FIGURE 1

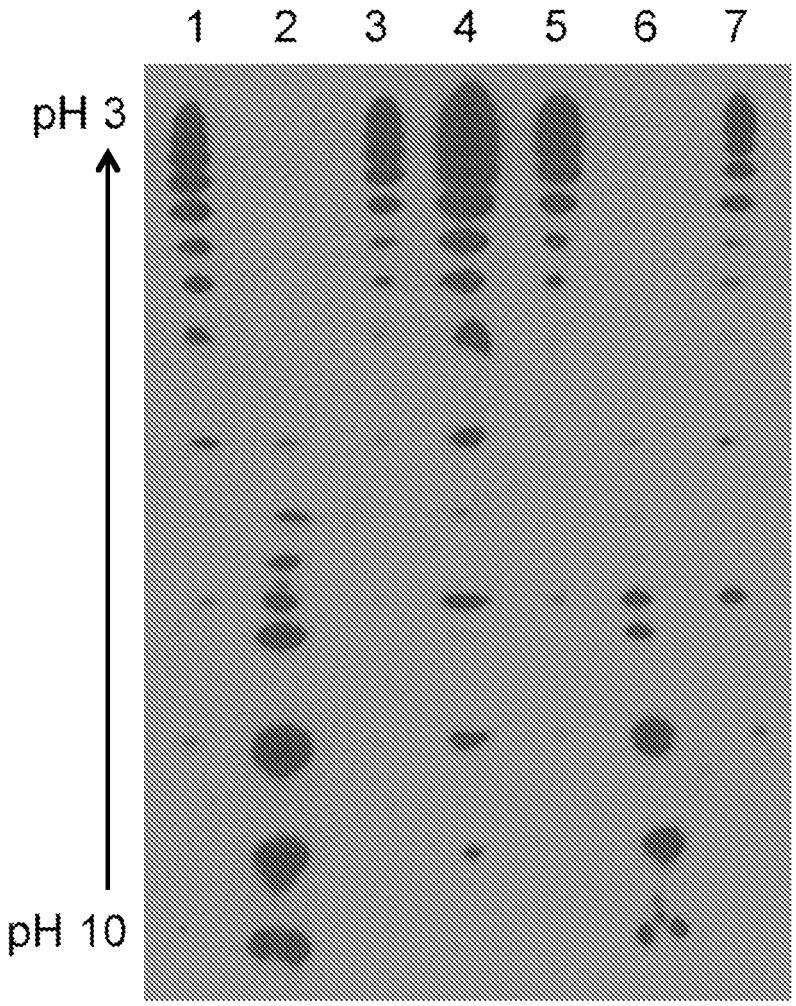


FIGURE 2

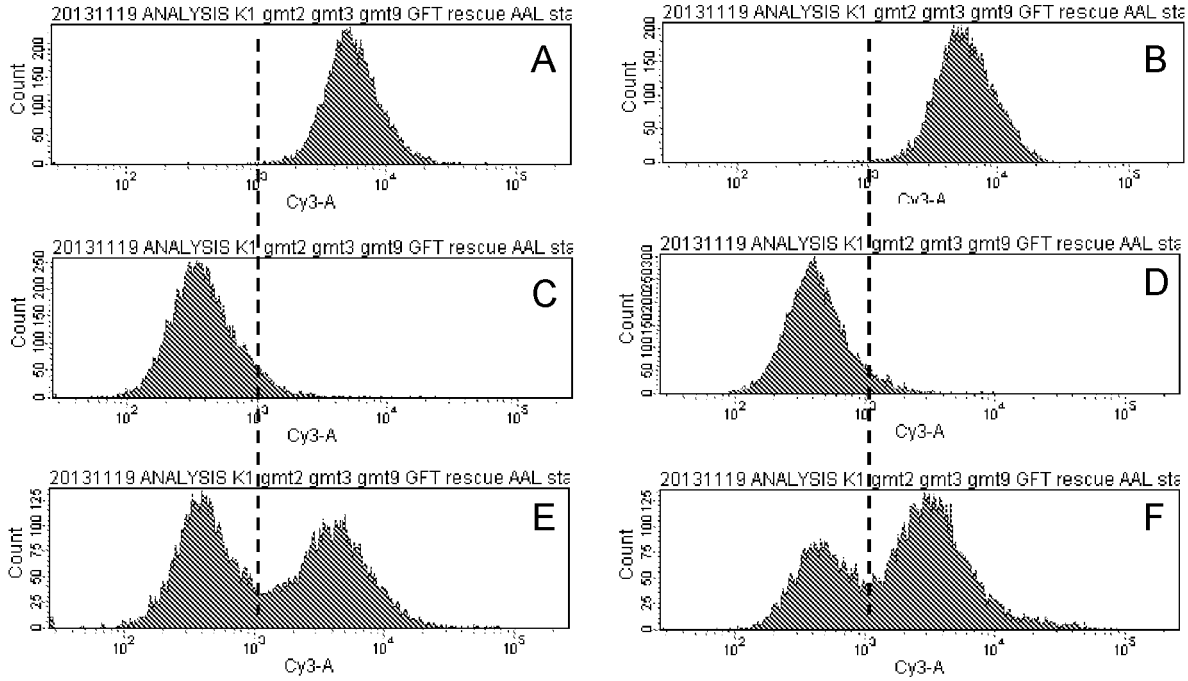

20131119 ANALYSIS K1 gmt2 gmt3 gmt9 GFT rescue AAL sta
A
B
C
D
E
F
Count
Cy3-A

FIGURE 3

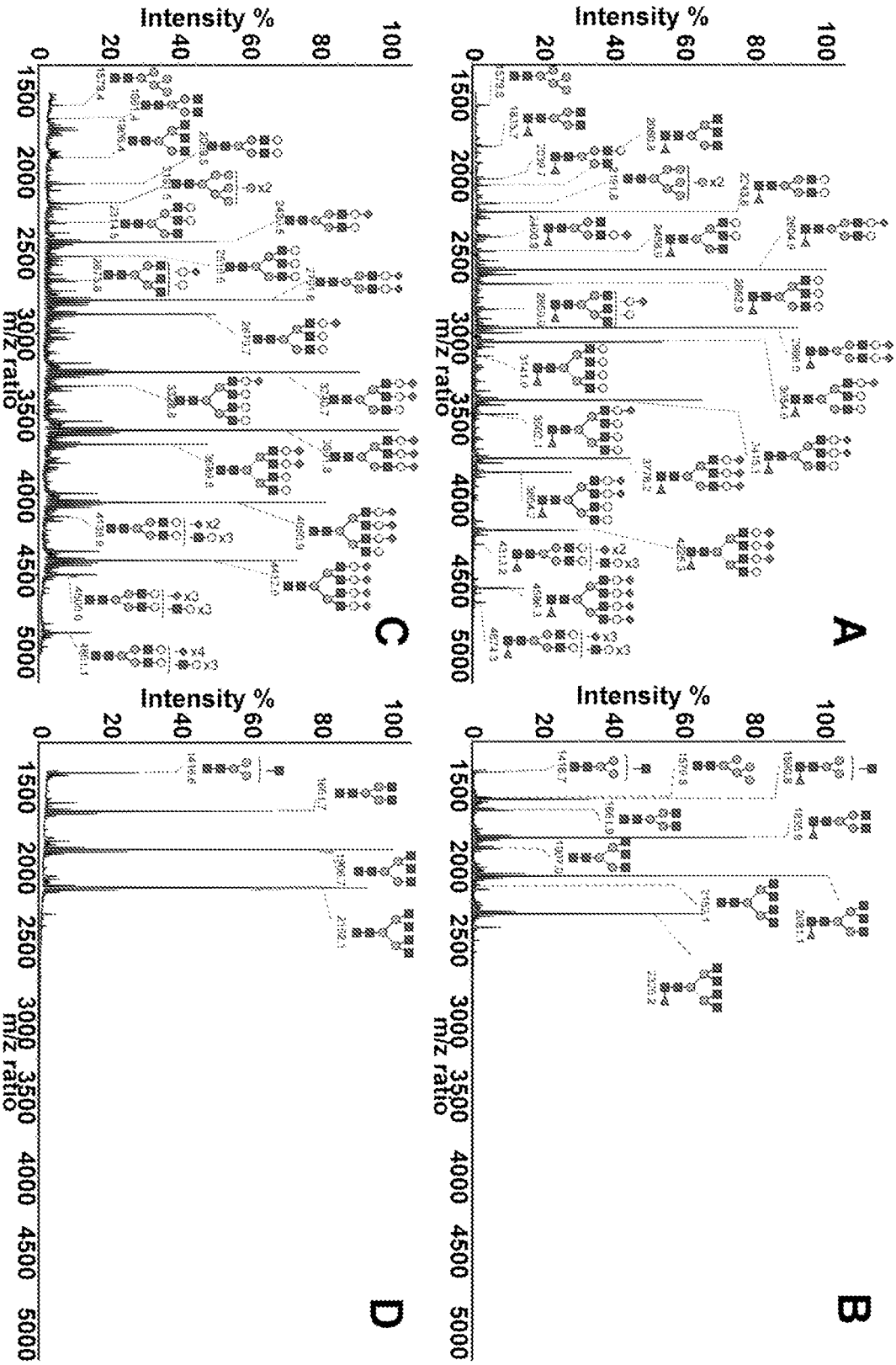


