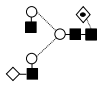
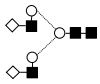
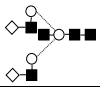
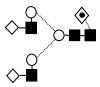
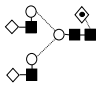
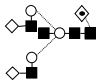
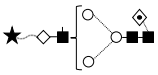
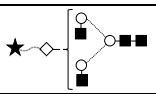
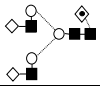
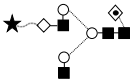
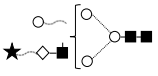
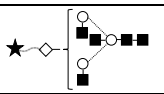
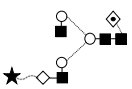
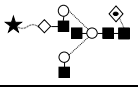
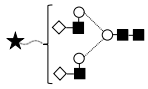
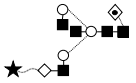
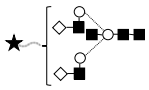
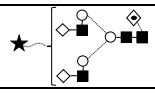
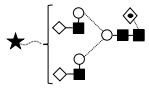
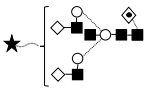
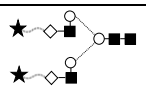
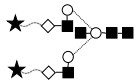
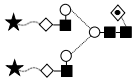
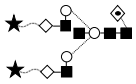
Table S2. Structural characterization of glycans in each chromatographic peak.
Individual glycan peaks were collected and analyzed by both exoglycosidase digestion and MS analysis as described in the *Experimental procedures* section. Arm specificity in monogalactosylated glycans was determined based on previous studies (Omtvedt et al., Arthritis & Rheumatism 54:3433-3440, 2006). Glycan compositions are given in terms of hexose (H), N-acetylhexosamine (N), deoxyhexose (F), and N-acetylneuraminic acid (S). Proton adducts were detected by LC-ESIion trap-MS, except for GP5 where sodium adducts were detected by MALDI-TOF-MS. Raw data with assigned peaks is shown in Supplementary Table 2b.

Glycan peak	Peak composition	*m/z* registered (calculated)	*m/z* characteristic fragment ions (composition)	Structure	Relative abundance (%)
GP1	H3N3F-2AB	690.9 $[690.8]^{2+}$	366.0 (H1N1) 488.1 (N1F1-2AB) 1015.4 (H2N2F1-2AB) 1177.4 (H3N2F1-2AB)	F(6)A1	100
GP2	H3N4-2AB	719.4 $[719.3]^{2+}$	366.1 (H1N1) 869.3 (H2N2-2AB) 1031.4 (H3N2-2AB) 1234.5 (H3N3-2AB)	A2	100
GP3	H3N5-2AB	820.9 $[820.8]^{2+}$	1275.5 (H2N4-2AB) 1437.7 (H3N4-2AB)	A2B	100
