Supplementary Materials

Conferring Virulence: Structure and Function of the chimeric A_2B_5 Typhoid Toxin

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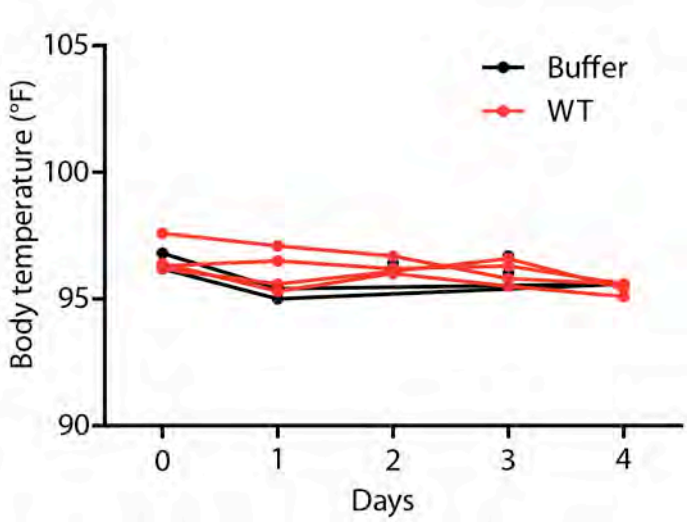
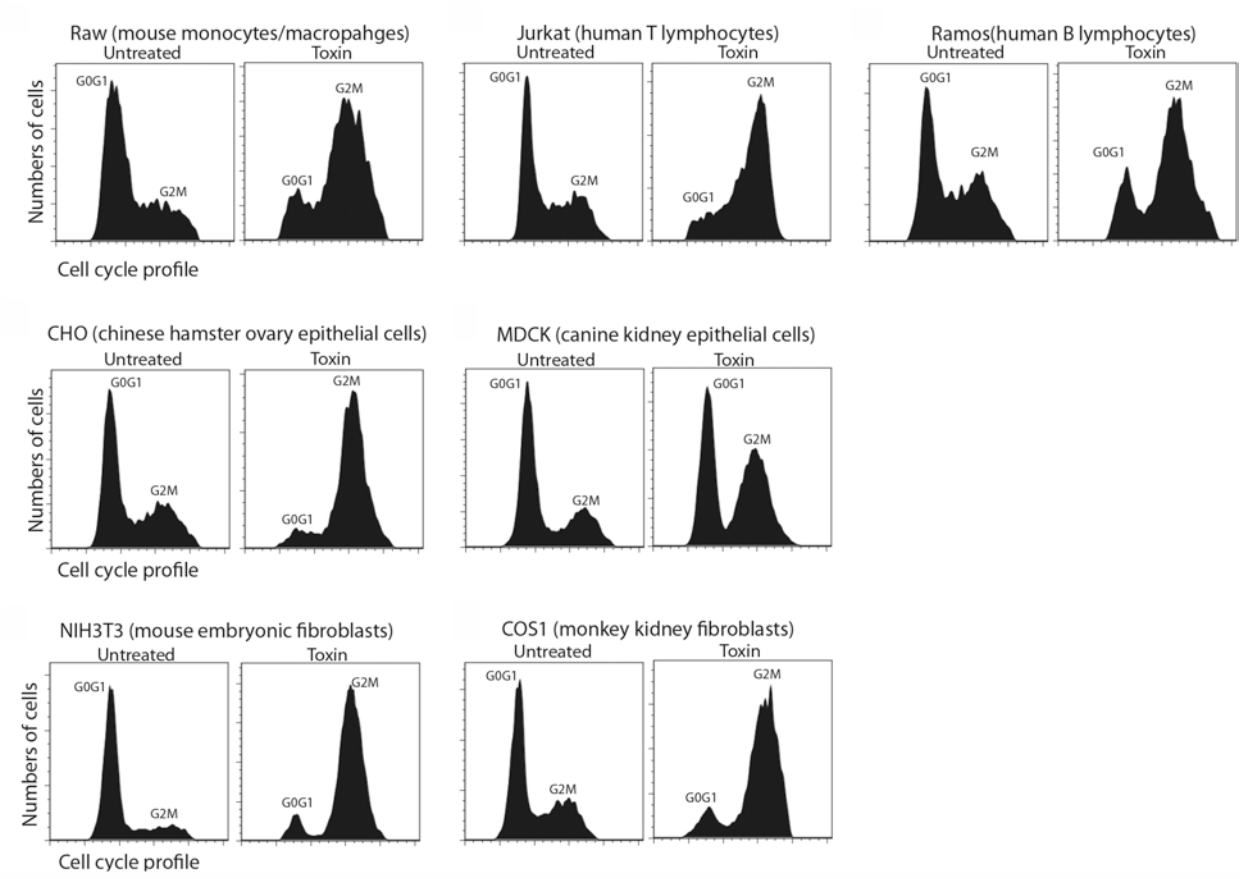
This file contains:

*15 Supplementary figures
*4 Supplementary Tables

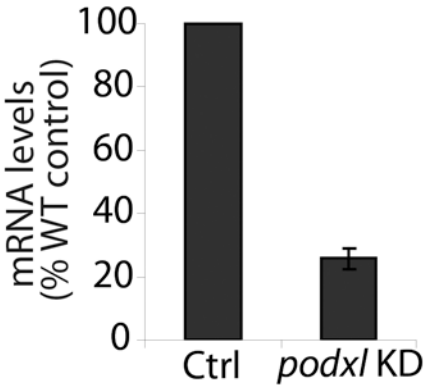
Supplementary Figures:



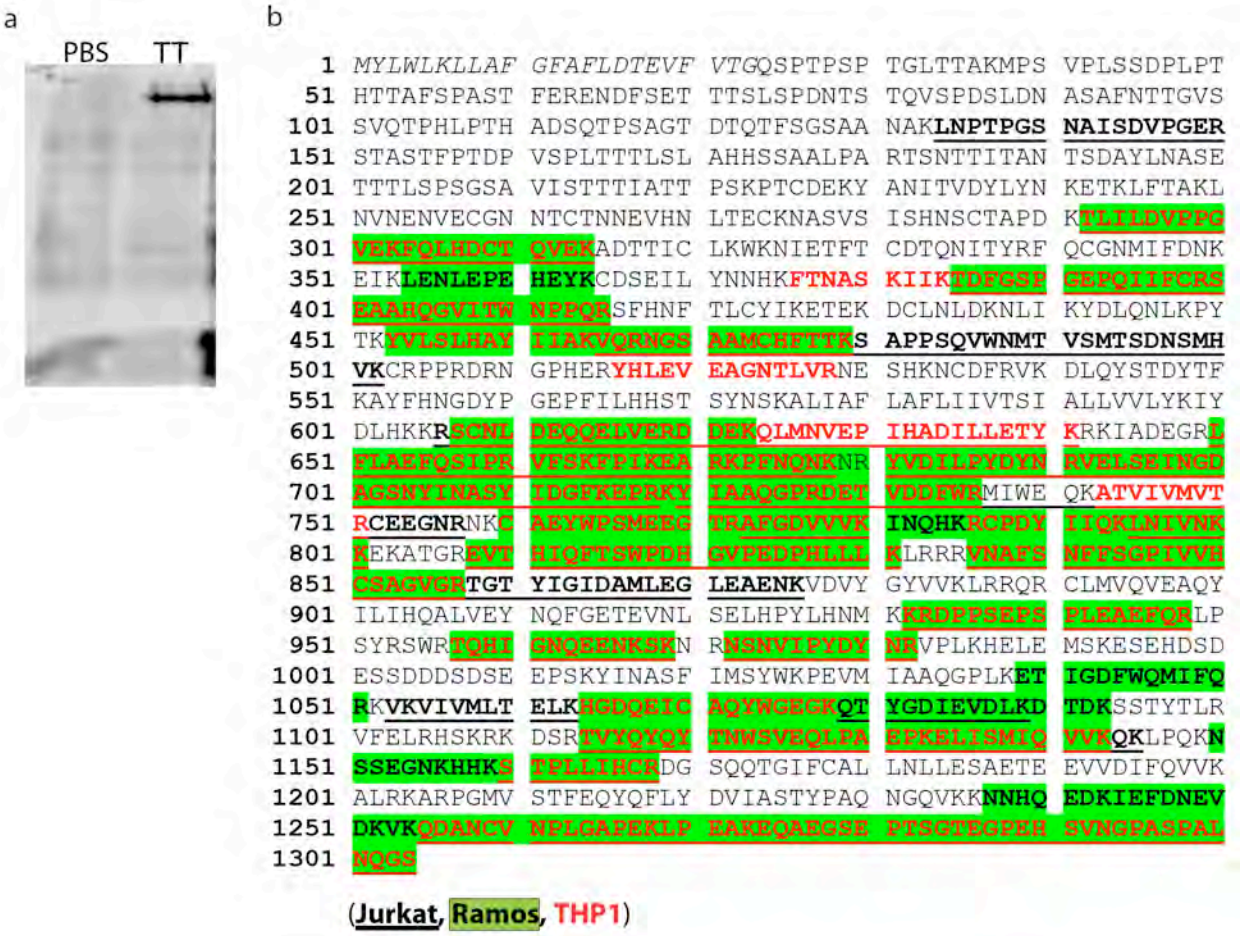
Supplementary Figure S1. Body temperature of typhoid toxin or buffer treated animals. Each dot represents a measurement of a single animal.



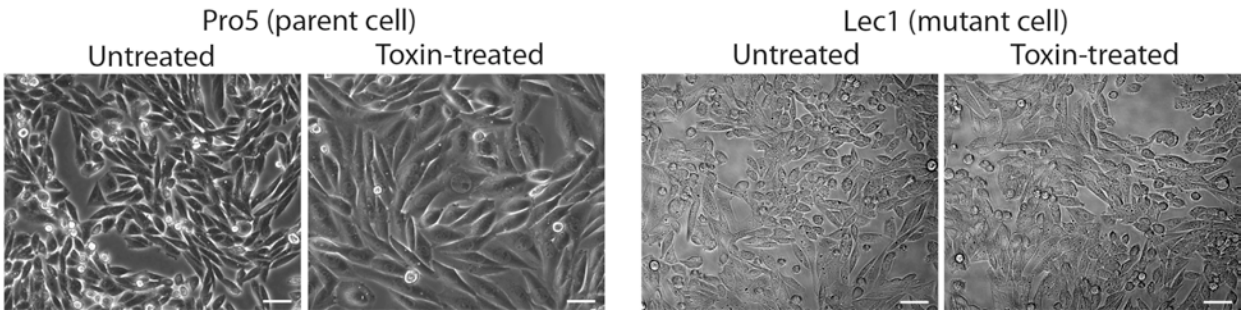
Supplementary Figure S2. Typhoid toxin is able to intoxicate a broad range of host cells. Various host cells were mock treated or treated with 0.02 nM of purified typhoid holotoxin for 24 (Raw, Jurkat, and Ramos cells) or for 48 (COS1, CHO, MDCK, and NIH3T3) hrs and the cell cycle profiles of the treated cells determined by flow cytometric analysis. Equivalent results were obtained in several repetitions of this experiment.



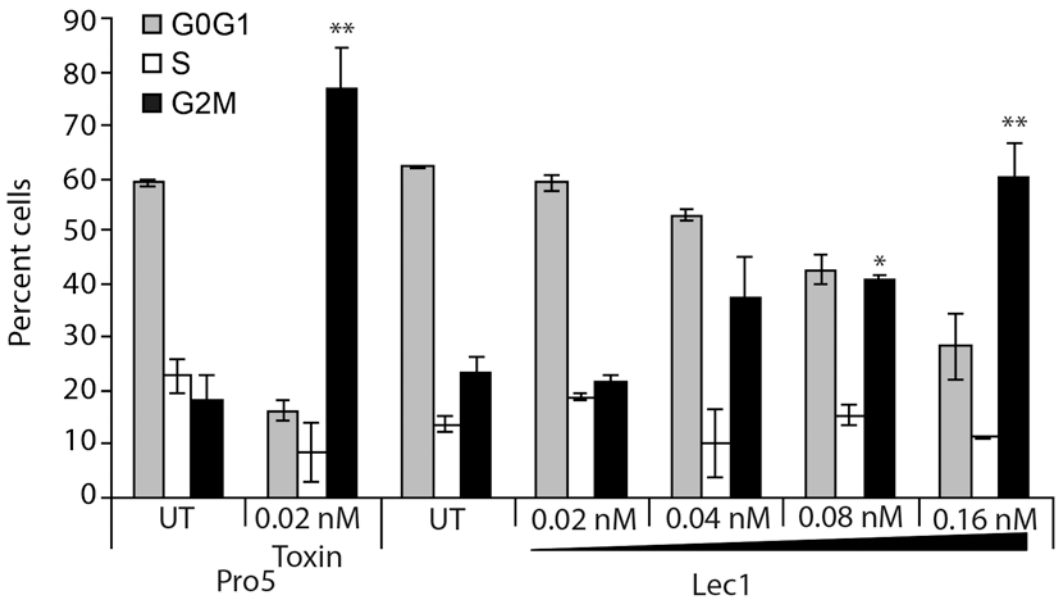
Supplementary Figure S3. *podxl* mRNA levels in control cells or cell expressing an siRNA targeted to *podxl* as measured by real-time PCR. Bar represents the average of the expression level ± standard deviation of three independent determinations.



Supplementary Figure S4. Typhoid toxin recognizes terminally sialylated glycans on CD45 in T, B, and macrophage cell lines. Cell surface proteins from Jurkat, Ramos, and THP1 cells were biotinylated, co-immunoprecipitated with purified typhoid toxin (TT), and analyzed by SDS-PAGE [Jurkat cells are shown in (**a**)] and LC-MS/MS. The CD45 peptides identified by LC-MS/MS are indicated as underlined for Jurkat, green shaded boxes for Ramos, and red font for THP1 cells. The location of the signal peptide is indicated in italics.



Supplementary Figure S5. A mutant cell line that lacks surface N-glycans is more resistant to typhoid toxin. The N-acetylglucosaminyltransferase I-deficient (Lec1) and its parent (Pro5) cell lines were treated with typhoid toxin and examined by light microscopy. Cell distention is observed in Pro5 but not in Lec1 toxin treated cells. Equivalent results were obtained in at least three repetition of this experiment. Scale bar: 50 μm.