FIGURE 4

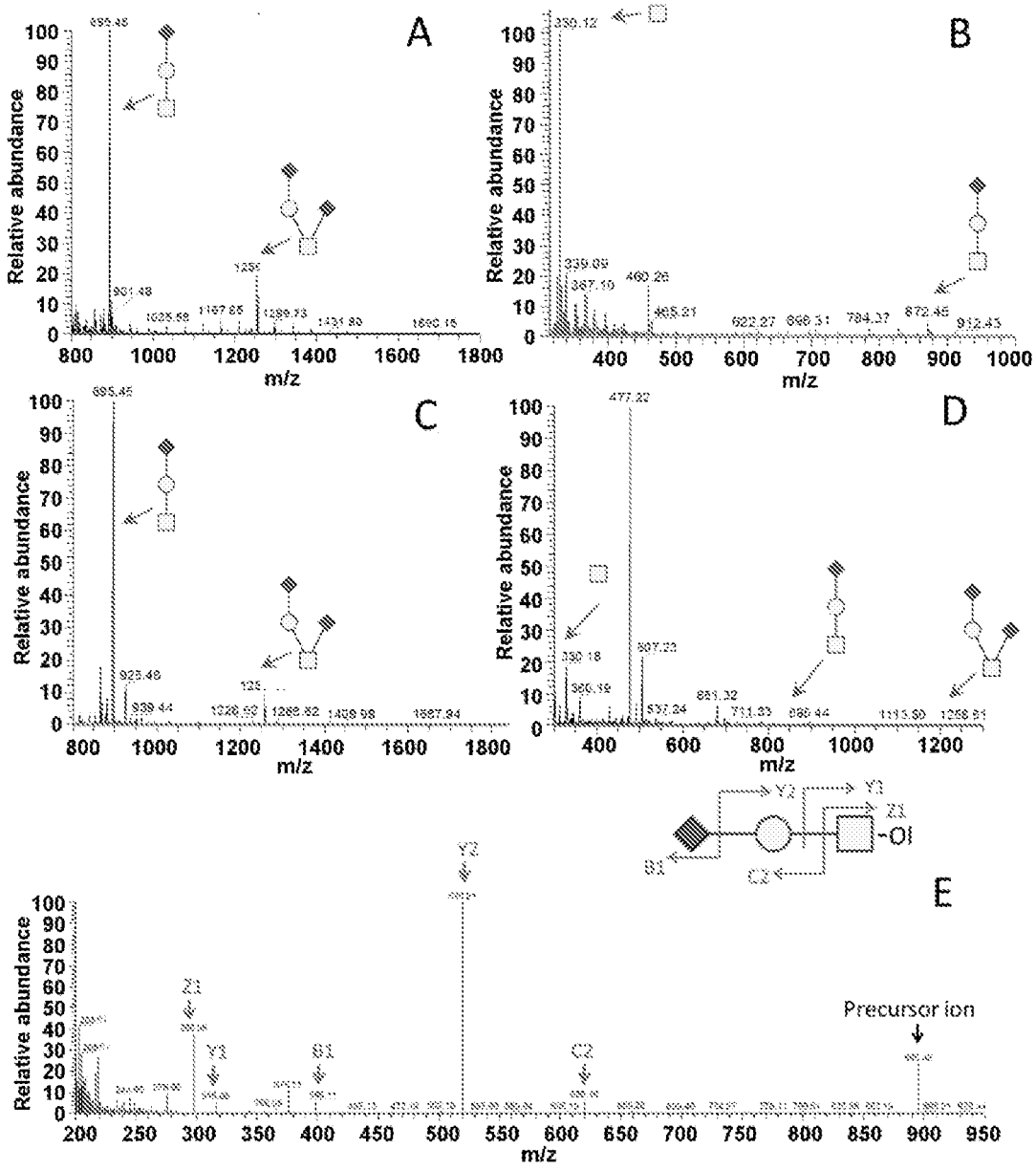


FIGURE 5

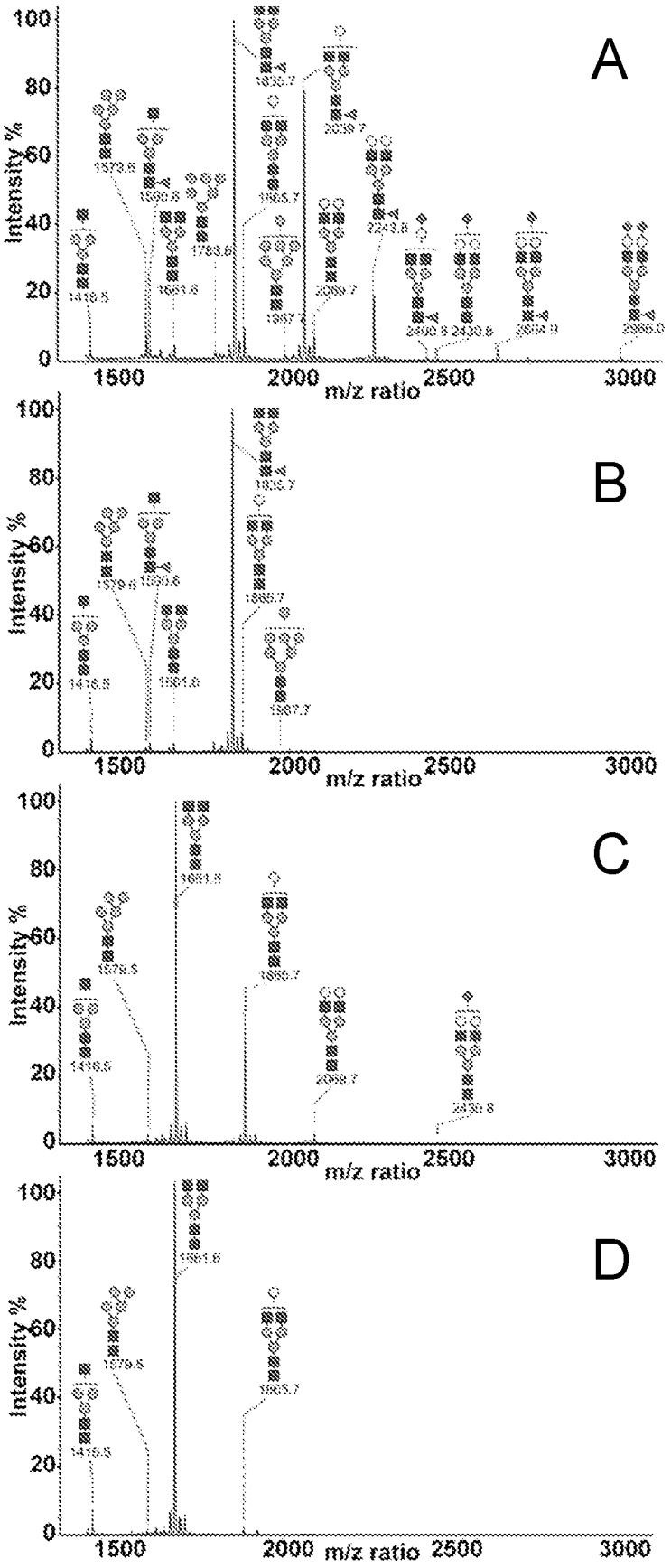

A
B
C
D
Intensity %
m/z ratio
1500
2000
2500
3000
0
20
40
60
80
100
1416.5
1579.5
1661.6
1865.7
1967.7
2030.8

