Yu et al, Supplemental Data

Supplemental figure and table legends

*Figure S1. GST-fusion VP8*RV3 binding to defined CFG glycan array.* The GST-VP8*RV3 was screened on the CFG 5.0 array at: **A.** 20 µg/ml, **B.** 2 µg/ml and **C.** 0.2 µg/ml. A total of 611 glycans are present on the version 5.0 CFG array.

Figure S2. Flow chart for isolation of human milk glycans and preparation of the human milk shotgun glycan microarray 2 (HM-SGM-v2).

Figure S3. MALDI-TOF spectra and reverse-phase HPLC profile of 32 glycans selected for detailed structure analysis. HPLC profiles were obtained using a hypercarb column connected to a fluorescence detector (Excitation/Emission=330/420 nm). The MALDI-TOF spectra were recorded using reflective positive modes and generated by the software Flexanalysis 3.0 provided with the Bruker UltraFlex II. The MS spectra for each of the glycans were selected to demonstrate only the major molecular ions in each fraction. If the m/z scale is expanded, the isotopic envelope of the molecular ions as well as various adducts can be observed.

Figure S4. Structures of 14 control glycans on the RV-MAGS subarray.

Figure S5. Screening of anti-Le^x and anti-Le^y antibodies on the defined CFG glycan array. **A.** The anti-Le^x antibody (clone 5F1) generated in our lab was assayed at serial dilutions and the data from 1:5 dilution is shown. The bound antibody was detected by Alexa488 labeled goat anti-mouse IgM. **B.** The commercial CD15 antibody (clone W6D3) from BD Bioscience was assay at 10 µg/ml and detected with Alexa488 labeled goat anti-mouse IgG. **C.** Glycans bound by the two anti-Le^x antibodies are listed and some Le^x-containing glycans that were not bound by the two antibodies are also shown. The Le^x motif in each glycan structure is underlined. **D.** The anti-Le^y antibody (clone UoN30) was assay at 50 µg/ml and detected with Alexa488 labeled goat anti-human IgG. **E.** Glycans bound by anti-Le^y antibody (clone UoN30) are listed. The Le^x antibody (clone 5F1) was from a hybridoma cell line cloned (clone F51) from a fusion of mouse myeloma cells with splenocytes obtained from Swiss Webster mice 8 weeks after infection with *Schistosoma mansoni* cercarie (Puerto Rican strain). Antibody screening was carried out on arrays of glycans with structures related to schistosome glycans. The monoclonal IgM produced by clone F51 bound exclusively to an immobilized Lewis X glycan.

*Figure S6. Comparison of VP8*RV3 binding open-ring and pyranose-ring glycan derivatives.* VP8*RV3 was assayed on a small array containing AEAB conjugated open-ring and pyranose-ring (GG) LNT, LNnT and LNFP I.

Table S1. Reagents used for structural analysis. **A.** A list of lectins and antibodies used for structure characterization. Specificity is shown. **B.** Optimized conditions for exoglycosidases used for structure characterization.

Table S2. Comparison of VP8 domains from strains RV3, N155, and B233 analyzed on the CFG glycan array.* The three VP8*-GST fusion constructs were analyzed on versions 5.0 or 5.1 of the CFG glycan microarray at several concentrations. Each glycan was determined as a percentage of the highest RFU in each assay, and an Average Rank was assigned to each glycan. The data for strain B233 was determined form only a single assay. Table S2 is an Excel workbook containing 3 tabs, with each tab showing a comparison of the average rankings where the sorting was based on the highest to lowest ranking of one of the three VP8*-GST constructs. To demonstrated the difference in binding specificities, VP8*-binding glycans containing polylactosamine terminating in Galβ1-4GlcNAc (type 2 LacNAc) are colored Blue; VP8*-binding glycans containing polylactosamine terminating in GlcNAcβ1-3Gal are colored Orange; and VP8*-binding glycans terminating in Galβ1-3GlcNAc (type 1 LacNAc) are colored Green.

Table S3. A summary of 260 glycan samples printed on the HMG-SGM, including obtained amount, mass and proposed composition. A total of 260 glycan samples were printed on the HMG-SGM. 226 samples were purified glycans. Glycans 89-96 and 235-247 were 1-D separated HMW mixtures. Glycans 248-259 were defined glycans (structures shown in the table) and 260 is the biotin control. The obtained amount of each sample was quantified by fluorescence using lactose-AEAB as standard. The 247 isolated HMG samples were characterized by MALDI-TOF using either reflective positive (neutral HMGs) or negative mode (sialyl HMGs), and the compositions were proposed based on the mass. The compositions of several samples (indicated with ?) were not predicted as their mass did not match any composition. For the high molecular weight (HMW) samples, the mass represents major peaks that match HMG composition. Abbreviations: H- hexose, N-acetylhexosamine, F-fucose, S-sialic acid.

Table S4. Plant lectin and antibody binding data for Fig. 2 and Fig. 3 in tabular form. Each data point is the average of four RFU values.

Table S5. Rotavirus VP8 binding data for Fig. 4 and Fig. 5 in tabular form.* Each data point is the average of four RFU values.

Table S6. Virological and clinical characteristics of rotavirus strains used in this study.

Table S7. Lectin and antibody binding data for structural analysis. The combined binding data of the RV-MAGS subarray interrogated with different lectins and antibodies at one or multiple concentrations.

Figure S1. GST-fusion rotavirus VP8*RV3 binding to CFG glycan array.

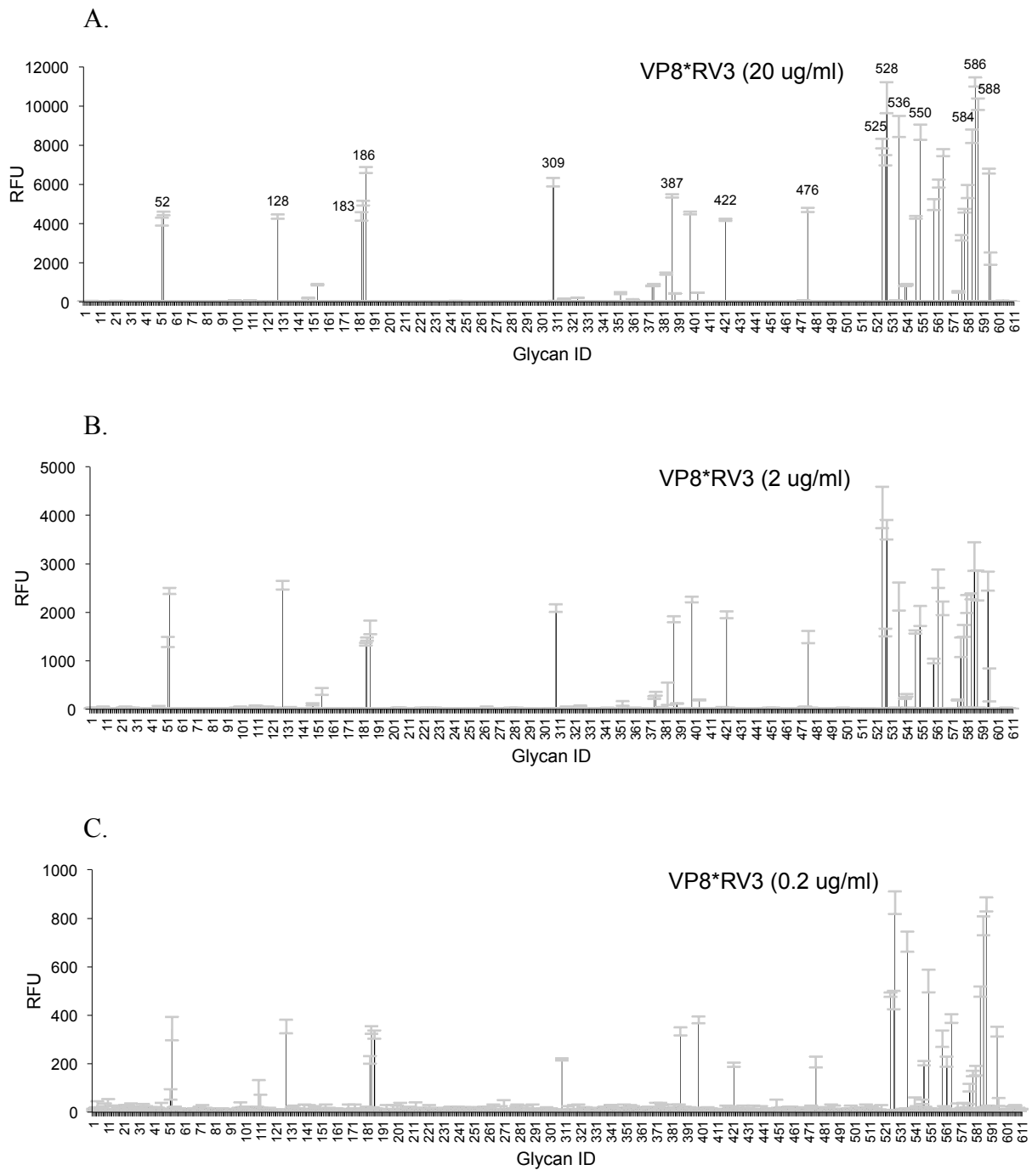


Figure S2. Flow chart for isolation of human milk glycans and preparation of the human milk shotgun glycan microarray 2 (HM-SGM-v2)

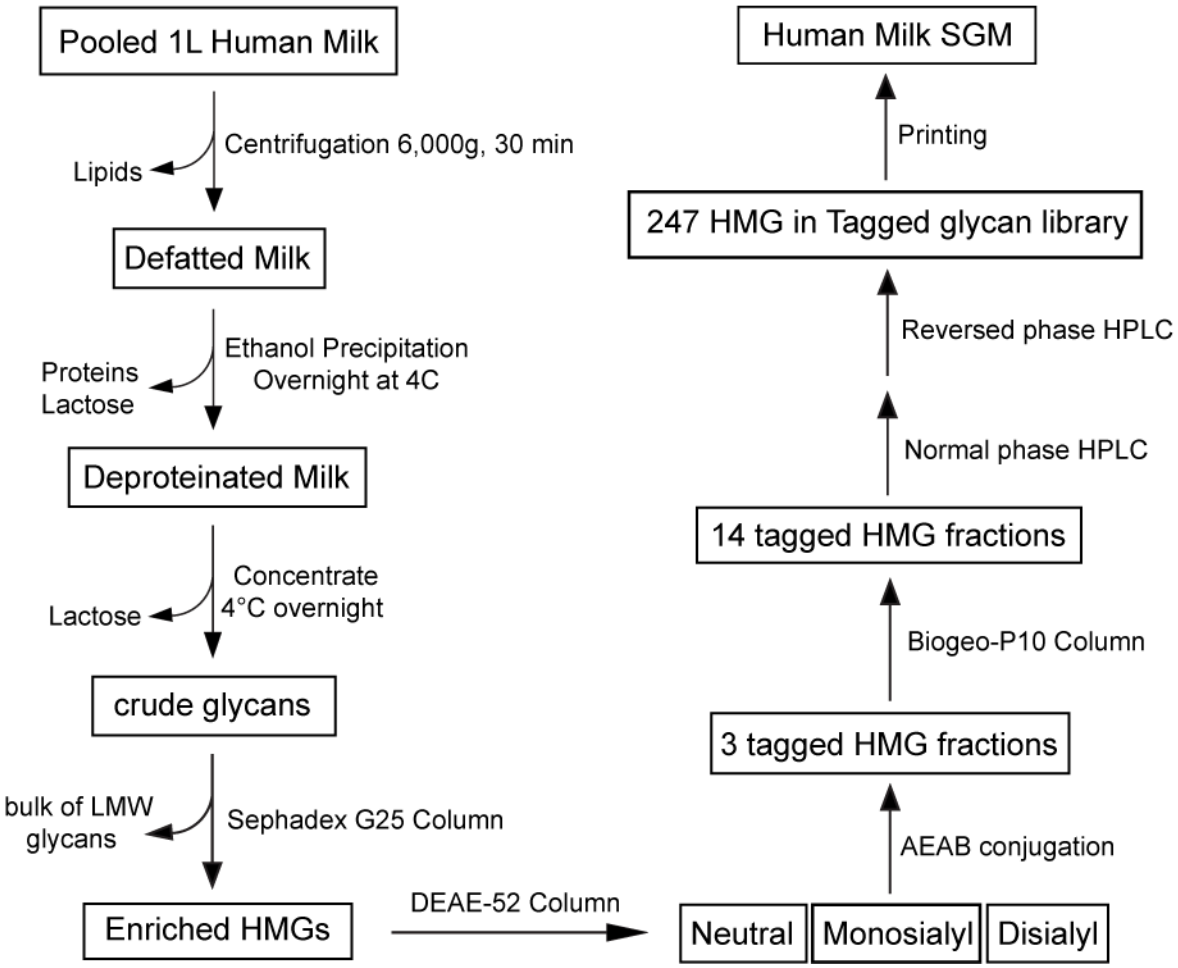
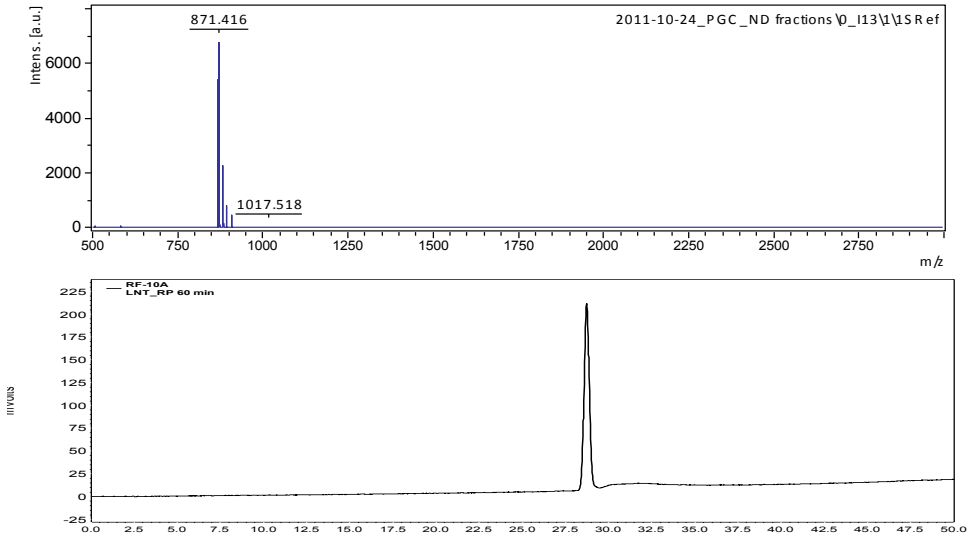


Figure S3. MALDI-TOF spectra and reverse-phase HPLC profile of 32 unknown glycans selected for detailed structure analysis. The MS spectra for each of the glycans were selected to demonstrate only the major molecular ions in each fraction. If the m/z scale is expanded, the isotopic envelope of the molecular ions as well as various adducts can be observed.