Supplementary Figure S6. A mutant cell line that lacks surface N-glycans can be intoxicated by typhoid toxin when administered at high concentrations. The N-acetylglucosaminyltransferase I-deficient (Lec1) and its parent (Pro5) cell lines were treated with increasing concentrations of typhoid toxin (as indicated) and toxicity was evaluated by flow cytometric cell cycle analysis 36 hs after treatment. Bar represents average ± standard deviation of at least three independent determinations. *, $P < 0.05$, **$P < 0.01$ compared to the number of cells in G2M of untreated (UT) group.

a

Subunit	Mw (kDa)	Stoichiometry (yielding observed 116 kDa complex) Complex 1	Complex 2	Complex 3	Complex 4
CdtB^{3F}	29.835	1	2	2	1
PltA	25.094	1	2	1	2
PltB	12.553	5	1	3	3
Predicted Mw		117.694	122.411	122.423	117.682
Predicted 0.1% extinction coefficient		1.65	1.26	1.47	1.43

c

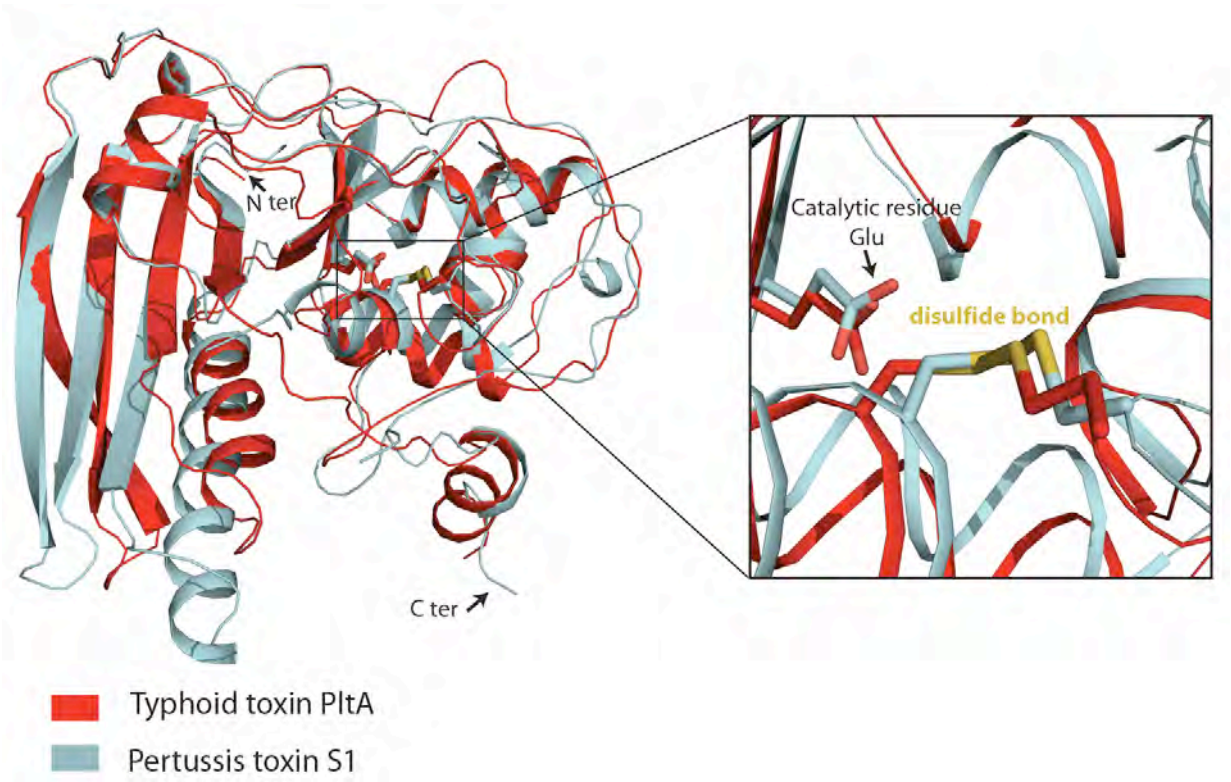
Amino acid composition analysis

Subunit	nmole (analyzed)	Stoichiometry
CdtB^{3F}	0.0444	1
PltA	0.0505	1
PltB	0.2402	5

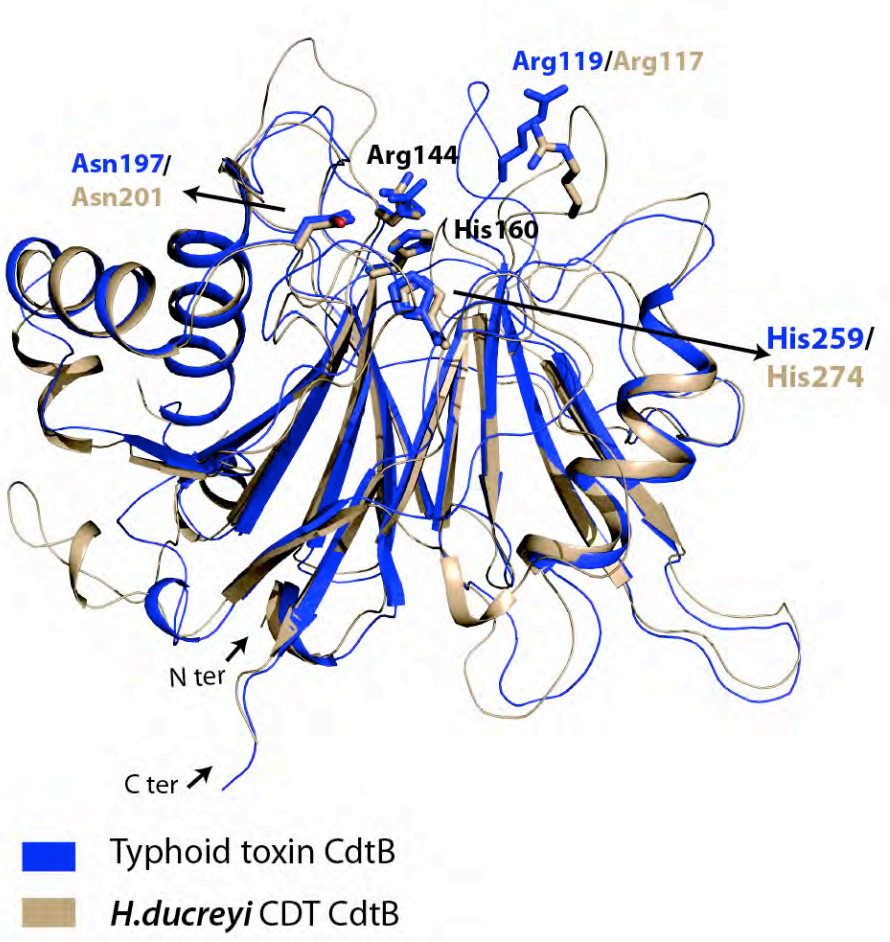
b

Complex	Observed UV/RI ratio	Predicted UV/RI ratio	Difference (%) ((Predicted-Observed) /Predicted)	Observed Mw	Predicted Mw	Difference (%) ((Predicted-Observed) /Predicted)
Complex 1	8388.94	8604.094	3%	116	117.694	1%
Complex 2	8388.94	6585.783	-21%	116	122.411	6%
Complex 3	8388.94	7701.642	-8%	116	122.423	6%
Complex 4	8388.94	7443.486	-11%	116	117.682	1%

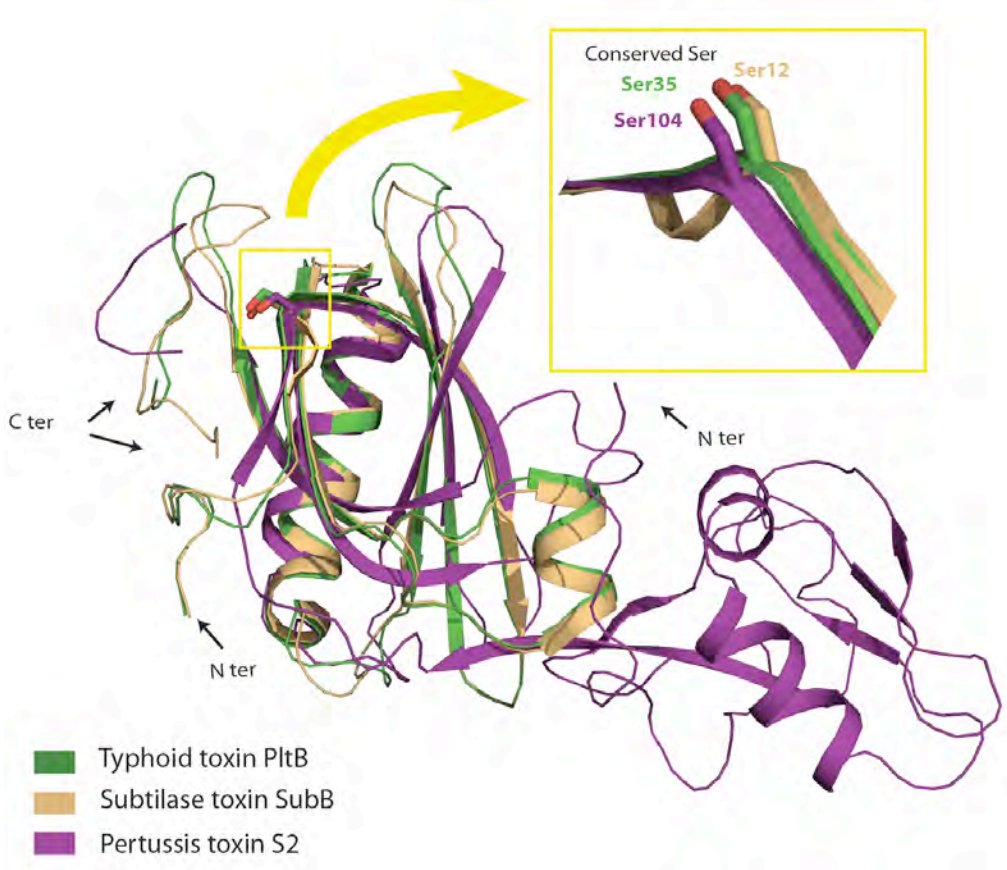
Supplementary Figure S7. Typhoid toxin exhibits an A_2B_5 composition. Of all the possible complexes compatible with the observed molecular weight of typhoid toxin (116 kDA as measured by SEC-LS analysis) (**a**), complex 1 is the most likely for the observed extinction coefficient (**b**). **c,** Amino acid composition analysis of typhoid toxin. The purified typhoid holotoxin complex was resolved on a 15% SDS-PAGE gel, stained with coomassie brilliant blue, and the three individual bands were excised for quantitative amino acid analysis.



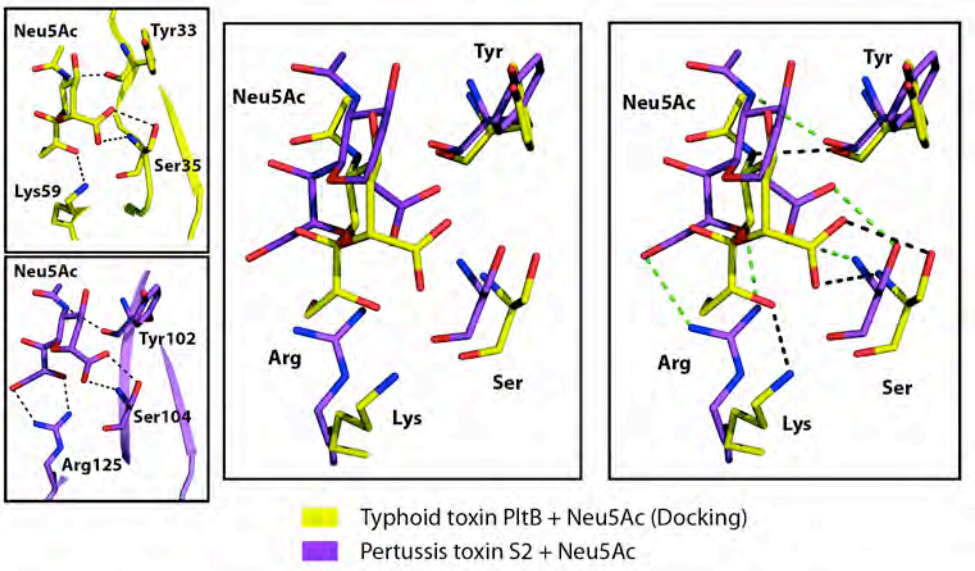
Supplementary Figure S8. Structure alignment between typhoid toxin PltA and pertussis toxin S1. The conserved catalytic residue glutamic acid and disulfide bond are shown in inset.



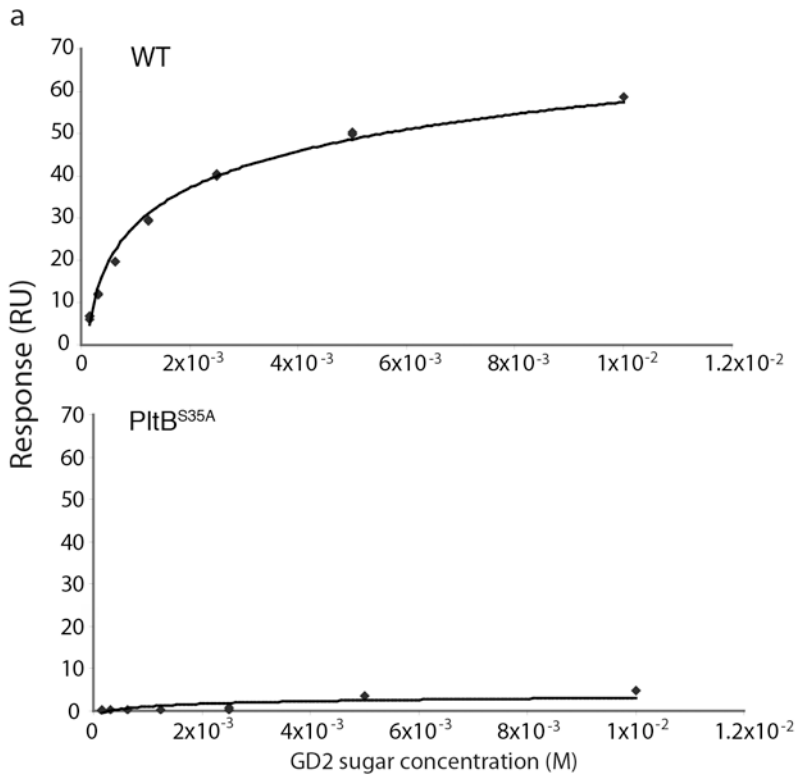
Supplementary Figure S9. Structure alignment between CdtB from typhoid toxin and from *H. ducreyi* CDT. The conserved catalytic (His160 and His 274) and DNA-contact (Arg117, Arg144, and Asn201) are shown.



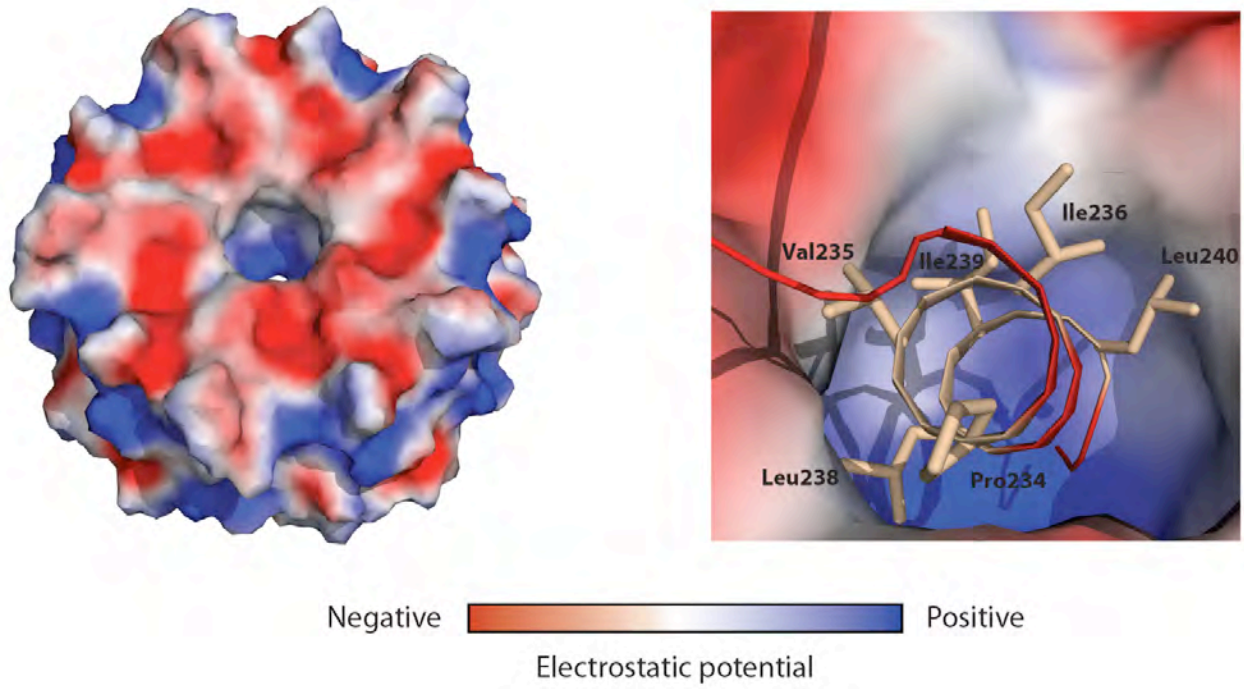
Supplementary Figure S10. Structure alignment of PltB homologs from the B subunits of Subtilase (SubB) and Pertussis (S2) toxins. A conserved serine essential for sugar binding is depicted in the inset.