FIGURE 6

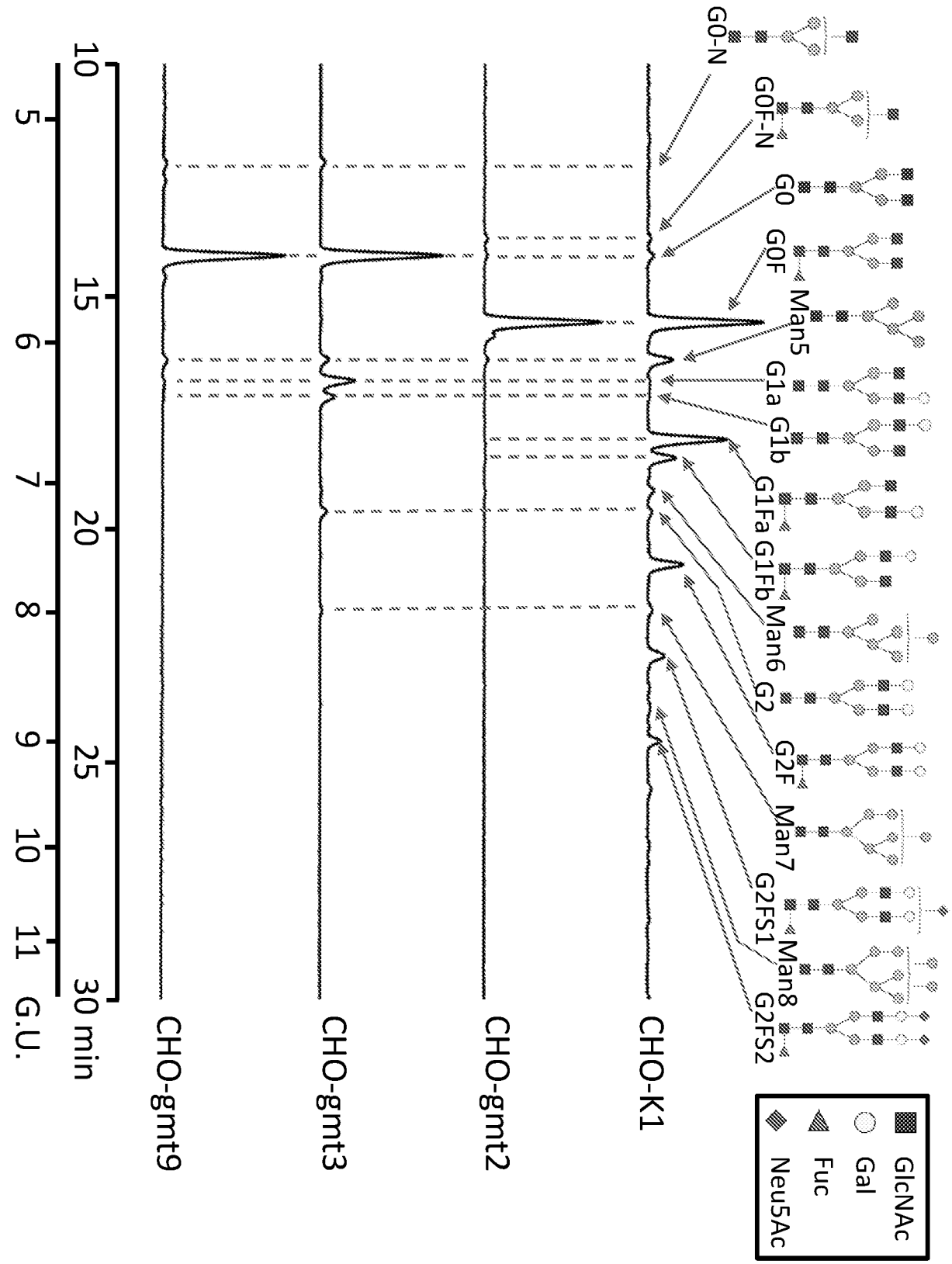

G0-N
G0F-N
G0
G0F
Man5
G1a
G1b
G1Fa
G1Fb
Man6
G2
G2F
Man7
G2FS1
Man8
G2FS2
GlcNAc
Gal
Fuc
Neu5Ac
CHO-K1
CHO-gmt2
CHO-gmt3
CHO-gmt9
10
15
20
25
30 min
5
6
7
8
9
10
11
G.U.

FIGURE 7

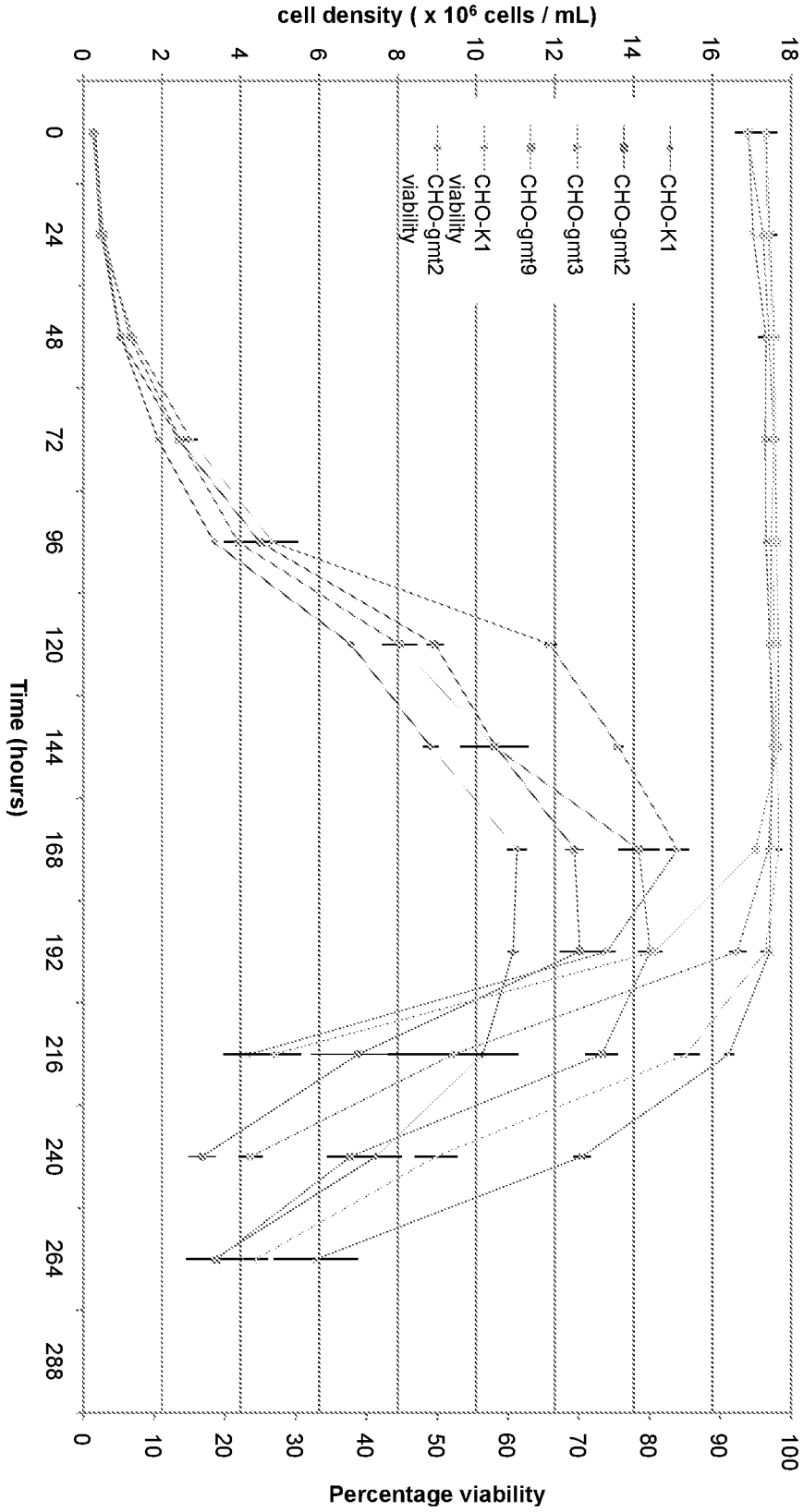

cell density (x 10⁶ cells / mL)
Time (hours)
Percentage viability
CHO-K1
CHO-gmt2
CHO-gmt3
CHO-gmt9
CHO-K1 viability
CHO-gmt2 viability

FIGURE 7B


G2
Gal—Gn—M
Gal—Gn—M
M—Gn—Gn
Fuc
G1
α1,6
Gal—Gn—M
Gn—M
M—Gn—Gn
Fuc
G1
α1,3
Gn—M
Gal—Gn—M
M—Gn—Gn
Fuc
G0
Gn—M
Gn—M
M—Gn—Gn
Fuc

