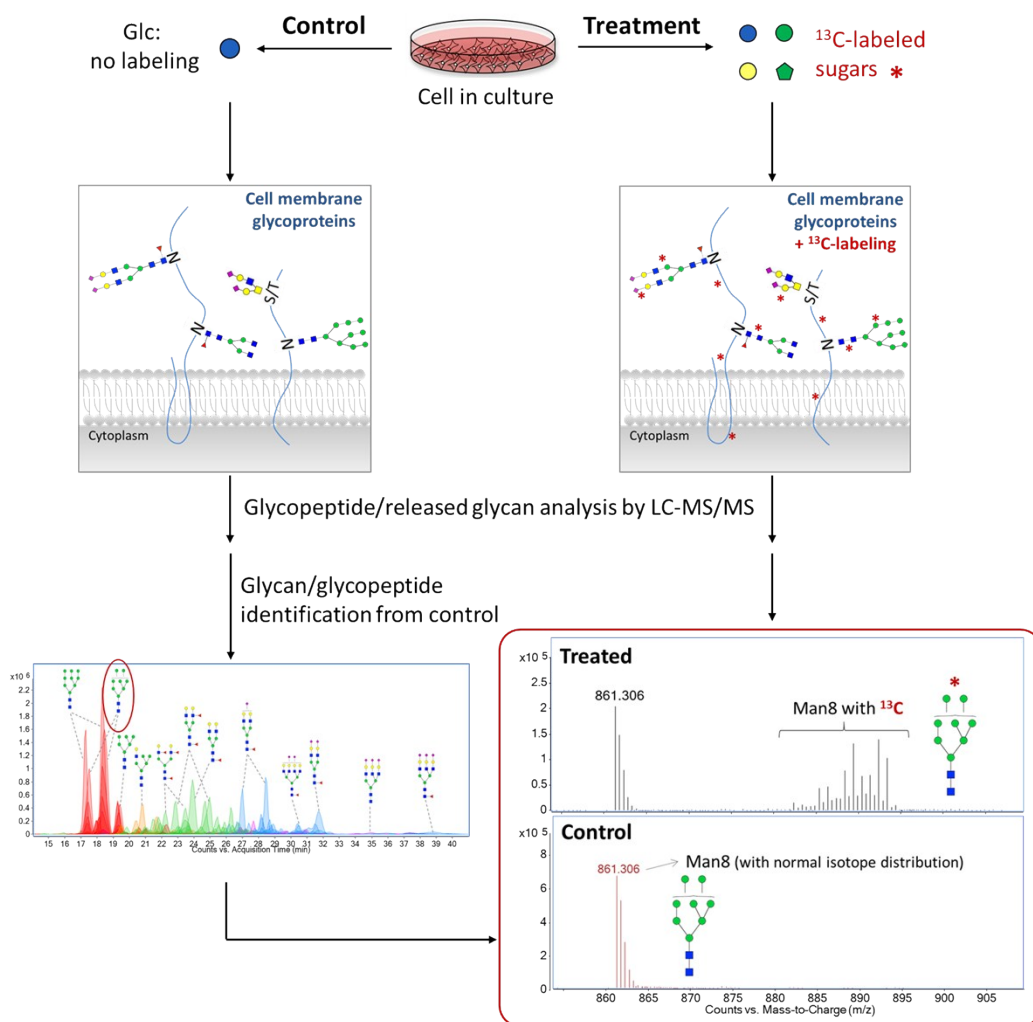
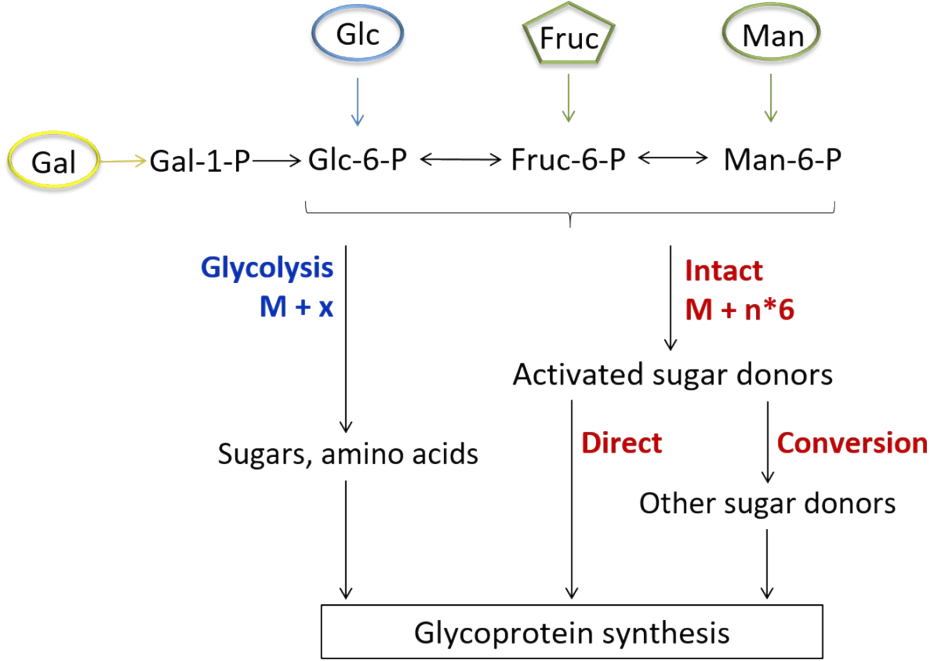