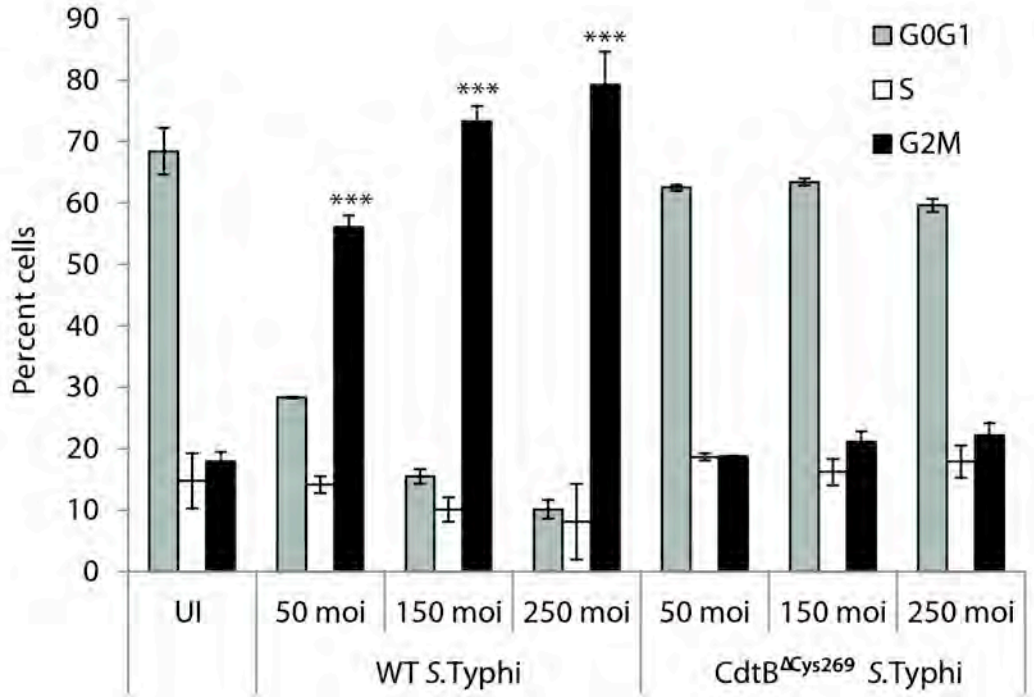
Supplementary Figure S11. Conserved sugar-binding residues in typhoid toxin PltB and pertussis toxin S2. The position of the sugar ligand N-acetylneuraminic acid (Neu5Ac) relative to key residues of pertussis toxin S2 (from the crystal structure) and PltB (from molecular docking) is depicted.



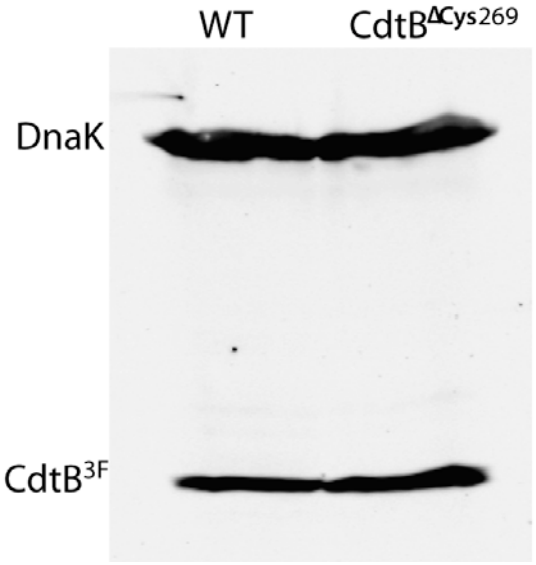
Supplementary Figure S12. Ser35 is critical for typhoid toxin glycan binding. Surface plasmon resonance assay of the binding of wild type (WT) and PltB^{S35A} typhoid toxin preparations to the GD2 glycan. Numbers on the y axis depict the relative response units (RU). Binding curves were generated by averaging the values several independent determinations. The observed Rmax suggests that ~ 50% of protein remains active when captured by an anti-flag antibody. Such Rmax values strongly suggest that, for wild type, on average there are 2.5 sugar molecules per PltB pentamer assuming that each monomer is 100% active for binding.



Supplementary Figure S13. Surface charge distribution of the PltB pentamer depicting its hydrophobic channel (left panel). The interaction of key PltA residue with the lumen of the PltB channel is shown in detail (right panel).



Supplementary Figure S14. An *S.* Typhi *cdtB*$^{\Delta Cys269}$ mutant does not intoxicate culture cells. Henle-407 cells were left uninfected or infected for 4 days with wild type *S.* Typhi or a *cdtB*$^{\Delta Cys269}$ mutant at various multiplicity of infections (moi) as indicated. Typhoid toxin mediated toxicity was evaluated by flow cytometric cell cycle analysis. Bar represents the average ± standard deviation. ***, $P < 0.001$ compared to the number of cells in G2M in the uninfected (UI) group.



Supplementary Figure S15. Expression of CdtB$^{\Delta Cys269}$ in *S.* Typhi infected culture epithelial cells. Henle-407 cells were infected with *S.* Typhi strains expressing FLAG-epitope tag wild type CdtB or CdtB$^{\Delta cys269}$ and 24 hs after infection, the levels of CdtB in cell lysates was investigated by western blot analysis. The bacterial protein DnaK was used as a loading control. Equivalent results were obtained in at least three repetition of this experiment.

Table S1: Glycans showing typhoid toxin binding activity classified by their structural features

Group 1: Sialo-N-glycans

Glycan Number	Glycan structure	Average RFU	StDev	% CV
461	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	12301	2330	19
483	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	3626	162	4
459	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	1940	286	15
474	Neu5Aca2-3Galb1-3GlcNAcb1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2)Mana1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	1079	48	4
57	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	492	134	27
318	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	467	92	20
301	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	254	49	19
482	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	228	13	6
463	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	209	17	8
543	Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	146	18	12
	Average RFU for the group	**2074**		

Group 2: Asialo-N-glycans

Glycan Number	Glycan structure	Average RFU	StDev	% CV
544	Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	4738	1381	29
588	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	2248	390	17
584	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	1902	82	4
550	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	1258	303	24
542	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	606	156	26
548	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	281	23	8
579	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	250	26	10
445	Fuca1-2Galb1-4 GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-2(Fuca1-2Galb1-4GlcNAcb1-4)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	188	36	19
	Average RFU for the group	**1434**		

Group 3: Sialo-glycolipids

Glycan Number	Glycan structure	Average RFU	StDev	% CV
228	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	9582	1645	17
276	Neu5Aca2-8Neu5Aca2-3Galb1-4Glcb-Sp0	3702	464	13
573	Neu5Aca2-8Neu5Aca2-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glc-Sp21	3255	503	15
226	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	1726	136	8
411	Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	827	107	13
456	Neu5Aca2-6Galb1-4GlcNAcb1-6(Fuca1-2Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	467	79	17
	Average RFU for the group	**3260**		

Group 4: Sialo-O-glycans

Glycan Number	Glycan structure	Average RFU	StDev	% CV
243	Neu5Aca2-6(Neu5Aca2-3Galb1-3)GalNAca-Sp8	1656	219	13
266	Neu5Aca2-6GalNAcb1-4GlcNAcb-Sp0	1100	147	13
267	Neu5Aca2-6Galb1-4(6S)GlcNAcb-Sp8	419	93	22
295	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-3GlcNAcb-Sp0	358	72	20
268	Neu5Aca2-6Galb1-4GlcNAcb-Sp0	311	33	11
332	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	228	32	14
	Average RFU for the group	**679**		

Table S2: Glycan array analysis for binding to typhoid toxin (highlighted in grey are Glycans present in glycolipids)

Glycan number	Glycan structure	Average RFU	StDev	% CV
461	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	12301	2330	19
228	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	9582	1645	17
509	Galb1-3GlcNAca1-3Galb1-4GlcNAcb-Sp8	8373	585	7
460	Neu5Aca2-3Galb1-4GlcNAcb1-4Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-4(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	7186	4337	60
544	Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	4738	1381	29
276	Neu5Aca2-8Neu5Aca2-3Galb1-4Glcb-Sp0	3702	464	13
483	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	3626	162	4
573	Neu5Aca2-8Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glc-Sp21	3255	503	15
74	Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	2999	963	32
335	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	2690	186	7
462	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-4(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	2574	2879	112
588	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	2248	390	17
73	Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	2217	746	34
586	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	2115	801	38
459	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	1940	286	15
584	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	1902	82	4
226	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	1726	136	8
243	Neu5Aca2-6(Neu5Aca2-3Galb1-3)GalNAca-Sp8	1656	219	13
326	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	1636	1545	94
336	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	1326	355	27
550	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	1258	303	24
266	Neu5Aca2-6GalNAcb1-4GlcNAcb-Sp0	1100	147	13
474	Neu5Aca2-3Galb1-3GlcNAcb1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2)Mana1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	1079	48	4
411	Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	827	107	13
542	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	606	156	26
57	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	492	134	27
318	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	467	92	20
456	Neu5Aca2-6Galb1-4GlcNAcb1-6(Fuca1-2Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	467	79	17
267	Neu5Aca2-6Galb1-4(6S)GlcNAcb-Sp8	419	93	22
135	Neu5Aca2-6(Galb1-3)GalNAca-Sp8	365	215	59
295	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-3GlcNAcb-Sp0	358	72	20
268	Neu5Aca2-6Galb1-4GlcNAcb-Sp0	311	33	11
548	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	281	23	8
301	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	254	49	19
579	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	250	26	10
523	GalNAca1-3(Fuca1-2)Galb1-4 GlcNAcb1-2Mana-Sp0	239	20	8
441	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb-Sp8	234	93	40
332	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	228	32	14
482	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	228	13	6
463	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	209	17	8
325	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	195	188	97
445	Fuca1-2Galb1-4 GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-2(Fuca1-2Galb1-4GlcNAcb1-4)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	188	36	19
258	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	161	84	52
322	Neu5Aca2-8Neu5Aca2-8Neu5Acb-Sp8	147	62	42
543	Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	146	18	12
519	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-6GalNAc-Sp14	126	117	92
222	Fuca1-2(6S)Galb1-4(6S)Glcb-Sp0	118	211	179
465	Neu5Aca2-6Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	117	20	18
261	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	114	46	41
253	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	105	21	20
256	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb-Sp8	102	30	30
265	Neu5Aca2-6GalNAca-Sp8	94	50	54
373	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	92	113	123
565	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	91	25	27
229	Neu5Aca2-8Neu5Aca2-8Neu5Aca-Sp8	90	38	42
485	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	86	116	136

67	Fuca1-2Galb1-3GlcNAcb-Sp0	78	42	54
439	Galb1-4Galb-Sp10	78	27	34
541	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	77	98	127
225	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	77	62	81
241	Neu5Aca2-3Galb1-4(Neu5Aca2-3Galb1-3)GlcNAcb-Sp8	76	33	44
606	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	76	35	46
361	Fuca1-2Galb1-4GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	76	34	45
557	Neu5Aca2-8Neu5Aca2-3Galb1-4GlcNAc-Sp0	75	23	30
577	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	71	18	25
91	GalNAca1-3GalNAcb-Sp8	66	50	76
558	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Man a1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp24	61	24	39
244	Neu5Aca2-6(Neu5Aca2-3Galb1-3)GalNAca-Sp14	60	39	65
49	Neu5,9Ac2a2-6Galb1-4GlcNAcb-Sp8	59	33	55
252	Neu5Aca2-3Galb1-4(Fuca1-3)(6S)GlcNAcb-Sp8	59	25	42
263	Neu5Aca2-3Galb1-4Glcb-Sp0	58	11	19
227	Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3Galb1-4Glcb-Sp0	57	41	72
44	(6S)Galb1-4GlcNAcb-Sp8	56	29	52
530	GlcNAcb1-2 Mana1-6(GlcNAcb1-4)(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	54	104	192
362	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAb-Sp20	50	64	126
553	Neu5Aca2-8Neu5Gca2-3Galb1-4GlcNAc-Sp0	50	21	42
487	Neu5Aca2-6Galb1-4GlcNAcb1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	50	71	144
448	Galb1-4GlcNAcb1-2Mana-Sp0	49	22	44
136	Neu5Aca2-6(Galb1-3)GalNAca-Sp14	49	50	101
552	Neu5Gca2-8Neu5Gca2-3Galb1-4GlcNAc-Sp0	49	31	64
69	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	49	21	43
46	Neu5Aca2-3(6S)Galb1-4GlcNAcb-Sp8	49	11	23
364	Galb1-4GlcNAcb1-2Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	49	23	48
317	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-3)GalNAca-Sp14	48	32	66
546	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	48	53	111
572	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	47	45	97
247	Neu5Aca2-3Galb1-3GlcNAcb1-3Galb1-4GlcNAcb-Sp0	46	48	103
6	Fuca-Sp8	46	15	33
531	Galb1-4GlcNAcb1-2 Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	46	22	47
187	GlcNAcb1-6(GlcNAcb1-4)GalNAca-Sp8	45	31	68
270	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	45	11	25
141	Galb1-3GalNAca-Sp16	45	62	138
415	GalNAca1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp0	44	24	55
281	Neu5Gca2-3Galb1-3GlcNAcb-Sp0	43	33	76
376	Neu5Aca2-3Galb1-4GlcNAcb1-3GalNAc-Sp14	43	22	52
559	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Mana1-4GlcNAcb1-4GlcNAc-Sp24	43	22	52
398	Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	42	25	59
54	Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	42	22	53
102	Gala1-3(Fuca1-2)Galb1-3GlcNAcb-Sp8	42	23	54
324	Galb1-3GlcNAcb1-2Mana1-6(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	42	28	68
424	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-3GalNAc-Sp14	41	9	21
399	Neu5Aca2-3Galb1-3GlcNAcb1-3GalNAca-Sp14	40	23	57
242	Neu5Aca2-3Galb1-3(6S)GalNAca-Sp8	40	13	32
563	GalNAcb1-4GlcNAcb1-3GalNAcb1-4GlcNAcb-Sp0	40	18	45
275	Neu5Aca2-8Neu5Aca-Sp8	40	15	39
93	GalNAca1-4(Fuca1-2)Galb1-4GlcNAcb-Sp8	39	20	50
147	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb-Sp0	39	24	61
86	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp8	39	15	39
125	Galb1-2Galb-Sp8	39	18	46
423	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-3GalNAc-Sp14	38	26	68
369	Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	38	16	43
30	(3S)Galb1-3GlcNAcb-Sp0	38	15	41
118	Gala1-3Galb-Sp8	37	29	79
85	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp0	37	24	64
2	Glca-Sp8	36	13	35
320	GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	36	32	89
269	Neu5Aca2-6Galb1-4GlcNAcb-Sp8	35	18	51
299	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-6(Galb1-3)GalNAca-Sp14	34	26	76
297	(6S)Galb1-4(6S)GlcNAcb-Sp0	34	30	89
28	(3S)Galb1-3(Fuca1-4)GlcNAcb-Sp8	34	28	83
231	GalNAcb1-4(Neu5Aca2-3)Galb1-4GlcNAcb-Sp0	34	19	57
395	Gala1-3Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-6(Gala1-3Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp19	33	17	50
251	Neu5Aca2-3Galb1-4(6S)GlcNAcb-Sp8	33	5	17
260	Neu5Aca2-3Galb1-4GlcNAcb-Sp8	33	7	22