FIGURE 8

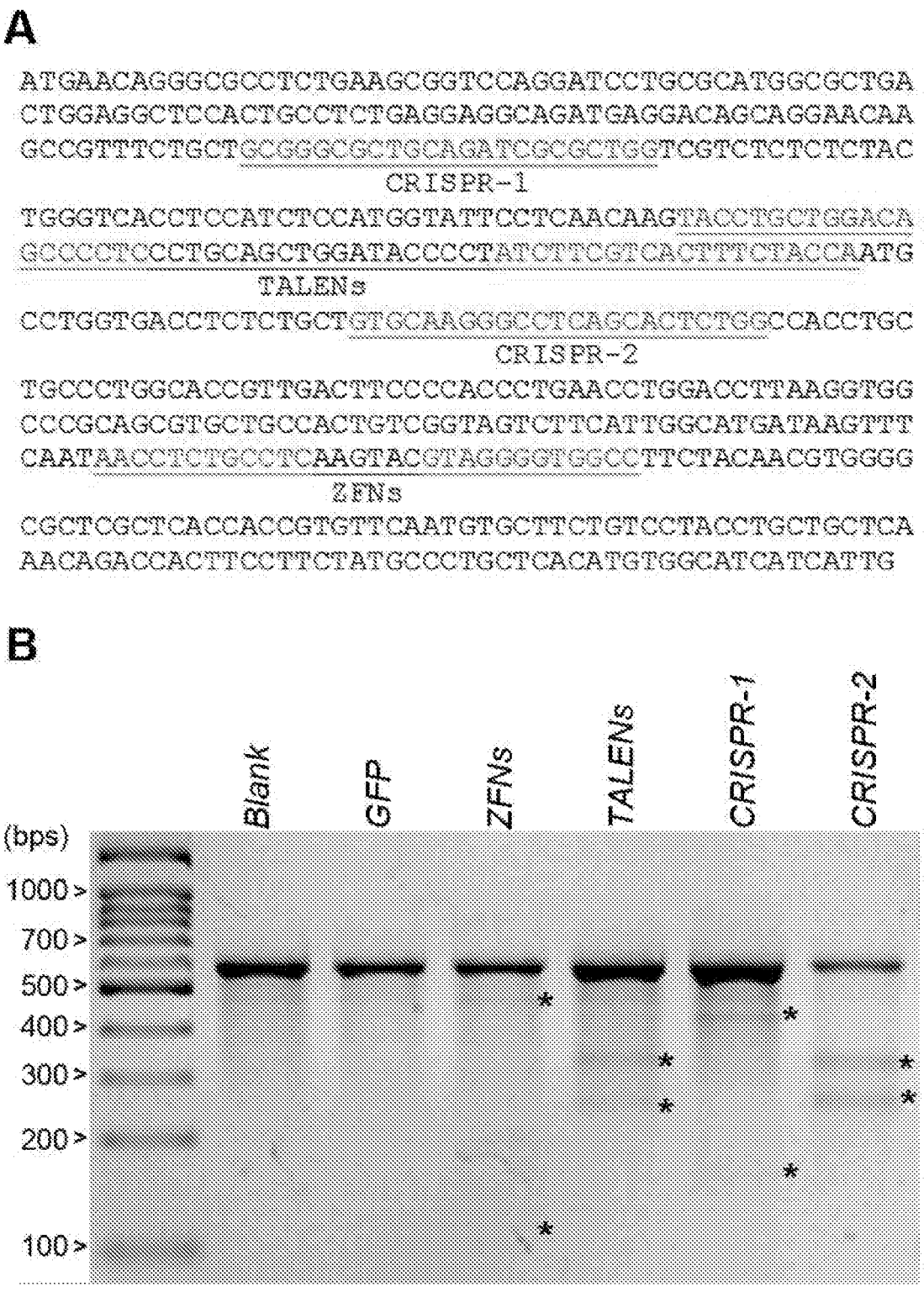

A
ATGAACAGGGCGCCTCTGAAGCGGTCCAGGATCCTGCGCATGGCGCTGA
CTGGAGGCTCCACTGCCTCTGAGGAGGCAGATGAGGACAGCAGGAACAA
GCCGTTTCTGCTGCGGGCGCTGCAGATCGCGCTGGTCGTCTCTCTCTAC
CRISPR-1
TGGGTCACCTCCATCTCCATGGTATTCCTCAACAAGTACCTGCTGGACA
GCCCCTCCCTGCAGCTGGATACCCCTATCTTCGTCACTTTCTACCAATG
TALENs
CCTGGTGACCTCTCTGCTGTGCAAGGGCCTCAGCACTCTGGCCACCTGC
CRISPR-2
TGCCCTGGCACCGTTGACTTCCCCACCCTGAACCTGGACCTTAAGGTGG
CCCGCAGCGTGCTGCCACTGTCGGTAGTCTTCATTGGCATGATAAGTTT
CAATAACCTCTGCCTCAAGTACGTAGGGGTGGCCTTCTACAACGTGGGG
ZFNs
CGCTCGCTCACCACCGTGTTCAATGTGCTTCTGTCCTACCTGCTGCTCA
AACAGACCACTTCCTTCTATGCCCTGCTCACATGTGGCATCATCATTG
B
Blank
GFP
ZFNs
TALENs
CRISPR-1
CRISPR-2
(bps)
1000 >
700 >
500 >
400 >
300 >
200 >
100 >

FIGURE 9

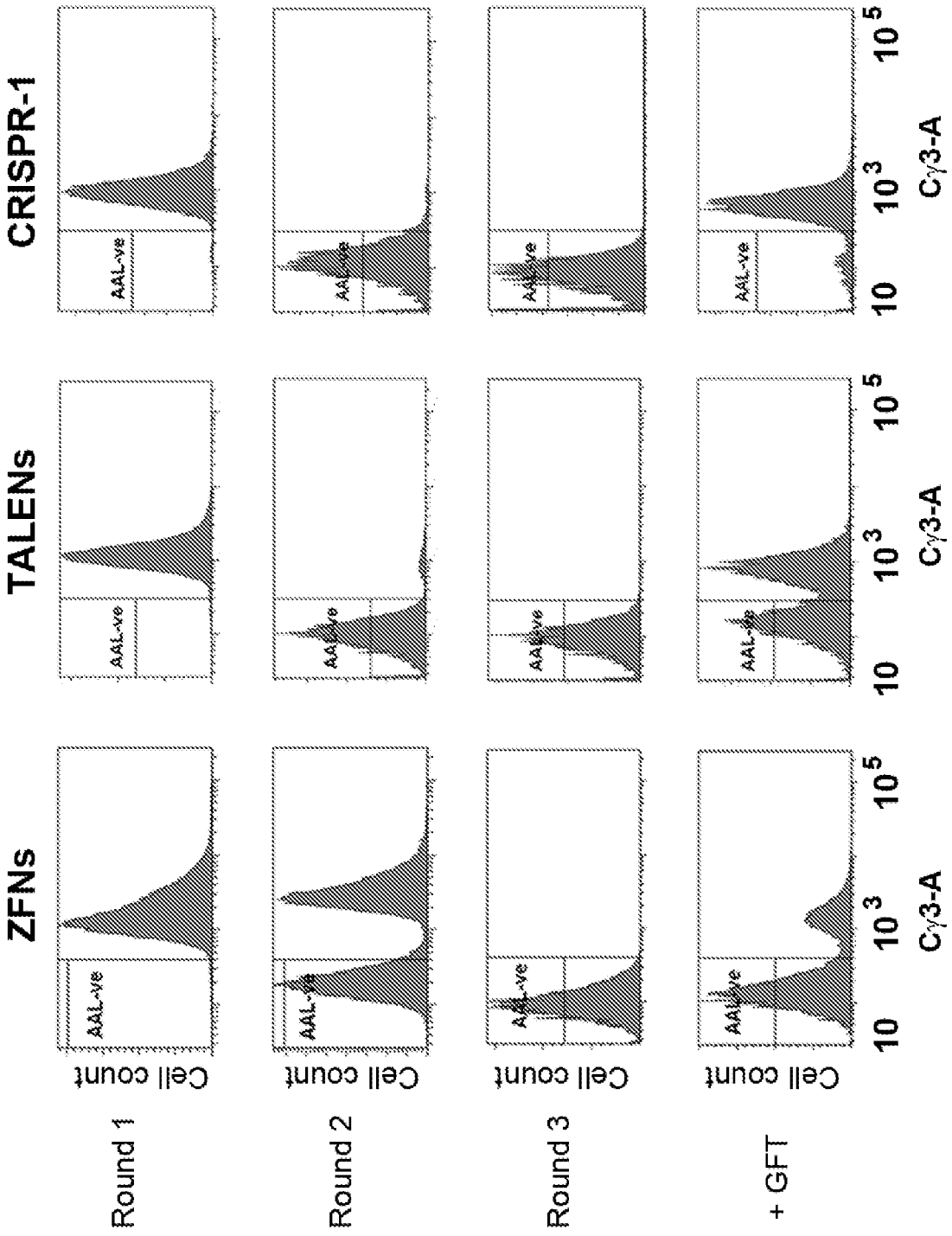

ZFNs
TALENs
CRISPR-1
Round 1
Round 2
Round 3
+ GFT
Cell count
AAL-ve
10
10^3
10^5
Cγ3-A

