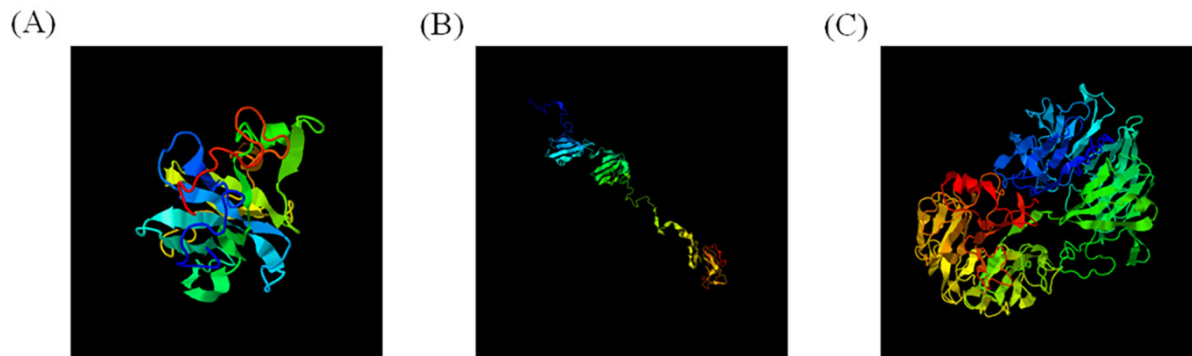


1 **Supplementary files**

2



3

4 **Figure S1.** Predicted three-dimensional structure of BPL2. The structure was determined by protein
5 sequence similarity analysis using the I-TASSER program ([https://zhanglab.ccmb.med.umich.edu/I-](https://zhanglab.ccmb.med.umich.edu/I-TASSER/)
6 TASSER/) with normal parameters; a higher C score indicates a model with a higher confidence. (A)
7 Native BPL2, C score = -2.64 . (B) rD2BPL2, C score = -2.86 . (C) rD4BPL2.

8 **Table S1.** Glycan microarray of native BPL2, with binding signals normalized using a program provided by RayBioTech

Substrate	Glycan structure	Normalized RFU	
		Mean	SD
POS1	–	5687	0
NEG	-	370	25
G0001	β-Glc-Sp	1785	853
G0002	β-Gal-Sp	1708	519
G0003	α-Man-Sp	1794	461
G0004	α-Fuc-Sp	270	17
G0005	α-Rha-Sp	227	46
G0006	β-GlcNAc-Sp	814	201
G0007	β-GalNAc-Sp	616	120
G0008	Tobramycin	823	189
G0009	Gal-β-1,3-GlcNAc-β-Sp	363	71
G0010	Gal-α-1,3-Gal-β-1,3-GlcNAc-β-Sp	212	57
G0011	Neu5Ac-α-2,3-Gal-β-1,3-GlcNAc-β-Sp	452	125
G0012	Neu5Ac-α-2,6-Gal-β-1,3-GlcNAc-β-Sp	409	117
G0013	Neu5Gc-α-2,3-Gal-β-1,3-GlcNAc-β-Sp	381	78
G0014	Neu5Gc-α-2,6-Gal-β-1,3-GlcNAc-β-Sp	422	115
G0015	Gal-β-1,3-(Fuc-α-1,4)-GlcNAc-β-[Lewis A]-Sp	394	35
G0016	Gal-β-1,4-Glc-β-Sp	905	162
G0017	Gal-α-1,3-Gal-β-1,4-Glc-β-Sp	251	95
G0018	Gal-α-1,4-Gal-β-1,4-Glc-β-Sp	846	205
G0019	GlcNAc-β-1,3-Gal-β-1,4-Glc-β-Sp	519	72
G0020	GalNAc-β-1,3-Gal-β-1,4-Glc-β-Sp	731	272
G0021	Neu5Ac-α-2,3-Gal-β-1,4-Glc-β-Sp	198	28