HMG-5



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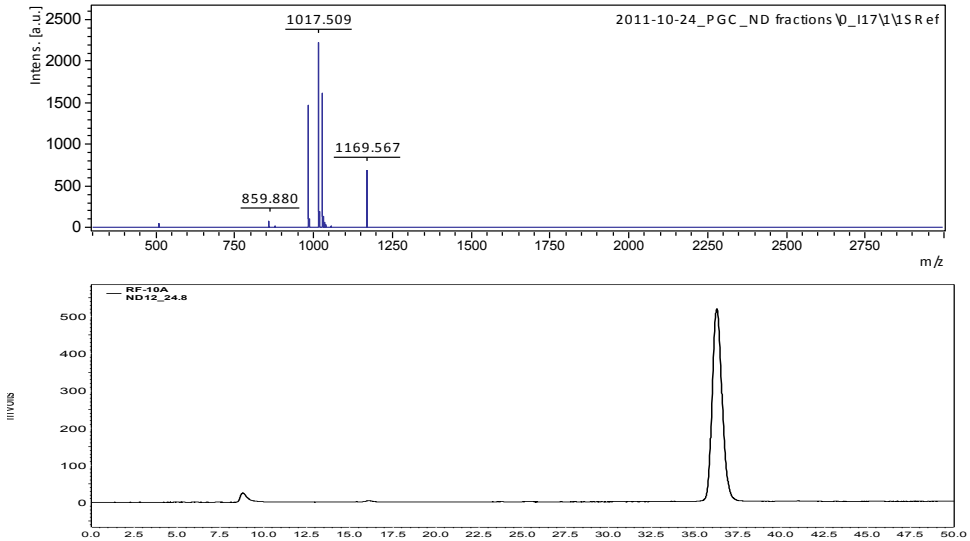

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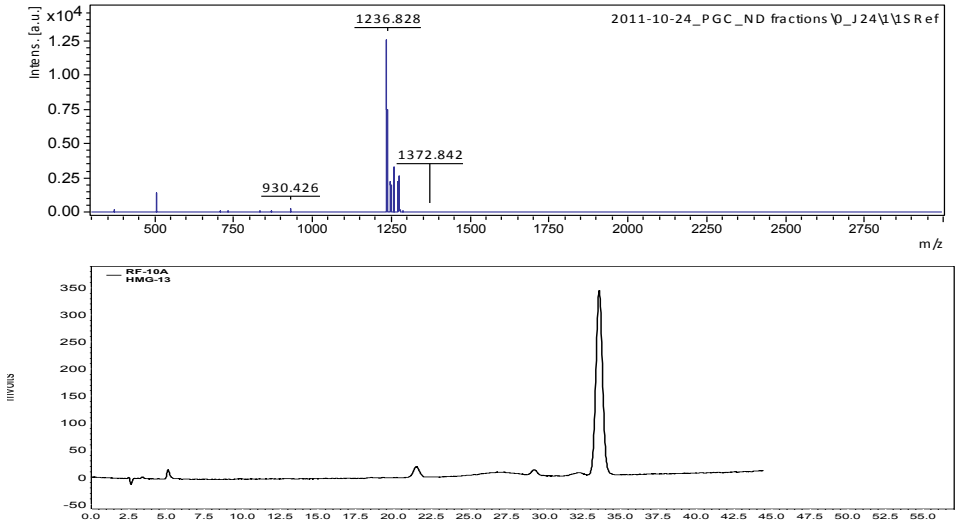
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750
1000
1250
1500
1750
2000
2250
2500
2750
m/z

RF-10A
HMG-13
mVolts
350
300
250
200
150
100
50
0
-50
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
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55.0

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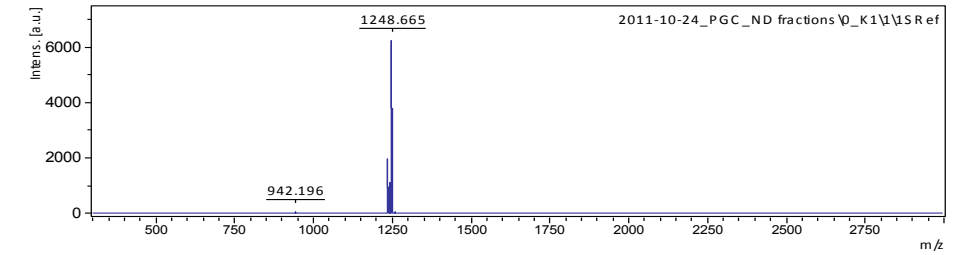
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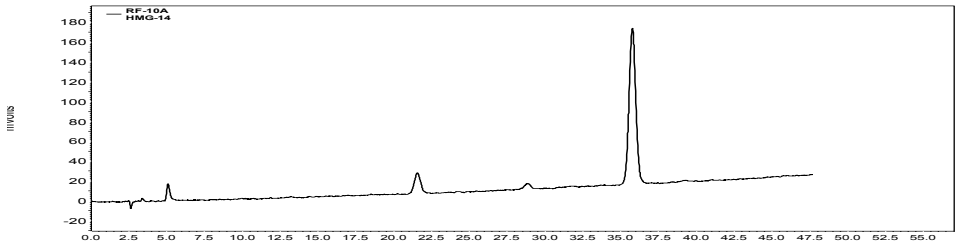
m/z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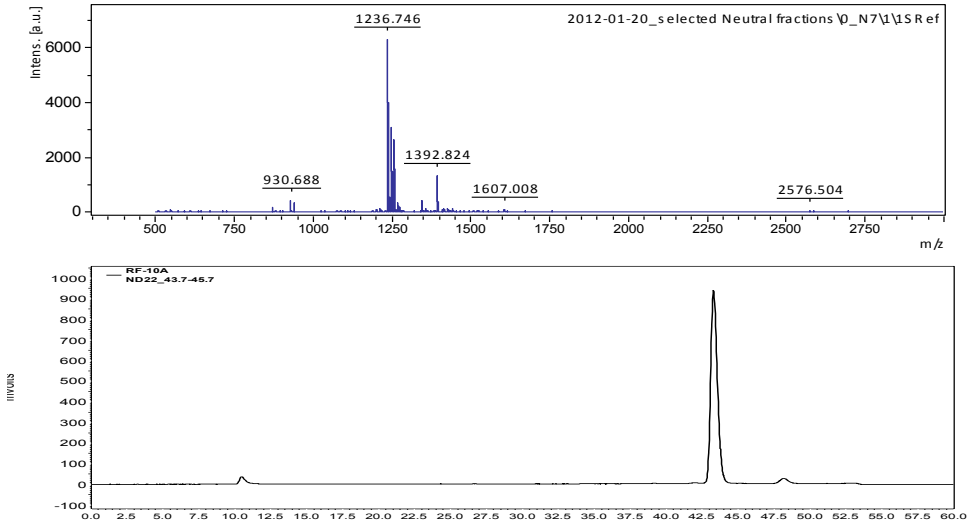

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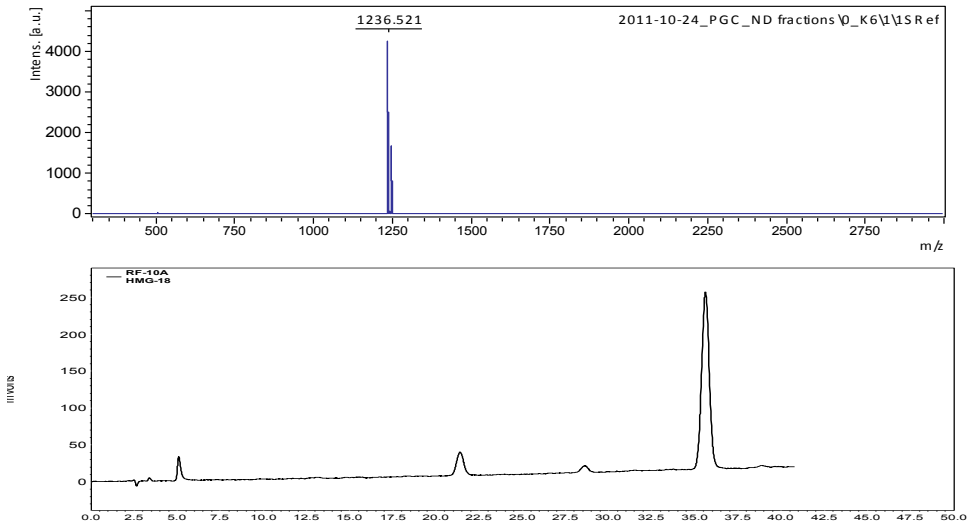

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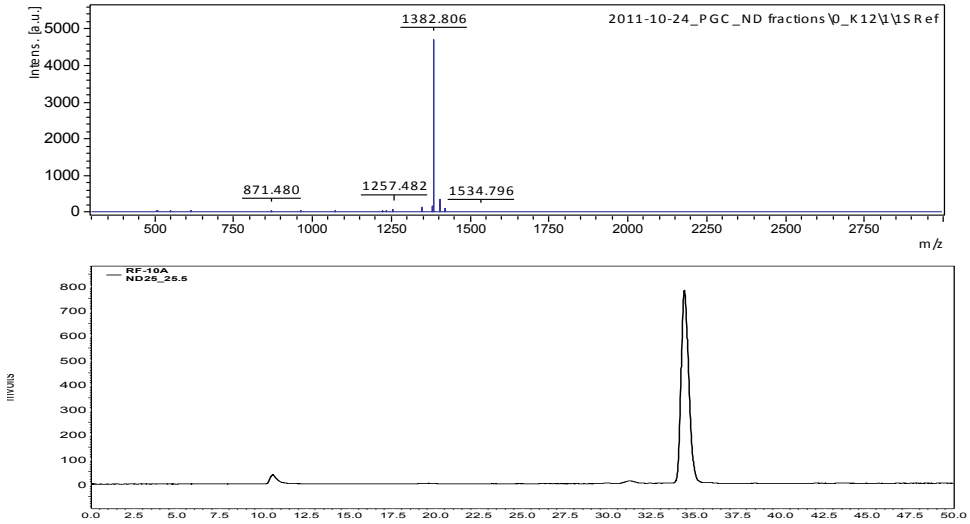

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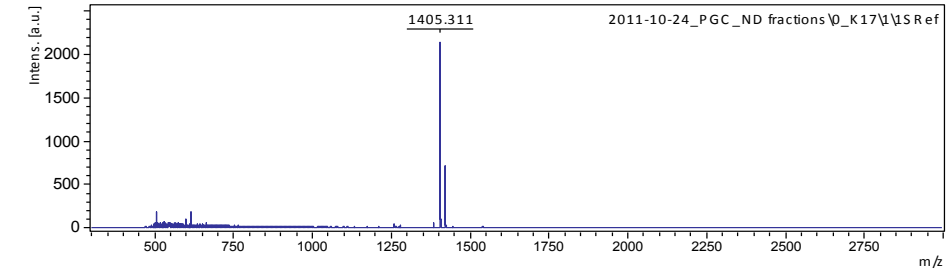

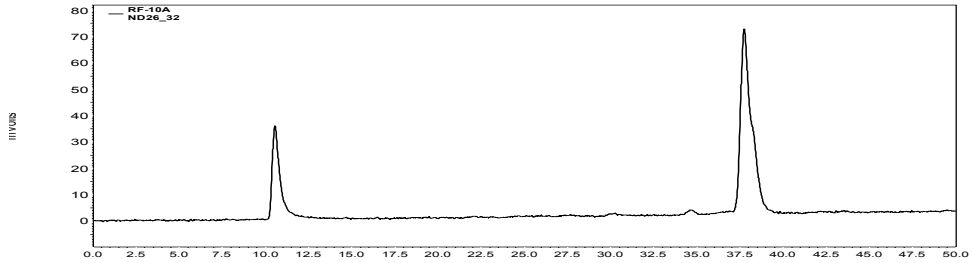

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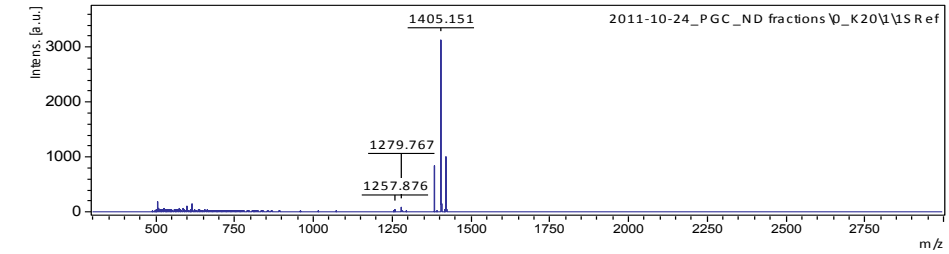

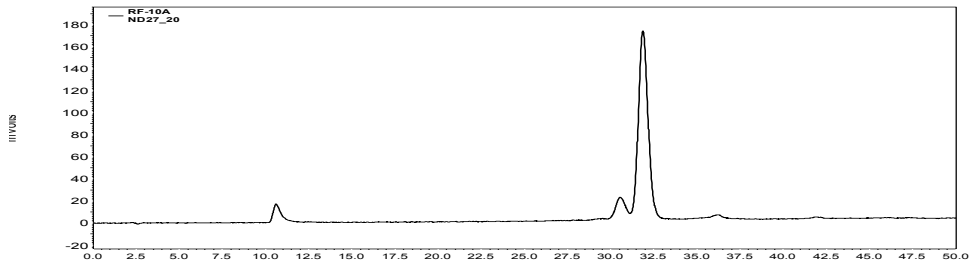

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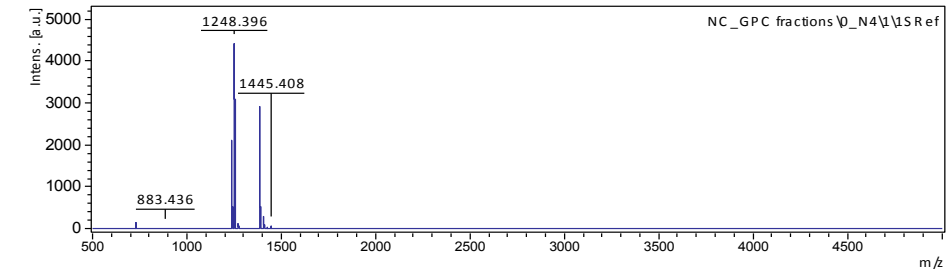

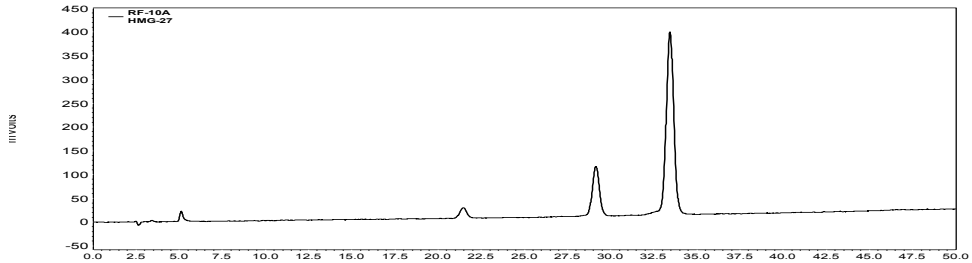

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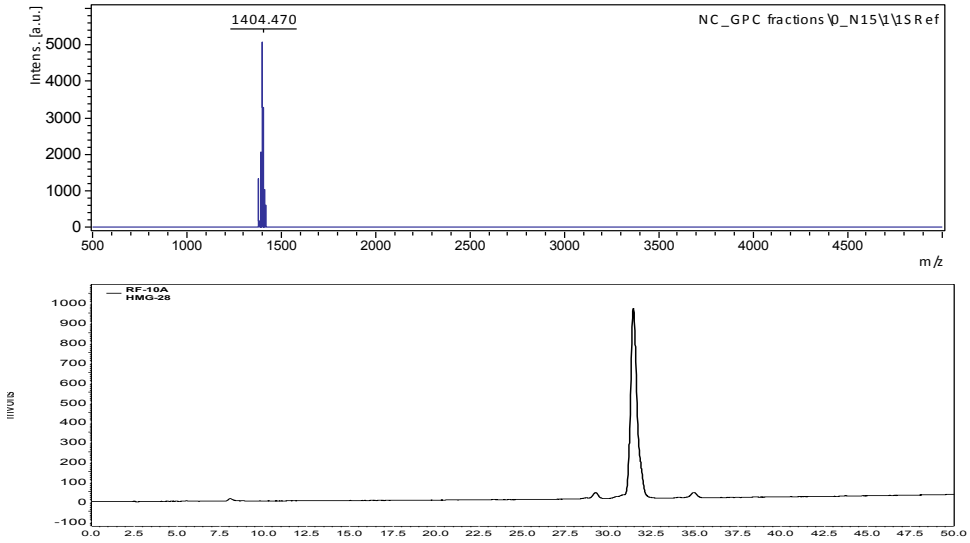