FIGURE 10

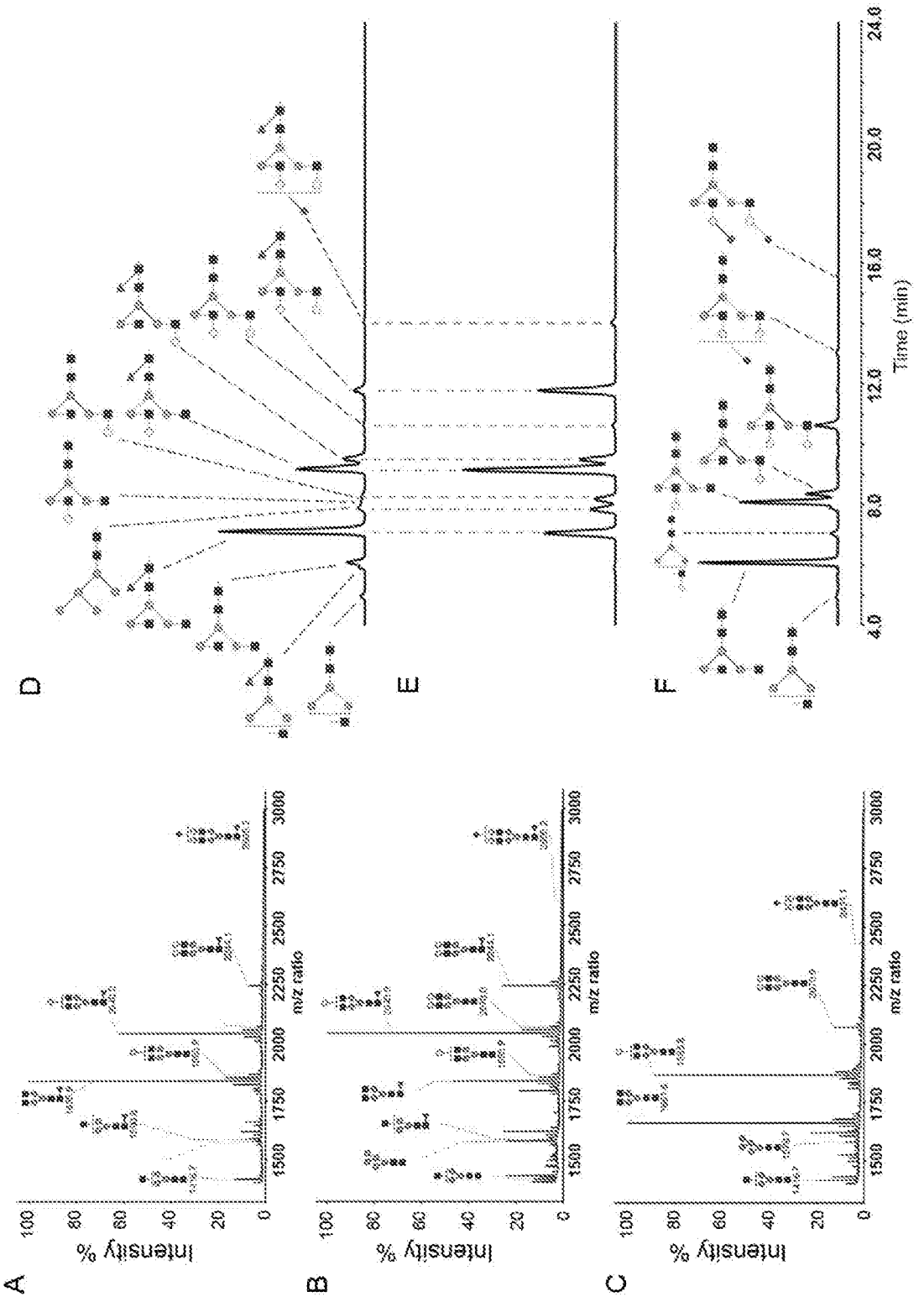


FIGURE 11

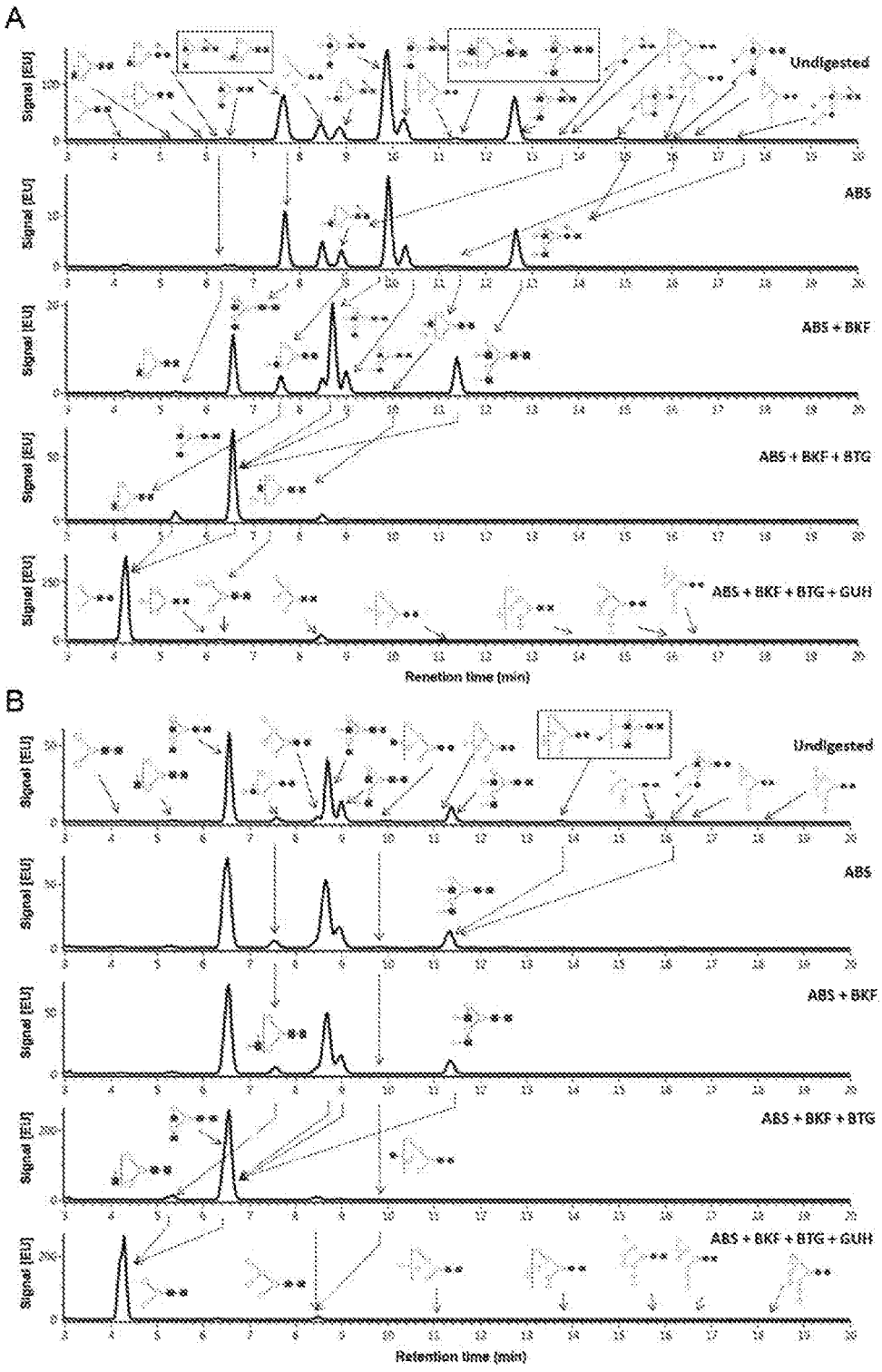

A
Undigested
ABS
ABS + BKF
ABS + BKF + BTG
ABS + BKF + BTG + GUH
Signal [EU]
Retention time (min)
B
Undigested
ABS
ABS + BKF
ABS + BKF + BTG
ABS + BKF + BTG + GUH
Signal [EU]
Retention time (min)

