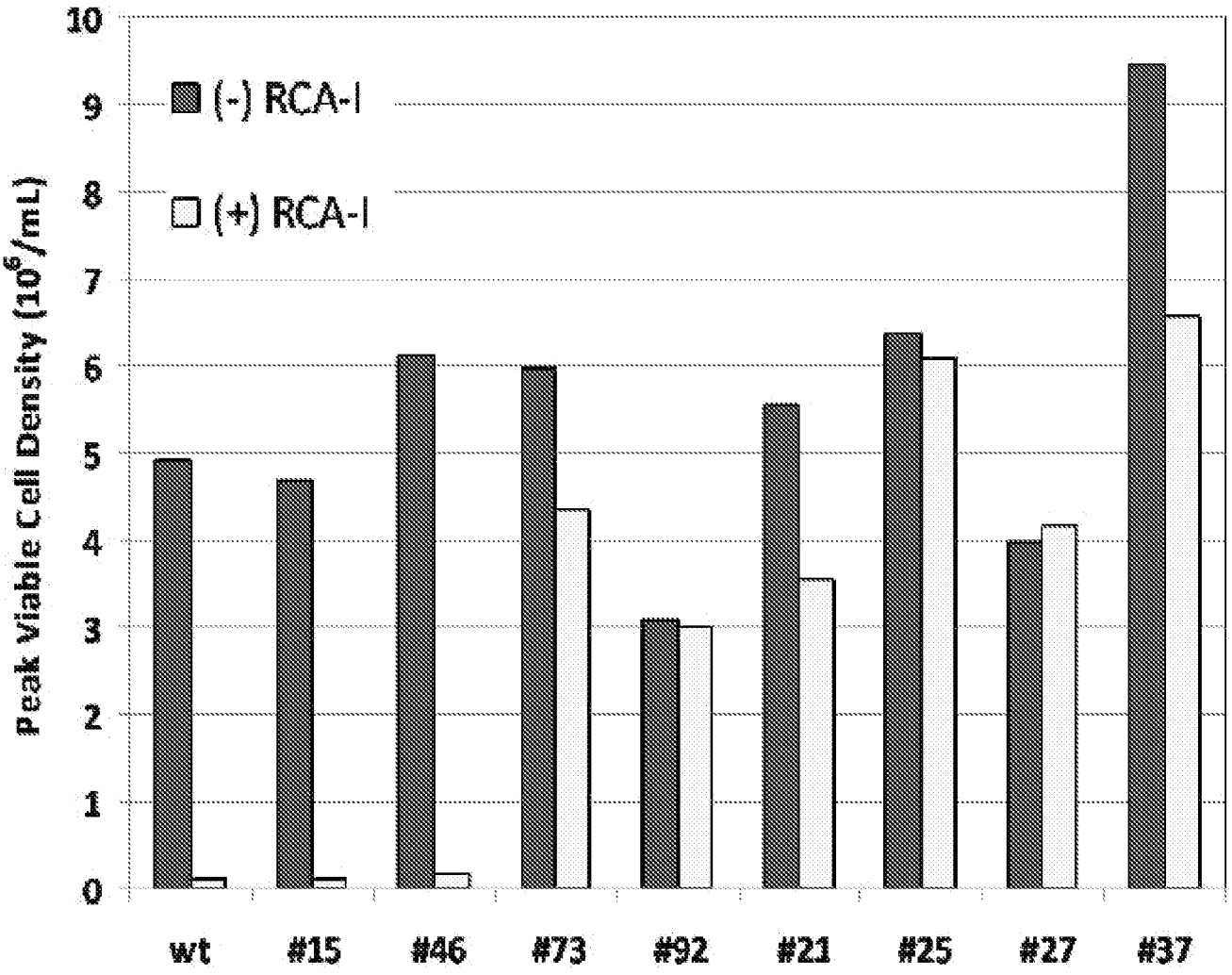

Peak Viable Cell Density (10^6/mL)
10
9
8
7
6
5
4
3
2
1
0
(-) RCA-I
(+) RCA-I
wt
#15
#46
#73
#92
#21
#25
#27
#37