## Supplementary Data

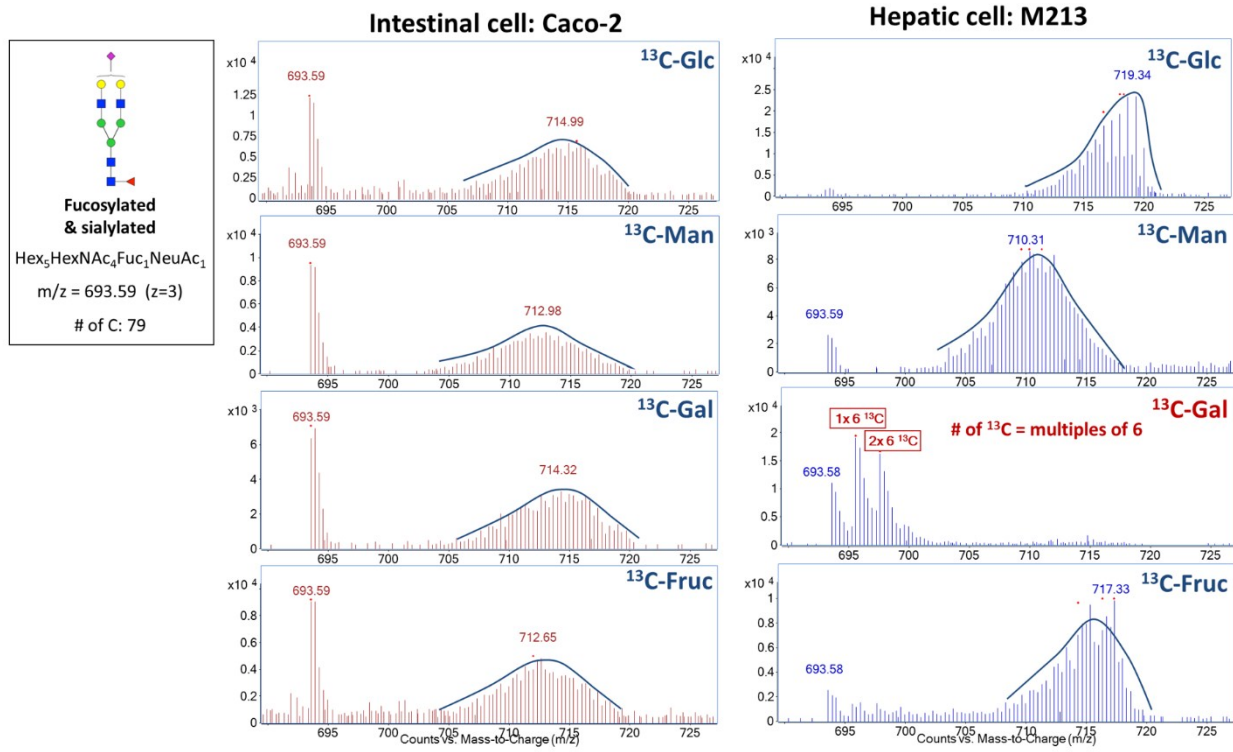
**Figure S1.** Incorporation of  $^{13}\text{C}$ -saccharides to cell membrane glycoproteins and identification of  $^{13}\text{C}$ -labeled glycans and glycopeptides.