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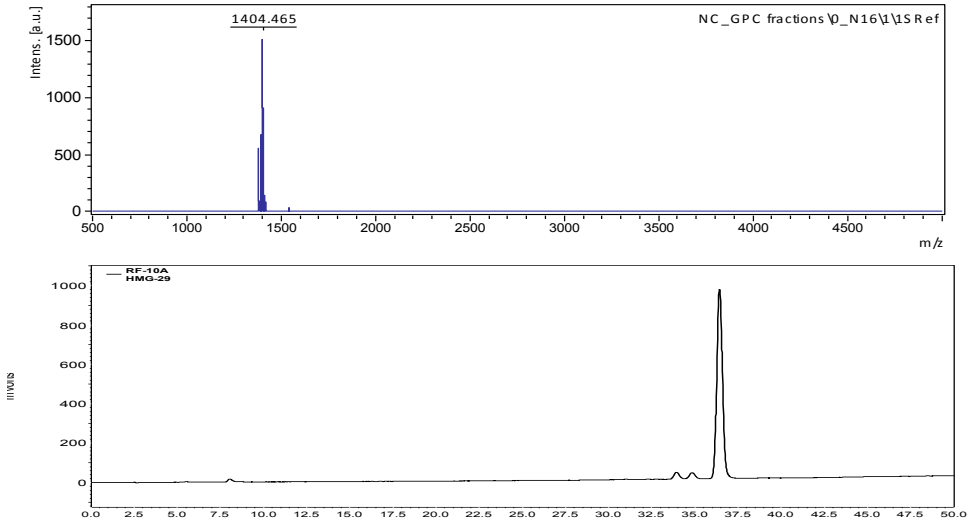

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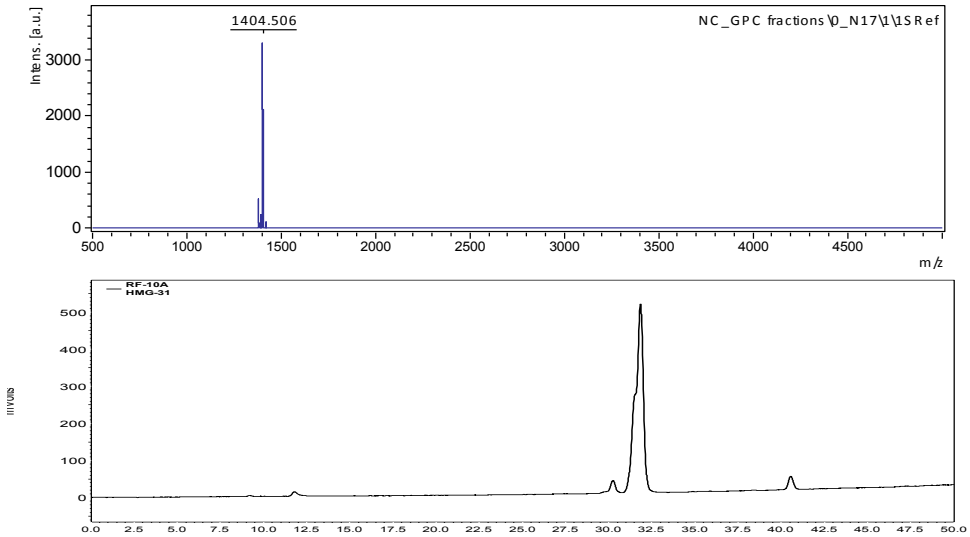

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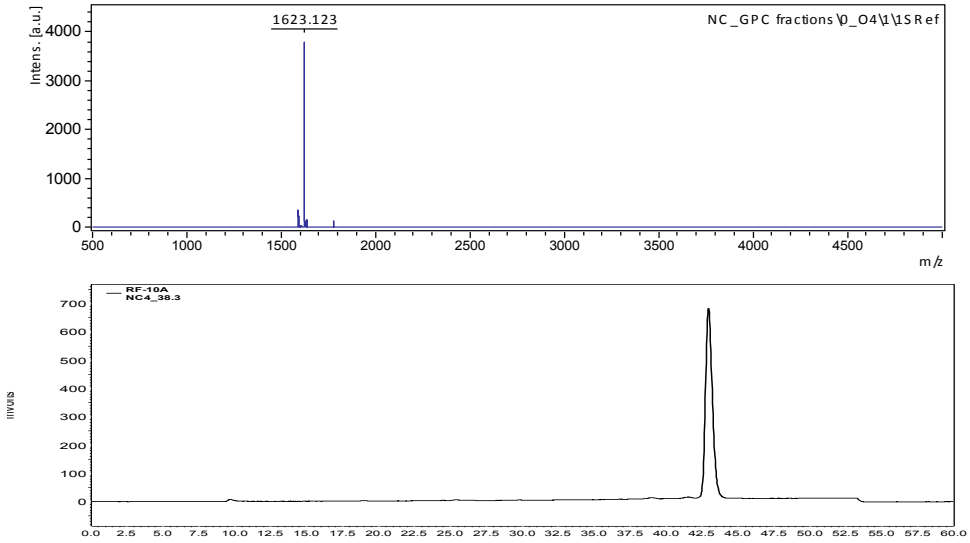

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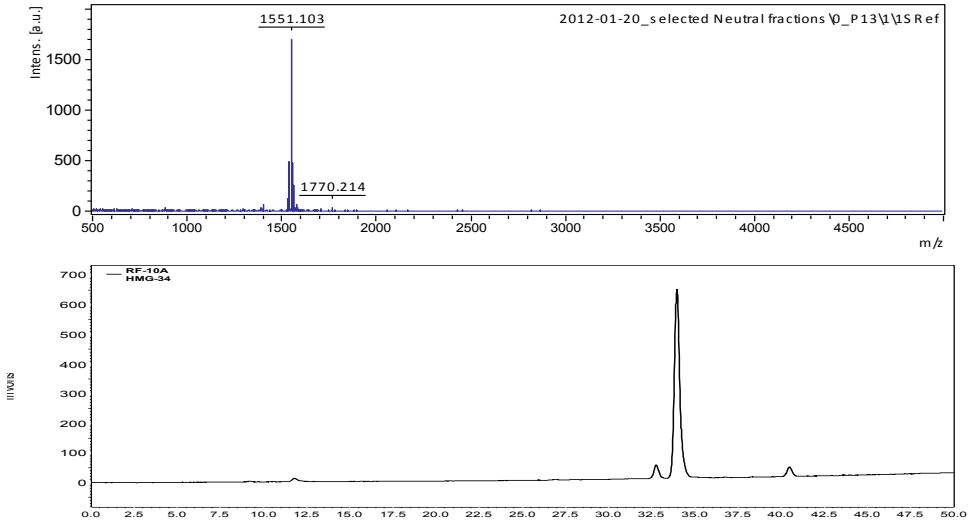

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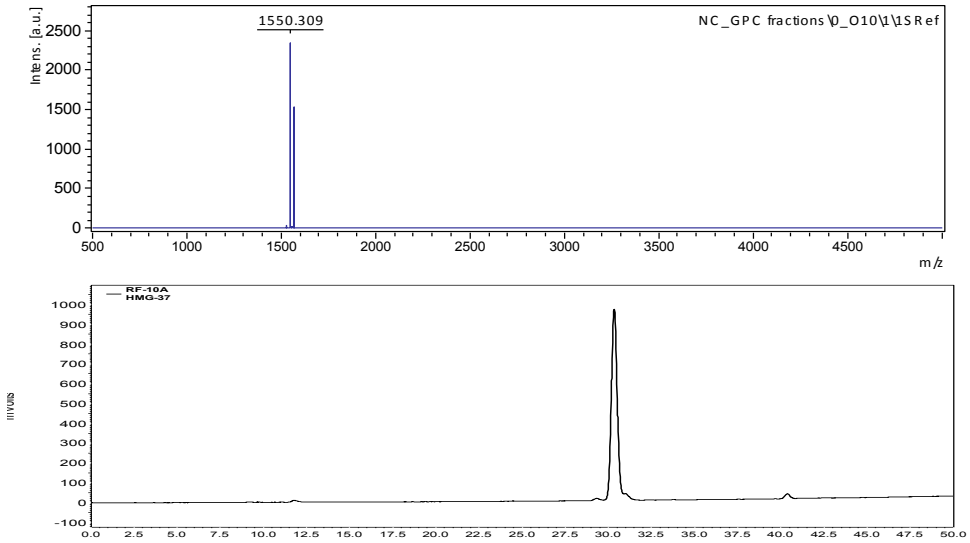

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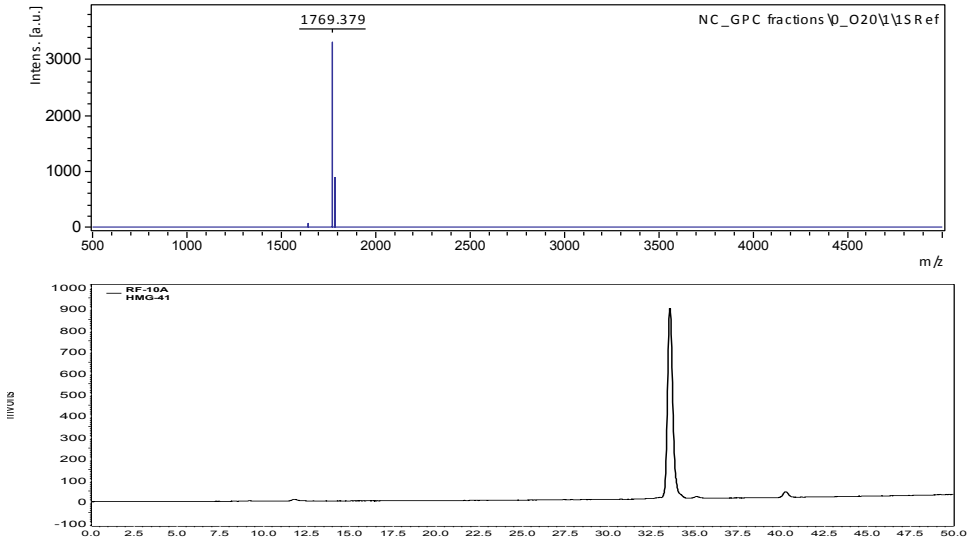

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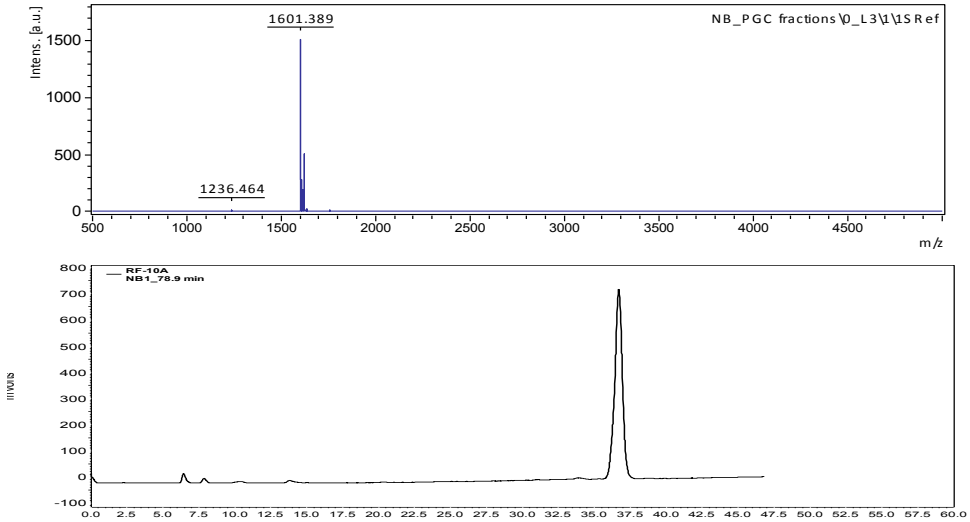

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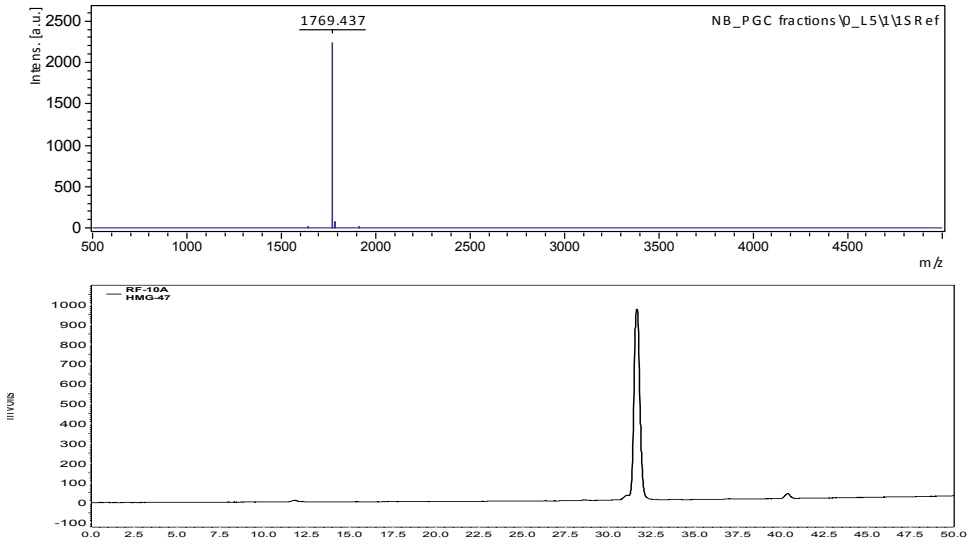

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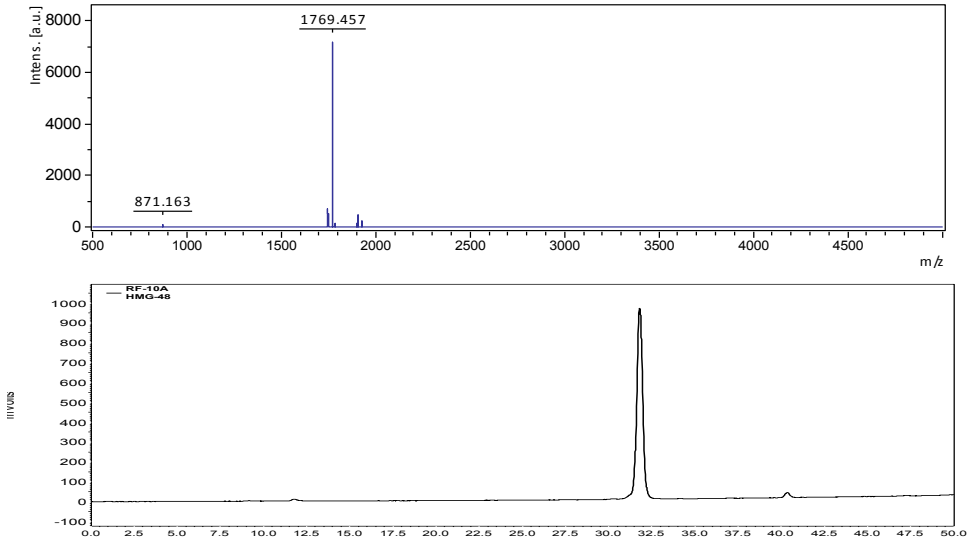