FIG. 6

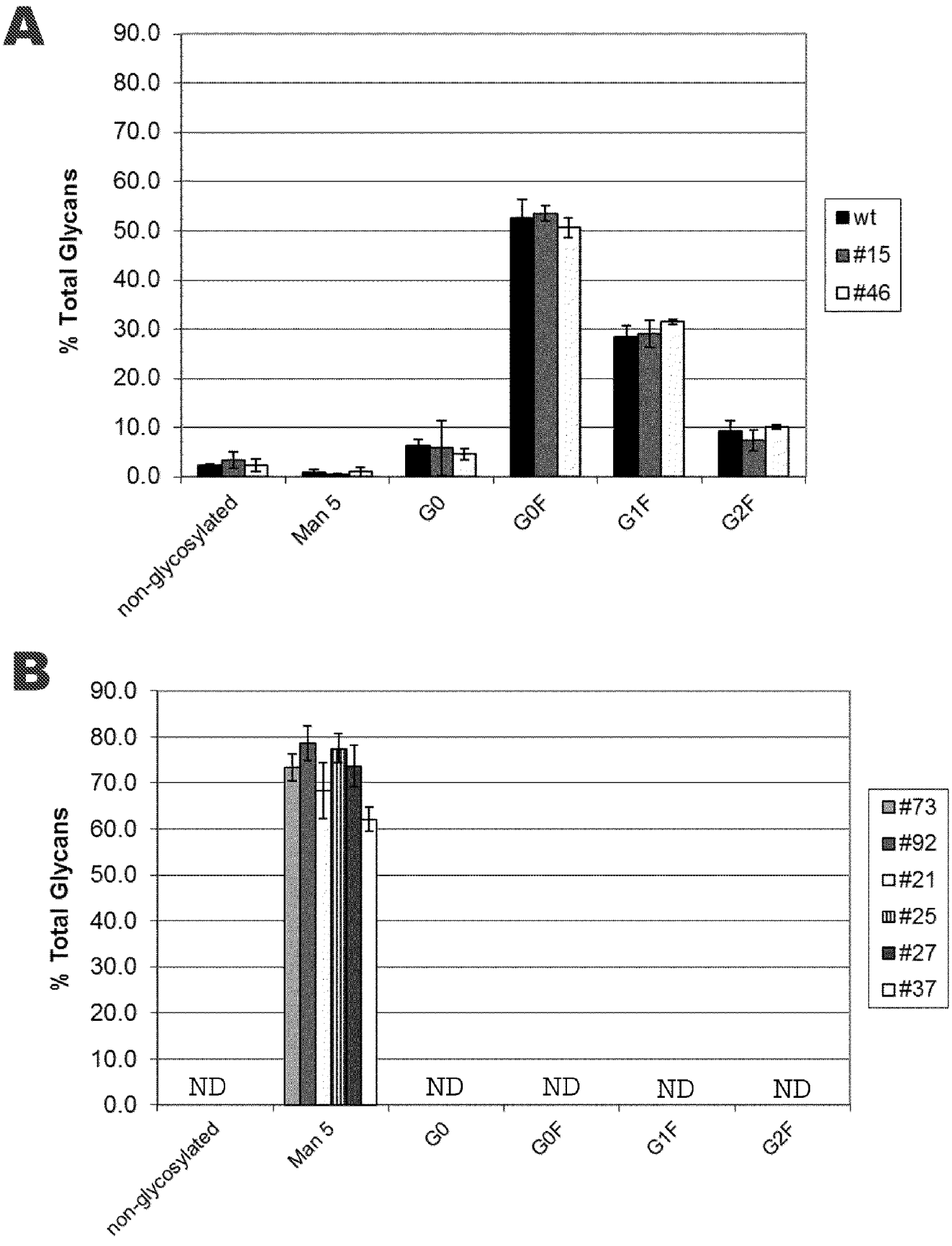

A
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
% Total Glycans
wt
#15
#46
non-glycosylated
Man 5
G0
G0F
G1F
G2F
B
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
% Total Glycans
#73
#92
#21
#25
#27
#37
ND
ND
ND
ND
ND
non-glycosylated
Man 5
G0
G0F
G1F
G2F

