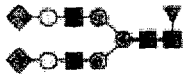
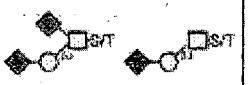
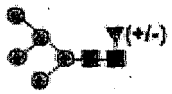
A

Cell line	Mutation	N-glycan	O-glycan
CHO-K1 (Wild type)	---		
CHO-gmt6	CMP-SAT; GnT I		
CHO-gmt7	UDP-GalT; GnT I		

Sialic acid: ◆ Galactose: ○ GlcNAc: ■ Mannose: ● Fucose: ▼

B

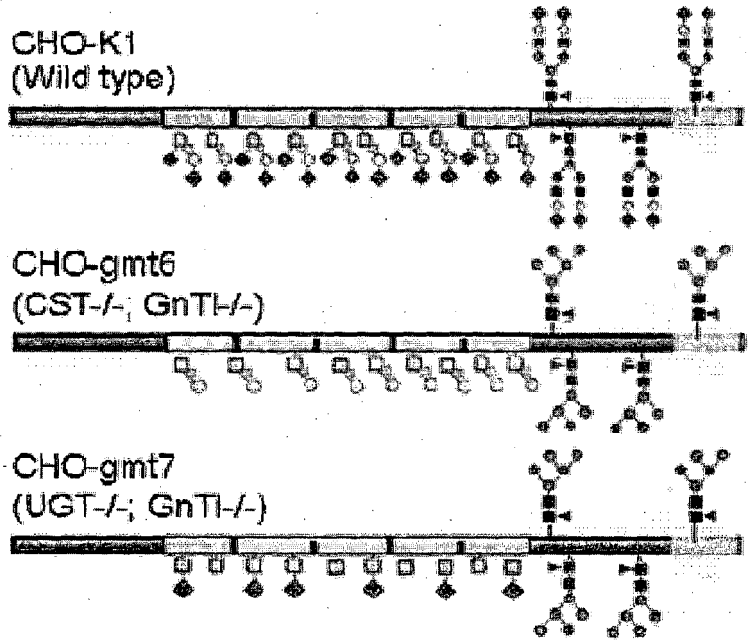


Figure 1

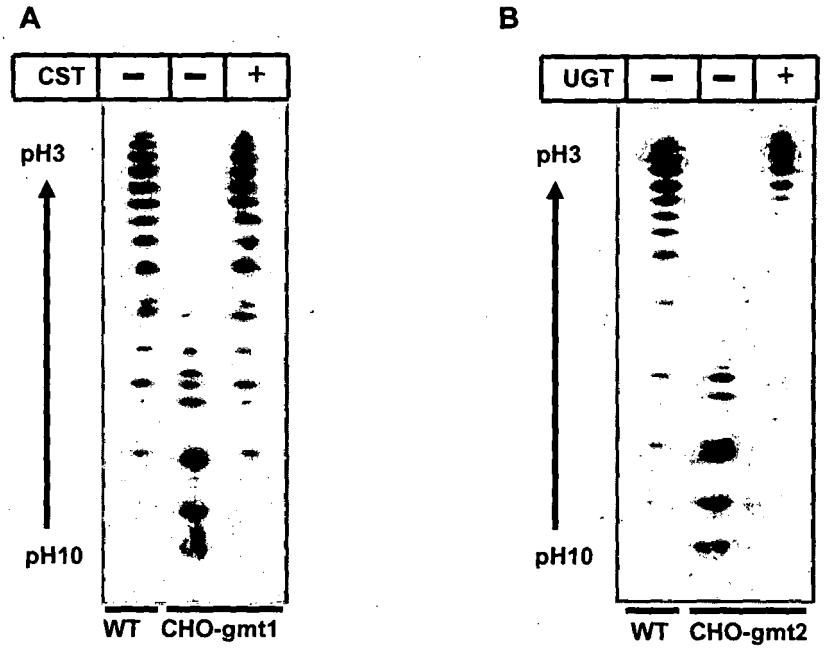