G0022	Neu5Ac- α -2,6-Gal- β -1,4-Glc- β -Sp	439	129
G0023	Neu5Gc- α -2,3-Gal- β -1,4-Glc- β -Sp	425	175
G0024	Neu5Ac- α -2,6-Gal- β -1,4-Glc- β -Sp	484	183
G0025	Gal- β -1,4-(Fuc- α -1,3)-Glc- β -Sp	498	37
G0026	GalNAc- β -1,3-Gal- α -1,4-Gal- β -1,4-Glc- β -Sp	146	12
G0027	GlcNAc- β -1,6-GlcNAc- β -Sp	432	11
G0028	4-P-GlcNAc-b-1,4-Man-b-Sp	350	27
G0029	Glc- α -1,2-Gal- α -1,3-Glc- α -Sp	359	121
G0030	Gal- β -1,3-GalNAc- α -Sp	295	53
G0031	Gal- β -1,4-GlcNAc- β -Sp	562	149
G0032	Gal- β -1,4-(Fuc- α -1,3)-GlcNAc- β -[Lewis X]-Sp	449	152
G0033	Neu5Ac- α -2,3-Gal- β -1,4-(Fuc- α -1,3)-GlcNAc- β -[sialyl Lewis X]-Sp	329	63
G0034	Neu5Ac- α -2,3-Gal- β -1,3-(Fuc- α -1,4)-GlcNAc- β -[sialyl Lewis A]-Sp	202	93
G0035	Neu5Gc- α -2,3-Gal- β -1,3-(Fuc- α -1,4)-GlcNAc- β -[sialyl Lewis A]-Sp	156	34
G0036	Gal- α -1,4-Gal- β -1,3-GlcNAc- β -Sp	299	61
G0037	Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc- β -[LNnT]-Sp	254	68
G0038	GlcA- β -1,4-GlcNAc- α -1,4-GlcA- β -Sp	192	66
G0039	GlcNAc- β -1,6-(Gal- β -1,3)-GalNAc- α -O-Ser-Sp4	15	6
G0040	Neu5Ac- α -2,3Gal- β -1,4-(6S)GlcNAc- β -Sp	331	43
G0041	GalNAc- β -1,4-GlcNAc- β -Sp2	379	41
G0042	Neu5Ac- α -2,8-Neu5Ac- α -2,3-Gal β -1,4-Glc- β -Sp	85	23
G0043	Neu5Gc- α -2,8-Neu5Ac- α -2,3-Gal- β -1,4-Glc- β -Sp	219	48
G0044	GalNAc- α -1,3-(Fuc- α -1,2)-Gal- β -1,4-Glc- β -[blood A antigen tetrose]-Sp1	114	1
G0045	GlcNAc- β -1,2-Man- α -Sp	146	2
G0046	Neu5Ac- α -2,3-Gal- β -Sp1	215	22
G0047	Gal- β -1,3-GalNAc- β -1,3-Gal- β -Sp1	102	25
G0048	Glc- α -1,2-Gal- α -Sp	767	172