FIG. 7

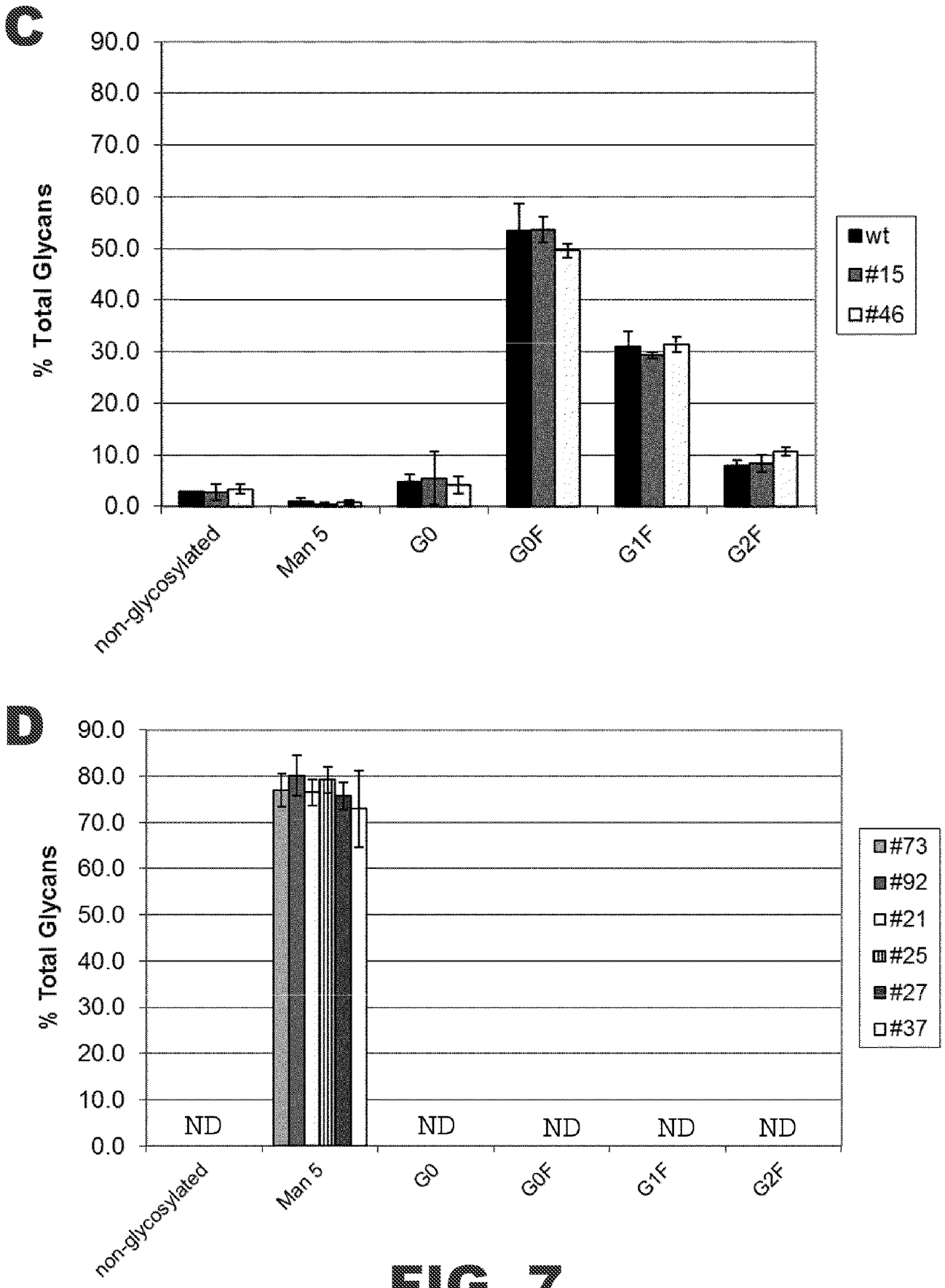

C
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
% Total Glycans
wt
#15
#46
non-glycosylated
Man 5
G0
G0F
G1F
G2F
D
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
% Total Glycans
#73
#92
#21
#25
#27
#37
ND
ND
ND
ND
ND
non-glycosylated
Man 5
G0
G0F
G1F
G2F