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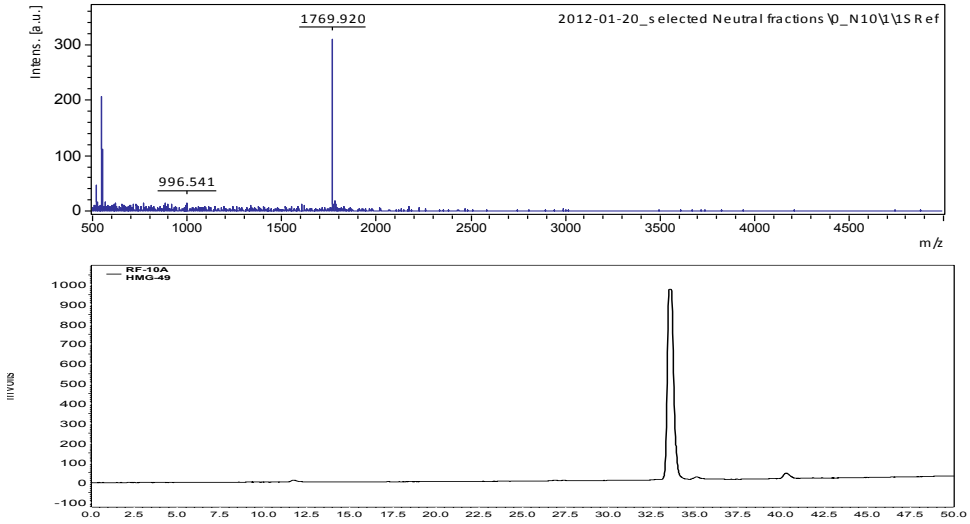

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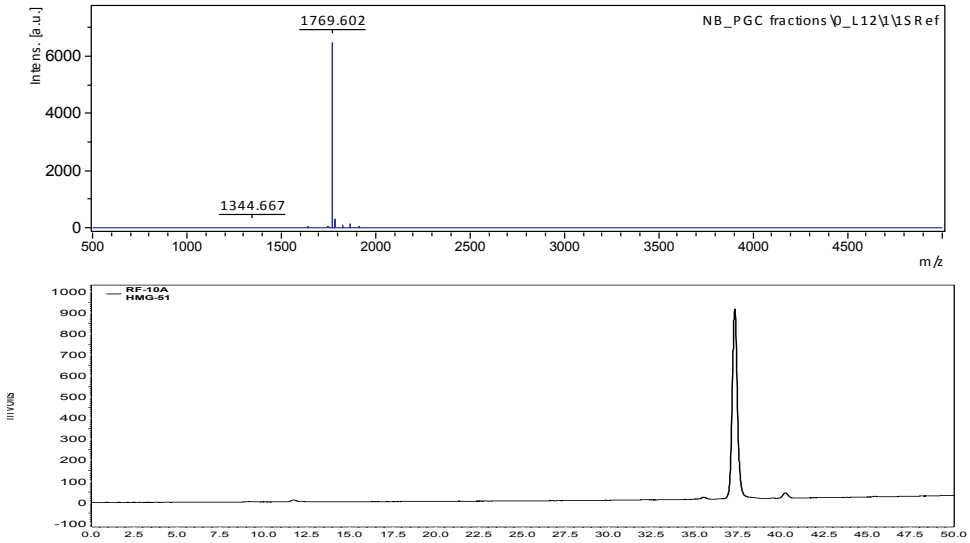

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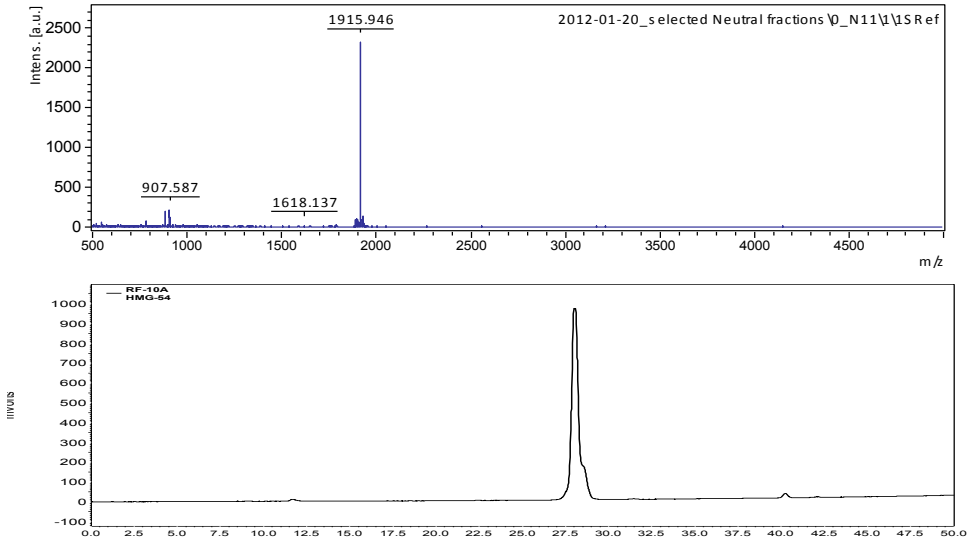

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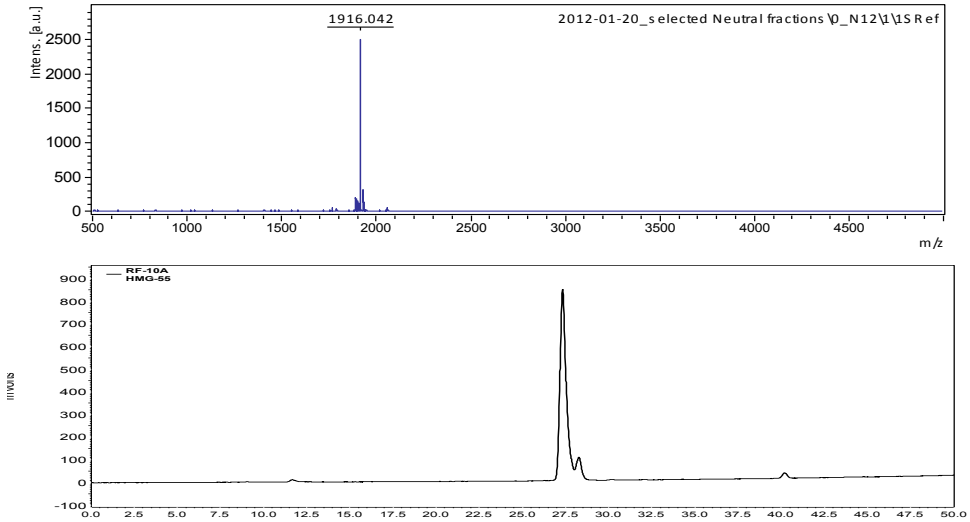

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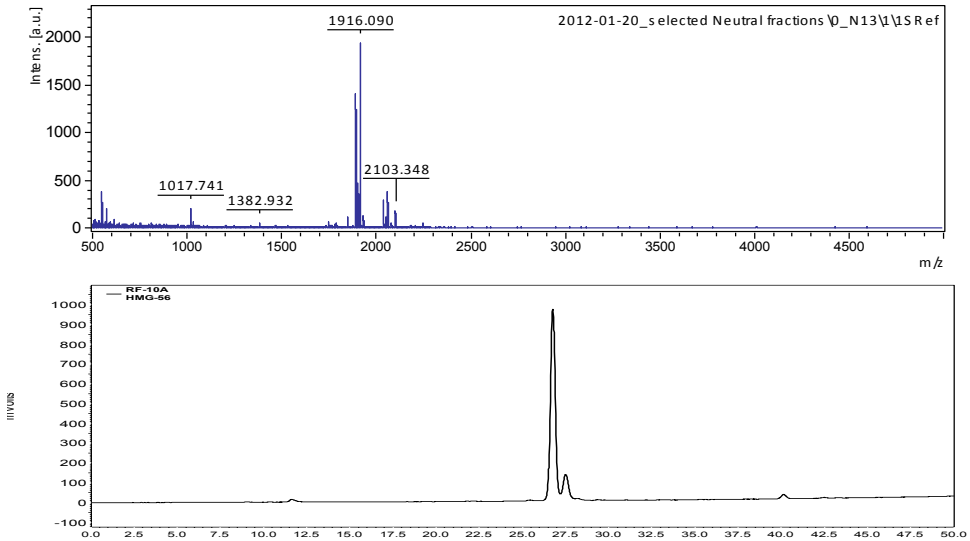

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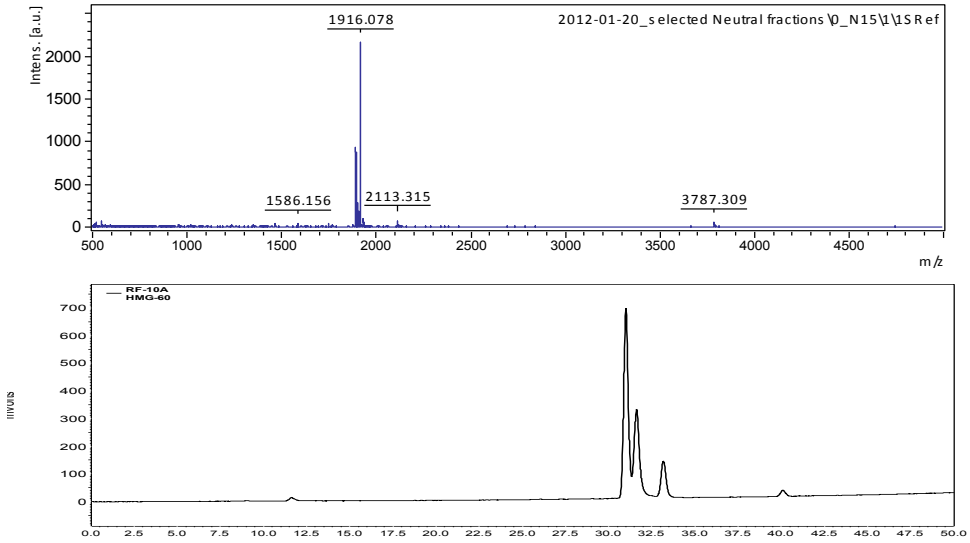

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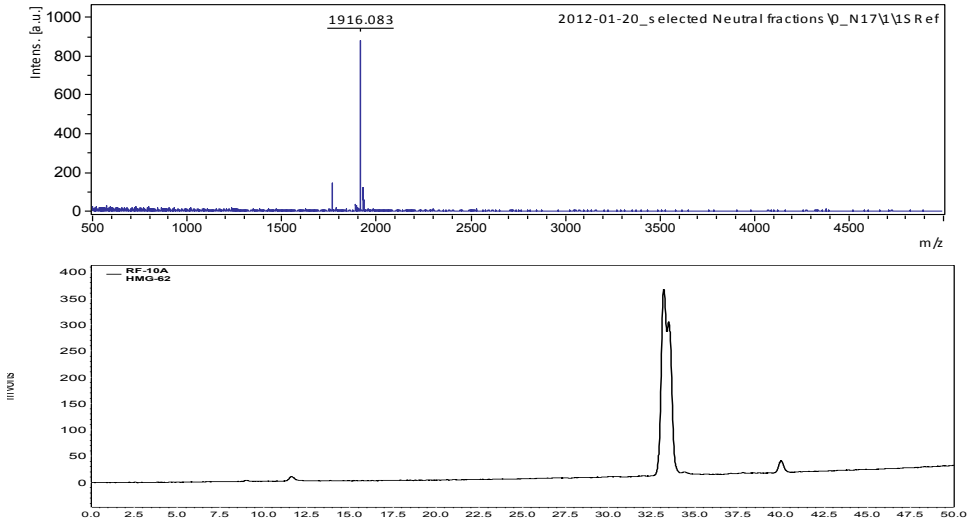

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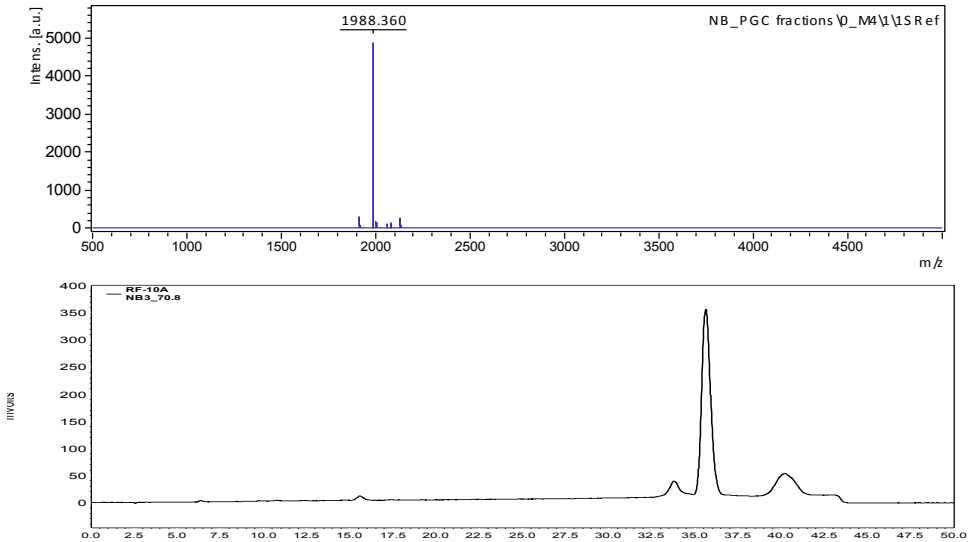

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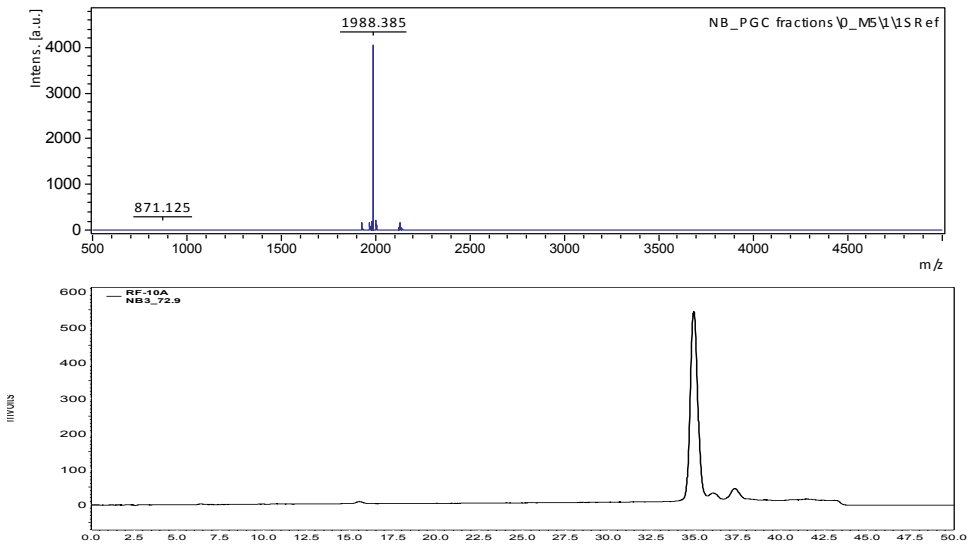

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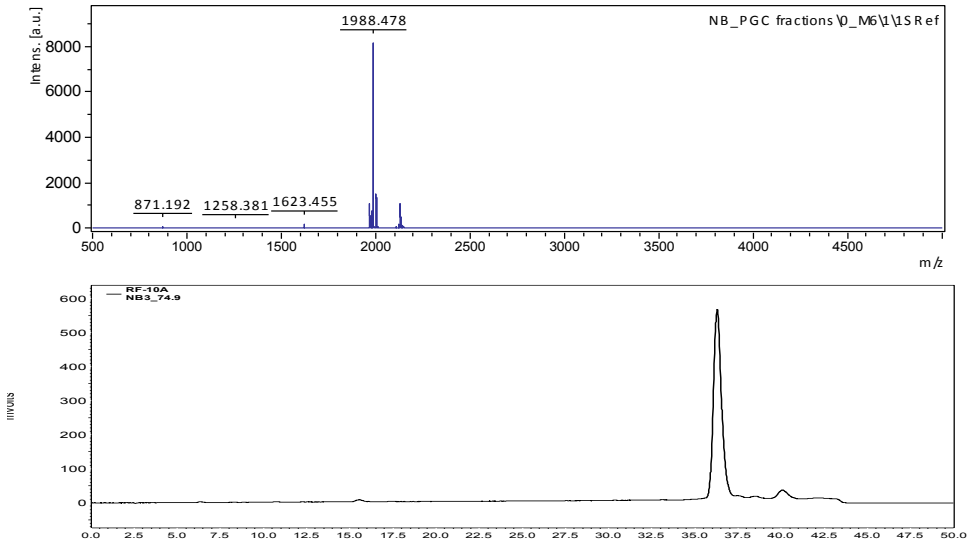