G0049	Gal- β -1,4-(Fuc- α -1,3)-GlcNAc- β -1,3-Gal- β -Sp1	281	29
G0050	Neu5Ac- α -2,3-Gal- β -1,4-(Fuc- α -1,3)-Glc- β -[3-sialyl-3-fucosyllactose/F-SL]-Sp1	173	70
G0051	GlcNAc- β -1,4-GlcNAc- β -Sp1	410	142
G0052	β -D-GlcA-Sp	736	276
G0053	Gal- β -1,4-(6S)GlnAc- β -Sp	424	94
G0054	GlcNAc- α -1,3-(Glc- α -1,2-Glc- α -1,2)-Gal- α -1,3-Glc- α -Sp	124	53
G0055	Gal- β -1,3-GalNAc- β -1,4-(Neu5Gc- α -2,3)-Gal- β -1,4-Glc- β -Sp1	173	16
G0056	Sisomicin sulfate	1652	370
G0057	GalNAc- α -1,3-(Fuc- α -1,2)-Gal- β -[blood A antigen trisaccharide]-Sp1	524	88
G0058	Fuc- α -1,2-Gal- β -1,4-GlcNAc- β -[blood H antigen trisaccharide]-Sp1	295	77
G0059	Gal- α -1,3-(Fuc- α -1,2)-Gal- β -[blood B antigen trisaccharide]-Sp1	364	91
G0060	Fuc- α -1,2-Gal- β -1,3-GlcNAc- β -1,3-Gal- β -1,4-Glc- β [LNFP I]-Sp1	597	151
G0061	Fuc- α -1,2-Gal- β -1,4-Glc- β -[blood H antigen trisaccharide]-Sp1	282	58
G0062	Gal- α -1,3-(Fuc- α -1,2)-Gal- β -1,4-Glc- β -[blood B antigen tetrasaccharide]-Sp1	189	30
G0063	(Fuc- α -1,2)-Gal- β -1,4-(Fuc- α -1,3)-GlcNAc- β -[Lewis Y]-Sp1	288	60
G0064	(Fuc- α -1,2)-Gal- β -1,3-(Fuc- α -1,4)-GlcNAc- β -[Lewis B]-Sp1	137	8
G0065	Gal- β -1,3-(Fuc- α -1,4)-GlcNAc- β -1,3-Gal- β -1,4-(Fuc- α -1,4)-Glc- β -[Lewis A]-Sp1	160	33
G0066	Gal- β -1,3-GalNAc- β -Sp1	109	16
G0067	Gal- β -1,3-(Neu5Ac- α -2,6)-GalNAc- β -Sp	308	31
G0068	Neu5Ac- α -2,6-Gal- β -1,3-GalNAc- β -Sp	444	105
G0069	Neu5Ac- α -2,6-Gal- β -1,3-(Neu5Ac- α -2,6)-GalNAc- β -Sp	302	84
G0070	Neu5Ac- α -2,3-Gal- β -1,3-(Neu5Ac- α -2,6)-GalNAc- β -Sp	237	29
G0071	Neu5Ac- α -2,6-(Neu5Ac- α -2,3)-Gal- β -1,3-GalNAc- β -Sp	286	93
G0072	GalNAc- β -1,4-(Neu5Ac- α -2,3)-Gal- β -1,4-Glc- β -[GM2]-Sp	315	18
G0073	GalNAc- β -1,4-(Neu5Ac- α -2,8-Neu5Ac- α -2,3)-Gal- β -1,4-Glc- β -[GD2]-Sp	16	1
G0074	Gal- α -1,4-Gal- β -1,4-GlcNAc- β -Sp1	330	46
G0075	β -D-Rha-Sp	409	106

G0076	Glc- α -1,4-Glc- β -Sp1	1033	111
G0077	Glc- α -1,6-Glc- α -1,4-Glc- β -Sp1	522	187
G0078	Maltotriose- β -Sp1	657	144
G0079	Glc- α -1,6-Glc- α -1,6-Glc- β -Sp1	628	121
G0080	Maltotetraose- β -Sp1	1227	119
G0081	GlcNAc- α -1,4-GlcA- β -1,4-GlcNAc- α 1,4-GlcA- β -Sp	139	32
G0082	Maltohexaose- β -Sp1	8432	100
G0083	Maltoheptaose- β -Sp1	10,095	285
G0084	Acarbose- β -Sp1	570	83
G0085	D-Pentamannuronic acid- β -Sp1	447	81
G0086	L-Pentaguluronic acid- β -Sp1	610	205
G0087	D-Cellose- β -Sp1	929	280
G0088	Gal- α -1,3-Gal- β -Sp1	690	42
G0089	β -1,4-Xylotetrose-Sp1	262	46
G0090	Chitin-trisaccharide-Sp1	304	58
G0091	KDN- α -2,8-Neu5Ac- α -2,3-Gal- β -1,4-Glc- β -Sp	55	4
G0092	Neu5Ac- α -2,8-Neu5Gc- α -2,3-Gal- β -1,4-Glc- β -Sp	183	72
G0093	Neu5Ac- α -2,8-Neu5Ac- α -2,8-Neu5Ac- α -2,3-Gal- β -1,4-Glc- β -Sp3	64	10
G0094	Neu5Ac-a-2,8-Neu5Ac-a-2,6-Gal-b-1,4-Glc-Sp5	14	6
G0095	Gal- β -1,3-GalNAc- β -1,4-(Neu5Ac- α -2,3)-Gal- β -1,4-Glc- β -Sp1	157	30
G0096	Gentamicin sulfate	401	48
G0097	Kanamycin sulfate	773	201
G0098	Geneticin disulfate salt (G418)	156	4
G0099	Neomycin trisulfate	1094	305
G0100	SGP	184	57
N010	Man- α -1,6-(Man- α -1,3-)Man- α -1,6-(GlcNAc- β -1,2-Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	145	38
N011	Man- α -1,6-(Man- α -1,3-)Man- α -1,6-(Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	106	13