446	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-4(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	33	15	45
117	Gala1-3Galb1-4Glc-Sp10	32	35	110
490	Galb1-3(Fuca1-4)GlcNAcb1-6GalNAca-Sp14	32	25	77
5	GalNAca-Sp15	32	20	64
257	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4GlcNAcb-Sp8	32	21	66
345	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	31	7	22
76	Fuca1-2Galb1-4GlcNAcb-Sp8	31	11	37
587	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	31	2	6
493	Galb1-4(Fuca1-3)GlcNAcb1-6(Neu5Aca2-6(Neu5Aca2-3Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	31	10	34
476	Galb1-3GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	31	11	36
254	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	31	21	69
608	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	31	16	51
56	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Man-a1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	31	32	106
348	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3Manb1-4GlcNAcb1-4GlcNAc-Sp12	30	13	43
3	Mana-Sp8	29	18	61
341	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	29	30	103
259	Neu5Aca2-3Galb1-4GlcNAcb-Sp0	29	11	37
472	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	29	16	54
157	Galb1-4GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp8	29	21	72
444	(6S)Galb1-3(6S)GlcNAc-Sp0	28	6	21
104	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb-Sp8	28	9	33
377	Neu5Aca2-6Galb1-4GlcNAcb1-3GalNAc-Sp14	28	11	41
426	Fuca1-2Galb1-3GlcNAcb1-2Mana1-6(Fuca1-2Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	28	25	88
385	Galb1-4(Fuca1-3)GlcNAcb1-6(Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	28	34	123
378	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3GalNAca-Sp14	28	22	78
328	Neu5,9Ac2a2-3Galb1-4GlcNAcb-Sp0	28	21	74
510	Galb1-3(6S)GlcNAcb-Sp8	28	32	116
127	Galb1-3GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	28	11	41
20	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3)GalNAc-Sp14	28	14	52
72	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb-Sp8	28	2	9
205	KDNa2-3Galb1-3GlcNAcb-Sp0	27	10	36
342	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	27	17	62
1	Gala-Sp8	27	26	96
152	Galb1-4(Fuca1-3)GlcNAcb-Sp8	27	17	60
603	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	27	20	73
237	Neu5Aca2-3GalNAcb1-4GlcNAcb-Sp0	27	3	12
304	Galb1-4GlcNAca1-6Galb1-4GlcNAcb-Sp0	27	26	96
375	Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-2Mana1-3(Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	26	4	14
443	(6S)Galb1-3GlcNAcb-Sp0	26	13	51
249	Neu5Aca2-3Galb1-3GlcNAcb-Sp0	26	18	67
138	Neu5Aca2-6(Galb1-3)GlcNAcb1-4Galb1-4Glcb-Sp10	26	18	70
16	GlcNAcb-Sp0	26	18	69
400	Fuca1-2Galb1-4GlcNAcb1-3GalNAca-Sp14	26	23	89
271	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	26	26	101
596	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	25	14	57
13	Glcb-Sp8	25	1	5
527	Gala1-3Galb1-3GlcNAcb1-2Mana-Sp0	25	17	70
178	GlcNAcb1-6(GlcNAcb1-3)Galb1-4GlcNAcb-Sp8	25	15	59
233	GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	25	13	54
31	(3S)Galb1-3GlcNAcb-Sp8	25	12	48
344	GlcNAca1-4Galb1-3GalNAc-Sp14	24	17	69
124	Gala1-6Glcb-Sp8	24	9	36
471	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	24	10	43
495	Gala1-3Galb1-4GlcNAcb1-6GalNAca-Sp14	24	12	48
349	Galb1-4GlcNAcb1-2Mana1-3Manb1-4GlcNAcb1-4GlcNAc-Sp12	24	4	16
303	GlcNAcb1-6(Galb1-4GlcNAcb1-3)Galb1-4GlcNAc-Sp0	24	11	49
294	Neu5Aca2-3Galb1-3GlcNAcb1-3Galb1-3GlcNAcb-Sp0	23	46	202
274	Neu5Aca2-6Galb-Sp8	23	18	77
457	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	23	20	86
347	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6Manb1-4GlcNAcb1-4GlcNAc-Sp12	23	12	52
32	(3S)Galb1-4(Fuca1-3)GlcNAc-Sp0	23	25	112
437	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	23	16	73
51	Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp13	22	22	98
319	Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	22	11	48
591	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	22	14	61
234	Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	22	14	65
47	(6S)GlcNAcb-Sp8	22	22	100
412	Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	22	14	64

346	Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	22	6	30
316	Mana1-2Mana1-6(Mana1-2Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Mana-Sp9	22	9	43
396	Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp19	21	7	31
255	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb-Sp8	21	29	135
42	(6S)Galb1-4Glcb-Sp0	21	8	39
360	Fuca1-2Galb1-3GlcNAcb1-2Mana1-6(Fuca1-2Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	21	18	83
78	Fuca1-2Galb-Sp8	21	11	51
8	Rhaa-Sp8	21	22	103
475	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	21	10	50
146	Galb1-3Galb-Sp8	21	15	70
155	Galb1-4(6S)Glcb-Sp0	21	14	67
119	Gala1-4(Fuca1-2)Galb1-4GlcNAcb-Sp8	21	4	19
221	Fuca1-2Galb1-4(6S)GlcNAcb-Sp8	21	24	115
413	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-3GalNAca-Sp14	21	9	44
522	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana-Sp0	21	6	29
198	Glcb1-4Glcb-Sp8	20	8	38
484	Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	20	5	24
560	Gala1-3Galb1-4GlcNAcb1-2Mana1-6(Gala1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp24	20	8	39
149	Galb1-3GlcNAcb-Sp0	20	6	28
477	Neu5Aca2-6Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glcb-Sp21	20	22	110
496	Galb1-4(Fuca1-3)GlcNAcb1-2Mana-Sp0	20	15	77
501	Fuca1-2(6S)Galb1-3(6S)GlcNAcb-Sp0	20	7	34
583	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	19	8	44
585	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	19	8	40
109	Gala1-4(Gala1-3)Galb1-4GlcNAcb-Sp8	19	12	65
601	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	19	13	67
455	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	19	15	81
164	Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	19	12	64
429	Galb1-4GlcNAcb1-6(Fuca1-2Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	19	12	63
90	GalNAca1-3(Fuca1-2)Galb-Sp18	19	9	46
481	Neu5Aca2-6Galb1-4 GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3)GalNAca-Sp14	19	15	82
351	Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	19	14	72
174	GlcNAca1-6Galb1-4GlcNAcb-Sp8	18	9	50
518	(6P)Galb1-4GlcNAcb-SP0	18	9	49
545	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	18	12	65
101	Gala1-3(Fuca1-2)Galb1-3GlcNAcb-Sp0	18	6	34
549	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	18	8	45
4	GalNAca-Sp8	18	15	82
98	GalNAcb1-4GlcNAcb-Sp0	18	12	67
153	Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	18	15	84
282	Neu5Gca2-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	18	9	53
602	Neu5Aca2-6Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	18	8	45
27	(3S)Galb1-4(6S)Glcb-Sp8	18	5	30
240	Neu5Aca2-3Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	18	11	63
208	Mana1-2Mana1-6(Mana1-2Mana1-3)Mana-Sp9	17	11	63
478	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana-Sp0	17	3	19
7	Fuca-Sp9	17	11	61
497	Fuca1-2(6S)Galb1-3GlcNAcb-Sp0	17	22	130
370	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	17	4	25
122	Gala1-4Galb1-4Glcb-Sp0	17	9	53
165	Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp8	17	16	91
89	GalNAca1-3(Fuca1-2)Galb-Sp8	17	3	19
60	Fuca1-2Galb1-3(Fuca1-4)GlcNAcb-Sp8	17	8	46
605	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	17	16	96
352	GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	17	6	33
467	Gala1-3(Fuca1-2)Galb1-3GalNAca-Sp8	17	4	26
389	Fuca1-2Galb1-3GalNAca1-3(Fuca1-2)Galb1-4Glcb-Sp0	17	29	172
392	GalNAcb1-4(Neu5Aca2-3)Galb1-4GlcNAcb1-3GalNAca-Sp14	17	4	26
464	Neu5Aca2-6Galb1-4GlcNAcb1-4Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-4(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	17	14	84
121	Gala1-4Galb1-4GlcNAcb-Sp8	17	10	60
547	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	17	8	48
99	GalNAcb1-4GlcNAcb-Sp8	16	5	29
110	Gala1-3GalNAca-Sp8	16	4	22
494	Fuca1-2Galb1-4GlcNAcb1-6GalNAca-Sp14	16	5	34
535	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3)Galb1-4GlcNAc-Sp0	16	12	75
554	Neu5Gca2-8Neu5Aca2-3Galb1-4GlcNAc-Sp0	16	9	53
272	Neu5Aca2-6Galb1-4Glcb-Sp0	16	10	62

391	Galb1-3GlcNAcb1-3GalNAca-Sp14	16	8	49
62	Fuca1-2Galb1-3GalNAca-Sp14	16	7	45
521	Gala1-3Galb1-4GlcNAcb1-2Mana-Sp0	16	4	25
353	Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	16	10	61
524	Galb1-3GlcNAcb1-2Mana-Sp0	16	3	20
568	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	16	14	89
219	(3S)Galb1-4(Fuca1-3)(6S)GlcNAcb-Sp8	16	10	65
186	GlcNAcb1-4-MDPLys	16	12	79
507	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	16	13	83
88	GlcNAcb1-3Galb1-3GalNAca-Sp8	16	12	75
248	Fuca1-2(6S)Galb1-4Glcb-Sp0	15	12	78
126	Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	15	12	80
372	Gala1-3Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Gala1-3Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	15	9	58
18	GlcN(Gc)b-Sp8	15	10	66
574	GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	15	2	11
607	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	15	6	41
179	GlcNAcb1-3GalNAca-Sp8	15	11	71
600	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	15	7	47
55	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	15	7	46
199	Glcb1-6Glcb-Sp8	15	5	34
290	Galb1-4(Fuca1-3)(6S)GlcNAcb-Sp0	15	5	34
148	Galb1-3GlcNAcb1-3Galb1-4Glcb-Sp10	15	9	62
504	(3S)GalNAcb1-4(Fuca1-3)GlcNAcb-Sp8	15	18	125
514	GalNAcb1-4(6S)GlcNAc-Sp8	14	11	76
70	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	14	8	54
34	(3S)Galb1-4(6S)GlcNAcb-Sp0	14	4	28
37	(3S)Galb1-4GlcNAcb-Sp8	14	8	53
350	Galb1-4GlcNAcb1-2Mana1-6Manb1-4GlcNAcb1-4GlcNAc-Sp12	14	3	21
416	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3GalNAca-Sp14	14	15	103
589	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	14	17	119
431	GlcNAcb1-2Mana1-6(GlcNAcb1-4)(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	14	9	63
368	Galb1-4(Fuca1-3)GlcNAcb1-6(Fuca1-2Galb1-4GlcNAcb1-3)Galb1-4Glc-Sp21	14	9	64
206	KDNa2-3Galb1-4GlcNAcb-Sp0	14	5	34
564	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	14	3	25
129	Galb1-3(Fuca1-4)GlcNAc-Sp8	14	15	104
177	GlcNAcb1-6(GlcNAcb1-3)GalNAca-Sp14	14	8	54
29	(3S)Galb1-3GalNAca-Sp8	14	8	56
61	Fuca1-2Galb1-3GalNAca-Sp8	14	6	46
224	Neu5Aca2-3Galb1-3GalNAca-Sp14	14	10	69
95	GalNAcb1-3(Fuca1-2)Galb-Sp8	14	2	16
473	Fuca1-2Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	14	11	79
151	Galb1-4(Fuca1-3)GlcNAcb-Sp0	14	5	36
52	GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	13	9	67
534	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-2Mana-Sp0	13	5	38
394	Gala1-3Galb1-3GlcNAcb1-2Mana1-6(Gala1-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp19	13	17	126
203	GlcAb1-3Galb-Sp8	13	8	63
404	Gala1-4Galb1-4GlcNAcb1-2Mana1-6(Gala1-4Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	13	10	76
330	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-3GlcNAcb-Sp0	13	14	103
53	GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp13	13	2	15
570	(3S)GlcAb1-3Galb1-4GlcNAcb1-2Mana-Sp0	13	11	80
87	GalNAca1-3(Fuca1-2)Galb1-4Glcb-Sp0	13	1	6
68	Fuca1-2Galb1-3GlcNAcb-Sp8	13	6	43
291	Galb1-4(Fuca1-3)(6S)Glcb-Sp0	13	10	79
97	GalNAcb1-4(Fuca1-3)GlcNAcb-Sp0	13	9	65
339	GlcNAca1-4Galb1-4GlcNAcb-Sp0	13	9	70
567	Galb1-3GlcNAcb1-6(Galb1-3)GalNAc-Sp14	13	4	29
384	Galb1-4GlcNAcb1-6(Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	13	11	87
329	Neu5,9Ac2a2-3Galb1-3GlcNAcb-Sp0	13	13	99
120	Gala1-4Galb1-4GlcNAcb-Sp0	13	9	70
401	Galb1-4(Fuca1-3)GlcNAcb1-3GalNAca-Sp14	13	4	32
84	(3S)Galb1-4(Fuca1-3)Glcb-Sp0	13	7	52
172	Galb1-4Glcb-Sp8	13	10	82
33	(3S)Galb1-4(Fuca1-3)GlcNAc-Sp8	13	10	84
556	Neu5Gca2-8Neu5Gca2-6Galb1-4GlcNAc-Sp0	13	5	39
9	Neu5Aca-Sp8	12	15	121
134	GlcNAcb1-6(Galb1-3)GalNAca-Sp14	12	12	99
410	Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	12	28	222
116	Gala1-3Galb1-4Glcb-Sp0	12	5	39
427	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	12	8	65

506	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-6GalNAca-Sp14	12	34	270
212	Mana1-2Mana1-6(Mana1-2Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	12	13	101
173	GlcNAca1-3Galb1-4GlcNAcb-Sp8	12	7	58
180	GlcNAcb1-3GalNAca-Sp14	12	14	117
428	Galb1-3GlcNAcb1-6(Galb1-3GlcNAcb1-2)Mana1-6(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	12	5	38
511	(6S)(4S)GalNAcb1-4GlcNAc-Sp8	12	7	53
582	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	12	12	101
343	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	12	21	170
71	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb-Sp0	12	11	94
417	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb1-3GalNAc-Sp14	12	5	44
610	Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp21	12	6	49
150	Galb1-3GlcNAcb-Sp8	12	9	73
39	(6S)(4S)Galb1-4GlcNAcb-Sp0	12	5	40
38	(3S)Galb-Sp8	12	9	72
137	Neu5Acb2-6(Galb1-3)GalNAca-Sp8	12	9	79
210	Mana1-6(Mana1-2Mana1-3)Mana1-6(Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	12	6	52
218	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	12	7	60
488	Galb1-3GlcNAcb1-6GalNAca-Sp14	11	5	41
100	Gala1-2Galb-Sp8	11	8	70
447	Galb1-4(Fuca1-3)GlcNAcb1-6GalNAc-Sp14	11	15	134
215	Mana1-6(Mana1-3)Mana1-6(Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	11	7	62
284	Neu5Gca2-3Galb1-4Glcb-Sp0	11	8	74
96	GalNAcb1-3Gala1-4Galb1-4GlcNAcb-Sp0	11	7	60
486	Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	11	6	57
314	Mana1-6(Mana1-3)Mana1-6(Mana1-3)Manb-Sp10	11	7	61
115	Gala1-3Galb1-4GlcNAcb-Sp8	11	6	59
371	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	11	7	60
209	Mana1-2Mana1-3Mana-Sp9	11	8	70
189	GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-Sp8	11	12	110
374	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	11	12	107
469	Glca1-6Glca1-6Glca1-6Glcb-Sp10	11	3	25
63	Fuca1-2Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	11	7	69
292	Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	11	10	95
566	GlcNAb1-3Galb1-3GalNAc-Sp14	11	8	72
466	Neu5Aca2-6Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-4(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	11	6	57
273	Neu5Aca2-6Galb1-4Glcb-Sp8	11	8	73
581	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	10	1	12
421	GlcNAcb1-2(GlcNAcb1-6)Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	10	5	46
201	GlcAa-Sp8	10	9	85
382	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glcb-Sp0	10	2	23
162	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	10	6	61
356	KDNa2-3Galb1-4(Fuca1-3)GlcNAc-Sp0	10	12	121
190	GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-Sp8	10	6	57
188	GlcNAcb1-4Galb1-4GlcNAcb-Sp8	10	9	92
491	Neu5Aca2-3Galb1-3GlcNAcb1-6GalNAca-Sp14	10	7	68
397	GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	10	3	35
59	Fuca1-2Galb1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp9	10	7	69
10	Neu5Aca-Sp11	10	13	136
338	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	10	8	78
123	Gala1-4GlcNAcb-Sp8	10	4	37
367	Neu5Aca2-6GlcNAcb1-4GlcNAcb1-4GlcNAc-Sp21	10	8	86
77	Fuca1-2Galb1-4Glcb-Sp0	10	7	68
144	Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	10	6	59
499	Fuca1-2Galb1-4GlcNAcb1-2Mana-Sp0	10	10	104
194	GlcNAcb1-6Galb1-4GlcNAcb-Sp8	9	6	63
202	GlcAb-Sp8	9	1	14
114	Gala1-3Galb1-3GlcNAcb-Sp0	9	3	37
171	Galb1-4Glcb-Sp0	9	4	41
279	Neu5Acb2-6Galb1-4GlcNAcb-Sp8	9	6	62
433	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	9	3	34
453	GalNAcb1-4Galb1-4Glcb-Sp0	9	1	15
393	GalNAca1-3(Fuca1-2)Galb1-3GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp0	9	15	161
598	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	9	7	79
154	Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	9	16	178
41	(6P)Mana-Sp8	9	12	131
402	GalNAca1-3GalNAcb1-3Gala1-4Galb1-4GlcNAcb-Sp0	9	10	107
470	Glca1-4Glca1-4Glca1-4Glcb-Sp10	9	12	134
113	Gala1-3Galb1-4(Fuca1-3)GlcNAcb-Sp8	9	10	110
15	GalNAcb-Sp8	9	8	86
103	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb-Sp0	9	6	65