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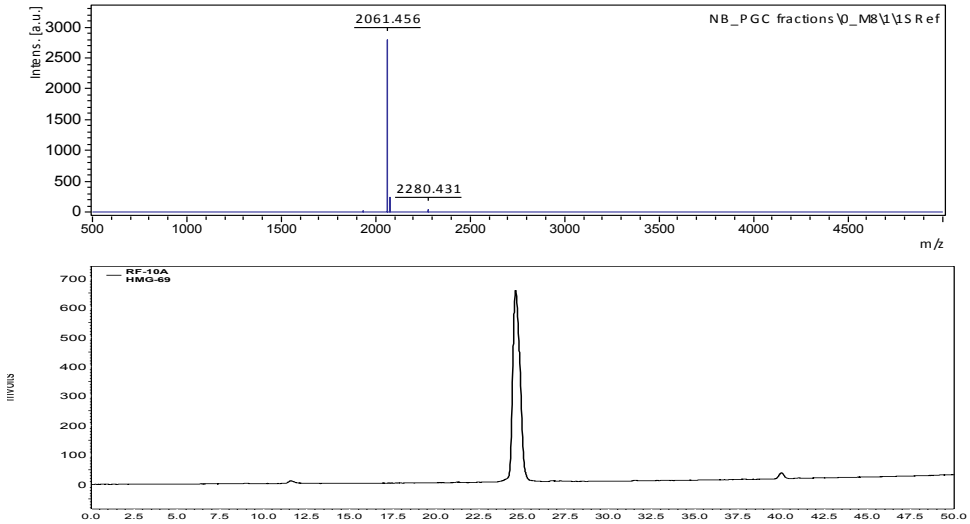

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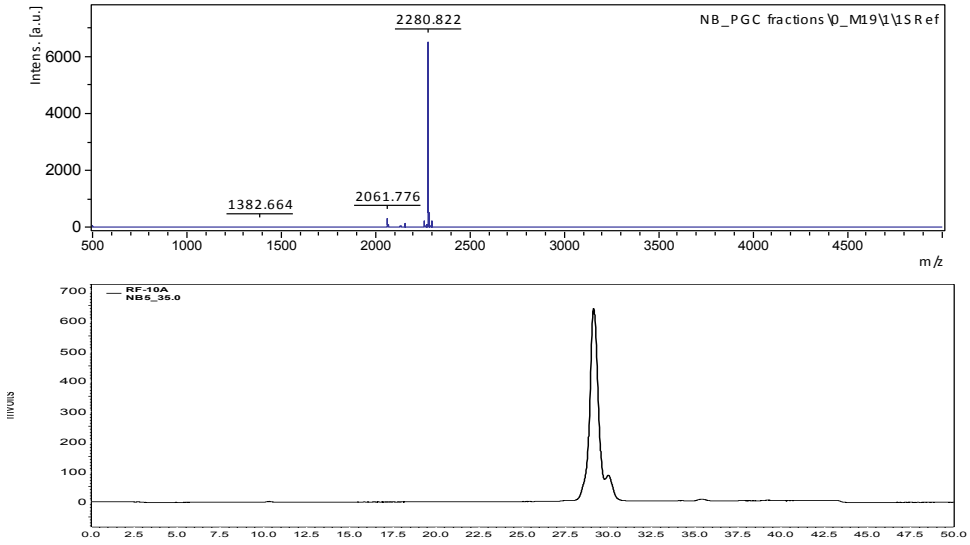
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0
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2061.776
500
1000
1500
2000
2500
3000
3500
4000
4500
m/z

RF-10A
NBS_35.0
700
600
500
400
300
200
100
0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
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22.5
25.0
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50.0

Figure S4. Structures of 14 control glycans on the RV-MAGS subarray

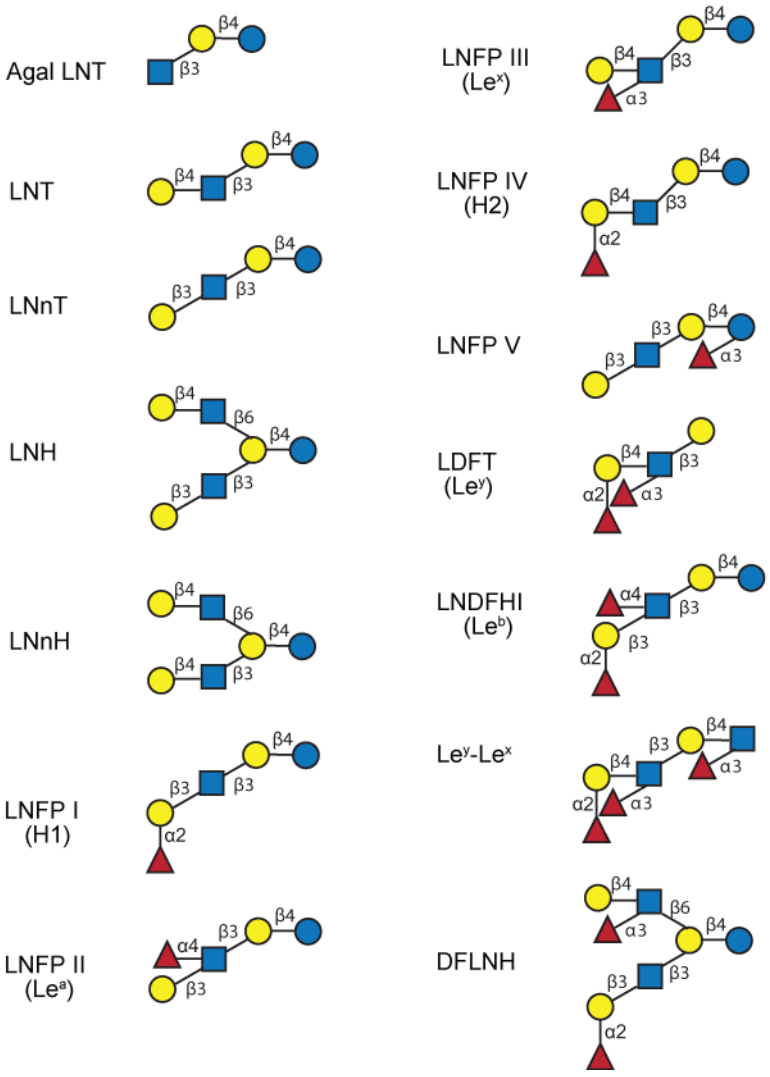

Figure S5. Screening of anti-Le^x and anti-Le^y antibodies on defined CFG glycan array.

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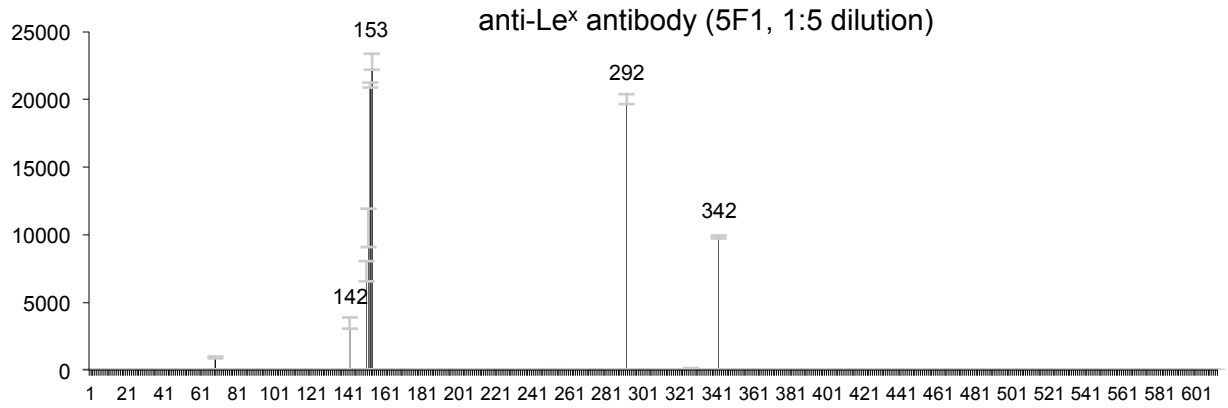

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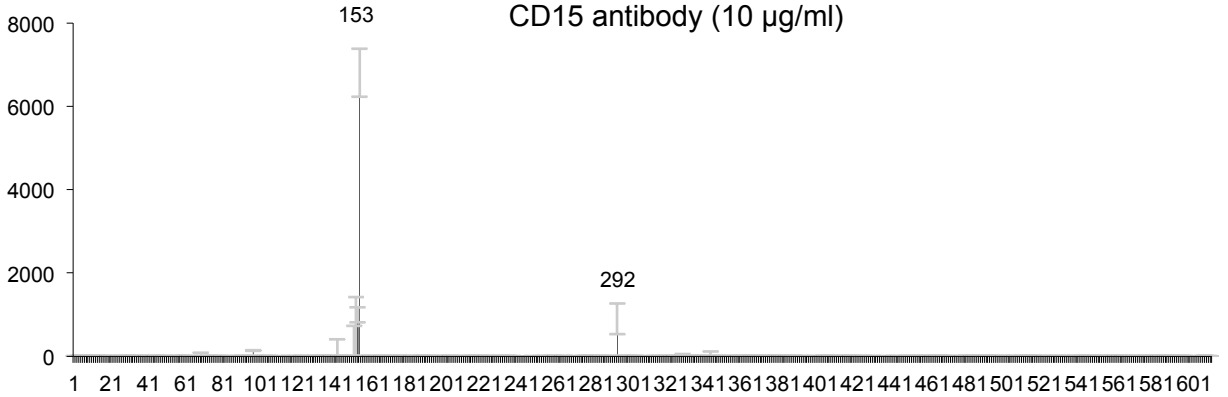

C.

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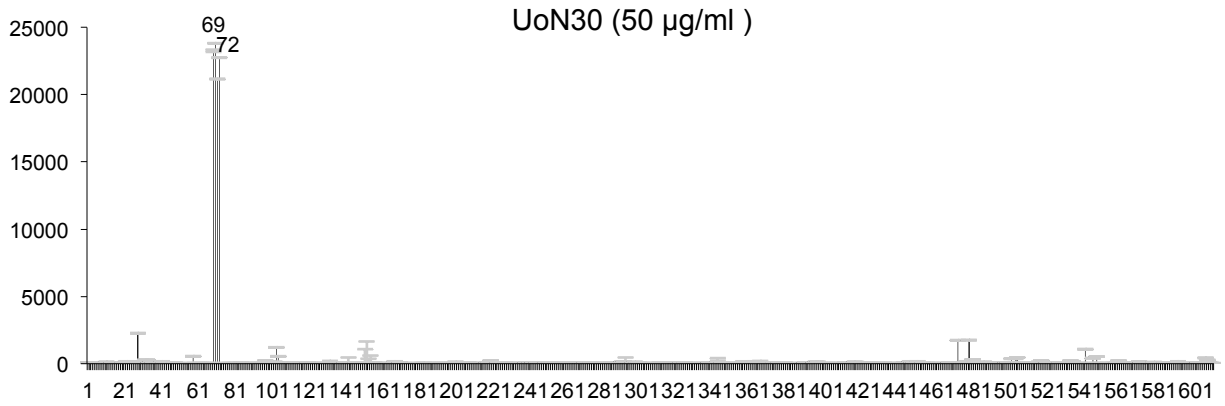
292	Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-3(Fuca1-4)GlcNAcb-Sp0	20032	22746
152	Galb1-4(Fuca1-3)GlcNAcb-Sp8	10515	21166
342	GlcNAca1-4Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	9830	22
151	Galb1-4(Fuca1-3)GlcNAcb-Sp0	7296	4
142	Galb1-3GalNAcb-Sp8	3464	11
69	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	931	-1

327	Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-6(Galb1-4(Fuca1-3)GlcNAcb1-2Mana1-3)Manb1-4GlcNAcb1-4GlcNAcb-Sp20	79	-1
253	Neu5Aca2-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	54	1
126	Galb1-3(Fuca1-4)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	23	5
383	Galb1-4(Fuca1-3)GlcNAcb1-6(Galb1-3GlcNAcb1-3)Galb1-4Glc-Sp21	17	0
385	Galb1-4(Fuca1-3)GlcNAcb1-6(Fuca1-4(Fuca1-2Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	15	0
368	Galb1-4(Fuca1-3)GlcNAcb1-6(Fuca1-2Galb1-4GlcNAcb1-3)Galb1-4Glc-Sp21	11	-2
447	Galb1-4(Fuca1-3)GlcNAcb1-6GalNAc-Sp14	9	3
161	Galb1-4GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	6	0
493	Galb1-4(Fuca1-3)GlcNAcb1-6(Neu5Aca2-6(Neu5Aca2-3Galb1-3)GlcNAcb1-3)Galb1-4Glc-Sp21	4	2
127	Galb1-3GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	3	0

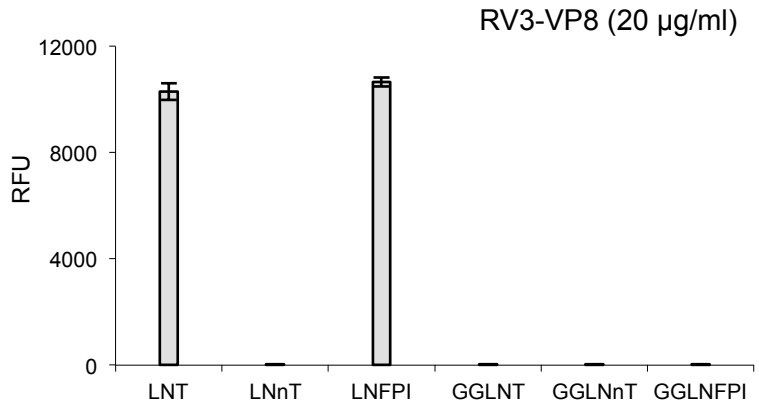
D.



E.

Chart Number	Structures of anti-Ley antibody binder	Average RFU
70	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	23816
69	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb1-3Galb1-4(Fuca1-3)GlcNAcb-Sp0	23266
72	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb-Sp8	22746
71	Fuca1-2Galb1-4(Fuca1-3)GlcNAcb-Sp0	21166

Figure S6. Comparison the binding of VP8*RV3 toward open-ring and close-ring glycan conjugates.



Atypical binding of VP8*RV3 with LNT and LNFP I - The binding of HMG-5 (LNT) and HMG-8 (LNFP-I) seems inconsistent with the proposed requirement of an internal Lex fucose for VP8* RV3 binding, but we feel that this interaction with VP8* RV3 may be somewhat atypical. VP8*RV3 binds primarily to type 1 glycans including LNT and LNFP I on HMG-SGM-v2 (**Fig. 4C-D**), however, neither of these glycans were bound when presented on the CFG array (**Table S2**) while the CFG array glycan #387 (identical to HMG-41/49) was bound. To explain this discrepancy we looked to the reducing end of these structures. The AEAB-conjugated glycans on HM-SGM-v2 generated by reductive amination have an open-ring structure, which means the reducing glucose of each HMG is not a glycoside. On the other hand, the glycans on CFG array were synthesized from glycosides and the reducing end of these glycans is a closed-ring structure. To determine if the inconsistency between the two arrays was due to the difference in the open and pyranose-ring structures, we prepared pyranose-ring AEAB-LNT, LNnT and LNFP I (56) and printed them on a slide in parallel with corresponding open-ring forms. Interrogation of these glycans with VP8*RV3 indicated that this protein selectively recognized the open-ring LNT and LNFP I, but not the pyranose-ring forms (**Fig. S6**). Such observation suggests the binding of VP8* to small glycans involves the reducing Glc in LNT (Galβ1-3GlcNAcβ1-6Galβ1-4Glc). The protein does not bind when the Glc is in a glycosidic linkage, but does bind when presented as an open-ring Glc or substituted with a mannose (CFG 525, 527 and 528). While this may explain the anomalous behavior of VP8* binding to these glycans, it points out the importance of understanding and evaluating glycan presentation and linkage when using glycan microarrays for interpretation of protein-glycan interactions.