N012	Man- α -1,6-(Man- α -1,3-)Man- α -1,6-(Neu5Ac- α -2,3-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	86	13
N013	Man- α -1,6-(Man- α -1,3-)Man- α -1,6-(Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	95	16
N014	Man- α -1,6-(Man- α -1,3-)Man- α -1,6-[Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,2-Man- α -1,3-]Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	120	10
N015	Man- α -1,6-(Man- α -1,3-)Man- α -1,6-[Neu5Ac- α -2,3-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,2-Man- α -1,3-]Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	117	5
N020	GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	208	23
N021	Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	144	12
N022	Neu5Ac- α -2,3-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	106	25
N023	Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	127	16
N024	Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	113	3
N025	Neu5Ac- α -2,3-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	86	9
N026	Gal- α -1,3-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	109	12
N022G	Neu5Gc- α -2,3-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	97	5
N023G	Neu5Gc- α -2,6-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	160	5
N025G	Neu5Gc- α -2,3-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	92	10
N030	Man- α -1,6-(GlcNAc- β -1,2-Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	170	8
N210	GlcNAc- β -1,2-Man- α -1,6-[GlcNAc(3Ac)- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	105	15
N040	GlcNAc- β -1,2-Man- α -1,6-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	132	14
N041	Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	212	26
N042	Neu5Ac- α -2,3-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	126	13
N043	Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	132	1
N044	Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	163	19
N045	Neu5Ac- α -2,3-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,2-Man- α -1,3-Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	156	10
N050	GlcNAc- β -1,2-Man- α -1,6-(Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	324	59
N051	Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,6-(Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	287	38
N052	Neu5Ac- α -2,3-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,6-(Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp5	155	10
N053	Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,2-Man- α -1,6-(Man- α -1,3-)Man- β -1,4-GlcNAc- β -1,4-GlcNAc-Sp	149	41

N054	Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,2-Man-α-1,6-(Man-α-1,3-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-Sp5	225	16
N055	Neu5Ac-α-2,3-Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,2-Man-α-1,6-(Man-α-1,3-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-Sp5	133	19
TE001	Neu5Ac-α-2,6-Gal-β-1,4-GlcNAc-Man-α-1,3-(Neu5Ac-α-2,6-Gal-β-1,4-GlcNAc-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	14	0
TE002	Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	6	2
TE003	Neu5Gc-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Gc-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	12	3
TE004	Neu5Ac-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Ac-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	34	4
TE005	Neu5Gc-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Gc-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	37	11
TE006	Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,3-[Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,6-]Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	12	3
TE007	Gal-α-1,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Gal-α-1,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	8	1
TE008	Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,3-[Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,6-]Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	15	5
TE009	Neu5Ac-α-2,8-Neu5Ac-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Ac-α-2,8-Neu5Ac-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	4	4
TE010	Neu5Gc-α-2,8-Neu5Ac-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Gc-α-2,8-Neu5Ac-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	9	0
TE011	Neu5Ac-α-2,8-Neu5Gc-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Ac-α-2,8-Neu5Gc-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	8	2
TE012	Neu5Gc-α-2,8-Neu5Gc-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Gc-α-2,8-Neu5Gc-α-2,6-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	32	4
TE013	Neu5Ac-α-2,8-Neu5Ac-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Ac-α-2,8-Neu5Ac-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	11	2
TE014	Neu5Gc-α-2,8-Neu5Ac-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Gc-α-2,8-Neu5Ac-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	9	7
TE015	Neu5Ac-α-2,8-Neu5Gc-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Ac-α-2,8-Neu5Gc-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	1	0
TE016	Neu5Gc-α-2,8-Neu5Gc-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,3-(Neu5Gc-α-2,8-Neu5Gc-α-2,3-Gal-β-1,4-GlcNAc-β-1,2-Man-α-1,6-)Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	3	0
TE017	Neu5Ac-α-2,3-Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,3-[Neu5Ac-α-2,3-Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,6-]Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	9	1
TE018	Neu5Gc-α-2,3-Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,3-[Neu5Gc-α-2,3-Gal-β-1,4-(Fucα-1,3-)GlcNAc-β-1,2-Man-α-1,6-]Man-β-1,4-GlcNAc-β-1,4-GlcNAc-β-Asn	2	1