Figure 2

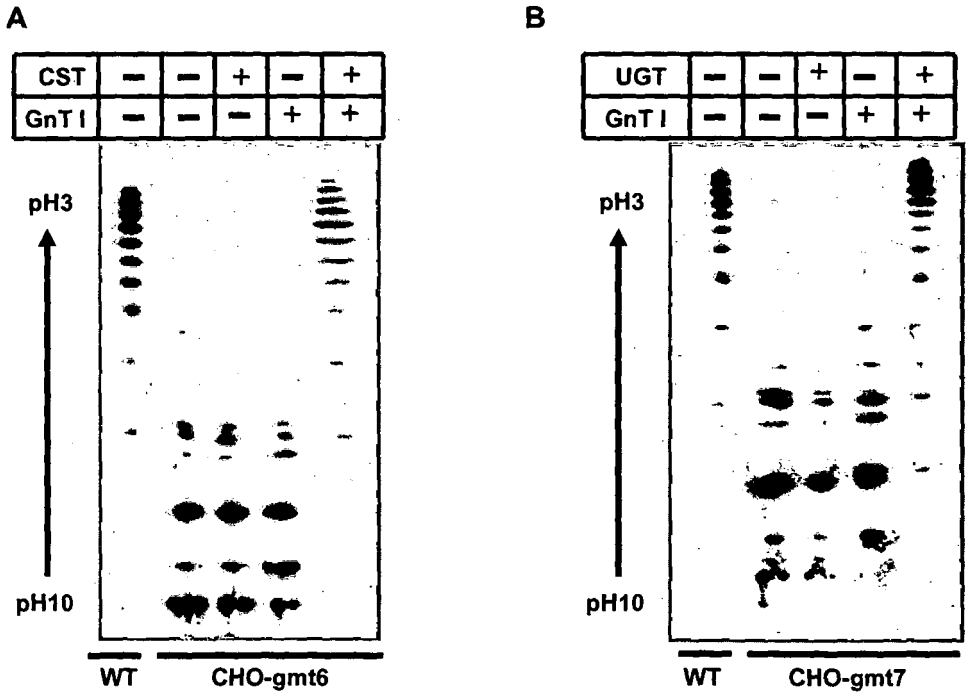


Figure 3

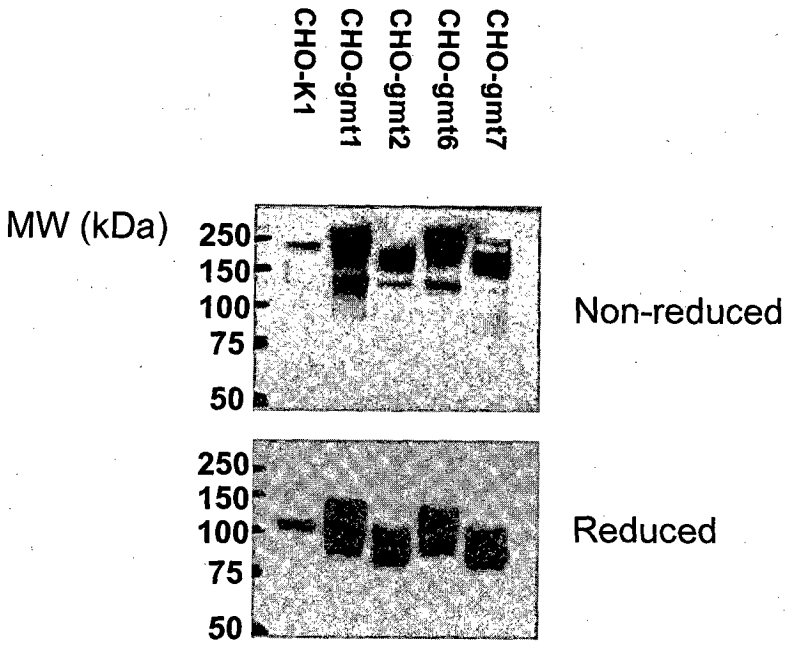


Figure 4

A

```
                                  ZFN-R
5'tAACCTCTGCCTCAAGTACGTAGGGGTGGCCt
3'aTTGGAGACGGAGTTCATGCATCCCCACCGGa
    ZFN-L
```

B

Left-finger:	Right-finger:
GTTa:TSGSLVR	GCCt:ERGTLAR
GAGg:RSDNLAR	GTGg:RSDALAR
GCAg:QSGSLTR	GGGg:RSDHLSR
GAGg:RSDNLAR	GTAg:QSGALAR