GP4	H3N4F1-2AB	792.3 $[792.3]^{2+}$	366.0 (H1N1) 1015.4 (H2N2F1-2AB) 1177.5 (H3N2F1-2AB) 1380.5 (H3N3F1-2AB)	F(6)A2	100
GP5*	H2N5-2AB	1377.4 $[1377.5]^{+}$		M5	63
	H3N4F1-2AB	1605.5 $[1605.6]^{+}$		F(6)A2	37
GP6	H3N5F1-2AB	893.9 $[893.9]^{2+}$	366.1 (H1N1) 1096.3 (H3N3) 1218.4 (H2N3F1-2AB) 1380.5 (H3N3F1-2AB) 1583.6 (H3N4F1-2AB)	F(6)A2B	97
	H4N4-2AB	800.3 $[800.3]^{2+}$	366.0 (H1N1) 869.4 (H2N2-2AB) 1234.4 (H3N3-2AB) 1396.5 (H4N3-2AB)	A2[6]G1	3
GP7	H4N4-2AB	800.3 $[800.3]^{2+}$	366.0 (H1N1) 1031.4 (H3N2-2AB) 1234.4 (H3N3-2AB) 1396.5 (H4N3-2AB)	A2[3]G1	75
	H3N5F1-2AB	893.8 $[893.9]^{2+}$	366.0 (H1N1) 1380.5 (H3N3F1-2AB) 1583.5 Y (H3N4F1-2AB)	F(6)A2B	25
GP8a	H4N5-2AB	901.9 $[901.9]^{2+}$	366.0 (H1N1) 1072.4 (H2N3-2AB) 1234.5 (H3N3-2AB) 1599.6 (H4N5-2AB)	A2BG1	93
	H4N4F1-2AB	873.3 $[873.3]^{2+}$	366.0 (H1N1) 1218.3 (H2N3F1-2AB) 1380.5 (H3N3F1-2AB) 1542.5 (H4N3F1-2AB)	F(6)A2[6]G1	7
GP8b	H4N4F1-2AB	873.4 $[873.3]^{2+}$	366.0 (H1N1) 1177.4 (H3N2F1-2AB) 1380.5 (H3N3F1-2AB) 1542.5 (H4N3F1-2AB)	F(6)A2[6]G1	100

GP9	H4N4F1-2AB	873.4 $[873.3]^{2+}$	366.0 (H1N1) 1177.4 (H3N2F1-2AB) 1380.5 (H3N3F1-2AB) 1542.5 (H4N3F1-2AB)	F(6)A2[3]G1		100
GP10	H4N5F1-2AB	974.9 $[974.9]^{2+}$	366.0 (H1N1) 1380.6 (H3N3F1-2AB) 1583.6 (H3N4F1-2AB) 1745.6 (H4N4F-2AB)	F(6)A2[6]BG1		100
GP11	H4N5F1-2AB	974.9 $[974.9]^{2+}$	366.0 (H1N1) 1380.5 (H3N3F1-2AB) 1583.5 (H4N4F1-2AB) 1745.6 (H4N4F-2AB)	F(6)A2[3]BG1		100
GP12	H5N4-2AB	881.3 $[881.3]^{2+}$	366.0 (H1N1) 1031.4 (H3N2-2AB) 1397.5 (H4N3-2AB)	A2G2		91
	H4N5F1-2AB	974.8 $[974.9]^{2+}$		F(6)A2[3]BG1		9
GP13	H5N5-2AB	982.9 $[982.9]^{2+}$	366.0 (H1N1) 1234.5 (H3N3-2AB) 1599.5 (H4N4-2AB)	A2BG2		87
	H5N4F1-2AB	954.4 $[954.4]^{2+}$	366.0 (H1N1) 1380.5 (H3N3F1-2AB) 1543.5 (H4N3F1-2AB)	F(6)A2G2		13
GP14	H5N4F1-2AB	954.4 $[954.4]^{2+}$	366.0 (H1N19 893.3 (H3N2) 1396.3 (H4N3-2AB) 1542.5 (H4N3F1-2AB)	F(6)A2G2		100
GP15	H5N5F1-2AB	1055.9 $[1055.9]^{2+}$	366.0 (H1N1) 1380.5 (H3N3F1-2AB) 1745.6 (H4N4F1-2AB)	F(6)A2BG2		83
	H4N3F1S1-2AB	917.3 $[917.3]^{2+}$	366.0 (H1N1) 657.2 (H1N1S1) 1015.3 (H2N2F1-2AB) 1177.4 (H3N2F1-2AB)	F(6)A1G1S1		8