Table S1. Reagents used for structural analysis.

(A) Binding specificity of lectins and antibodies used in MAGS

Lectin	Specificity	Antibody	Specificity
AAL	L-fucose	Anti-Le^a antibody	Galβ1-3(Fucα1-4)GlcNAcβ1-3
RCA-I	[Neu5Acα2-6]Galβ1-4GlcNAc	Anti-Le^b antibody	Fucα1-2Galβ1-3(Fucα1-4)GlcNAcβ1-3
ECL	Galβ1-4GlcNAc	Anti-type-1 chain antibody	Galβ1-3GlcNAcβ1-3
GSL-II	GlcNAc	Anti-Le^x antibody	Galβ1-4(Fucα1-3)GlcNAcβ1-3
UEA-I	Fucα1-2Galβ1-4[Fucα1-3]GlcNAc	Anti-CD15 antibody	Galβ1-4(Fucα1-3)GlcNAcβ1-3

[ ]: Lectin recognizes determinant with or without the residue inside bracket

(B) The optimized conditions used for exoglycosidase treatments

Exoglycosidase	Source	Manufacturer	Working concentration*	pH	time (h)
β1-3 galactosidase	*Xanthomonas manihotis*	New England Biolabs	700 U/ml	4.5	24
β1-4 galactosidase	Jack bean	Prozyme	2 U/ml	3.5	16
Endo-β-galactosidase	*Bacteroides fragilis*	Boehringer Mannheim GmbH	0.2 U/ml	5.8	36
neuraminidase	*Arthrobacter ureafaciens*	Roche	20 U/ml	5.5	< 3
α1,2-fucosidase	unknown	Megazyme	1 U/ml	6.5	36

* U is shown as manufacturer units.

Table S3. A summary of 260 glycan samples printed on the HMG-SGM, including obtained amount, mass and proposed composition.

Fraction ID	obtained amount (nmol)	mass	composition
HMG-1	120	506.23	H2
HMG-2	17	652.11, 674.08	H2F1
HMG-3	389	652.36	H2F1
HMG-4	141	854.61	?
HMG-5	16	871.416	H3N1
HMG-6	34	871.41	H3N1
HMG-7	68	1017.513	H3N1F1
HMG-8	120	1017,	H3N1F1
HMG-9	816	1185.6	H3N1F2
HMG-10	86	1164.003	H3N1F2
HMG-11	4	1158.86	?
HMG-12	165	1236.64, 1258.62	H4N2
HMG-13	14	1236.828	H4N2
HMG-14	4	1236.828	H4N2
HMG-15	311	1258.66	H4N2
HMG-16	171	1236.72	H4N2
HMG-17	7	1309.79, 1331.77	H3N1F3
HMG-18	15	1236.521	H4N2
HMG-19	2090	1382.739	H4N2F1
HMG-20	227	1382.866	H4N2F1
HMG-21	6	1404.957	H4N2F1
HMG-22	134	1405.151	H4N2F1
HMG-23	8	1550.951	H4N2F2
HMG-24	172	1529.95	H4N2F2
HMG-25	12	1529.275	H4N2F2
HMG-26	52	1529.159	H4N2F2
HMG-27	21	1236.28, 1248.273	H4N2
HMG-28	22	1382.441, 1394.434, 1404.395	H4N2F1
HMG-29	40	1404.395	H4N2F1
HMG-30	167	1382.441, 1394.434, 1404.395	H4N2F1
HMG-31	120	1404.395	H4N2F1
HMG-32	232	1550.539	H4N2F2
HMG-33	28	1623.123	H5N3
HMG-34	44	1551.1	H4N2F2
HMG-35	53	1623.173	H5N3
HMG-36	678	1696.251	H4N2F3

Fraction ID	obtained amount (nmol)	mass	composition
HMG-37	36	1550.309	H4N2F2
HMG-38	19	1696.268	H4N2F3
HMG-39	8	1696.278	H4N2F3
HMG-40	97	1696.359	H4N2F3
HMG-41	111	1769.379, 1786.3	H5N3F1
HMG-42	8	1842.95	H4N2F4
HMG-43	44	1696.509	H4N2F3
HMG-44	49	1769.367	H5N3F1
HMG-45	30	1601.389, 1623.4	H5N3
HMG-46	35	1684.42, 1696.402	H4N2F3
HMG-47	17	1769.437	H5N3F1
HMG-48	28	1769.437	H5N3F1
HMG-49	676	1769.95	H5N3F1
HMG-50	18	1759.678	?
HMG-51	95	1769.602	H5N3F1
HMG-52	52		?
HMG-53	8	1769.644	H5N3F1
HMG-54	25	1915.95	H5N3F2
HMG-55	212	1916.04	H5N3F2
HMG-56	45	1894.17, 1916.09	H5N3F2
HMG-57	18	1894.33	H5N3F2
HMG-58	36	1894.11, 1916.09	H5N3F2
HMG-59	418	1790, 1915.881	H5N3F2
HMG-60	76	1894.22, 1916.08	H5N3F2
HMG-61	30	1894.19	H5N3F2
HMG-62	12	1916.08	H5N3F2
HMG-63	116	2134.33	H6N4F1
HMG-64	269	1988.297	H6N4
HMG-65	67	1988.36	H6N4
HMG-66	55	1988.385	H6N4
HMG-67	23	1988.478	H6N4
HMG-68	91	2061.44	H5N3F3
HMG-69	63	2061.456	H5N3F3
HMG-70	476	2061.582	H5N3F3
HMG-71	131	2061.601	H5N3F3
HMG-72	234	2280.649	H6N4F2
HMG-73	344	2135.21	H6N4F1
HMG-74	134	2281.33	H6N4F2
HMG-75	230	2134.799, 2280	H6N4F1, H6N4F2
HMG-76	52	2280.822	H6N4F2

Fraction ID	obtained amount (nmol)	mass	composition
HMG-77	18	2280.721	H6N4F2
HMG-78	33	2280.902	H6N4F2
HMG-79	193	2280.818	H6N4F2
HMG-80	40	2280.94	H6N4F2
HMG-81	25	2186.49, 2208.34	H5N3F4
HMG-82	9	2208.54	H5N3F4
HMG-83	15	2208.53, 2427.63	H5N3F4, H6N4F3
HMG-84	75	2208.56, 2427.66	H5N3F4, H6N4F3
HMG-85	32	2427.72	H6N4F3
HMG-86	124	2427.7	H6N4F3
HMG-87	41	2355.56	H7N5
HMG-88	7	2573.85	H6N4F4
HMG-89	901	2280, 2426.9, 2501, 2645.97	H6N4F2-3, H7N5F1-2
HMG-90	1466	2573, 2646, 2792.07, 2865, 3011	H6N4F4, H7N5F2-3, H6N4F6, H8N6F2
HMG-91	1401	2792, 2939.2, 3011, 3118.29, 3159, 3337	H7N5F3-4,H8N6F2-4
HMG-92	1239	3118, 3264.41, 3337, 3483	H8N6F4
HMG-93	1119	3410, 3483, 3629.58, 3775, 3849	H9N7F4
HMG-94	752	3776, 3922, 3994.95, 4142	H10N8F4
HMG-95	351	2239.21, 2385, 2458	?
HMG-96	285	1768.23, 2204, 2706, 2940	H5N3F1, ?
HMG-97	335	1525.945	H4N2S1
HMG-98	308	1525.9	H4N2S1
HMG-99	285	1673	H4N2F1S1
HMG-100	308	1672.248	H4N2F1S1
HMG-101	1244	1818.143	H4N2F2S1
HMG-102	20	1818.351	H4N2F2S1
HMG-103	99	1672.146	H4N2F1S1
HMG-104	987	1160.713	H3N1S1
HMG-105	543	1160.732	H3N1S1
HMG-106	36	1172.389	H3N1S1
HMG-107	18	1460.33	?
HMG-108	22	1306.642	H3N1F1S1
HMG-109	36	1306.862	H3N1F1S1
HMG-110	6	1306.742	H3N1F1S1
HMG-111	10	1306.761	H3N1F1S1
HMG-112	196	1306.86	H3N1F1S1
HMG-113	537	1160.687	H3N1S1
HMG-114	574	1306.812	H3N1F1S1
HMG-115	61	1322.3	H3N1F1S1

Fraction ID	obtained amount (nmol)	mass	composition
HMG-116	60	1468.42	?
HMG-117	213	794.9	H2S1
HMG-118	1039	794.9	H2S1
HMG-119	29	1306.419, 1458.41	H3N1F1S1
HMG-120	8	1525.73	H4N2S1
HMG-121	32	1537.89	H4N2S1
HMG-122	644	1671.708	H4N2F1S1
HMG-123	1467	1525.84	H4N2S1
HMG-124	16	1537.676	H4N2S1
HMG-125	45	1525.719	H4N2S1
HMG-126	6	1683.836	H4N2F1S1
HMG-127	410	1525.852	H4N2S1
HMG-128	89	1817.97, 1972, 2119	H4N2F2S1, ?
HMG-129	45	1817.89, 1971.89	H4N2F2S1, ?
HMG-130	1141	1671.85	H4N2F1S1
HMG-131	132	1671.78	H4N2F1S1
HMG-132	1719	1671.91	H4N2F1S1
HMG-133	34	1306.67	H3N1F1S1
HMG-134	20	1306.67	H3N1F1S1
HMG-135	172	1818.11, 2184.32	H4N2F2S1, H5N3F2S1
HMG-136	53	1672.14	H4N2F1S1
HMG-137	63	1818.18	H4N2F2S1
HMG-138	19	1672	H4N2F1S1
HMG-139	75	1672.07	H4N2F1S1
HMG-140	1390	1672.01	H4N2F1S1
HMG-141	10	1525.84	H4N2S1
HMG-142	15	2037.033	H5N3F1S1
HMG-143	22	2037.128	H5N3F1S1
HMG-144	38	2183.265	H5N3F2S1
HMG-145	27	2183.249	H5N3F2S1
HMG-146	76	2037.22	H5N3F1S1
HMG-147	17	2183.25	H5N3F2S1
HMG-148	142	2036.8	H5N3F1S1
HMG-149	21	2182.936	H5N3F2S1
HMG-150	123	2182.888	H5N3F2S1
HMG-151	39	1525.97	H4N2S1
HMG-152	2	2037.33	H5N3F1S1
HMG-153	24	1683.865	H4N2F1S1
HMG-154	38	2037.263	H5N3F1S1
HMG-155	14	2036.986	H5N3F1S1

Fraction ID	obtained amount (nmol)	mass	composition
HMG-156	29	2183.045	H5N3F2S1
HMG-157	5	881.27, 1127.42	H2F2S1 ?
HMG-158	442	1160.32, 1172.33	H3N1S1
HMG-159	113	1160.39	H3N1S1
HMG-160	4	2036.64	H5N3F1S1
HMG-161	33	2182.95	H5N3F2S1
HMG-162	62	2036.7	H5N3F1S1
HMG-163	22	1671.68	H4N2F1S1
HMG-164	29	2036.8	H5N3F1S1
HMG-165	22	2036.89	H5N3F1S1
HMG-166	23	2036.87	H5N3F1S1
HMG-167	41	2036.86	H5N3F1S1
HMG-168	83	2036.92	H5N3F1S1
HMG-169	80	2036.9	H5N3F1S1
HMG-170	9	2048.91	H5N3F1S1
HMG-171	129	1890.87	H5N3S1
HMG-172	30	2183.46	H5N3F2S1
HMG-173	33	2256.51	H6N4S1
HMG-174	9	2037.1	H5N3F1S1
HMG-175	112	2037.28	H5N3F1S1
HMG-176	28	2183.35	H5N3F2S1
HMG-177	95	2183.23	H5N3F2S1
HMG-178	51	2183.28	H5N3F2S1
HMG-179	193	2037.18	H5N3F1S1
HMG-180	54	2402.43	H6N4F1S1
HMG-181	56	2049.51	H6N4F1S1
HMG-182	141	2183.46	H5N3F2S1
HMG-183	11	2256.59	H6N4S1
HMG-184	22	2182.89	H5N3F2S1
HMG-185	7	2255.98	H6N4S1
HMG-186	73	2401.93	H6N4F1S1
HMG-187	94	2328.92	H5N3F3S1
HMG-188	22	2182.93	H5N3F2S1
HMG-189	17	2329.1	H5N3F3S1
HMG-190	29	2183.04	H5N3F2S1
HMG-191	152	2183.03	H5N3F2S1
HMG-192	6	2183.1, 2549.34	H5N3F2S1, H6N4F2S1
HMG-193	80	2256.1	H6N4S1
HMG-194	38	2256.11	H6N4S1
HMG-195	45	2402.24	H6N4F1S1

Fraction ID	obtained amount (nmol)	mass	composition
HMG-196	32	2183.15	H5N3F2S1
HMG-197	7	2329.45, 2548.58	H5N3F3S1, H6N4F2S1
HMG-198	13	2548.56	H6N4F2S1
HMG-199	121	2548.44	H6N4F2S1
HMG-200	49	2402.36	H6N4F1S1
HMG-201	70	2548.52	H6N4F2S1
HMG-202	788	2183.38	H5N3F2S1
HMG-203	214	2402.48	H6N4F1S1
HMG-204	59	2402.47	H6N4F1S1
HMG-205	39	2402.56	H6N4F1S1
HMG-206	86	2547.972	H6N4F2S1
HMG-207	93	2548.65	H6N4F2S1
HMG-208	2460	1473.636	H3N1S2
HMG-209	74	1631.644	H3N1F1S2
HMG-210	21	1580.63	H3N1F1S2-H2O
HMG-211	6	1838.69	H4N2S2
HMG-212	7	2038, 2182.22	H5N3S2
HMG-213	8	1485.49	H3N1S2
HMG-214	7	1945.4	H4N2F1S2-H2O
HMG-215	26	1962.39, 949.13	H4N2F1S2
HMG-216	30	1946.8	H4N2F1S2-H2O
HMG-217	39	1816.67	H4N2S2
HMG-218	210	1671.67, 1944.59	H4N2F1S2-H2O
HMG-219	3	2121.15	H4N2F2S2
HMG-220	42	2225.8, 2473.58	H5N3S2, H5N3F2S2
HMG-221	19	2458.7	H5N3F2S2-H2O
HMG-222	196	1525.644, 1838.727	H4N2S2
HMG-223	95	1671.878, 1963.05	H4N2F1S2
HMG-224	26	1891.035, 2182.229	H5N3S2
HMG-225	19	1525.933, 1839.06	H4N2S2
HMG-226	26	1962.91, 2183.16, 2474.7	H4N2F1S2, H5N3S2, H5N3F2S2
HMG-227	41	2183.53, 2225.543	H5N3S2
HMG-228	20	2182.44	H5N3S2
HMG-229	54	2078.885, 2350.176	H5N3F1S2
HMG-230	23	2311.25	H5N3F1S2
HMG-231	13	2530.91	H6N4S2-H2O
HMG-232	51	1984.6	H4N2F1S2
HMG-233	59	2182.46, 2473.55	H5N3S2, H5N3F2S2
HMG-234	36	2328.57	H5N3F1S2
HMG-235	178	2281, 2500.31	H6N4S1, H5N3F4S1

Fraction ID	obtained amount (nmol)	mass	composition
HMG-236	259	1490.6, 1973.7	H3N1F2S1, ?
HMG-237	184	2792.6, 3011.8	H7N5F1S1, H8N6S1
HMG-238	88		?
HMG-239	50	2080.69, 2493	H5N3F1S1, ?
HMG-240	216	1910, 2461.15, 3220.2, 3833.8	?
HMG-241	19	1802, 1946	?
HMG-242	422	1970, 2446, 2791.1	H6N4F1S1, H7N5F1S1
HMG-243	720		?
HMG-244	158	1939, 2477.9, 2728, 3162	H5N3F2S2, ?
HMG-245	103	2416.6, 3772.36	?
HMG-246	769	2124, 2368.9, 2619, 2903	?
HMG-247	218	2060.574, 2246.6	H5N3F1S1, ?
HMG-248	3FL	Galβ1-4(Fucα1-3)Glc	
HMG-249	LNT	Galβ1-3GlcNAcβ1-3Galβ1-4Glc	
HMG-250	LNnT	Galβ1-4GlcNAcβ1-3Galβ1-4Glc	
HMG-251	LNFPI	Fucα1-2Galβ1-3GlcNAcβ1-3Galβ1-4Glc	
HMG-252	LNFPII	Galβ1-3(Fucα1-4)GlcNAcβ1-3Galβ1-4Glc	
HMG-253	LDFT	Fucα1-2Galβ1-4(Fucα1-3)Glc	
HMG-254	LNDFHI	Fucα1-2Galβ1-3(Fucα1-4)GlcNAcβ1-3Galβ1-4Glc	
HMG-255	LSTa	Neu5Acα2-3Galβ1-3GlcNAcβ1-3Galβ1-4Glc	
HMG-256	LSTb	Galβ1-3(Neu5Acα2-3)GlcNAcβ1-3Galβ1-4Glc	
HMG-257	LSTc	Neu5Acα2-6Galβ1-4GlcNAcβ1-3Galβ1-4Glc	
HMG-258	Sialyl Lea	Neu5Acα2-3Galβ1-3(Fucα1-4)GlcNAcβ1-3Galβ1-4Glc	
HMG-259	DSLNT	Neu5Acα2-3Galβ1-3(Neu5Acα2-6)GlcNAcβ1-3Galβ1-4Glc	
HMG-260	Biotin		

Table S4. Plant lectins and antibodies binding HM-SGM-v2, showing data for Fig. 2 and Fig. 3 in tabular form.