FIG. 7

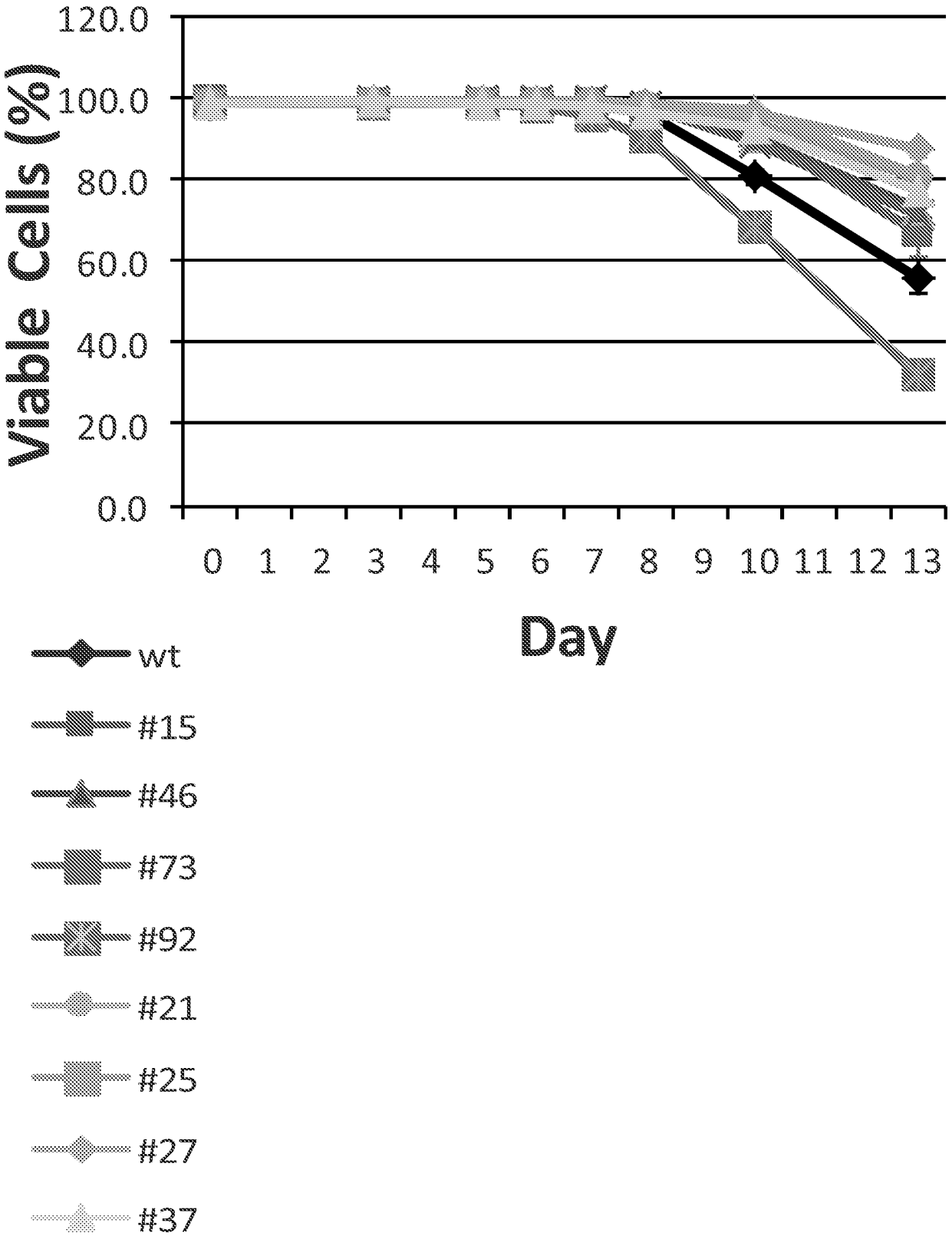

120.0
100.0
80.0
60.0
40.0
20.0
0.0
Viable Cells (%)
0 1 2 3 4 5 6 7 8 9 10 11 12 13
Day
wt
#15
#46
#73
#92
#21
#25
#27
#37