C

Deletion mutations:

```
WT: ATGATAAGTTTCAATAACCTCTGCCTCAAGTACGTAGGGGTGGCCTTCTACAACGTGGGG
F:  ATGATAAGTTTCAATAACCTCTGCCTCAAGT-CGTAGGGGTGGCCTTCTACAACGTGGGG -1
H:  ATGATAAGTTTCAATAACCTCTGCCTCA-GTACGTAGGGGTGGCCTTCTACAACGTGGGG -1
E1: ATGATAAGTTTCAATAACCTCTGCCTCAA---CGTAGGGGTGGCCTTCTACAACGTGGGG -3
D:  ATGATAAGTTTCAATAACCTCTG----------TGGCCTTCTACAACGTGGGG -17
M:  ATGATAAGTTTCAATA----------CCTTCTACAACGTGGGG -27
C1: ATGATAAGTTTCA----------GGCCTTCTACAACGTGGGG -28
E2: ATG----------CCTTCTACAACGTGGGG -40
```

Insertion mutations:

```
WT: ATGATAAGTTTCAATAACCTCTGCCTCAAGTACGTAGGGGTGGCCTTCTACAACGTGGGG
G:  ATGATAAGTTTCAATAACCTCTGCCTCAAGTAAGTACGTAGGGGTGGCCTTCTACAACGT +4
C2: ATGATAAGTTTCAATAACCTCTGCCTCAAGTACCCCATTGACGTCAATGGGAGTTTGTTT
    TGGCACCAAAATCAACGGGACTTTCCAAAAGTACGTAGGGGTGGCCTTCTACAACGTGGG +61
```