26	(3S)Galb1-4(6S)Glcb-Sp0	9	10	109
571	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	9	6	70
286	Neu5Gca2-6Galb1-4GlcNAcb-Sp0	9	14	160
593	GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	9	7	77
537	Gala1-3(Fuca1-2)Galb1-3GalNAcb1-3Gala1-4Galb1-4Glc-Sp21	9	10	118
48	Neu5,9Ac_2a-Sp8	9	7	85
357	KDNa2-6Galb1-4GlcNAc-Sp0	9	4	44
197	Glca1-6Glca1-6Glcb-Sp8	8	9	108
575	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	8	3	35
503	GalNAcb1-4(Fuca1-3)(6S)GlcNAcb-Sp8	8	9	107
43	(6S)Galb1-4Glcb-Sp8	8	6	71
80	Fuca1-4GlcNAcb-Sp8	8	5	56
533	Fuca1-4(Galb1-3)GlcNAcb1-2 Mana-Sp0	8	10	127
50	Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	8	8	99
480	Neu5Aca2-6Galb1-4GlcNAcb1-6GalNAca-Sp14	8	7	80
458	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	8	3	40
264	Neu5Aca2-3Galb1-4Glcb-Sp8	8	3	35
236	Neu5Aca2-3GalNAca-Sp8	8	6	78
449	Fuca1-2Galb1-4GlcNAcb1-6(Fuca1-2Galb1-4GlcNAcb1-3)GalNAc-Sp14	8	4	54
513	(3S)GalNAcb1-4(3S)GlcNAc-Sp8	8	9	115
288	Neu5Aca2-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	8	5	58
238	Neu5Aca2-3Galb1-3(6S)GlcNAc-Sp8	8	4	49
246	Neu5Aca2-3Galb1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp0	8	9	110
536	GalNAca1-3(Fuca1-2)Galb1-3GalNAcb1-3Gala1-4Galb1-4Glc-Sp21	8	7	84
185	GlcNAcb1-3Galb1-4Glcb-Sp0	8	6	69
204	GlcAb1-6Galb-Sp8	8	3	34
239	Neu5Aca2-3Galb1-3(Fuca1-4)GlcNAcb-Sp8	8	6	74
211	Mana1-2Mana1-6(Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	8	6	73
94	GalNAcb1-3GalNAca-Sp8	8	9	120
442	GalNAcb1-6GalNAcb-Sp8	8	4	58
315	Mana1-2Mana1-6(Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Mana-Sp9	8	4	53
235	Neu5Aca2-6(Neu5Aca2-3)GalNAca-Sp8	8	3	36
181	GlcNAcb1-3Galb-Sp8	8	4	49
419	Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	7	1	17
525	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-6GalNAc-Sp14	7	9	126
75	Fuca1-2Galb1-4GlcNAcb-Sp0	7	15	198
468	Gala1-3(Fuca1-2)Galb1-3GalNAcb-Sp8	7	11	154
551	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp25	7	5	63
340	GlcNAca1-4Galb1-3GlcNAcb-Sp0	7	3	38
366	Neu5Aca2-6GlcNAcb1-4GlcNAc-Sp21	7	9	127
414	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3GalNAca-Sp14	7	11	147
159	Galb1-4GlcNAcb1-3GalNAca-Sp8	7	6	79
106	Gala1-3(Fuca1-2)Galb1-4Glcb-Sp0	7	7	101
287	Neu5Gca-Sp8	7	5	72
307	GlcAb1-3GlcNAcb-Sp8	7	11	167
223	Neu5Aca2-3Galb1-3GalNAca-Sp8	7	8	112
298	(6P)Glcb-Sp10	7	7	110
450	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-6(Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-3)GalNAc-Sp14	7	8	117
278	Neu5Acb2-6GalNAca-Sp8	6	3	53
454	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	6	2	39
25	(3S)Galb1-4Glcb-Sp8	6	4	60
12	Galb-Sp8	6	4	65
505	Fuca1-2Galb1-3GlcNAcb1-6(Fuca1-2Galb1-3GlcNAcb1-3)GalNAca-Sp14	6	2	40
170	Galb1-4GlcNAcb-Sp23	6	8	128
520	Neu5Aca2-6Galb1-4GlcNAcb1-2Man-Sp0	6	5	81
452	Neu5Aca2-8Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	6	8	133
388	GlcNAcb1-2Mana1-6(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	6	18	316
167	Galb1-4GlcNAcb1-6(Galb1-3)GalNAc-Sp14	6	1	17
562	GalNAcb1-3GlcNAcb-Sp0	6	6	99
300	Galb1-3Galb1-4GlcNAcb-Sp8	6	13	222
193	GlcNAcb1-6GalNAca-Sp14	6	10	175
538	Galb1-3GalNAcb1-3Gal-Sp21	6	8	138
17	GlcNAcb-Sp8	6	6	111
604	GlcNAcb1-6(Neu5Aca2-3Galb1-3)GalNAca-Sp14	6	7	132
81	Fucb1-3GlcNAcb-Sp8	6	3	46
576	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	6	12	224
528	GalNAcb1-4GlcNAcb1-2Mana-Sp0	6	5	96
289	Galb1-3GlcNAcb1-3Galb1-3GlcNAcb-Sp0	6	9	160
508	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)Galb1-4GlcNAcb1-4(Gal b1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	6	2	33

11	Neu5Acb-Sp8	5	8	140
425	Gala1-3Galb1-3GlcNAcb1-3GalNAc-Sp14	5	7	119
390	Fuca1-2Galb1-3GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp0	5	6	107
65	Fuca1-2Galb1-3GlcNAcb1-3Galb1-4Glcb-Sp8	5	4	66
430	Fuca1-3GlcNAcb1-6(Galb1-4GlcNAcb1-3)Galb1-4Glc-Sp21	5	5	89
66	Fuca1-2Galb1-3GlcNAcb1-3Galb1-4Glcb-Sp10	5	8	157
168	Galb1-4GlcNAcb-Sp0	5	2	44
380	Galb1-3GalNAca1-3(Fuca1-2)Galb1-4Glc-Sp0	5	3	52
111	Gala1-3GalNAca-Sp16	5	4	81
498	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-6GalNAca-Sp14	5	4	77
232	GalNAcb1-4(Neu5Aca2-3)Galb1-4GlcNAcb-Sp8	5	3	62
569	(3S)GlcAb1-3Galb1-4GlcNAcb1-3Galb1-4Glc-Sp0	5	12	225
192	GlcNAcb1-6GalNAca-Sp8	5	3	59
561	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-3)GalNAca-Sp14	5	5	101
293	Galb1-4GlcNAcb1-3Galb1-3GlcNAcb-Sp0	5	6	111
323	Neu5Gcb2-6Galb1-4GlcNAc-Sp8	5	8	169
22	6S(3S)Galb1-4(6S)GlcNAcb-Sp0	5	10	207
58	Fuca1-2Galb1-3GalNAcb1-3Gala-Sp9	5	5	95
64	Fuca1-2Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp9	5	3	56
358	KDNa2-3Galb1-4Glc-Sp0	5	8	157
363	Gala1-3Galb1-4GlcNAcb1-2Mana1-6(Gala1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	5	5	105
169	Galb1-4GlcNAcb-Sp8	5	10	203
407	Galb1-3GlcNAca1-6Galb1-4GlcNAcb-Sp0	4	7	154
112	Gala1-3GalNAcb-Sp8	4	6	134
334	GalNAcb1-3Gala1-4Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	4	4	102
160	Galb1-4GlcNAcb1-3GalNAc-Sp14	4	11	248
107	Gala1-3(Fuca1-2)Galb-Sp8	4	5	119
217	Manb1-4GlcNAcb-Sp0	4	4	97
166	Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp8	4	12	292
213	Mana1-6(Mana1-3)Mana-Sp9	4	1	23
409	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)Glcb-Sp21	4	7	188
24	(3S)Galb1-4(Fuca1-3)(6S)Glc-Sp0	4	7	174
540	GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	4	10	245
132	Galb1-4GlcNAcb1-6GalNAc-Sp14	4	7	169
82	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb-Sp0	4	2	64
183	GlcNAcb1-3Galb1-4GlcNAcb-Sp8	4	9	236
422	Fuca1-2Galb1-3GlcNAcb1-3GalNAc-Sp14	4	12	308
105	Gala1-3(Fuca1-2)Galb1-4GlcNAc-Sp0	4	11	281
489	Gala1-3Galb1-3GlcNAcb1-6GalNAca-Sp14	4	7	199
280	Neu5Gca2-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	4	6	149
142	Galb1-3GalNAcb-Sp8	4	7	176
305	Galb1-4GlcNAcb1-6Galb1-4GlcNAcb-Sp0	4	8	217
163	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	4	4	111
355	(6S)GlcNAcb1-3Galb1-4GlcNAcb-Sp0	4	4	103
176	GlcNAcb1-6(GlcNAcb1-3)GalNAca-Sp8	4	6	155
515	(3S)GalNAcb1-4GlcNAc-Sp8	3	6	171
140	Galb1-3GalNAca-Sp14	3	10	301
250	Neu5Aca2-3Galb1-3GlcNAcb-Sp8	3	7	226
45	(6S)Galb1-4(6S)Glcb-Sp8	3	4	138
283	Neu5Gca2-3Galb1-4GlcNAcb-Sp0	3	1	46
108	Gala1-3(Fuca1-2)Galb-Sp18	3	13	426
214	Mana1-2Mana1-2Mana1-6(Mana1-3)Mana-Sp9	3	7	239
435	Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	3	5	172
451	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-6(GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3)GalNAc-Sp14	3	6	192
492	(3S)Galb1-3(Fuca1-4)GlcNAcb-Sp0	3	2	86
83	GalNAca1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb-Sp0	3	10	360
130	Fuca1-4(Galb1-3)GlcNAcb-Sp8	3	7	278
161	Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	3	3	123
532	Galb1-4GlcNAcb1-2 Mana1-6(Galb1-4GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	3	2	65
383	Galb1-4(Fuca1-3)GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	2	7	293
331	Neu5Aca2-3Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	2	2	108
23	6S(3S)Galb1-4GlcNAcb-Sp0	2	5	232
310	GlcNAcb1-4GlcNAcb-Sp10	2	6	307
479	Neu5Aca2-3Galb1-4GlcNAcb1-6GalNAca-Sp14	2	5	285
539	GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	2	9	475
175	GlcNAcb1-2Galb1-3GalNAca-Sp8	2	8	447
145	Galb1-3GalNAcb1-4Galb1-4Glcb-Sp8	2	7	417
594	GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	2	7	444
512	(6S)GalNAcb1-4GlcNAc-Sp8	2	5	305
387	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	1	5	336
386	Galb1-3GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	1	6	400
592	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	1	3	203

313	Mana1-6Manb-Sp10	1	3	238
590	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	1	7	494
35	(3S)Galb1-4(6S)GlcNAcb-Sp8	1	10	757
418	GalNAca1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb1-3GalNAc-Sp14	1	5	426
438	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	1	8	626
333	Gala1-4Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	1	12	1085
555	Neu5Gca2-8Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAc-Sp0	1	4	351
434	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	1	4	363
230	Neu5Aca2-3(6S)Galb1-4(Fuca1-3)GlcNAcb-Sp8	1	7	641
196	Glca1-4Glca-Sp8	1	3	247
436	Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	1	5	463
306	GalNAcb1-3Galb-Sp8	1	3	341
79	Fuca1-3GlcNAcb-Sp8	1	4	485
200	G-ol-Sp8	1	14	1855
285	Neu5Gca2-6GalNAca-Sp0	1	5	826
578	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	0	4	1076
21	GlcNAcb1-6(GlcNAcb1-4)(GlcNAcb1-3)GlcNAc-Sp8	0	5	1299
502	Neu5Aca2-6GalNAcb1-4(6S)GlcNAcb-Sp8	0	5	1181
158	Galb1-4GalNAcb1-3(Fuca1-2)Galb1-4GlcNAcb-Sp8	0	17	-21991
262	Fuca1-2Galb1-4(6S)Glcb-Sp0	0	7	-1761
580	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	-1	5	-824
403	Gala1-4Galb1-3GlcNAcb1-2Mana1-6(Gala1-4Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	-1	4	-424
156	Galb1-4(6S)Glcb-Sp8	-1	6	-643
302	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3)Galb1-4GlcNAc-Sp0	-1	11	-1149
220	Fuca1-2(6S)Galb1-4GlcNAcb-Sp0	-2	6	-417
517	Galb1-4(6P)GlcNAcb-Sp0	-2	3	-174
597	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	-2	6	-295
609	GlcNAcb1-3Fuca-Sp21	-2	11	-541
440	Galb1-6Galb-Sp10	-2	4	-181
143	Galb1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp0	-2	4	-176
309	GlcNAcb1-3Man-Sp10	-2	4	-190
312	MurNAcb1-4GlcNAcb-Sp10	-2	11	-513
131	Galb1-4GlcNAcb1-6GalNAca-Sp8	-3	7	-286
526	Neu5Aca2-3Galb1-3GlcNAcb1-2Mana-Sp0	-3	3	-113
19	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3)GalNAca-Sp8	-3	10	-343
599	Galb1-4GlcNAcb1-3Galb1-3GalNAca-Sp14	-3	6	-223
277	Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	-3	9	-290
191	GlcNAcb1-4GlcNAcb1-4GlcNAcb-Sp8	-3	2	-67
420	Fuca1-2Galb1-4GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	-4	3	-90
516	(4S)GalNAcb-Sp10	-4	21	-510
182	GlcNAcb1-3Galb1-4GlcNAcb-Sp0	-4	12	-275
133	GlcNAcb1-6(Galb1-3)GalNAca-Sp8	-4	3	-65
432	GlcNAcb1-2Mana1-6(GlcNAcb1-4)(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	-5	5	-90
359	KDNa2-3Galb1-3GalNAca-Sp14	-6	6	-95
327	Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	-6	9	-146
139	Galb1-3GalNAca-Sp8	-7	5	-76
245	Neu5Aca2-3Galb-Sp8	-7	38	-562
311	GlcNAcb1-4GlcNAcb-Sp12	-7	4	-51
337	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-6(Neu5Aca2-3Galb1-3)GalNAc-Sp14	-8	4	-50
405	Gala1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	-9	8	-89
381	Galb1-3GalNAca1-3(Fuca1-2)Galb1-4GlcNAc-Sp0	-9	7	-78
308	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	-9	10	-104
128	Galb1-3(Fuca1-4)GlcNAc-Sp0	-9	9	-90
365	Fuca1-4(Galb1-3)GlcNAcb1-2Mana1-6(Fuca1-4(Galb1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	-10	25	-256
184	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	-10	3	-31
14	Manb-Sp8	-10	44	-422
40	(4S)Galb1-4GlcNAcb-Sp8	-10	48	-461
296	4S(3S)Galb1-4GlcNAcb-Sp0	-11	26	-246
207	Mana1-2Mana1-2Mana1-3Mana-Sp9	-12	25	-215
36	(3S)Galb1-4GlcNAcb-Sp0	-12	6	-50
195	Glca1-4Glcb-Sp8	-13	5	-38
354	Galb1-3GlcNAcb1-2Mana1-6(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	-16	17	-109
595	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	-22	29	-130
406	Galb1-3GlcNAcb1-6Galb1-4GlcNAcb-Sp0	-23	13	-56
500	Fuca1-2Galb1-3(6S)GlcNAcb-Sp0	-23	4	-17
321	Neu5Aca2-8Neu5Acb-Sp17	-25	29	-117
529	Neu5Aca2-3Galb1-3GlcNAcb1-4Galb1-4Glcb-Sp0	-34	34	-102
92	GalNAca1-3Galb-Sp8	-34	32	-93
408	GalNAcb1-3Gala1-6Galb1-4Glcb-Sp8	-34	15	-43
379	GalNAcb1-4GlcNAcb1-2Mana1-6(GalNAcb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	-37	18	-50
216	Mana1-6(Mana1-3)Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	-40	36	-90