FIGURE 12

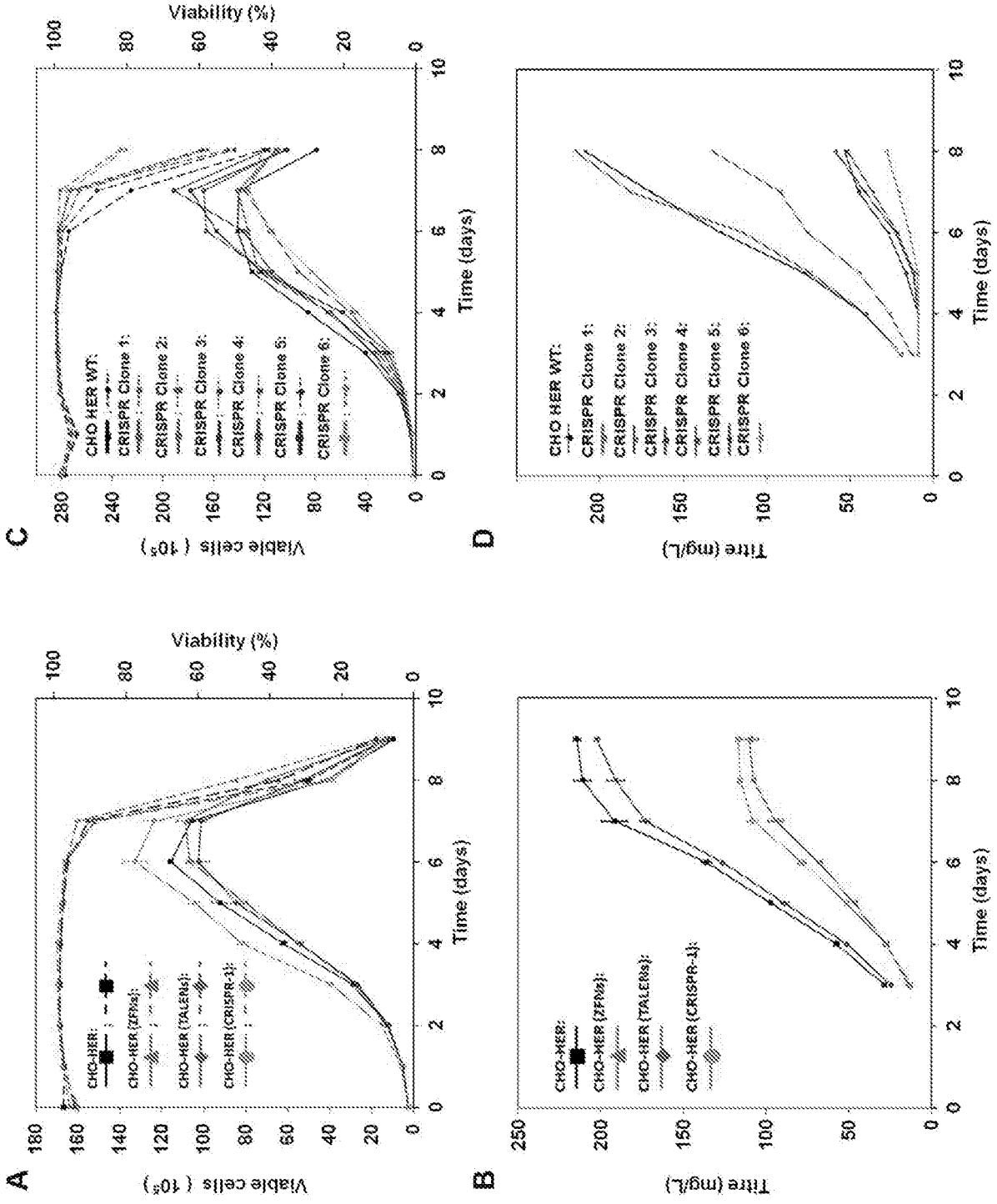

A
Viable cells (10⁵)
Viability (%)
Time (days)
CHO-HER:
CHO-HER (ZFNs):
CHO-HER (TALENs):
CHO-HER (CRISPR-1):
B
Titre (mg/L)
Time (days)
CHO-HER:
CHO-HER (ZFNs):
CHO-HER (TALENs):
CHO-HER (CRISPR-1):
C
Viable cells (10⁵)
Viability (%)
Time (days)
CHO HER WT:
CRISPR Clone 1:
CRISPR Clone 2:
CRISPR Clone 3:
CRISPR Clone 4:
CRISPR Clone 5:
CRISPR Clone 6:
D
Titre (mg/L)
Time (days)
CHO HER WT:
CRISPR Clone 1:
CRISPR Clone 2:
CRISPR Clone 3:
CRISPR Clone 4:
CRISPR Clone 5:
CRISPR Clone 6:

FIGURE 13

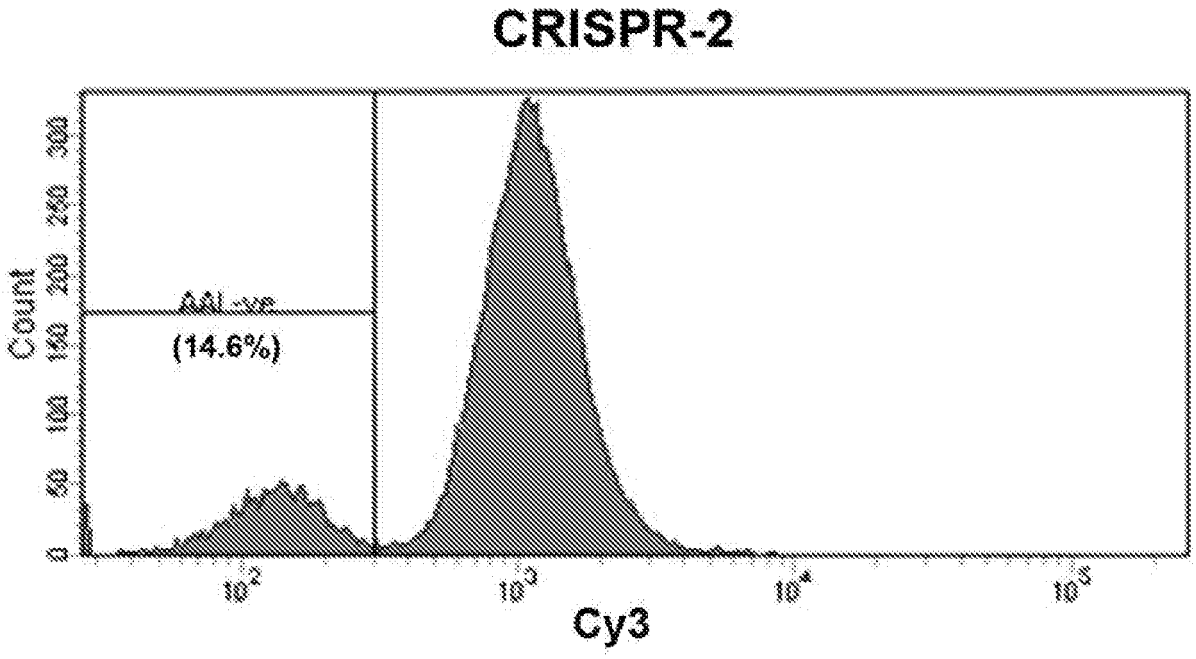

CRISPR-2
Count
0
50
100
150
200
250
300
AAI -ve
(14.6%)
10^2
10^3
10^4
10^5
Cy3

FIGURE 14

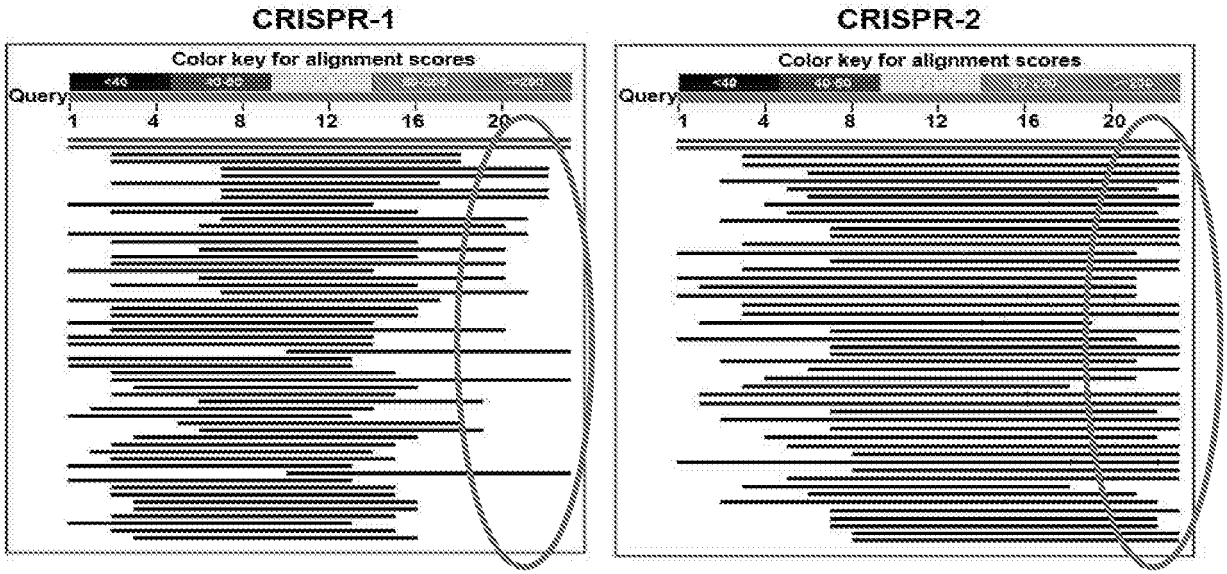

CRISPR-1
Color key for alignment scores
Query
1
4
8
12
16
20
CRISPR-2
Color key for alignment scores
Query
1
4
8
12
16
20

FIGURE 15

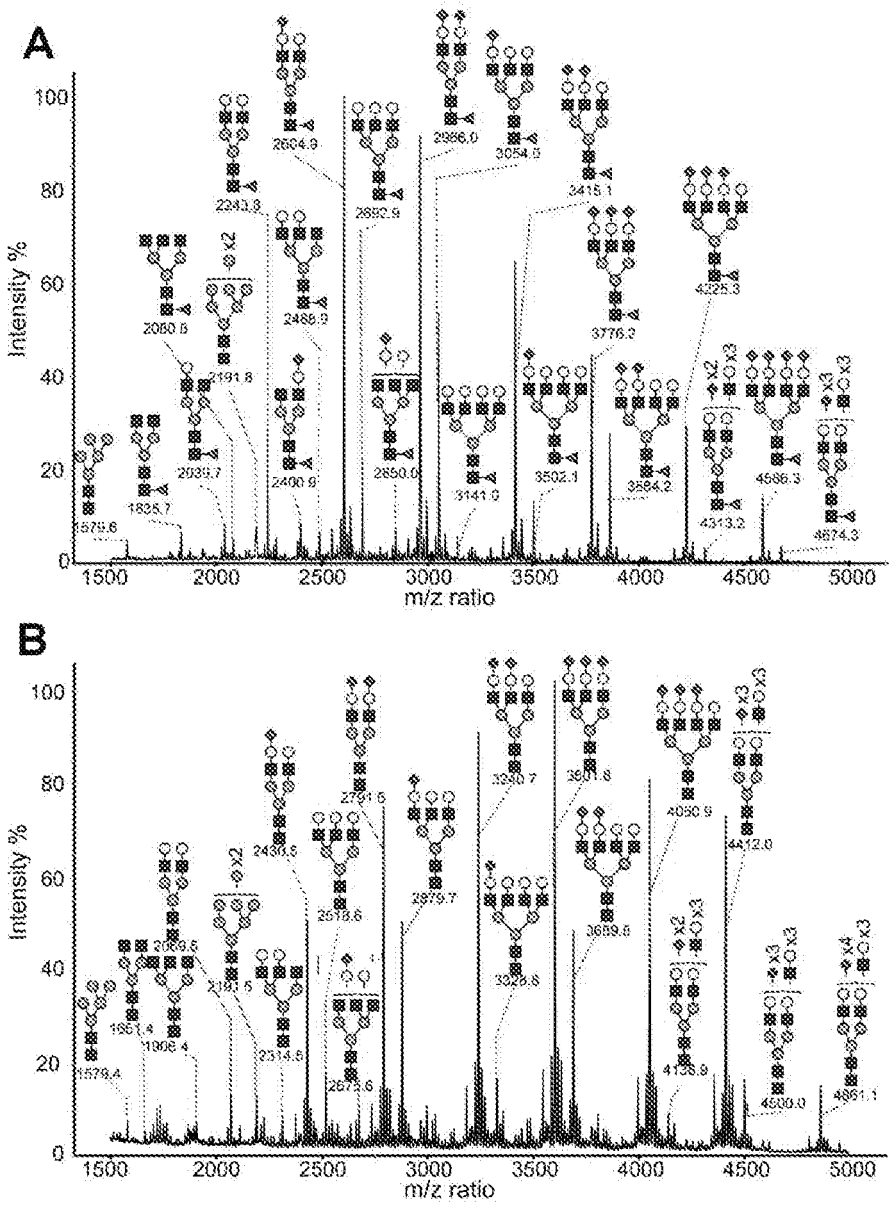

A
Intensity %
m/z ratio
1579.6
1835.7
2039.7
2060.8
2243.8
2400.9
2486.9
2604.9
2650.9
2850.0
2866.0
3054.0
3141.9
3415.1
3502.1
3776.2
3884.2
4225.3
4313.2
4586.3
4674.3
B
Intensity %
m/z ratio
1579.4
1961.4
1988.4
2314.6
2438.6
2618.6
2791.6
2979.7
3240.7
3328.8
3651.8
3689.6
4050.9
4412.0
4500.0
4861.1