Figure 5

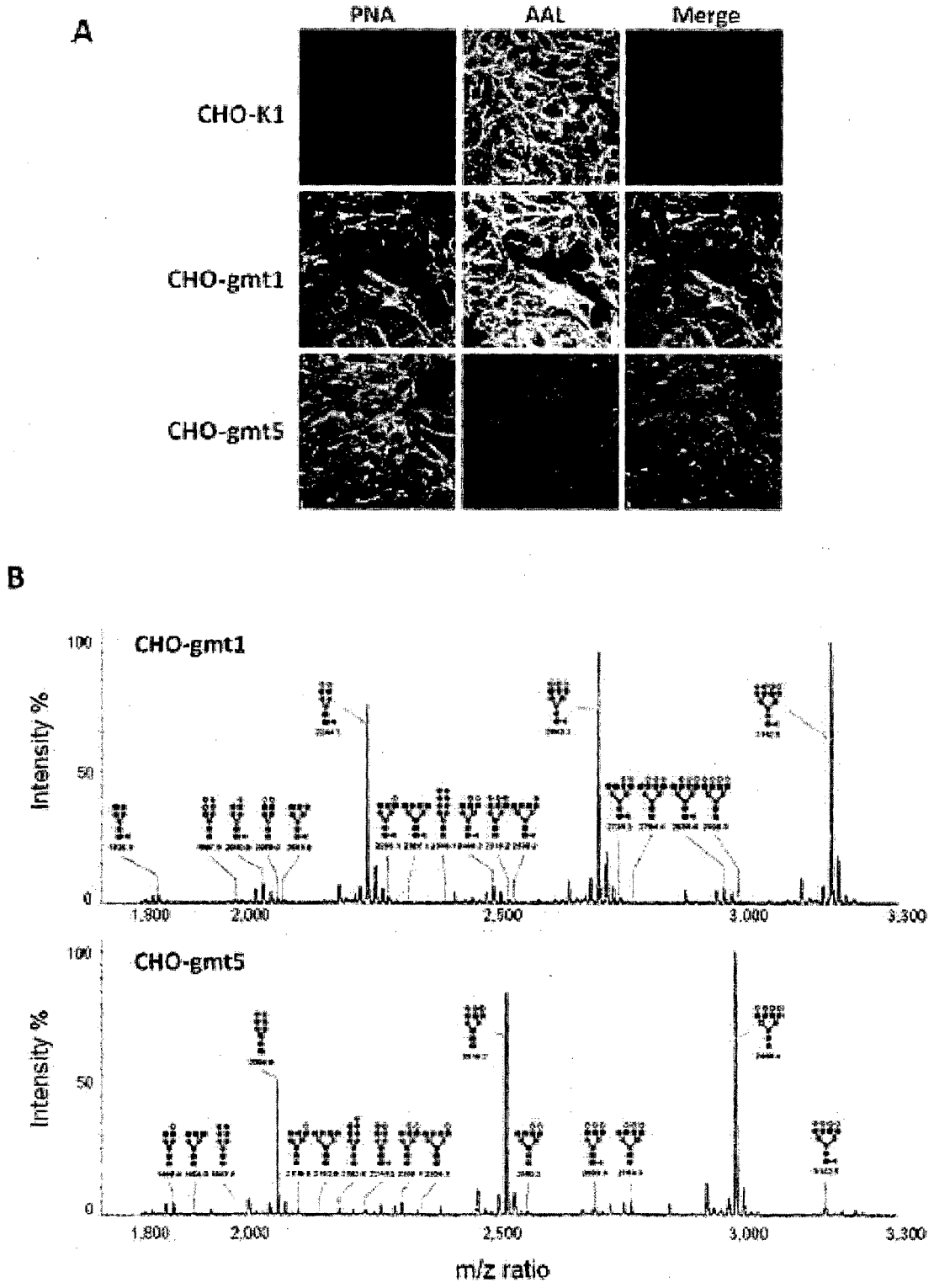

A
PNA
AAL
Merge
CHO-K1
CHO-gmt1
CHO-gmt5
B
CHO-gmt1
Intensity %
100
50
0
1,800
2,000
2,500
3,000
3,300
CHO-gmt5
Intensity %
m/z ratio