		AAL		RCA-I (10 ug/ml)		ECL	SNA	UEA-I	anti-Type1	anti-H1	anti-Lea	anti-Leb	anti-Lex	GM35	CD15	Cslex	anti-Ley
Chart ID	Sample ID	0.1 µg/ml	1 µg/ml	Alexa488	Cy5	10 µg/ml	10 µg/ml	10 µg/ml	unknown	1:10	20 µg/ml	10 µg/ml	1:20	5 µg/ml	10 µg/ml	20 µg/ml	50 µg/ml
1	HMG-1	1	-58	226	1249	23	9	-31	15	-70	1	22	9	19	22	79	9
2	HMG-2	32545	62006	115	296	5	468	-3	10	-291	4	159	11	14	15	10	11
3	HMG-3	37270	61447	-15	40	51	151	10085	12	-99	4	-263	16	77	14	44	12
4	HMG-4	-37	273	39	105	8	-130	-60	11	-265	2	-370	10	15	10	30	4
5	HMG-5	41	-77	444	268	6	-43	-58	13676	57	43	40	18	16	11	39	9
6	HMG-6	-39	-99	7453	27405	9792	-60	-67	11	49	0	32	19	31	17	-14	6
7	HMG-7	7580	54099	8	21	11	-66	312	9	47	46940	4329	98	41	17	60	12
8	HMG-8	1542	49904	9	41	4	-28	50	5498	42314	0	44	155	35	16	16	6
9	HMG-9	3983	55551	7	28	12	-40	-8	18	-114	2	62533	17	26	13	148	10
10	HMG-10	3976	45275	77	503	8	17	-25	8	-163	3	44400	25	19	23	14	15
11	HMG-11	-44	4397	5	28	1	3	-25	13	-219	13	-17	8	21	19	16	3
12	HMG-12	-71	-15	9463	56198	15300	-37	-20	18923	-137	53	239	13	37	12	77	19
13	HMG-13	31	-23	439	19390	15	30	-19	16931	61	175	51	18	38	25	39	9
14	HMG-14	8	-8	12886	51485	22895	-43	-17	11	34	4	30	9	62	14	-4	3
15	HMG-15	3	20	7485	34820	8582	-18	90	13742	27	108	31	17	26	15	15	2
16	HMG-16	-4	14	11759	57303	36690	57	45	13	25	3	29	77	10	16	12	8
17	HMG-17	33558	61016	4	49	43	425	40	14	-24	14	60818	9	61	21	23	14
18	HMG-18	-26	52	12575	59403	27874	-37	-24	17	-322	6	21	9	25	15	59	13
19	HMG-19	5168	56505	338	794	19	-60	-23	19202	-286	313	-117	161	9	24	41	9
20	HMG-20	4201	57135	9570	59213	20632	-50	-10	16	-159	35	290	147	15	41	105	9
21	HMG-21	6212	57600	262	24696	1750	-6	-26	14	90	54097	2074	59587	34	2768	54	25
22	HMG-22	1232	45109	5916	11595	2268	13	-39	10	26	715	86	587	26	25	23	21
23	HMG-23	692	44948	9850	57180	19585	-11	23	236	29	39	51	20	72	15	16	11
24	HMG-24	11324	56452	48	175	20	-4	20	9	43	43293	46444	3400	26	78	18	19
25	HMG-25	12948	61072	5	33	8	60	-14	17	-166	71	17	56141	29	25624	46	74
26	HMG-26	18267	58403	6	30	4	57	60	13	-356	53008	3792	13	28	19	43	11
27	HMG-27	-32	279	595	23582	59	-48	-4	21485	-309	246	-134	14	23	11	97	4
28	HMG-28	18675	58887	3	21133	-15	-28	35	24	9392	54101	1853	13342	31	38	35	16
29	HMG-29	1606	54332	4	721	12	-31	-39	6016	54176	9	52	15	7	19	12	8
30	HMG-30	1880	53698	7815	15624	3055	-77	-30	10	45	45415	4480	18	17	5	25	5
31	HMG-31	329	42220	8137	33797	6426	-16	7	1122	52	549	49	27	27	16	14	17
32	HMG-32	14064	56200	22	38	26	78	13	17	41	2106	20125	60086	18	28484	17	59
33	HMG-33	17	1372	2892	26252	55	-54	-45	21664	-55	1245	-10	12	30	12	37	10
34	HMG-34	6015	57596	10	14	27	45	-12	14	-282	7	58856	11	33	8	34	8
35	HMG-35	28	12723	11909	58169	33222	-12	-5	23182	-369	469	-181	15	-1	15	9	13
36	HMG-36	16888	57249	3	18	32	-3	-18	12	-267	47	53819	257	21	20	30	17
37	HMG-37	740	49089	284	332	22	-48	-50	3139	55521	1483	61	9	31	22	25	3
38	HMG-38	4649	56321	16	28	11	37	11269	2688	34956	305	447	18	14	15	9	1164
39	HMG-39	23738	59957	6	38	1	56	10945	6	64	23108	220	7737	33	91	15	3517
40	HMG-40	10380	54382	4	24	1254	-46	8	10	116	754	53117	23	25	28	10	13
41	HMG-41	1128	32968	3359	9830	219	6	-59	18919	-54	2319	36	15	23	11	35	10
42	HMG-42	27164	58613	6	20	27	136	9925	12	-311	7	49727	13	19	8	81	3105

		AAL		RCA-I (10 ug/ml)		ECL	SNA	UEA-I	anti-Type1	anti-H1	anti-Lea	anti-Leb	anti-Lex	GM35	CD15	Cslex	anti-Ley
43	HMG-43	38183	61669	3	45	32	706	868	15	-418	49907	3558	24029	46	872	72	10
44	HMG-44	4299	53738	1117	2692	68	-45	-44	22643	-135	754	-45	2102	29	33	34	7
45	HMG-45	42	892	11455	61167	42796	-68	-42	155	60	21	26	22	22	10	15	3
46	HMG-46	13180	56326	5	45	2291	-33	-9	17	171	343	54970	19	28	10	25	14
47	HMG-47	186	35009	9570	59781	32295	-45	-5	12	36	55	54	63	28	17	14	14
48	HMG-48	1738	42389	9067	55699	10158	-14	-5	14606	24	859	34	25	20	21	12	8
49	HMG-49	378	28695	4689	12996	189	-8	-60	19939	-49	1011	48	12	17	11	45	12
50	HMG-50	18406	61542	996	3098	140	-19	-8	51	-241	55447	4051	122	49	30	61	8
51	HMG-51	11268	55631	8096	24392	9270	-46	-31	4637	53705	50848	371	12	20	22	52	17
52	HMG-52	13293	59038	10832	52504	19790	-32	-55	15	-189	53349	1709	2702	11	29	78	28
53	HMG-53	17654	59108	10478	37377	17902	-46	-25	19	59	55390	1591	48595	30	118	52	63
54	HMG-54	1079	51630	10588	48265	9191	-74	-9	60	32	251	52	11	21	17	10	9
55	HMG-55	9461	57098	1495	2259	70	-49	-8	13796	50	55595	3606	44	33	19	16	9
56	HMG-56	7996	51502	156	94	24	-43	-6	13618	1917	417	36348	33	51	15	52	2
57	HMG-57	15879	54721	9309	27088	2043	129	1	44	-7	48768	1100	11	63	15	94	7
58	HMG-58	6278	51156	96	302	7	-28	-16	15774	-182	356	57	59454	23	24617	43	43
59	HMG-59	15015	50809	159	308	15	-12	9	15586	-80	46664	-155	52	28	15	97	7
60	HMG-60	6364	54496	1121	1438	112	-74	-49	13946	48435	1305	55801	16	9	9	50	18
61	HMG-61	15959	51569	145	220	-10	-36	26	15804	59	50356	3606	107	40	7	115	11
62	HMG-62	788	49774	934	904	36	-48	-36	12919	62905	2228	50760	15	21	19	47	9
63	HMG-63	2591	48263	2926	3207	184	-64	15	18271	34	11756	79	90	35	17	15	5
64	HMG-64	-24	289	10767	42511	11776	-73	-41	16850	33	1893	6	29	13	12	13	2
65	HMG-65	7465	54285	11684	59821	29878	0	12	14371	-6	15399	106	21	41	22	8	12
66	HMG-66	39	8915	11806	60760	59935	1	-31	201	-215	74	52	11	10	9	27	8
67	HMG-67	23	7698	11492	61574	45144	-86	-11	21720	3090	1498	-11	20	14	18	116	11
68	HMG-68	18644	51658	4	53	-3	-8	-40	11	-355	42628	-135	58221	61	18752	70	58
69	HMG-69	2518	48527	1459	3068	33	-75	-55	6504	36	17781	55266	12095	38	109	74	10
70	HMG-70	25138	53325	6	31	3	-34	92	9	60	51691	7830	46882	21	1001	28	11
71	HMG-71	23221	54522	4	28	-4	15	44	11	104	52404	11292	30	44	16	23	6
72	HMG-72	16075	56731	687	1107	44	-35	-16	10544	85	53493	2719	38	11	13	40	6
73	HMG-73	9892	54997	11376	51115	11952	-22	-27	12405	-13	53992	2768	10	21	12	27	11
74	HMG-74	6082	52127	10708	50158	10369	-19	-26	17000	-60	52229	1591	17	30	16	96	19
75	HMG-75	1852	49291	3877	6647	253	15	-65	21586	-163	4267	102	81	12	17	41	8
76	HMG-76	4591	48989	7785	23759	1216	-88	-55	19245	-193	3081	-125	36	28	13	42	11
77	HMG-77	20091	57465	8312	35213	5097	-66	2	809	330	54975	4814	12	37	15	19	8
78	HMG-78	19835	55935	847	1944	70	8	-33	2196	1747	50319	1098	756	61	14	3	18
79	HMG-79	21627	53942	8737	20205	1804	-40	-17	393	24	52995	9582	57	39	21	66	16
80	HMG-80	6816	53074	9484	24891	3385	-37	-8	11564	40188	151	156	13	45	16	25	9
81	HMG-81	3475	52706	10595	25358	4905	-6	-9	7909	50	15353	52174	12	33	12	45	6
82	HMG-82	17607	61048	6	26	2401	84	-22	14	-63	919	59272	35	47	27	29	15
83	HMG-83	16579	55516	58	366	157	1	-38	1515	-119	27638	51920	6935	24	75	39	9
84	HMG-84	11133	53174	5	50	709	-57	-37	853	-100	1775	53613	11	10	14	15	26
85	HMG-85	12149	54701	9697	21267	2713	-60	-21	424	1190	7634	61397	16	37	19	43	4
86	HMG-86	4700	55356	5	16	17	4	-37	11	50	53474	16413	143	28	15	60	6
87	HMG-87	14991	52940	7	22	846	-21	26	8	53	18	57842	26	45	14	21	4
88	HMG-88	15249	57154	8209	11793	1084	189	-28	10	100	681	57813	23	53	8	34	5
89	HMG-89	15484	61570	16269	59893	14179	24	3	28498	7065	59672	18008	2101	65	50	25	11

		AAL		RCA-I (10 ug/ml)		ECL	SNA	UEA-I	anti-Type1	anti-H1	anti-Lea	anti-Leb	anti-Lex	GM35	CD15	Cslex	anti-Ley
90	HMG-90	17440	58775	11074	26619	3045	11	40	14288	3610	63222	34988	24275	32	85	132	6
91	HMG-91	15643	62325	9025	18380	1743	-37	-5	7280	3774	61014	39800	5544	37	30	30	6
92	HMG-92	12815	61595	9161	18188	1632	-80	-28	5352	1826	59934	21579	3047	77	37	22	11
93	HMG-93	10945	58737	9542	12557	821	31	3	2655	765	62186	13165	2448	3235	16	49	3
94	HMG-94	12060	60316	11722	16690	898	1139	6	2817	535	51816	8479	4492	5908	34	-10	9
95	HMG-95	13490	60554	12567	21517	1252	2194	29	3826	314	59055	8697	3402	13694	13	30	11
96	HMG-96	15031	63434	11295	25357	997	11052	48	1602	189	58691	4757	3330	12174	45	66	14
97	HMG-97	-4	-23	7454	12506	13	25562	-12	16490	-59	32	34	15	37	10	65	7
98	HMG-98	-36	-24	10021	54674	5698	25303	-55	16	-187	3	30	21	39	11	96	8
99	HMG-99	4360	52753	5	29	28	-67	-81	17	3	5	37	104	53204	19	30	11
100	HMG-100	5475	47572	2756	2346	-10	37869	-78	13	-39	43009	888	15	5940	19	1	7
101	HMG-101	3530	47308	6252	10267	13	48102	-72	13	72	0	37	28	15	12	33	16
102	HMG-102	935	37710	2005	1428	-5	44709	-14	11	67	3	48010	27	50	9	37	5
103	HMG-103	4891	49790	5382	7933	24	44854	-15	17	24	199	52	85	13467	29	26	9
104	HMG-104	-2	-41	16	97	-2	-41	-26	12	44	24	16	24	14	40	14	5
105	HMG-105	-35	182	4	59	-6	-15	-79	18	-113	10	107	9	56903	23	29	22
106	HMG-106	-21	-43	5721	17632	9	47734	-83	12	-111	2	34	12	58	12	46	2
107	HMG-107	1358	48326	380	550	40	-54	-74	18764	-94	660	-17	14	22	17	-10	22
108	HMG-108	29189	60485	9	38	17	510	-65	22	-283	28	36	17	44423	13	30	9
109	HMG-109	-32	3970	-7	15	21	-44	-96	10	48	484	872	11	2	14	68	4
110	HMG-110	409	24360	6	104	18	2	17	12	112	4	63	16	53	13	19	10
111	HMG-111	30311	60712	13	168	40	502	15	13	15	58	84	24	26	13	24	5
112	HMG-112	3175	57247	2	56	25	-69	-37	9	33	47	71	28	56214	9	34	36
113	HMG-113	-37	12	4164	3799	1	44256	-98	14	-62	3	3	11	71	15	11	18
114	HMG-114	31210	60751	3705	2286	-1	42878	-54	12	-414	3	61	8	17224	13	70	11
115	HMG-115	-15	81	6671	24206	21	36915	-76	21	-83	9	-51	14	51	18	-35	5
116	HMG-116	2498	41	2	24	-9	-2	-86	17	-110	27	47	189	25	13	60	11
117	HMG-117	-51	-57	5	36	-1	-67	-77	15	30	5	20	16	28	12	22	5
118	HMG-118	-48	-26	809	505	15	825	-17	16	95	1	48	21	29	17	19	10
119	HMG-119	298	29971	6	43	-2	5	34	11	-5	4603	2738	97	5280	19	13	9
120	HMG-120	-15	-18	32	277	11	-66	3	10	37	37	43	28	7	14	60	7
121	HMG-121	-12	-46	8450	36797	6543	644	-101	206	4	81	13	15	16	20	46	3
122	HMG-122	1988	52143	16	203	49	-12	-57	21	-208	154	35	41	32	23	23	10
123	HMG-123	-39	-36	7899	16056	25	40807	-60	14764	-52	70	87	8	35	18	40	8
124	HMG-124	-40	-6	10158	55718	50	49469	-109	15780	-57	36	-87	15	38	13	123	2
125	HMG-125	-65	114	10395	59968	8380	38585	-47	11	43	36	33	13	42	24	70	16
126	HMG-126	1027	40183	56	103	22	84	-6	11912	19	748	88	111	519	10	32420	6
127	HMG-127	-84	544	9517	59964	5147	47675	16	16	38	3	37	19	5	12	11	8
128	HMG-128	9414	54265	5	51	27	-37	-25	10	43	413	48	107	60669	26	48	28
129	HMG-129	7195	53092	7	48	25	-27	-64	121	-43	1203	39	28	61386	22	30	22
130	HMG-130	4829	48808	3658	4013	14	40641	-82	13	-119	44452	1217	19	2306	11	30	5
131	HMG-131	2874	51616	5	61	23	-77	-110	48	-294	25	-42	90	55360	20	11	19
132	HMG-132	4185	49419	6352	13767	22	47026	-69	12	-146	8	174	158	17	21	39	13
133	HMG-133	1688	49613	8583	26790	9	51993	-50	16	86	3	6	597	-3	20	7	2
134	HMG-134	28584	59267	3902	6229	27	49606	15	18	40	16	62	19	47	10	8	7
135	HMG-135	6730	53067	8	86	12	135	-6	14	18	12370	90	51	55594	16	29	16
136	HMG-136	330	33957	3288	1762	0	40709	-29	2546	1115	9	50	270	1598	23	7	4