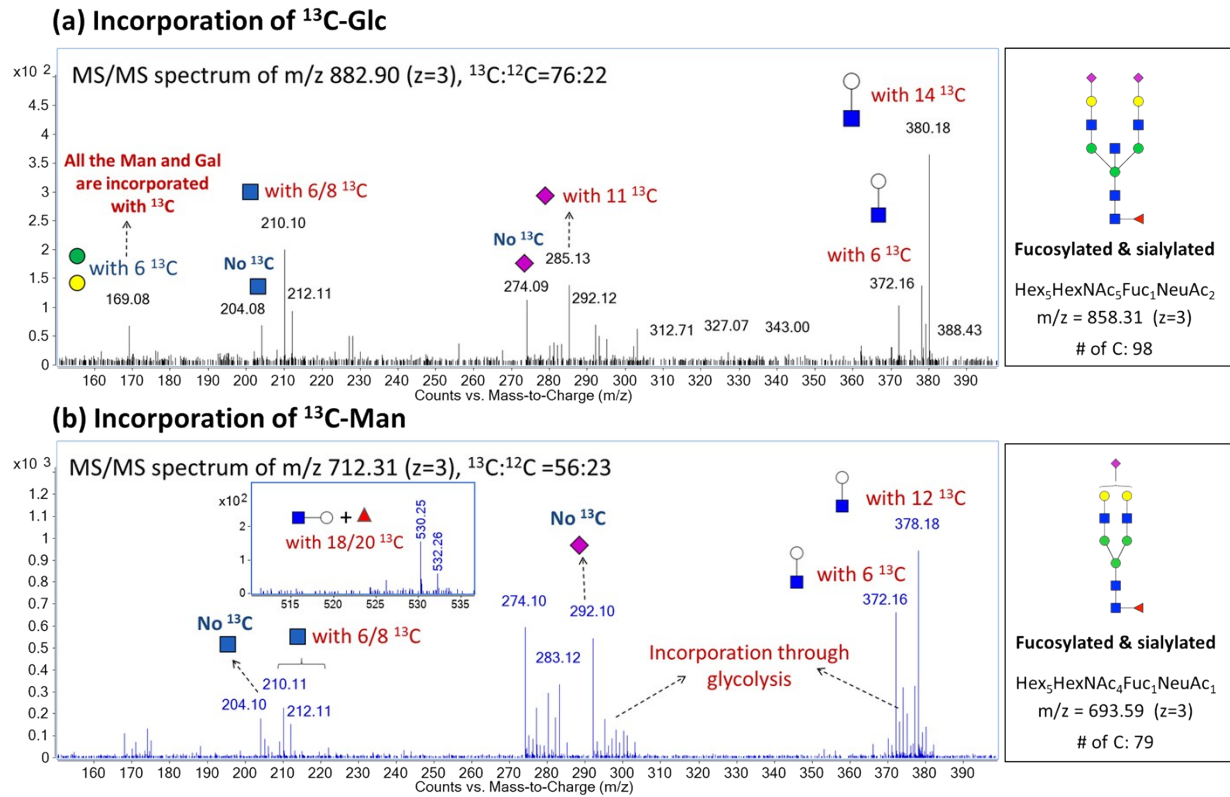
**Figure S2.** Different mechanisms for the incorporation of monosaccharides to glycoproteins.