H0103	Neu5Gc- α -2,6-Gal- β -1,4-GlcNAc- β -1,3-(Neu5Gc- α -2,6-Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	87	5
H0105	Fuc- α -1,2-Gal- β -1,4-GlcNAc- β -1,3-(Fuc- α -1,2-Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	85	5
H0106	Fuc- α -1,2-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-[Fuc- α -1,2-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,6-]Gal- β -1,4-Glc-Sp5	69	6
H0200	Gal- β -1,4-GlcNAc- β -1,3-(GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	98	27
H0201	Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,3-(GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	109	15
H0202	Neu5Gc- α -2,6-Gal- β -1,4-GlcNAc- β -1,3-(GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	125	15
H0203	Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-(GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	91	16
H0204	Fuc- α -1,2-Gal- β -1,4-GlcNAc- β -1,3-(GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	97	2
H0205	Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,3-(Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	90	1
H0207	Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-(Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	112	23
H0208	Fuc- α -1,2-Gal- β -1,4-GlcNAc- β -1,3-(Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	144	5
H0209	Fuc- α -1,2-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-(GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	131	13
H0210	Fuc- α -1,2-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-[Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,6-]Gal- β -1,4-Glc-Sp5	148	3
H0300	GlcNAc- β -1,3-(Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	124	13
H0301	GlcNAc- β -1,3-(Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	104	11
H0303	GlcNAc- β -1,3-[Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,6-]Gal- β -1,4-Glc-Sp5	100	3
H0304	Fuc- α -1,2-GlcNAc- β -1,3-(Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	100	9
H0305	Gal- β -1,4-GlcNAc- β -1,3-(Neu5Ac- α -2,6-Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	70	2
H0306	Gal- β -1,4-GlcNAc- β -1,3-(Neu5Gc- α -2,6-Gal- β -1,4-GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	71	15
H0307	Gal- β -1,4-GlcNAc- β -1,3-[Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,6-]Gal- β -1,4-Glc-Sp5	104	15
H0400	Gal- β -1,4-Glc-Sp	879	178
H0402	GalNAc- β -1,3-Gal- β -1,4-Glc-Sp	204	2
H0403	Neu5Ac- α -2,3-Gal- β -1,4-Glc-Sp	404	11
H0404	Neu5Gc- α -2,3-Gal- β -1,4-Glc-Sp	316	23
H0405	Neu5Ac- α -2,6-Gal- β -1,4-Glc-Sp	335	43
H0406	Neu5Gc- α -2,6-Gal- β -1,4-Glc-Sp	365	64
H0407	Gal- α -1,3-Gal- β -1,4-Glc-Sp	246	8