Average RFU: indicates the average fluorescent unites from 4 independent determinations
STDv: standard deviation
% CV: variation coeficient

Supplementary Table 3: Statistics of data collection and refinement

	Typhoid toxin
Data collection	
Space group	$C222_1$
Cell dimensions	
a, *b*, *c* (Å)	78.386, 261.076, 109.896
a, *b*, *g* (°)	90, 90, 90
Resolution (Å)	31.91 - 2.393 (2.479 - 2.393) *
R_{merge}	0.097 (0.724) *
I/sI	12.81 (2.62) *
Completeness (%)	97.14 (93.03) *
Redundancy	6.5(5.8) *
Refinement	
Resolution (Å)	31.91 - 2.393
No. reflections	43127
R_{work}/ R_{free}	0.2075 / 0.2532
No. atoms	
Protein	8102
Glycerol	48
Water	382
B-factors	
Protein	48.60
Solvent	41.90
R.m.s deviations	
Bond lengths (Å)	0.004
Bond angles (°)	0.84

Number of crystals for typhoid toxin structure is 1.
*Highest resolution shell is shown in parenthesis.

Table S4: Glycan array analysis for binding to the typhoid toxin Ser35A mutant

Glycan number	Glycan structure	Average RFU	StDev	% CV
335	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	2009	48	2
336	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	857	38	4
509	Galb1-3GlcNAca1-3Galb1-4GlcNAcb-Sp8	789	53	7
523	GalNAca1-3(Fuca1-2)Galb1-4 GlcNAcb1-2Mana-Sp0	414	47	11
74	Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	380	99	26
541	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	227	10	4
416	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3GalNAca-Sp14	212	223	105
582	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	185	210	114
588	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	176	274	155
545	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	150	24	16
606	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	125	17	14
233	GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	116	215	185
584	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	112	24	21
586	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	112	55	49
375	Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-2Mana1-3(Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	110	28	25
86	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp8	105	10	10
551	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp25	100	127	128
319	Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	98	163	166
372	Gala1-3Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Gala1-3Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	95	25	26
396	Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp19	93	11	12
496	Galb1-4(Fuca1-3)GlcNAcb1-2Mana-Sp0	90	172	191
547	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	87	48	55
591	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	87	14	16
426	Fuca1-2Galb1-3GlcNAcb1-2Mana1-6(Fuca1-2Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	85	4	4
576	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	83	29	35
395	Gala1-3Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-6(Gala1-3Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp19	78	38	48
476	Galb1-3GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	78	65	83
544	Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	72	29	40
394	Gala1-3Galb1-3GlcNAcb1-2Mana1-6(Gala1-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp19	71	37	52
161	Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	67	95	142
559	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Mana1-4GlcNAcb1-4GlcNAc-Sp24	65	10	15
578	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	65	10	15
362	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAb-Sp20	65	34	52
444	(6S)Galb1-3(6S)GlcNAc-Sp0	63	74	117
590	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	58	26	46
579	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	57	17	30
327	Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	56	76	136
82	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb-Sp0	55	19	36
585	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	54	28	51
371	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	53	21	39
587	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	52	21	40
420	Fuca1-2Galb1-4GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	52	23	45
423	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-3GalNAc-Sp14	52	14	27
299	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-6(Galb1-3)GalNAca-Sp14	51	41	80
404	Gala1-4Galb1-4GlcNAcb1-2Mana1-6(Gala1-4Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	50	17	34
223	Neu5Aca2-3Galb1-3GalNAca-Sp8	50	49	99
474	Neu5Aca2-3Galb1-3GlcNAcb1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2)Mana1-6(Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	49	34	70
531	Galb1-4GlcNAcb1-2 Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	48	26	55
457	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	48	42	87
583	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	48	10	20
458	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	47	59	124
454	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	47	13	27
353	Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	46	14	31

565	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	45	15	34
427	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	45	18	40
577	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	45	9	21
225	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	44	15	34
352	GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	43	18	40
501	Fuca1-2(6S)Galb1-3(6S)GlcNAcb-Sp0	43	9	21
485	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	43	19	45
6	Fuca-Sp8	42	45	107
550	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	41	24	58
291	Galb1-4(Fuca1-3)(6S)Glcb-Sp0	41	17	41
608	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	40	12	31
428	Galb1-3GlcNAcb1-6(Galb1-3GlcNAcb1-2)Mana1-6(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	40	7	16
363	Gala1-3Galb1-4GlcNAcb1-2Mana1-6(Gala1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	39	3	7
104	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb-Sp8	38	20	51
445	Fuca1-2Galb1-4 GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-2(Fuca1-2Galb1-4GlcNAcb1-4)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	38	16	42
357	KDNa2-6Galb1-4GlcNAc-Sp0	37	22	58
580	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	37	11	29
481	Neu5Aca2-6Galb1-4 GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3)GalNAca-Sp14	37	18	48
573	Neu5Aca2-8Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glc-Sp21	37	14	38
42	(6S)Galb1-4Glcb-Sp0	36	23	65
598	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	36	29	80
572	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	36	14	39
508	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)Galb1-4GlcNAcb1-4(Gal b1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	36	32	89
324	Galb1-3GlcNAcb1-2Mana1-6(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	35	21	58
364	Galb1-4GlcNAcb1-2Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	35	10	30
334	GalNAcb1-3Gala1-4Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	35	18	50
349	Galb1-4GlcNAcb1-2Mana1-3Manb1-4GlcNAcb1-4GlcNAc-Sp12	35	15	42
361	Fuca1-2Galb1-4GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	34	16	47
574	GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	33	10	31
490	Galb1-3(Fuca1-4)GlcNAcb1-6GalNAca-Sp14	33	24	73
159	Galb1-4GlcNAcb1-3GalNAca-Sp8	33	50	153
453	GalNAcb1-4Galb1-4Glcb-Sp0	33	11	35
564	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	32	9	30
253	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	32	13	41
431	GlcNAcb1-2Mana1-6(GlcNAcb1-4)(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	32	11	35
24	(3S)Galb1-4(Fuca1-3)(6S)Glc-Sp0	31	21	65
330	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-3GlcNAcb-Sp0	31	22	71
571	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAb1-2)Mana1-6(Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	31	2	8
342	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	31	18	61
4	GalNAca-Sp8	31	14	47
365	Fuca1-4(Galb1-3)GlcNAcb1-2Mana1-6(Fuca1-4(Galb1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	30	20	64
123	Gala1-4GlcNAcb-Sp8	30	15	50
144	Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	30	13	42
558	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Man a1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp24	29	8	29
310	GlcNAcb1-4GlcNAcb-Sp10	29	17	59
290	Galb1-4(Fuca1-3)(6S)GlcNAcb-Sp0	28	9	31
403	Gala1-4Galb1-3GlcNAcb1-2Mana1-6(Gala1-4Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	28	9	30
153	Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	28	16	59
442	GalNAcb1-6GalNAcb-Sp8	28	7	25
116	Gala1-3Galb1-4Glcb-Sp0	28	10	38
605	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	27	11	41
192	GlcNAcb1-6GalNAca-Sp8	27	11	40
355	(6S)GlcNAcb1-3Galb1-4GlcNAcb-Sp0	27	14	54
360	Fuca1-2Galb1-3GlcNAcb1-2Mana1-6(Fuca1-2Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	27	6	23
201	GlcAa-Sp8	27	6	24
333	Gala1-4Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	27	17	65
369	Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	27	9	34
109	Gala1-4(Gala1-3)Galb1-4GlcNAcb-Sp8	26	11	42
287	Neu5Gca-Sp8	26	11	44
351	Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	26	14	53
344	GlcNAca1-4Galb1-3GalNAc-Sp14	26	15	58
448	Galb1-4GlcNAcb1-2Mana-Sp0	25	14	54
251	Neu5Aca2-3Galb1-4(6S)GlcNAcb-Sp8	25	15	61
103	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb-Sp0	25	14	55
188	GlcNAcb1-4Galb1-4GlcNAcb-Sp8	25	9	37
254	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	25	17	69

97	GalNAcb1-4(Fuca1-3)GlcNAcb-Sp0	25	8	34
348	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3Manb1-4GlcNAcb1-4GlcNAc-Sp12	24	9	38
45	(6S)Galb1-4(6S)Glcb-Sp8	24	11	45
466	Neu5Aca2-6Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-4(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	24	6	25
345	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	23	5	23
121	Gala1-4Galb1-4GlcNAcb-Sp8	23	11	46
227	Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3Galb1-4Glcb-Sp0	23	12	51
563	GalNAcb1-4GlcNAcb1-3GalNAcb1-4GlcNAcb-Sp0	23	11	46
212	Mana1-2Mana1-6(Mana1-2Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	23	18	77
240	Neu5Aca2-3Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	23	2	10
215	Mana1-6(Mana1-3)Mana1-6(Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	23	15	67
102	Gala1-3(Fuca1-2)Galb1-3GlcNAcb-Sp8	23	19	83
533	Fuca1-4(Galb1-3)GlcNAcb1-2 Mana-Sp0	23	20	87
167	Galb1-4GlcNAcb1-6(Galb1-3)GalNAc-Sp14	23	9	42
455	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	23	20	91
471	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	22	12	52
156	Galb1-4(6S)Glcb-Sp8	22	19	85
511	(6S)(4S)GalNAcb1-4GlcNAc-Sp8	22	5	25
205	KDNa2-3Galb1-3GlcNAcb-Sp0	22	16	73
228	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	22	12	55
194	GlcNAcb1-6Galb1-4GlcNAcb-Sp8	22	16	74
520	Neu5Aca2-6Galb1-4GlcNAcb1-2Man-Sp0	22	6	29
440	Galb1-6Galb-Sp10	22	13	62
238	Neu5Aca2-3Galb1-3(6S)GlcNAc-Sp8	21	15	72
356	KDNa2-3Galb1-4(Fuca1-3)GlcNAc-Sp0	21	12	54
479	Neu5Aca2-3Galb1-4GlcNAcb1-6GalNAca-Sp14	21	16	73
378	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3GalNAca-Sp14	21	17	80
216	Mana1-6(Mana1-3)Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	21	18	84
379	GalNAcb1-4GlcNAcb1-2Mana1-6(GalNAcb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	21	18	87
127	Galb1-3GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	21	13	61
200	G-ol-Sp8	21	5	24
419	Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	21	25	117
229	Neu5Aca2-8Neu5Aca2-8Neu5Aca-Sp8	21	15	71
176	GlcNAcb1-6(GlcNAcb1-3)GalNAca-Sp8	21	11	53
115	Gala1-3Galb1-4GlcNAcb-Sp8	21	5	25
64	Fuca1-2Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp9	21	13	62
332	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	21	10	47
275	Neu5Aca2-8Neu5Aca-Sp8	21	9	42
436	Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	20	16	79
40	(4S)Galb1-4GlcNAcb-Sp8	20	45	221
325	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	20	7	35
417	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb1-3GalNAc-Sp14	20	7	35
358	KDNa2-3Galb1-4Glc-Sp0	20	6	31
311	GlcNAcb1-4GlcNAcb-Sp12	20	13	65
456	Neu5Aca2-6Galb1-4GlcNAcb1-6(Fuca1-2Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	20	6	31
28	(3S)Galb1-3(Fuca1-4)GlcNAcb-Sp8	20	20	99
321	Neu5Aca2-8Neu5Acb-Sp17	20	11	54
464	Neu5Aca2-6Galb1-4GlcNAcb1-4Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-4(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	20	8	39
412	Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	20	11	56
350	Galb1-4GlcNAcb1-2Mana1-6Manb1-4GlcNAcb1-4GlcNAc-Sp12	19	16	85
284	Neu5Gca2-3Galb1-4Glcb-Sp0	19	7	38
2	Glca-Sp8	19	18	92
187	GlcNAcb1-6(GlcNAcb1-4)GalNAca-Sp8	19	16	83
147	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb-Sp0	19	11	57
217	Manb1-4GlcNAcb-Sp0	19	5	29
145	Galb1-3GalNAcb1-4Galb1-4Glcb-Sp8	19	14	75
392	GalNAcb1-4(Neu5Aca2-3)Galb1-4GlcNAcb1-3GalNAca-Sp14	19	14	71
446	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-4(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	19	10	53
589	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	19	4	21
117	Gala1-3Galb1-4Glc-Sp10	19	20	105
607	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	19	14	75
5	GalNAca-Sp15	19	10	54
308	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	19	13	70
581	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	19	5	26
256	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb-Sp8	19	15	78
249	Neu5Aca2-3Galb1-3GlcNAcb-Sp0	18	13	68
1	Gala-Sp8	18	8	45
478	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana-Sp0	18	4	21