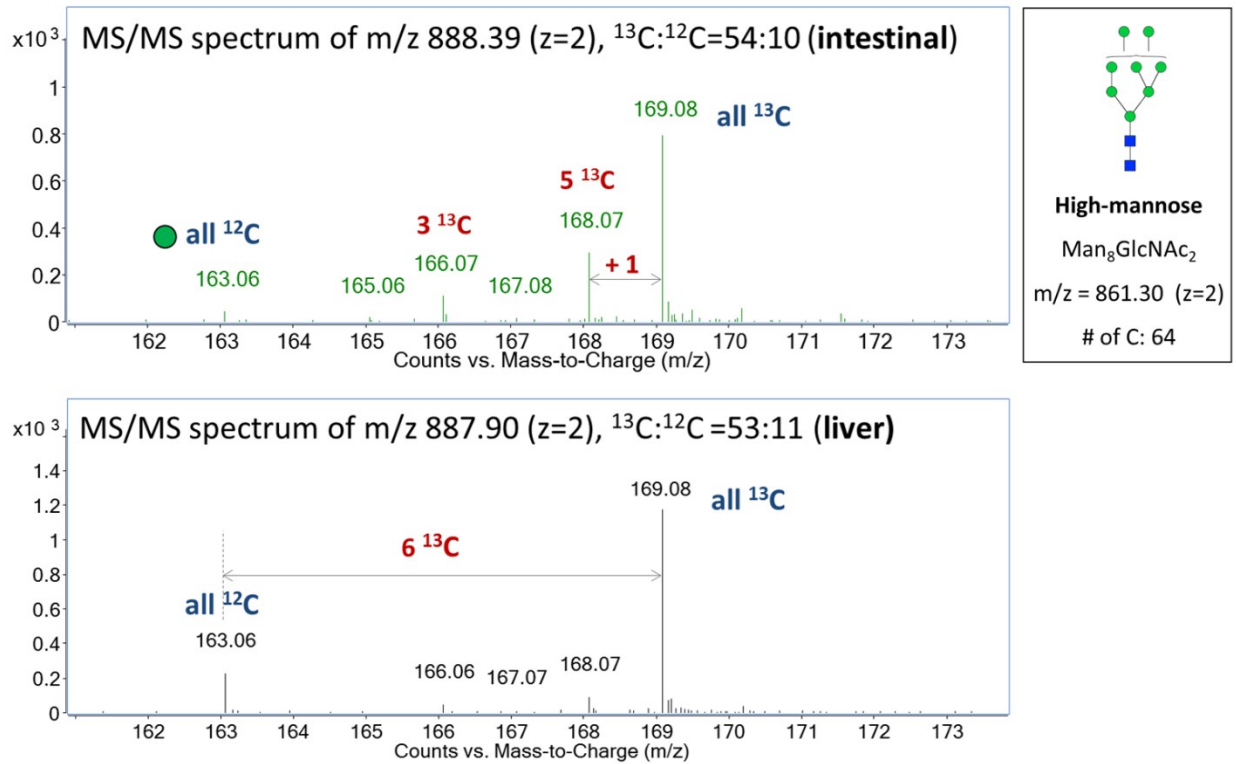
**Figure S3.** Incorporation of  $^{13}\text{C}$ -labeled glucose, mannose, galactose, and fructose into a fucosylated and sialylated complex-type N-glycan from Caco-2 and M213 cells.



**Figure S4.** MS/MS spectra illustrating the incorporation and interconversion pathways of (a)  $^{13}\text{C}$ -labeled glucose in Caco-2 cells; (b)  $^{13}\text{C}$ -labeled mannose in M213 cells.



**Figure S5.** MS/MS spectra illustrating the differential incorporation pathways of  $^{13}\text{C}$ -labeled fructose in intestinal Caco-2 cell and hepatic M213 cell.



**Figure S6.** Decreased incorporation levels of  $^{13}\text{C}$ -fructose when glucose is present.