H0408	Neu5Ac- α -2,8-Neu5Ac- α -2,3-Gal- β -1,4-Glc-Sp	47	12
H0409	Neu5Ac- α -2,8-Neu5Ac- α -2,6-Gal- β -1,4-Glc-Sp	109	22
H0410	Neu5Ac- α -2,3-Gal- α -1,3-Gal- β -1,4-Glc-Sp	195	16
H0411	Neu5Ac- α -2,6-Gal- α -1,3-Gal- β -1,4-Glc-Sp	239	43
H0500	Gal- α -1,4-Gal- β -1,4-Glc-Sp5	210	2
H0503	GalNAc- β -1,3-Gal- α -1,4-Gal- β -1,4-Glc-Sp5	128	20
H0504	Gal- β -1,3-GalNAc- β -1,3-Gal- α -1,4-Gal- β -1,4-Glc-Sp5	95	5
H0505	Fuc- α -1,2-Gal- β -1,3-GalNAc- β -1,3-Gal- α -1,4-Gal- β -1,4-Glc-Sp5	78	2
H0600	Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	99	22
H0601	Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	153	19
H0602	Fuc- α -1,2-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	127	13
H0603	GlcNAc- β -1,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	133	10
H0604	Neu5Ac- α -2,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	105	14
H0606	Gal- β -1,4-GlcNAc- β -1,3-(Neu5Ac- α -2,6-)Gal- β -1,4-Glc-Sp5	131	19
H0608	Fuc- α -1,2-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	151	1
H0609	Neu5Ac- α -2,3-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	146	11
H0610	GlcNAc- β -1,3-Gal- β -1,4-(Fuc- α -1,3-)GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	263	5
H0700	Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	90	7
H0701	GlcNAc- β -1,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	140	13
H0800	Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	90	0
H0900	Gal- β -1,3-GlcNAc- β -1,3-(GlcNAc- β -1,6-)Gal- β -1,4-Glc-Sp5	199	1
L1001	Neu5Ac- α -2,3-Gal- β -1,4-Glc-Sp5	83	10
L1002	Neu5Gc- α -2,3-Gal- β -1,4-Glc-Sp5	126	11
L1003	Kdn- α -2,3-Gal- β -1,4-Glc-Sp5	126	4
L1011	Neu5Ac- α -2,3-(GalNAc-b-1,4-)Gal-b-1,4-Glc-Sp5	48	8
L1012	Neu5Gc- α -2,3-(GalNAc-b-1,4-)Gal-b-1,4-Glc-Sp5	68	10
L1013	Kdn- α -2,3-(GalNAc-b-1,4-)Gal-b-1,4-Glc-Sp5	55	14

L1021	Neu5Ac-a-2,3-(Gal-b-1,3-GalNAc-b-1,4-)Gal-b-1,4-Glc-Sp5	50	7
L1022	Neu5Gc-a-2,3-(Gal-b-1,3-GalNAc-b-1,4-)Gal-b-1,4-Glc-Sp5	79	7
L1023	Kdn-a-2,3-(Gal-b-1,3-GalNAc-b-1,4-)Gal-b-1,4-Glc-Sp5	154	7
L1201	Neu5Ac- α -2,8-Neu5Ac- α -2,3-Gal- β -1,4-Glc-Sp5	58	13
L1202	Neu5Gc- α -2,8-Neu5Ac- α -2,3-Gal- β -1,4-Glc-Sp5	88	2
L1203	Kdn- α -2,8-Neu5Ac- α -2,3-Gal- β -1,4-Glc-Sp5	77	17
L1204	Neu5Ac- α -2,8-Neu5Gc- α -2,3-Gal- β -1,4-Glc-Sp5	47	9
L1205	Neu5Gc- α -2,8-Neu5Gc- α -2,3-Gal- β -1,4-Glc-Sp5	43	1
L1206	Kdn- α -2,8-Neu5Gc- α -2,3-Gal- β -1,4-Glc-Sp5	25	13
L1207	Neu5Ac- α -2,8-Kdn- α -2,3-Gal- β -1,4-Glc-Sp5	35	4
L1209	Kdn- α -2,8-Kdn- α -2,3-Gal- β -1,4-Glc-Sp5	54	3
L1211	Neu5Ac- α -2,8-Neu5Ac- α -2,3-(GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	20	7
L1212	Neu5Gc- α -2,8-Neu5Ac- α -2,3-(GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	23	4
L1213	Kdn- α -2,8-Neu5Ac- α -2,3-(GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	28	2
L1214	Neu5Ac- α -2,8-Neu5Gc- α -2,3-(GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	25	12
L1215	Neu5Gc- α -2,8-Neu5Gc- α -2,3-(GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	22	1
L1216	Kdn- α -2,8-Neu5Gc- α -2,3-(GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	21	10
L1221	Neu5Ac- α -2,8-Neu5Ac- α -2,3-(Gal-b-1,3-GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	17	3
L1222	Neu5Gc- α -2,8-Neu5Ac- α -2,3-(Gal-b-1,3-GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	33	3
L1225	Neu5Gc- α -2,8-Neu5Gc- α -2,3-(Gal-b-1,3-GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	45	3
L1226	Kdn- α -2,8-Neu5Gc- α -2,3-(Gal-b-1,3-GalNAc-b-1,4-)Gal- β -1,4-Glc-Sp5	66	9
L2000	GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	398	6
L2100	Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	121	12
L2101	Gal-a-1,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	90	8
L2102	Gal-a-1,4-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	120	18
L2111	Neu5Ac-a-2,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	84	4
L2112	Neu5Gc-a-2,3-Gal- β -1,4-GlcNAc- β -1,3-Gal- β -1,4-Glc-Sp5	20	1