FIG. 8A

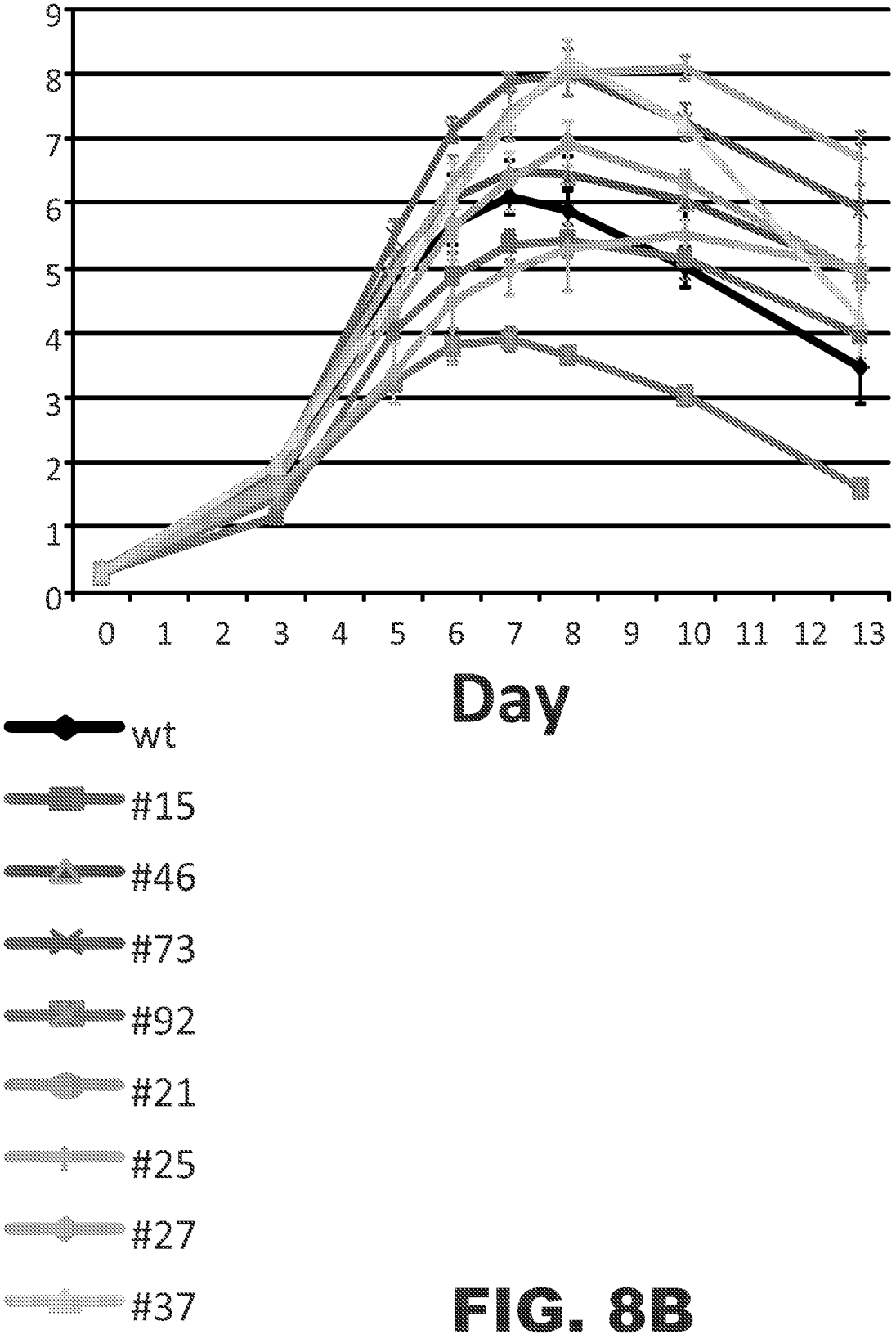


FIG. 8B

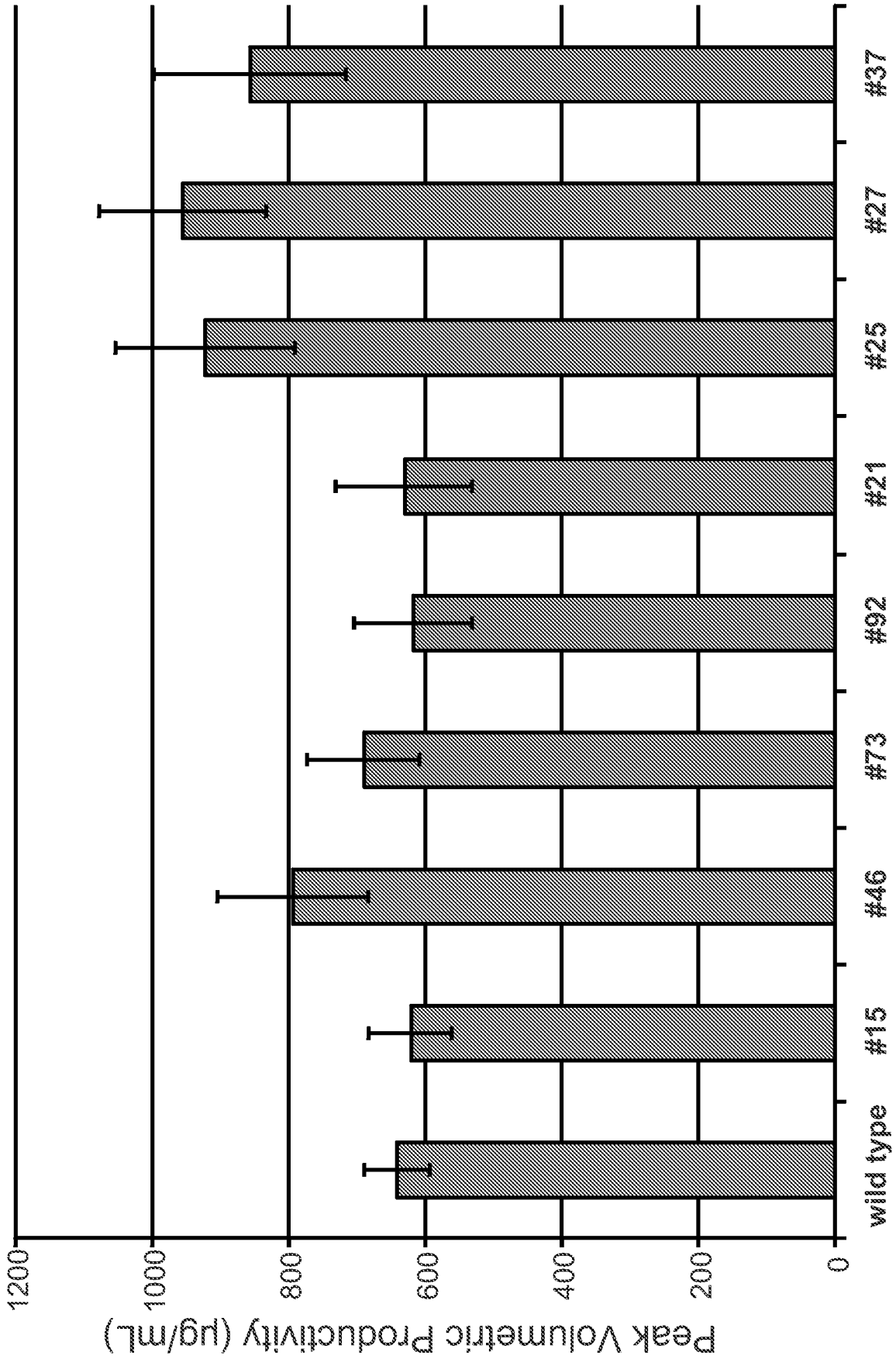

Peak Volumetric Productivity (µg/mL)
0
200
400
600
800
1000
1200
wild type
#15
#46
#73
#92
#21
#25
#27
#37

FIG. 9