	H4N4S1-2AB	945.8 $[954.4]^{2+}$	657.2 (H1N1S1) 1031.3 (H3N2-2AB) 1234.5 (H3N3-2AB)	A2G1S1		5
	H5N4F1-2AB	954.3 $[945.6]^{2+}$	1177.3 (H3N2F1-2AB) 1381.2 (H3N3F1-2AB) 1542.5 (H4N3F1-2AB)	F(6)A2G2		4
GP16a	H4N4F1S1-2AB	1018.9 $[1018.9]^{2+}$	657.2 (H1N1S1) 1177.4 (H3N2F1-2AB) 1380.5 (H3N3F1-2AB) 1833.6 (H4N3F1S1-2AB)	F(6)A2[6]G1S1		63
	H5N3S1-2AB	925.4 $[925.3]^{2+}$	657.2 (H1N1S1) 852.3 (H4N1) 1031.4 (H3N2-2AB) 1193.4 (H4N2-2AB)	M4A1G1S1		25
	H4N5S1-2AB	1047.4 $[1047.4]^{2+}$	657.2 (H1N1S1) 1072.4 (H2N3-2AB) 1275.6 (H2N4-2AB)	A2BG1S1		13
GP16b	H4N4F1S1-2AB	1018.9 $[1018.9]^{2+}$	657.2 (H1N1S1) 819.3 (H2N1S1) 1177.4 (H3N2F1-2AB) 1380.5 (H3N3F1-2AB) 1833.7 (H4N3F1S1-2AB)	F(6)A2[3]G1S1		91
	H4N5F1S1-2AB	747.3 $[747.3]^{3+}$	657.2 (H1N1S1) 730.8 (H4N4) 1380.5 (H3N3F1-2AB)	F(6)A2[6]BG1S1		9

GP17	H5N4S1-2AB	1026.9 $[1026.9]^{2+}$	657.2 (H1N1S1) 869.3 (H2N2-2AB) 1234.5 (H3N3-2AB) 1396.5 (H4N3-2AB) 1687.5 (H4N3S1-2AB)	A2G2S1		89
	H4N5F1S1-2AB	747.3 $[747.3]^{3+}$	657.2 (H1N1S1) 1218.5 (H2N3F1-2AB) 1380.5 (H3N3F1-2AB)	F(6)A2[3]BG1S1		11
GP18a	H5N5S1-2AB	1128.4 $[1128.4]^{2+}$	657.2 (H1N1S1) 1072.4 (H2N3-2AB) 1234.5 (H3N3-2AB) 1599.5 (H4N5-2AB) 1890.6 (H4N4S1-2AB)	A2BG2S1		91
	H5N4F1S1-2AB	1099.9 $[1099.9]^{2+}$		F(6)A2G2S1		9
GP18b	H5N4F1S1-2AB	1099.9 $[1099.9]^{2+}$	657.2 (H1N1S1) 1015.4 (H2N2F1-2AB) 1542.5 (H4N3F1-2AB) 1833.6 (H4N3F1S1-2AB)	F(6)A2G2S1		100
GP19	H5N5F1S1-2AB	1201.4 $[1201.5]^{2+}$	657.3 (H1N1S1) 1218.5 (H2N3F1-2AB) 1380.5 (H3N3F1-2AB) 1745.6 (H4N4F1-2AB) 2036.7 (H4N4F1S1-2AB)	F(6)A2BG2S1		100
GP20	n.d.					
GP21	H5N4S2-2AB	1172.4 $[1172.4]^{2+}$	657.2 (H1N1S1) 1031.4 (H3N2-2AB) 1687.6 (H4N3S1-2AB)	A2G2S2		100
GP22	H5N5S2-2AB	849.8 $[849.8]^{3+}$	657.2 (H1N1S1) 1234.5 (H3N3-2AB) 1599.4 (H4N5-2AB)	A2BG2S2		100
GP23	H5N4F1S2-2AB	830.8 $[830.6]^{3+}$	657.2 (H1N1S1) 1177.4 (H3N2F1-2AB) 1542.5 (H4N3F1-2AB)	F(6)A2G2S2		100
GP24	H5N5F1S2-2AB	898.4 $[898.3]^{3+}$	657.2 (H1N1S1) 1218.5 (H2N3F1-2AB) 1671.7 (H3N3F1S1-2AB) 2036.7 (H4N4F1S1-2AB)	F(6)A2BG2S2		100

Structural schemes are given in terms of N-acetylglucosamine (square), mannose (circle), fucose (rhomb with a dot), galactose (rhomb) and sialic acid (star).