Figure 6

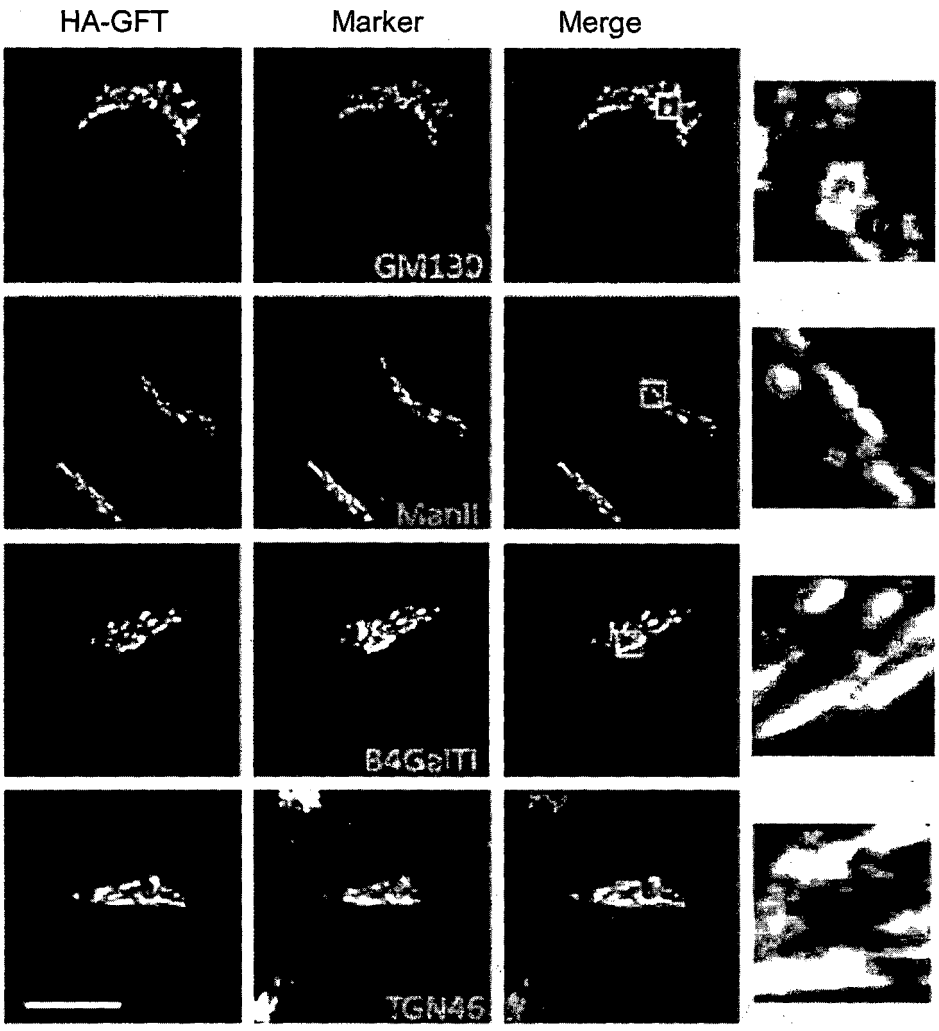


Figure 7

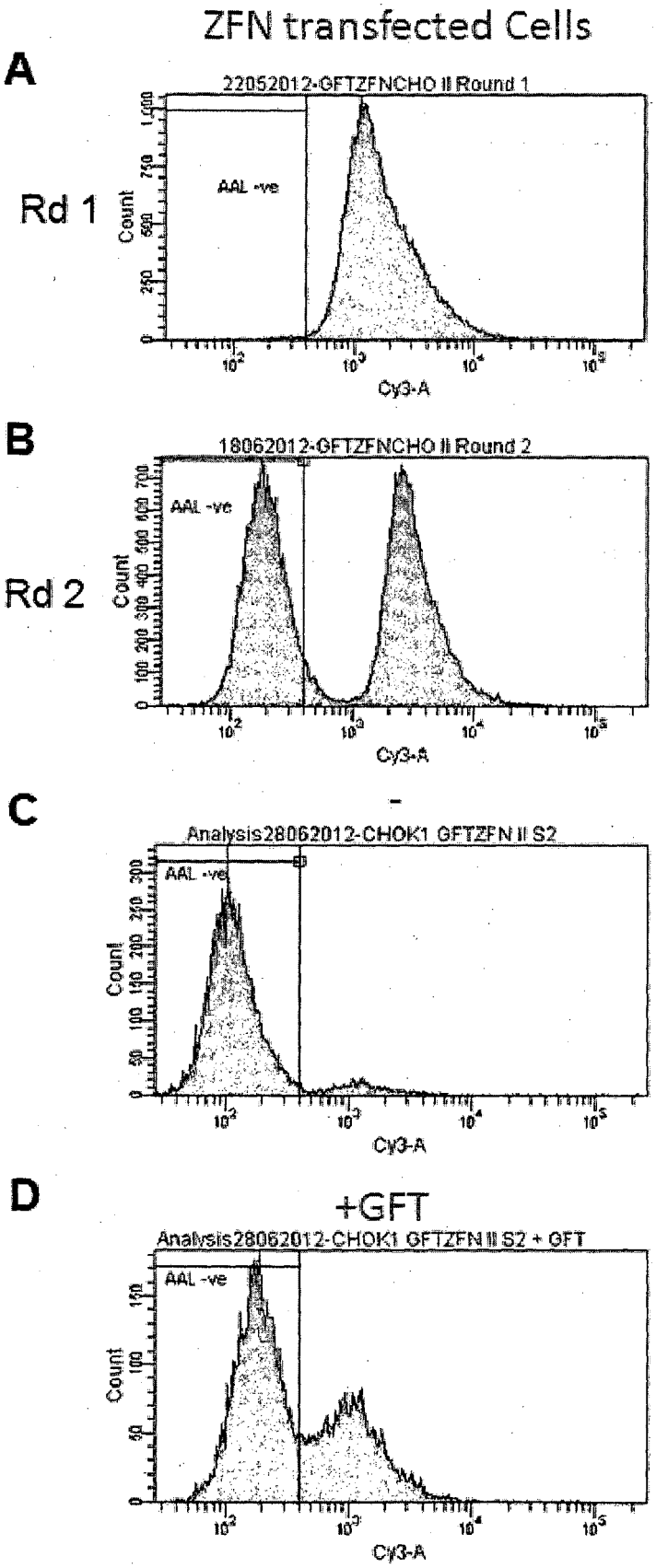

ZFN transfected Cells
A
Rd 1
22052012-GFTZFNCHO II Round 1
AAL -ve
Count
Cy3-A
B
Rd 2
18062012-GFTZFNCHO II Round 2
AAL -ve
Count
Cy3-A
C
-
Analysis28062012-CHOK1 GFTZFN II S2
AAL -ve
Count
Cy3-A
D
+GFT
Analysis28062012-CHOK1 GFTZFN II S2 + GFT
AAL -ve
Count
Cy3-A