L2113	Kdn-a-2,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	62	5
L2121	Neu5Ac-a-2,8-Neu5Ac-a-2,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	20	15
L2122	Neu5Gc-a-2,8-Neu5Ac-a-2,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	59	9
L2103	Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	105	30
L2104	Gal-a-1,3-Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	119	0
L2131	Neu5Ac-a-2,3-Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	97	12
L2132	Neu5Gc-a-2,3-Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	76	1
L2133	Kdn-a-2,3-Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	92	1
L2191		86	20
L2192		64	7
L2200	GlcNAc-β-1,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	96	9
L2300	Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	75	5
L2301	Gal-a-1,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	63	0
L2302	Gal-a-1,4-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	69	10
L2311	Neu5Ac-a-2,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	50	7
L2312	Neu5Gc-a-2,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	69	6
L2303	Gal-β-1,4-GlcNAc-β-1,3-Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	68	4
L2304	Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-(Fuc-α-1,3-)GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	74	7
L2391		70	4
L2392		76	5
L2900	Gal-β-1,3-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	282	29
L2911	Neu5Ac-a-2,3-Gal-β-1,3-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	116	9
L2912	Neu5Gc-a-2,3-Gal-β-1,3-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	120	25
L2913	Kdn-a-2,3-Gal-β-1,3-GlcNAc-β-1,3-Gal-β-1,4-Glc-Sp5	104	15
L3100	Gal-α-1,4-Gal-β-1,4-Glc-Sp5	113	4
L3101	GalNAc-β-1,3-Gal-α-1,4-Gal-β-1,4-Glc-Sp5	78	18
L3102	Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,4-Gal-β-1,4-Glc-Sp5	87	29

L3111	Neu5Ac-a-2,3-Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,4-Gal-β-1,4-Glc-Sp5	44	12
L3112	Neu5Gc-a-2,3-Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,4-Gal-β-1,4-Glc-Sp5	55	2
L3113	Kdn-a-2,3-Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,4-Gal-β-1,4-Glc-Sp5	75	8
L3103		84	4
L3200	Gal-α-1,3-Gal-β-1,4-Glc-Sp5	111	2
L3201	GalNAc-β-1,3-Gal-α-1,3-Gal-β-1,4-Glc-Sp5	79	10
L3202	Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,3-Gal-β-1,4-Glc-Sp5	70	13
L3211	Neu5Ac-a-2,3-Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,3-Gal-β-1,4-Glc-Sp5	65	5
L3212	Neu5Gc-a-2,3-Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,3-Gal-β-1,4-Glc-Sp5	67	9
L3213	Kdn-a-2,3-Gal-β-1,3-GalNAc-β-1,3-Gal-α-1,3-Gal-β-1,4-Glc-Sp5	71	3