FIGURE 16

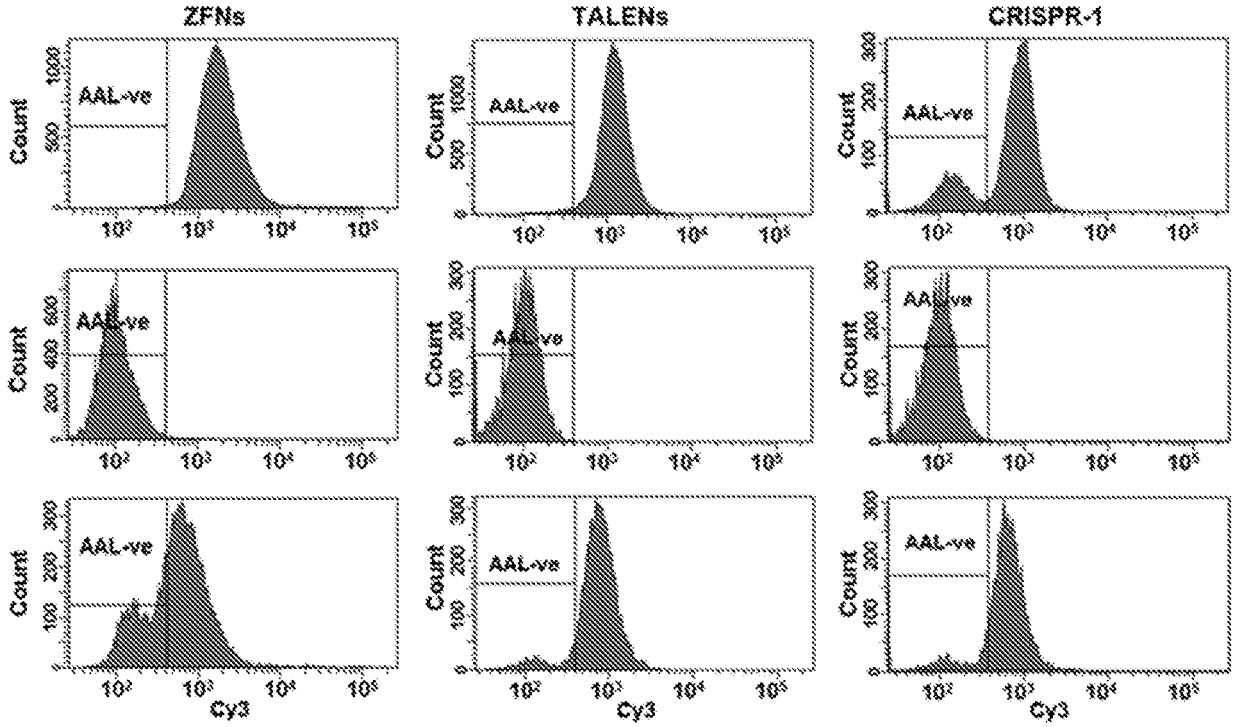


FIGURE 17

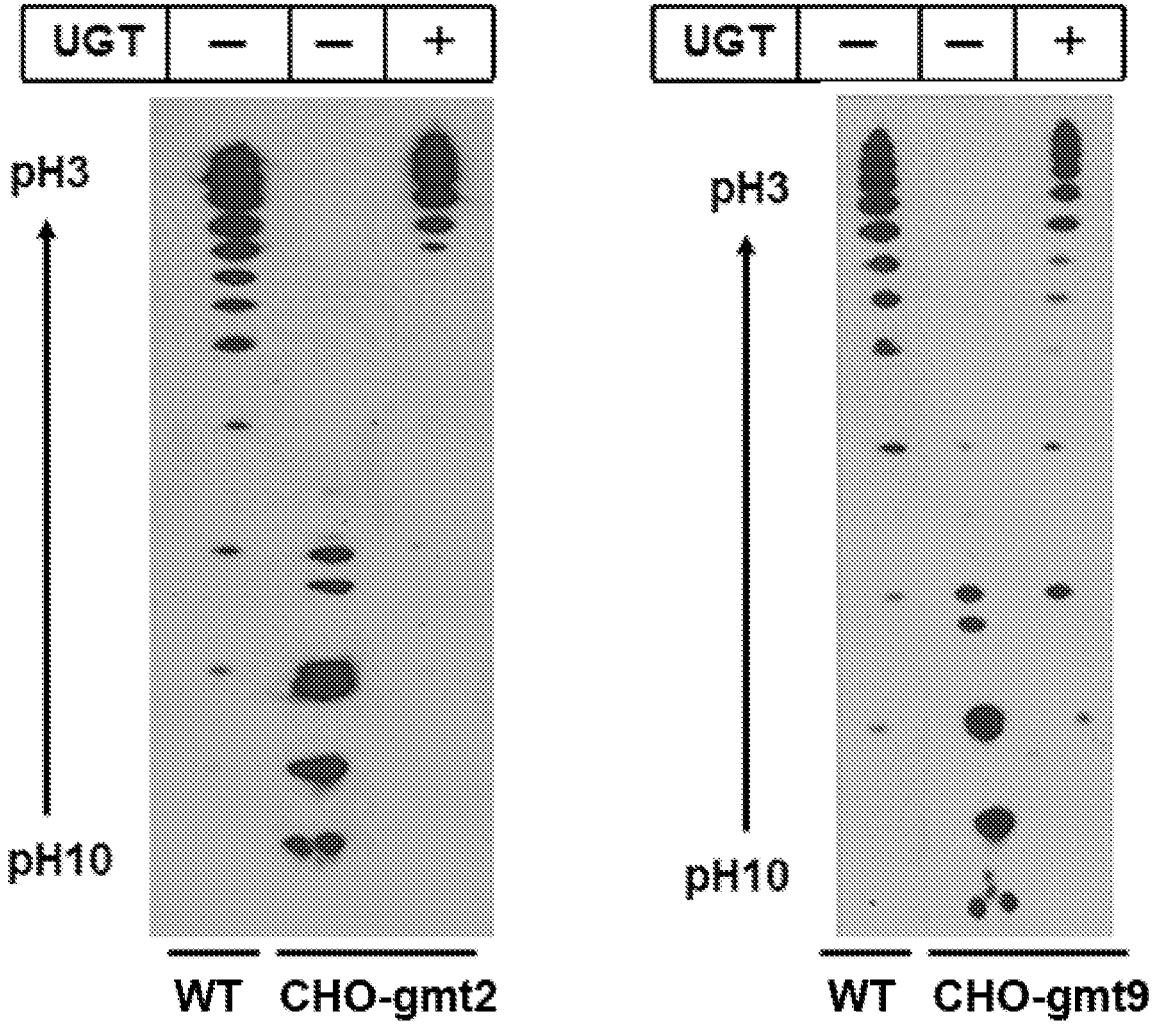
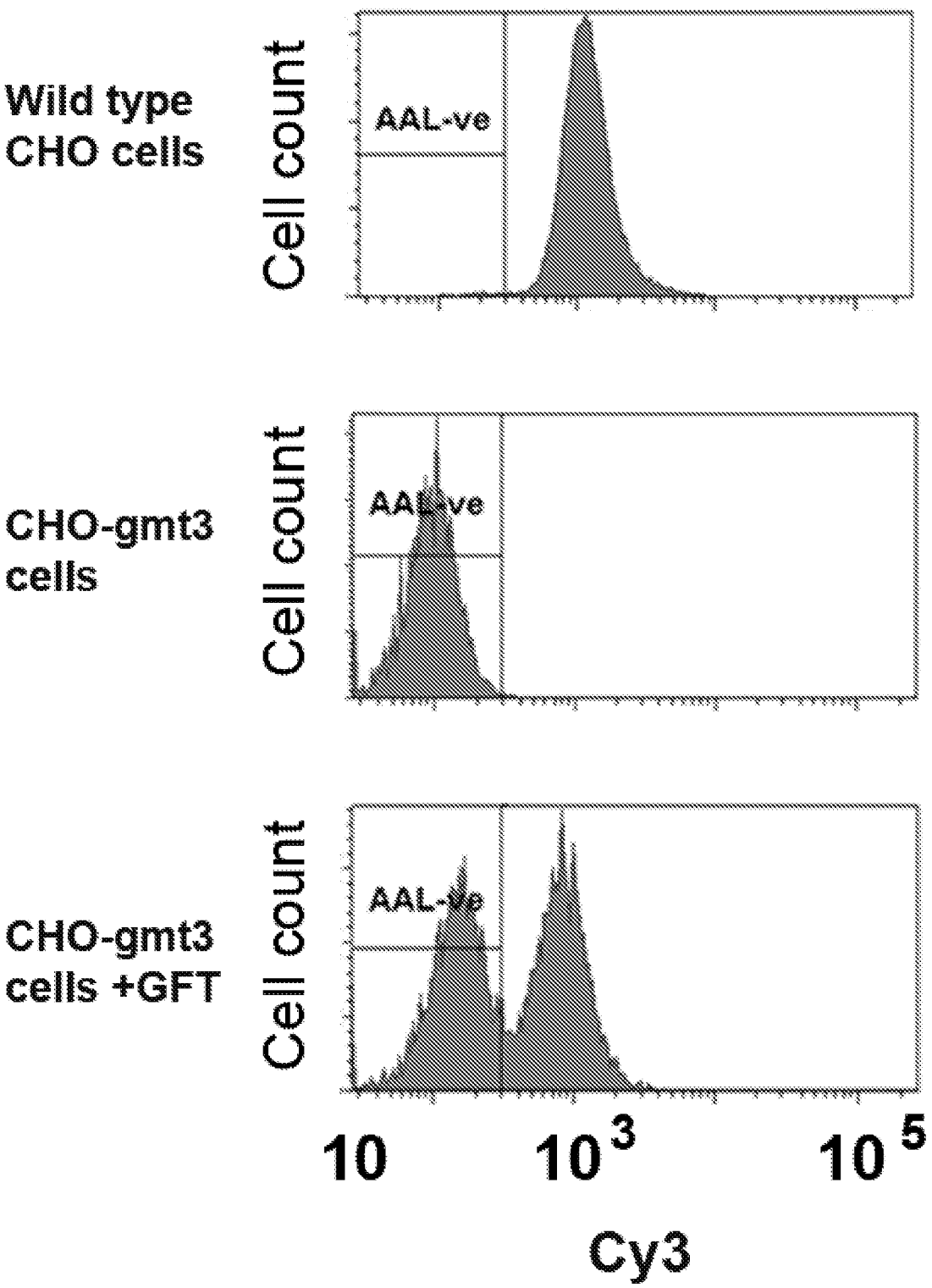


FIGURE 18


Wild type CHO cells
Cell count
AAL-ve
CHO-gmt3 cells
Cell count
AAL-ve
CHO-gmt3 cells +GFT
Cell count
AAL-ve
10
10 3
10 5
Cy3