Figure 8

	Sequence
CHO-K1 (WT)	ATGATAAGTTTCAAT**AACCTCTGCCTC**AAGTAC**GTAGGGGTGGCC**TTCTAC AACGTGGGGCGCTCG (SEQ ID NO: 34)
Mutant Clone #1	ATGATAAGTTTCAAT**AACCT**---------- ----TGGGGCGCTCG (Deletion of nucleotide 402-436) (SEQ ID NO: 35) ATGATAAGTTTCAAT**AACCTCTGCCTC**AAG-- C**GTAGGGGTGGCC**TTCTACAACGTGGGGCGCTCG (Deletion of nucleotide 412 and 413) (SEQ ID NO: 36)
Mutant Clone #3	ATGATAAGTTTCAAT**AACCTCTGCCTC**AAGTA-- **TAGGGGTGGCC**TTCTACAACGTGGGGCGCTCG (Deletion of nucleotide 414 and 415) (SEQ ID NO: 37) ATGATAAGTTTCAAT**AACCTCTGCCTC**AAGTAGTAC**GTAGGGGTGGCC**TTC TACAACGTGGGGCGCTCG (Insertion of GTA at position 414) (SEQ ID NO: 38)
Mutant Clone #9	ATGATAAGTTTCAAT**AACCTCTGCCTC**AAGTA-- **TAGGGGTGGCC**TTCTACAACGTGGGGCGCTCG (Deletion of nucleotides 414 and 415) (SEQ ID NO: 39) ATGATAAGTTTCAAT**AACCTCTGCCTC**AAGTAGGATGTGCTTGGTCCGGGA AGACCTGTCACTGAAGTTACGCATGCAGATTCGACACTGGAAGGGCCTCTC AGCTGTCGTGCCAGCTGCATTAATGAATCGGCCAAGTAC**GTAGGGGTGGCC** TTCTACAACGTGGGGCGCTCG (Insertion of 108 nucleotides at position 408) (SEQ ID NO: 40)

Figure 9

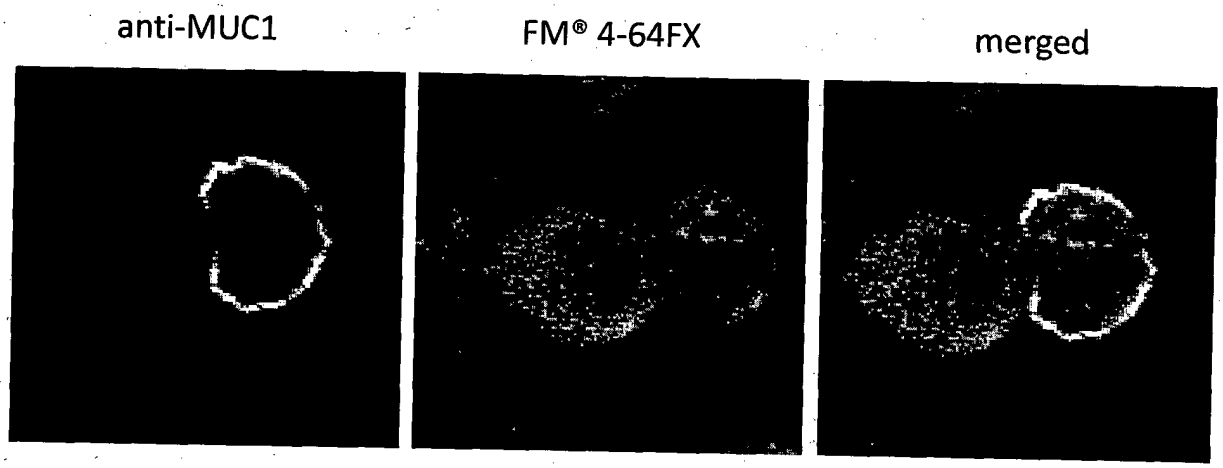


Figure 10