370	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	18	9	47
100	Gala1-2Galb-Sp8	18	15	84
540	GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	18	13	70
33	(3S)Galb1-4(Fuca1-3)GlcNAc-Sp8	18	11	58
568	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	18	12	67
542	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	18	31	170
51	Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp13	18	9	50
548	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	18	5	26
98	GalNAcb1-4GlcNAcb-Sp0	18	4	22
132	Galb1-4GlcNAcb1-6GalNAc-Sp14	18	8	43
221	Fuca1-2Galb1-4(6S)GlcNAcb-Sp8	18	11	60
211	Mana1-2Mana1-6(Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	18	17	95
549	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	18	11	62
70	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	18	12	67
313	Mana1-6Manb-Sp10	17	6	36
493	Galb1-4(Fuca1-3)GlcNAcb1-6(Neu5Aca2-6(Neu5Aca2-3Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	17	11	61
118	Gala1-3Galb-Sp8	17	14	83
136	Neu5Aca2-6(Galb1-3)GalNAca-Sp14	17	5	27
449	Fuca1-2Galb1-4GlcNAcb1-6(Fuca1-2Galb1-4GlcNAcb1-3)GalNAc-Sp14	17	8	45
472	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	17	10	57
504	(3S)GalNAcb1-4(Fuca1-3)GlcNAcb-Sp8	17	9	53
83	GalNAca1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb-Sp0	17	20	119
207	Mana1-2Mana1-2Mana1-3Mana-Sp9	17	7	41
301	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	17	11	65
165	Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp8	17	11	66
234	Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	17	14	87
41	(6P)Mana-Sp8	16	13	77
473	Fuca1-2Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-6(Fuca1-2Galb1-3(Fuca1-4)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	16	3	18
424	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-3GalNAc-Sp14	16	4	23
346	Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	16	16	100
138	Neu5Aca2-6(Galb1-3)GlcNAcb1-4Galb1-4Glcb-Sp10	16	12	71
388	GlcNAcb1-2Mana1-6(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	16	7	44
438	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	16	13	82
316	Mana1-2Mana1-6(Mana1-2Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Mana-Sp9	16	3	20
244	Neu5Aca2-6(Neu5Aca2-3Galb1-3)GalNAca-Sp14	16	5	32
326	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	16	5	31
483	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	16	5	28
71	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb-Sp0	16	11	69
20	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3)GalNAc-Sp14	16	16	101
111	Gala1-3GalNAca-Sp16	16	10	64
190	GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-Sp8	16	20	127
22	6S(3S)Galb1-4(6S)GlcNAcb-Sp0	16	8	50
226	GalNAcb1-4(Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	16	8	49
252	Neu5Aca2-3Galb1-4(Fuca1-3)(6S)GlcNAcb-Sp8	16	9	58
376	Neu5Aca2-3Galb1-4GlcNAcb1-3GalNAc-Sp14	16	19	120
76	Fuca1-2Galb1-4GlcNAcb-Sp8	16	9	58
243	Neu5Aca2-6(Neu5Aca2-3Galb1-3)GalNAca-Sp8	16	6	40
393	GalNAca1-3(Fuca1-2)Galb1-3GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp0	15	28	181
450	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-6(Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-3)GalNAc-Sp14	15	13	82
179	GlcNAcb1-3GalNAca-Sp8	15	10	68
535	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3)Galb1-4GlcNAc-Sp0	15	10	65
36	(3S)Galb1-4GlcNAcb-Sp0	15	15	101
543	Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	15	10	64
270	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	15	4	30
499	Fuca1-2Galb1-4GlcNAcb1-2Mana-Sp0	15	8	55
213	Mana1-6(Mana1-3)Mana-Sp9	15	7	47
231	GalNAcb1-4(Neu5Aca2-3)Galb1-4GlcNAcb-Sp0	15	4	28
347	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6Manb1-4GlcNAcb1-4GlcNAc-Sp12	15	8	50
320	GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	15	6	42
285	Neu5Gca2-6GalNAca-Sp0	15	17	116
84	(3S)Galb1-4(Fuca1-3)Glcb-Sp0	15	5	34
32	(3S)Galb1-4(Fuca1-3)GlcNAc-Sp0	14	7	51
85	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp0	14	13	88
601	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	14	9	66
359	KDNa2-3Galb1-3GalNAca-Sp14	14	20	144
469	Glca1-6Glca1-6Glca1-6Glcb-Sp10	14	7	48
155	Galb1-4(6S)Glcb-Sp0	14	9	64

15	GalNAcb-Sp8	14	6	43
575	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	14	4	31
164	Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	14	11	76
261	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	14	23	165
135	Neu5Aca2-6(Galb1-3)GalNAca-Sp8	14	14	96
248	Fuca1-2(6S)Galb1-4Glcb-Sp0	14	17	122
354	Galb1-3GlcNAcb1-2Mana1-6(Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp22	14	6	45
328	Neu5,9Ac2a2-3Galb1-4GlcNAcb-Sp0	14	10	70
278	Neu5Acb2-6GalNAca-Sp8	14	10	74
199	Glcb1-6Glcb-Sp8	14	8	59
263	Neu5Aca2-3Galb1-4Glcb-Sp0	14	7	49
406	Galb1-3GlcNAcb1-6Galb1-4GlcNAcb-Sp0	14	9	68
101	Gala1-3(Fuca1-2)Galb1-3GlcNAcb-Sp0	14	8	57
447	Galb1-4(Fuca1-3)GlcNAcb1-6GalNAc-Sp14	13	7	50
9	Neu5Aca-Sp8	13	9	64
570	(3S)GlcAb1-3Galb1-4GlcNAcb1-2Mana-Sp0	13	13	100
247	Neu5Aca2-3Galb1-3GlcNAcb1-3Galb1-4GlcNAcb-Sp0	13	10	72
91	GalNAca1-3GalNAcb-Sp8	13	8	63
317	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-3)GalNAca-Sp14	13	12	93
274	Neu5Aca2-6Galb-Sp8	13	20	148
47	(6S)GlcNAcb-Sp8	13	4	30
556	Neu5Gca2-8Neu5Gca2-6Galb1-4GlcNAc-Sp0	13	15	114
160	Galb1-4GlcNAcb1-3GalNAc-Sp14	13	3	25
193	GlcNAcb1-6GalNAca-Sp14	13	6	48
277	Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	13	10	75
259	Neu5Aca2-3Galb1-4GlcNAcb-Sp0	13	8	63
294	Neu5Aca2-3Galb1-3GlcNAcb1-3Galb1-3GlcNAcb-Sp0	13	15	118
429	Galb1-4GlcNAcb1-6(Fuca1-2Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	13	20	151
49	Neu5,9Ac2a2-6Galb1-4GlcNAcb-Sp8	13	7	51
46	Neu5Aca2-3(6S)Galb1-4GlcNAcb-Sp8	13	18	136
245	Neu5Aca2-3Galb-Sp8	13	8	63
482	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	13	11	83
495	Gala1-3Galb1-4GlcNAcb1-6GalNAca-Sp14	13	9	73
373	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	13	14	113
68	Fuca1-2Galb1-3GlcNAcb-Sp8	13	5	41
69	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	13	5	40
25	(3S)Galb1-4Glcb-Sp8	13	16	123
367	Neu5Aca2-6GlcNAcb1-4GlcNAcb1-4GlcNAc-Sp21	13	8	62
402	GalNAca1-3GalNAcb1-3Gala1-4Galb1-4GlcNAcb-Sp0	13	7	57
510	Galb1-3(6S)GlcNAcb-Sp8	13	5	40
79	Fuca1-3GlcNAcb-Sp8	12	17	137
418	GalNAca1-3(Fuca1-2)Galb1-4(Fuca1-3)GlcNAcb1-3GalNAc-Sp14	12	9	71
306	GalNAcb1-3Galb-Sp8	12	8	67
126	Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	12	17	140
610	Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp21	12	7	56
37	(3S)Galb1-4GlcNAcb-Sp8	12	11	89
343	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	12	8	67
48	Neu5,9Ac_2a-Sp8	12	6	51
492	(3S)Galb1-3(Fuca1-4)GlcNAcb-Sp0	12	10	83
512	(6S)GalNAcb1-4GlcNAc-Sp8	12	8	69
557	Neu5Aca2-8Neu5Aca2-3Galb1-4GlcNAc-Sp0	12	6	52
66	Fuca1-2Galb1-3GlcNAcb1-3Galb1-4Glcb-Sp10	12	3	22
382	Galb1-3GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glcb-Sp0	12	5	44
389	Fuca1-2Galb1-3GalNAca1-3(Fuca1-2)Galb1-4Glcb-Sp0	12	6	52
380	Galb1-3GalNAca1-3(Fuca1-2)Galb1-4Glc-Sp0	12	8	69
451	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-6(GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3)GalNAc-Sp14	12	10	87
18	GlcN(Gc)b-Sp8	12	9	79
307	GlcAb1-3GlcNAcb-Sp8	11	14	123
413	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-3GalNAca-Sp14	11	3	29
398	Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	11	4	39
537	Gala1-3(Fuca1-2)Galb1-3GalNAcb1-3Gala1-4Galb1-4Glc-Sp21	11	6	57
465	Neu5Aca2-6Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	11	8	70
38	(3S)Galb-Sp8	11	11	98
596	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	11	14	130
470	Glca1-4Glca1-4Glca1-4Glcb-Sp10	11	4	39
397	GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp12	11	7	68
143	Galb1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp0	11	3	25
219	(3S)Galb1-4(Fuca1-3)(6S)GlcNAcb-Sp8	11	7	62
87	GalNAca1-3(Fuca1-2)Galb1-4Glcb-Sp0	11	4	34
494	Fuca1-2Galb1-4GlcNAcb1-6GalNAca-Sp14	11	4	39

460	Neu5Aca2-3Galb1-4GlcNAcb1-4Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-4(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	11	3	26
422	Fuca1-2Galb1-3GlcNAcb1-3GalNAc-Sp14	11	11	100
171	Galb1-4Glcb-Sp0	11	2	15
604	GlcNAcb1-6(Neu5Aca2-3Galb1-3)GalNAca-Sp14	11	6	60
185	GlcNAcb1-3Galb1-4Glcb-Sp0	11	8	71
128	Galb1-3(Fuca1-4)GlcNAc-Sp0	11	14	128
196	Glca1-4Glca-Sp8	11	5	45
514	GalNAcb1-4(6S)GlcNAc-Sp8	11	12	114
302	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3)Galb1-4GlcNAc-Sp0	11	9	81
553	Neu5Aca2-8Neu5Gca2-3Galb1-4GlcNAc-Sp0	11	12	113
242	Neu5Aca2-3Galb1-3(6S)GalNAca-Sp8	11	7	67
296	4S(3S)Galb1-4GlcNAcb-Sp0	11	7	66
241	Neu5Aca2-3Galb1-4(Neu5Aca2-3Galb1-3)GlcNAcb-Sp8	11	4	42
60	Fuca1-2Galb1-3(Fuca1-4)GlcNAcb-Sp8	10	5	47
459	Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	10	7	63
198	Glcb1-4Glcb-Sp8	10	6	59
31	(3S)Galb1-3GlcNAcb-Sp8	10	6	61
322	Neu5Aca2-8Neu5Aca2-8Neu5Acb-Sp8	10	4	43
486	Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	10	3	26
554	Neu5Gca2-8Neu5Aca2-3Galb1-4GlcNAc-Sp0	10	6	56
175	GlcNAcb1-2Galb1-3GalNAca-Sp8	10	10	94
204	GlcAb1-6Galb-Sp8	10	6	62
114	Gala1-3Galb1-3GlcNAcb-Sp0	10	5	48
567	Galb1-3GlcNAcb1-6(Galb1-3)GalNAc-Sp14	10	6	62
432	GlcNAcb1-2Mana1-6(GlcNAcb1-4)(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	10	4	35
44	(6S)Galb1-4GlcNAcb-Sp8	10	1	9
168	Galb1-4GlcNAcb-Sp0	10	5	54
139	Galb1-3GalNAca-Sp8	10	15	145
489	Gala1-3Galb1-3GlcNAcb1-6GalNAca-Sp14	10	8	81
88	GlcNAcb1-3Galb1-3GalNAca-Sp8	10	3	27
425	Gala1-3Galb1-3GlcNAcb1-3GalNAc-Sp14	10	5	49
12	Galb-Sp8	10	7	72
368	Galb1-4(Fuca1-3)GlcNAcb1-6(Fuca1-2Galb1-4GlcNAcb1-3)Galb1-4Glc-Sp21	10	3	30
55	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	10	8	84
130	Fuca1-4(Galb1-3)GlcNAcb-Sp8	10	3	33
461	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	10	13	131
391	Galb1-3GlcNAcb1-3GalNAca-Sp14	9	10	109
594	GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	9	6	60
184	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	9	7	75
439	Galb1-4Galb-Sp10	9	8	86
181	GlcNAcb1-3Galb-Sp8	9	6	63
57	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp24	9	6	59
169	Galb1-4GlcNAcb-Sp8	9	8	87
124	Gala1-6Glcb-Sp8	9	10	108
595	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3)GalNAca-Sp14	9	8	87
488	Galb1-3GlcNAcb1-6GalNAca-Sp14	9	4	42
29	(3S)Galb1-3GalNAca-Sp8	9	9	96
280	Neu5Gca2-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	9	9	101
16	GlcNAcb-Sp0	9	6	64
152	Galb1-4(Fuca1-3)GlcNAcb-Sp8	9	6	63
415	GalNAca1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp0	9	8	84
110	Gala1-3GalNAca-Sp8	9	11	123
295	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-3GlcNAcb-Sp0	9	4	41
94	GalNAcb1-3GalNAca-Sp8	9	8	90
515	(3S)GalNAcb1-4GlcNAc-Sp8	9	2	18
151	Galb1-4(Fuca1-3)GlcNAcb-Sp0	9	7	77
340	GlcNAca1-4Galb1-3GlcNAcb-Sp0	9	5	59
172	Galb1-4Glcb-Sp8	9	4	45
206	KDNa2-3Galb1-4GlcNAcb-Sp0	9	8	87
93	GalNAca1-4(Fuca1-2)Galb1-4GlcNAcb-Sp8	9	13	146
158	Galb1-4GalNAcb1-3(Fuca1-2)Galb1-4GlcNAcb-Sp8	9	3	37
27	(3S)Galb1-4(6S)Glcb-Sp8	9	5	62
288	Neu5Aca2-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	9	5	58
80	Fuca1-4GlcNAcb-Sp8	9	3	30
149	Galb1-3GlcNAcb-Sp0	9	3	32
374	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-6(Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	9	6	73
146	Galb1-3Galb-Sp8	9	5	53
257	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4GlcNAcb-Sp8	9	2	20
208	Mana1-2Mana1-6(Mana1-2Mana1-3)Mana-Sp9	8	11	132
65	Fuca1-2Galb1-3GlcNAcb1-3Galb1-4Glcb-Sp8	8	3	35

441	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb-Sp8	8	3	37
203	GlcAb1-3Galb-Sp8	8	5	54
276	Neu5Aca2-8Neu5Aca2-3Galb1-4Glcb-Sp0	8	8	99
134	GlcNAcb1-6(Galb1-3)GalNAca-Sp14	8	2	28
236	Neu5Aca2-3GalNAca-Sp8	8	8	95
437	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	8	4	52
411	Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	8	7	81
538	Galb1-3GalNAcb1-3Gal-Sp21	8	6	68
513	(3S)GalNAcb1-4(3S)GlcNAc-Sp8	8	3	37
524	Galb1-3GlcNAcb1-2Mana-Sp0	8	6	73
468	Gala1-3(Fuca1-2)Galb1-3GalNAcb-Sp8	8	4	53
381	Galb1-3GalNAca1-3(Fuca1-2)Galb1-4GlcNAc-Sp0	8	7	84
407	Galb1-3GlcNAca1-6Galb1-4GlcNAcb-Sp0	8	3	42
182	GlcNAcb1-3Galb1-4GlcNAcb-Sp0	8	4	50
303	GlcNAcb1-6(Galb1-4GlcNAcb1-3)Galb1-4GlcNAc-Sp0	8	2	30
81	Fucb1-3GlcNAcb-Sp8	8	3	32
58	Fuca1-2Galb1-3GalNAcb1-3Gala-Sp9	8	5	69
305	Galb1-4GlcNAcb1-6Galb1-4GlcNAcb-Sp0	8	3	33
202	GlcAb-Sp8	8	9	113
480	Neu5Aca2-6Galb1-4GlcNAcb1-6GalNAca-Sp14	8	10	130
174	GlcNAca1-6Galb1-4GlcNAcb-Sp8	8	10	124
95	GalNAcb1-3(Fuca1-2)Galb-Sp8	8	7	94
7	Fuca-Sp9	8	4	45
400	Fuca1-2Galb1-4GlcNAcb1-3GalNAca-Sp14	8	6	80
67	Fuca1-2Galb1-3GlcNAcb-Sp0	8	5	65
34	(3S)Galb1-4(6S)GlcNAcb-Sp0	8	3	41
491	Neu5Aca2-3Galb1-3GlcNAcb1-6GalNAca-Sp14	8	8	106
339	GlcNAca1-4Galb1-4GlcNAcb-Sp0	8	6	81
281	Neu5Gca2-3Galb1-3GlcNAcb-Sp0	8	12	150
561	GlcNAcb1-3Galb1-4GlcNAcb1-6(GlcNAcb1-3Galb1-3)GalNAca-Sp14	8	9	113
8	Rhaa-Sp8	8	8	107
463	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	8	8	104
522	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-2Mana-Sp0	8	10	126
230	Neu5Aca2-3(6S)Galb1-4(Fuca1-3)GlcNAcb-Sp8	8	8	109
52	GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	8	3	38
377	Neu5Aca2-6Galb1-4GlcNAcb1-3GalNAc-Sp14	8	3	43
39	(6S)(4S)Galb1-4GlcNAcb-Sp0	7	3	46
11	Neu5Acb-Sp8	7	5	71
235	Neu5Aca2-6(Neu5Aca2-3)GalNAca-Sp8	7	7	94
224	Neu5Aca2-3Galb1-3GalNAca-Sp14	7	7	94
269	Neu5Aca2-6Galb1-4GlcNAcb-Sp8	7	6	76
266	Neu5Aca2-6GalNAcb1-4GlcNAcb-Sp0	7	18	245
141	Galb1-3GalNAca-Sp16	7	6	78
338	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	7	7	95
14	Manb-Sp8	7	14	186
462	Neu5Aca2-3Galb1-4GlcNAcb1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(Neu5Aca2-3Galb1-4GlcNAcb1-4(Neu5Aca2-3Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	7	6	86
129	Galb1-3(Fuca1-4)GlcNAc-Sp8	7	13	183
75	Fuca1-2Galb1-4GlcNAcb-Sp0	7	7	93
72	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb-Sp8	7	6	88
500	Fuca1-2Galb1-3(6S)GlcNAcb-Sp0	7	14	203
142	Galb1-3GalNAcb-Sp8	7	4	61
78	Fuca1-2Galb-Sp8	7	7	105
186	GlcNAcb1-4-MDPLys	7	8	117
477	Neu5Aca2-6Galb1-4GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glcb-Sp21	7	9	137
518	(6P)Galb1-4GlcNAcb-SP0	7	16	238
113	Gala1-3Galb1-4(Fuca1-3)GlcNAcb-Sp8	7	2	35
507	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	7	6	87
209	Mana1-2Mana1-3Mana-Sp9	7	5	71
312	MurNAcb1-4GlcNAcb-Sp10	7	4	53
119	Gala1-4(Fuca1-2)Galb1-4GlcNAcb-Sp8	7	5	75
77	Fuca1-2Galb1-4Glcb-Sp0	7	6	86
506	GalNAca1-3(Fuca1-2)Galb1-3GlcNAcb1-6GalNAca-Sp14	7	5	79
337	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-6(Neu5Aca2-3Galb1-3)GalNAc-Sp14	7	10	154
341	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4Glcb-Sp0	7	10	146
140	Galb1-3GalNAca-Sp14	7	5	71
92	GalNAca1-3Galb-Sp8	7	6	90
475	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp24	7	9	143
35	(3S)Galb1-4(6S)GlcNAcb-Sp8	6	4	67
63	Fuca1-2Galb1-3GalNAcb1-4(Neu5Aca2-3)Galb1-4Glcb-Sp0	6	3	47
552	Neu5Gca2-8Neu5Gca2-3Galb1-4GlcNAc-Sp0	6	2	27
298	(6P)Glcb-Sp10	6	4	68
237	Neu5Aca2-3GalNAcb1-4GlcNAcb-Sp0	6	4	69

246	Neu5Aca2-3Galb1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp0	6	6	99
183	GlcNAcb1-3Galb1-4GlcNAcb-Sp8	6	17	269
521	Gala1-3Galb1-4GlcNAcb1-2Mana-Sp0	6	14	224
555	Neu5Gca2-8Neu5Gca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAc-Sp0	6	2	37
150	Galb1-3GlcNAcb-Sp8	6	6	100
527	Gala1-3Galb1-3GlcNAcb1-2Mana-Sp0	6	20	328
283	Neu5Gca2-3Galb1-4GlcNAcb-Sp0	6	8	127
107	Gala1-3(Fuca1-2)Galb-Sp8	6	3	48
21	GlcNAcb1-6(GlcNAcb1-4)(GlcNAcb1-3)GlcNAc-Sp8	6	5	81
180	GlcNAcb1-3GalNAca-Sp14	6	9	160
148	Galb1-3GlcNAcb1-3Galb1-4Glcb-Sp10	6	3	45
405	Gala1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	6	3	51
592	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	6	9	151
89	GalNAca1-3(Fuca1-2)Galb-Sp8	6	2	39
502	Neu5Aca2-6GalNAcb1-4(6S)GlcNAcb-Sp8	6	10	185
318	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	6	3	61
108	Gala1-3(Fuca1-2)Galb-Sp18	6	3	51
408	GalNAcb1-3Gala1-6Galb1-4Glcb-Sp8	6	4	77
239	Neu5Aca2-3Galb1-3(Fuca1-4)GlcNAcb-Sp8	5	4	73
222	Fuca1-2(6S)Galb1-4(6S)Glcb-Sp0	5	18	324
106	Gala1-3(Fuca1-2)Galb1-4Glcb-Sp0	5	4	74
593	GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	5	2	38
56	Neu5Aca2-6Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-6Galb1-4GlcNAcb1-2Man-a1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	5	3	58
484	Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAcb-Sp19	5	3	64
487	Neu5Aca2-6Galb1-4GlcNAcb1-6(Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	5	4	79
467	Gala1-3(Fuca1-2)Galb1-3GalNAca-Sp8	5	4	79
430	Fuca1-3GlcNAcb1-6(Galb1-4GlcNAcb1-3)Galb1-4Glc-Sp21	5	5	88
503	GalNAcb1-4(Fuca1-3)(6S)GlcNAcb-Sp8	5	5	88
516	(4S)GalNAcb-Sp10	5	2	46
53	GlcNAcb1-2Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp13	5	8	151
163	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	5	3	59
293	Galb1-4GlcNAcb1-3Galb1-3GlcNAcb-Sp0	5	5	95
519	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-6GalNAc-Sp14	5	10	201
13	Glcb-Sp8	5	9	177
177	GlcNAcb1-6(GlcNAcb1-3)GalNAca-Sp14	5	5	97
387	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-2)Mana1-6(Galb1-4GlcNAcb1-4(Galb1-4GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp21	5	9	171
383	Galb1-4(Fuca1-3)GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	5	4	87
399	Neu5Aca2-3Galb1-3GlcNAcb1-3GalNAca-Sp14	5	6	128
178	GlcNAcb1-6(GlcNAcb1-3)Galb1-4GlcNAcb-Sp8	5	10	217
498	Gala1-3(Fuca1-2)Galb1-4GlcNAcb1-6GalNAca-Sp14	5	6	125
210	Mana1-6(Mana1-2Mana1-3)Mana1-6(Mana1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	5	6	119
546	GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp25	5	7	144
315	Mana1-2Mana1-6(Mana1-3)Mana1-6(Mana1-2Mana1-2Mana1-3)Mana-Sp9	5	8	179
414	GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb1-3GalNAca-Sp14	5	9	200
314	Mana1-6(Mana1-3)Mana1-6(Mana1-3)Manb-Sp10	5	3	57
539	GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	4	11	245
59	Fuca1-2Galb1-3GalNAcb1-3Gala1-4Galb1-4Glcb-Sp9	4	5	119
10	Neu5Aca-Sp11	4	6	147
323	Neu5Gcb2-6Galb1-4GlcNAc-Sp8	4	6	136
90	GalNAca1-3(Fuca1-2)Galb-Sp18	4	4	86
560	Gala1-3Galb1-4GlcNAcb1-2Mana1-6(Gala1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp24	4	29	690
599	Galb1-4GlcNAcb1-3Galb1-3GalNAca-Sp14	4	7	165
195	Glca1-4Glcb-Sp8	4	9	206
603	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-6(Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	4	9	214
267	Neu5Aca2-6Galb1-4(6S)GlcNAcb-Sp8	4	4	91
268	Neu5Aca2-6Galb1-4GlcNAcb-Sp0	4	9	214
600	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	4	5	136
19	Galb1-4GlcNAcb1-6(Galb1-4GlcNAcb1-3)GalNAca-Sp8	4	4	103
62	Fuca1-2Galb1-3GalNAca-Sp14	4	3	73
434	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(GlcNAcb1-4(GlcNAcb1-2)Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	4	5	136
157	Galb1-4GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp8	4	3	81
131	Galb1-4GlcNAcb1-6GalNAca-Sp8	4	4	110
272	Neu5Aca2-6Galb1-4Glcb-Sp0	4	6	160
286	Neu5Gca2-6Galb1-4GlcNAcb-Sp0	4	6	167
435	Galb1-4GlcNAcb1-2Mana1-6(GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	4	4	104
386	Galb1-3GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	4	7	188
433	GlcNAcb1-6(GlcNAcb1-2)Mana1-6(GlcNAcb1-4)(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAc-Sp21	4	6	162
17	GlcNAcb-Sp8	4	5	154
173	GlcNAca1-3Galb1-4GlcNAcb-Sp8	3	6	187
154	Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	3	6	174
265	Neu5Aca2-6GalNAca-Sp8	3	10	297

279	Neu5Acb2-6Galb1-4GlcNAcb-Sp8	3	5	158
218	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	3	8	257
390	Fuca1-2Galb1-3GalNAca1-3(Fuca1-2)Galb1-4GlcNAcb-Sp0	3	2	80
443	(6S)Galb1-3GlcNAcb-Sp0	3	14	504
309	GlcNAcb1-3Man-Sp10	3	6	222
401	Galb1-4(Fuca1-3)GlcNAcb1-3GalNAca-Sp14	3	4	144
112	Gala1-3GalNAcb-Sp8	3	4	152
191	GlcNAcb1-4GlcNAcb1-4GlcNAcb-Sp8	3	6	210
525	Gala1-3(Fuca1-2)Galb1-3GlcNAcb1-6GalNAc-Sp14	3	4	142
569	(3S)GlcAb1-3Galb1-4GlcNAcb1-3Galb1-4Glc-Sp0	3	6	245
566	GlcNAb1-3Galb1-3GalNAc-Sp14	2	5	204
73	Fuca1-2Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	2	3	113
162	Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	2	4	173
54	Galb1-4GlcNAcb1-2Mana1-6(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	2	6	253
329	Neu5,9Ac2a2-3Galb1-3GlcNAcb-Sp0	2	4	228
271	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	2	6	326
250	Neu5Aca2-3Galb1-3GlcNAcb-Sp8	2	6	340
197	Glca1-6Glca1-6Glcb-Sp8	2	4	264
409	Gala1-3(Fuca1-2)Galb1-4(Fuca1-3)Glcb-Sp21	2	2	137
50	Mana1-6(Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp12	2	3	219
214	Mana1-2Mana1-2Mana1-6(Mana1-3)Mana-Sp9	1	5	332
137	Neu5Acb2-6(Galb1-3)GalNAca-Sp8	1	4	303
526	Neu5Aca2-3Galb1-3GlcNAcb1-2Mana-Sp0	1	6	495
529	Neu5Aca2-3Galb1-3GlcNAcb1-4Galb1-4Glcb-Sp0	1	3	235
562	GalNAcb1-3GlcNAcb-Sp0	1	7	657
273	Neu5Aca2-6Galb1-4Glcb-Sp8	1	4	542
421	GlcNAcb1-2(GlcNAcb1-6)Mana1-6(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp19	1	4	576
384	Galb1-4GlcNAcb1-6(Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	1	2	386
30	(3S)Galb1-3GlcNAcb-Sp0	1	8	1397
166	Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp8	0	2	502
292	Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	0	7	2362
189	GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-4GlcNAcb1-Sp8	0	6	2209
297	(6S)Galb1-4(6S)GlcNAcb-Sp0	0	4	2762
3	Mana-Sp8	0	3	2170
232	GalNAcb1-4(Neu5Aca2-3)Galb1-4GlcNAcb-Sp8	0	4	-7445
497	Fuca1-2(6S)Galb1-3GlcNAcb-Sp0	0	10	-5710
120	Gala1-4Galb1-4GlcNAcb-Sp0	0	7	-2298
331	Neu5Aca2-3Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	0	7	-2070
609	GlcNAcb1-3Fuca-Sp21	0	5	-1390
43	(6S)Galb1-4Glcb-Sp8	-1	5	-763
96	GalNAcb1-3Gala1-4Galb1-4GlcNAcb-Sp0	-1	8	-1245
505	Fuca1-2Galb1-3GlcNAcb1-6(Fuca1-2Galb1-3GlcNAcb1-3)GalNAca-Sp14	-1	4	-546
282	Neu5Gca2-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	-1	4	-566
170	Galb1-4GlcNAcb-Sp23	-1	4	-427
597	Neu5Aca2-6Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3GalNAca-Sp14	-1	3	-362
410	Galb1-4GlcNAcb1-6(Neu5Aca2-6Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	-1	10	-970
23	6S(3S)Galb1-4GlcNAcb-Sp0	-1	9	-738
385	Galb1-4(Fuca1-3)GlcNAcb1-6(Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	-1	12	-962
366	Neu5Aca2-6GlcNAcb1-4GlcNAc-Sp21	-2	4	-196
220	Fuca1-2(6S)Galb1-4GlcNAcb-Sp0	-2	12	-540
300	Galb1-3Galb1-4GlcNAcb-Sp8	-2	3	-131
602	Neu5Aca2-6Galb1-4GlcNAcb1-6(Galb1-3)GalNAca-Sp14	-3	7	-249
532	Galb1-4GlcNAcb1-2 Mana1-6(Galb1-4GlcNAcb1-4)(Galb1-4GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	-3	11	-408
517	Galb1-4(6P)GlcNAcb-Sp0	-3	11	-394
536	GalNAca1-3(Fuca1-2)Galb1-3GalNAcb1-3Gala1-4Galb1-4Glc-Sp21	-3	19	-616
530	GlcNAcb1-2 Mana1-6(GlcNAcb1-4)(GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4(Fuca1-6)GlcNAc-Sp21	-3	2	-57
258	Neu5Aca2-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb1-3Galb1-4GlcNAcb-Sp0	-3	6	-195
122	Gala1-4Galb1-4Glcb-Sp0	-4	17	-476
26	(3S)Galb1-4(6S)Glcb-Sp0	-4	8	-185
534	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-2Mana-Sp0	-4	11	-269
528	GalNAcb1-4GlcNAcb1-2Mana-Sp0	-4	6	-139
61	Fuca1-2Galb1-3GalNAca-Sp8	-4	4	-91
452	Neu5Aca2-8Neu5Aca2-3Galb1-3GalNAcb1-4(Neu5Aca2-8Neu5Aca2-3)Galb1-4Glcb-Sp0	-4	6	-145
262	Fuca1-2Galb1-4(6S)Glcb-Sp0	-5	11	-225
264	Neu5Aca2-3Galb1-4Glcb-Sp8	-5	3	-49
133	GlcNAcb1-6(Galb1-3)GalNAca-Sp8	-6	8	-128
255	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb-Sp8	-6	8	-134
105	Gala1-3(Fuca1-2)Galb1-4GlcNAc-Sp0	-7	3	-46
289	Galb1-3GlcNAcb1-3Galb1-3GlcNAcb-Sp0	-7	10	-144
99	GalNAcb1-4GlcNAcb-Sp8	-9	5	-49
304	Galb1-4GlcNAca1-6Galb1-4GlcNAcb-Sp0	-10	7	-69
125	Galb1-2Galb-Sp8	-10	8	-74
260	Neu5Aca2-3Galb1-4GlcNAcb-Sp8	-14	9	-64

Average RFU: indicates the average fluorescent unites from 4 independent determinations
STDv: standard deviation
% CV: variation coeficient