		AAL		RCA-I (10 ug/ml)		ECL	SNA	UEA-I	anti-Type1	anti-H1	anti-Lea	anti-Leb	anti-Lex	GM35	CD15	Cslex	anti-Ley
137	HMG-137	537	25466	2329	1523	-8	41390	-44	9	-39	3	43370	24	23	6	45	6
138	HMG-138	2599	54772	264	613	-7	10762	-52	18	-289	548	178	69	38248	39	18	15
139	HMG-139	159	22217	5918	5870	-2	47683	-68	14	-153	8	5	19	27	6	27	11
140	HMG-140	3835	55391	7906	11547	4	54782	-66	11	-74	10	-38	235	8	45	18	6
141	HMG-141	-24	28	10432	60542	4567	49152	-34	6	52	14	24	58	30	11	32	5
142	HMG-142	294	26716	1692	3139	273	-33	-30	20852	52	491	85	36	58416	25	10	13
143	HMG-143	2238	58740	11072	33156	45	61534	-11	15	59	8	43	2063	21	37	13	6
144	HMG-144	6032	62841	84	185	20	17	-5	16675	80	9458	58	38	60237	20	34	4
145	HMG-145	9864	60483	697	967	-3	40309	-29	13	9	59390	201	45	2328	56	51	8
146	HMG-146	-6	9821	11274	55150	28	56509	-67	17491	-244	279	19	33	23	20	20	5
147	HMG-147	15869	58223	4	41	-3	-7	-41	14	-167	54746	-26	164	58511	17	60	14
148	HMG-148	482	27328	10556	61668	122	51066	-50	19015	-121	1116	470	16	26	11	46	5
149	HMG-149	11382	56672	6410	10597	9	52987	-27	19	70	54630	1555	23	9712	16	24	12
150	HMG-150	15633	57535	6062	5528	34	53701	-8	9	35	54017	1539	1907	24	74	17	6
151	HMG-151	-77	-2	6663	13088	6	39936	-15	16092	19	74	22	25	22	21	19	7
152	HMG-152	409	31688	11439	60958	1636	56473	9	2455	21	53	4680	8	11	27	27	2
153	HMG-153	588	40566	51	506	25	-47	-49	25	-50	504	179	16	2315	41	-10	12
154	HMG-154	403	28715	1955	3219	56	-35	-50	18495	-209	2695	22	17	513	18	55	3
155	HMG-155	927	43068	2341	4201	39	23	-48	4577	-134	22988	-119	20	6	11	25	5
156	HMG-156	9614	56449	7	75	37	-57	-33	15	-132	53277	703	319	37	9	23	5
157	HMG-157	-17	-31	6	32	23	33	-25	17	58	4	48	18	15150	11	55	4
158	HMG-158	-22	-36	16	161	15	-44	-43	37	53	25	29	11	4586	34	31	11
159	HMG-159	-46	112	9	56	1	-32	-9	17	42	1	21	37	57723	26	21	14
160	HMG-160	105	11602	516	1511	58	30	41	21072	54	541	29	13	24	31	56	5
161	HMG-161	16501	61916	11	195	31	-34	5	12	-53	53826	1046	15	1	15	59	6
162	HMG-162	10	8284	9885	55249	20	51948	-44	18099	-218	204	54	16	4	12	9	10
163	HMG-163	184	28306	7715	18385	-6	55990	-9	25	-208	59	41	23	25	14	16	6
164	HMG-164	193	20886	2250	5310	81	-35	-23	19067	-22	870	-94	28	36	24	37	6
165	HMG-165	738	38267	11777	59532	5799	53052	3	1844	48	202	66	17	17660	19	196	7
166	HMG-166	874	36589	9290	27919	34	51109	7	17001	33	704	31	11	9404	16	70	6
167	HMG-167	174	17371	942	1774	51	-53	-13	17752	45	3350	32	27	10	12	11	6
168	HMG-168	428	27130	185	537	13	-89	-28	19950	35	543	29	19	59445	14	42	4
169	HMG-169	712	33554	8320	27844	136	43490	-13	20378	-65	134	14	26	1583	14	-21	3
170	HMG-170	3281	46913	13581	58115	1603	60055	-34	3908	-188	18	-1	73	18	11	47	2
171	HMG-171	-55	-31	14660	61314	21099	59153	-23	10	-162	9	-55	24	18	8	37	3
172	HMG-172	3825	58284	82	-3	21	-55	28	23390	-59	1166	-5	11	30461	11	-9	18
173	HMG-173	11	-10	5155	14109	3788	-7	1	7677	38	95	31	21	7	10	16	4
174	HMG-174	555	23795	212	756	48	368	5	74	36	8	38	47	41809	24	85	17
175	HMG-175	1254	56040	8948	9352	30	60369	11	11	24	9	32	21	18	30	34	4
176	HMG-176	10895	58199	10	12	4	-43	-39	90	33	6256	43	24359	1399	84	29	4
177	HMG-177	3991	54243	102	135	16	9	29	20903	-75	1219	18	19	59914	24	67	11
178	HMG-178	16144	58020	1569	1131	4	47677	-19	16	-21	54310	240	31	6475	21	82	5
179	HMG-179	-5	8896	9934	52564	34	48403	-26	18831	154	170	25	33	37	17	78	4
180	HMG-180	1467	53289	11327	35702	5292	-10	-18	14249	232	6290	28	23	43128	19	133	13
181	HMG-181	64	10257	7936	36781	176	41850	5	18618	33	67	19	22	27	12	53	3
182	HMG-182	12783	60833	16	3	15	-48	6	8	30	58773	1988	1688	32126	29	50	5
183	HMG-183	-13	49	6832	22138	789	18279	36	13851	8	48	52	13	26	25	46	6

		AAL		RCA-I (10 ug/ml)		ECL	SNA	UEA-I	anti-Type1	anti-H1	anti-Lea	anti-Leb	anti-Lex	GM35	CD15	Cslex	anti-Ley
184	HMG-184	12047	57093	28	93	21	-55	-22	15	34	57595	2092	27	254	19	16	2
185	HMG-185	15	50	7881	22937	793	18567	0	705	-49	8	17	15	64	42	14	10
186	HMG-186	1333	53626	212	513	16	-24	-3	25835	-59	555	150	45	59068	17	9	3
187	HMG-187	16510	57265	7	46	6	1278	-23	11	-135	52428	13628	19	60071	14	68	49
188	HMG-188	4969	54394	6422	9895	10	50990	-8	1007	1200	5198	205	26	2576	14	31	2
189	HMG-189	6286	60375	19	-46	27	4	15	13	32	25329	128	14314	61381	16	66	8
190	HMG-190	5565	55705	8751	21182	15	55385	-7	18	34	23	51	53	52	11	42	9
191	HMG-191	9140	56283	5986	5617	32	50877	25	213	16	51953	1577	27	25	18	44	5
192	HMG-192	17753	62669	1854	3123	30	28304	17	6	14	62458	1171	68	30701	15	22	3
193	HMG-193	13	20	13396	60706	6581	56374	-9	21848	-25	11	22	14	25	21	16	4
194	HMG-194	-2	9	13467	60522	5911	50823	-13	26109	-86	124	11	19	11	7	40	6
195	HMG-195	8553	58971	10392	32420	4740	-52	-16	12	-188	55703	1949	30	57894	22	82	20
196	HMG-196	873	49669	7686	24882	21	56664	-20	15	-57	22	-21	40	43	13	39	8
197	HMG-197	16608	61553	713	2238	153	-32	21	71	50110	57528	5061	54	45611	21	26	13
198	HMG-198	19938	60759	4222	3785	15	53842	12	12	42	59888	5717	13	121	12	35	4
199	HMG-199	15825	61165	5915	12193	328	14980	-12	48	56	56666	1535	46	60178	20	13	38
200	HMG-200	1787	59617	8748	9159	45	53978	9	7679	65	61921	1027	10	14	37	41	3
201	HMG-201	3637	61135	300	630	43	-47	-22	19391	-45	6008	65	14	62249	20	71	16
202	HMG-202	14613	58228	8553	23255	41	54184	-5	13	-65	53930	1733	944	20	24	-5	6
203	HMG-203	8803	43658	12308	62816	3256	53422	-16	15	-103	54782	1959	28	10	11	25	6
204	HMG-204	664	32113	9856	33581	64	49889	-26	20896	-94	38	16	34	18	11	7	2
205	HMG-205	646	44412	9270	18113	20	46853	-18	24570	27	474	21	45	36	13	20	7
206	HMG-206	10904	62228	7	27	26	-45	-35	10	49	60756	2266	181	63288	36	63	10
207	HMG-207	11353	60960	3828	1429	8	51399	-31	48	59	58350	2391	58	19	22	38	3
208	HMG-208	4	14	7	98	9	-74	-10	28	44	2	37	-7	61149	10	40	6
209	HMG-209	60	13986	10	90	20	-83	-45	11	-41	4	36	29	58959	17	-3	11
210	HMG-210	-34	8085	6	82	10	-79	-36	14	-48	34	52	19	59257	17	50	11
211	HMG-211	-13	14286	10	345	-1	-79	-32	19	-76	446	-146	26	62307	17	51	11
212	HMG-212	12250	61672	13	35	13	29	-6	18	-211	58212	920	194	57356	24	17	8
213	HMG-213	-62	37	12	86	-7	3	-16	19	56	6	71	480	49104	19	17	16
214	HMG-214	2429	56727	7	61	-4	-51	-65	13	21	31	25	171	13	12	15	5
215	HMG-215	5	11343	-2	42	2	-114	-54	30	56	123	56	18	27994	12	47	6
216	HMG-216	1572	54408	6	28	12	-31	-66	10	45	175	29	-84	35	19	84	7
217	HMG-217	-46	1114	4947	5655	13	41568	-51	15	29	188	65	10	1423	19	76	10
218	HMG-218	1873	56560	6	227	25	-59	-59	15	-83	5	111	65	58631	17	-3	5
219	HMG-219	986	46372	5	118	-7	-60	-53	21	-164	609	-115	18	62729	23	34	12
220	HMG-220	11407	62547	4	99	13	-54	-54	43	-101	56382	349	1007	59300	51	27	9
221	HMG-221	4596	59246	42	369	23	-53	-33	5895	26	56000	190	25	41298	24	77	9
222	HMG-222	-78	-80	8927	35532	-20	53776	-112	18	32	2	34	22	1	19	22	9
223	HMG-223	1744	55623	-38	124	3	-224	-91	14	57	13677	84	88	47328	80	111	10
224	HMG-224	-80	-76	42	24	-3	-132	-94	13636	86	2152	38	5	57764	20	77	6
225	HMG-225	-22	-28	4417	4798	1416	-82	-68	28	-19	21	85	25	43876	30	229	13
226	HMG-226	4475	61057	7	96	4	-87	-73	16	-15	57024	225	20	5132	11	59	4
227	HMG-227	5890	60738	8	156	-4	197	-59	20	-202	57789	769	27	51748	12	17	6
228	HMG-228	14125	58185	13	107	-12	-48	-55	16	-166	54776	6	2199	19	30	15	8
229	HMG-229	14	27299	9932	18819	-23	59304	-67	14	37	876	39	18	2793	33	11	4
230	HMG-230	103	23171	17	337	16	-113	-109	13288	39	3214	22	8	20156	28	27	3

		AAL		RCA-I (10 ug/ml)		ECL	SNA	UEA-I	anti-Type1	anti-H1	anti-Lea	anti-Leb	anti-Lex	GM35	CD15	Cslex	anti-Ley
231	HMG-231	7	900	7792	8654	2111	-268	-58	7868	77	1512	41	24	53880	19	42	5
232	HMG-232	-10	10808	-18	39	-11	-147	-119	1634	38	61	27	-17	32790	17	15	71
233	HMG-233	12011	60612	7	82	1	-46	-22	18	-37	56927	835	2085	53679	10	33	7
234	HMG-234	553	44552	185	814	32	-55	-74	21996	-44	14926	62	16	54884	5	18	3
235	HMG-235	4476	62176	9241	31578	662	8543	-26	5405	-122	26729	-117	79	31074	27	36	8
236	HMG-236	8518	60269	6579	29400	290	8988	-16	4103	109	22670	2	477	30807	61	43	18
237	HMG-237	8855	60239	7395	21725	239	14008	-3	789	295	34342	762	527	21903	37	23	20
238	HMG-238	2601	6452	428	5732	51	-119	-112	158	92	326	132	97	1109	19	41	11
239	HMG-239	-23	240	221	250	8	-103	-49	18	24	1	21	13	26	31	27	6
240	HMG-240	-72	479	47	-39	20	-140	-37	14	78	11	93	-14	-5	26	37	3
241	HMG-241	4836	62213	5169	7168	274	1165	1	4188	-80	54917	810	36	61281	19	24	9
242	HMG-242	5400	62196	5738	10528	287	1285	-49	12593	-42	48761	654	113	63632	15	69	8
243	HMG-243	10055	62582	6899	12569	167	5648	-44	1400	-132	60639	2587	404	48749	26	52	12
244	HMG-244	12874	63818	7911	15440	295	4844	23	574	-103	55948	28	297	53365	19	25	15
245	HMG-245	556	31548	1465	1166	19	-20	-15	24	60	2929	162	22	56877	22	12	7
246	HMG-246	728	40038	1963	4713	14	12687	-121	31	48	4842	63	98	63972	25	35	18
247	HMG-247	1500	48840	5476	4674	32	19286	-151	44	72	9270	183	0	32612	28	16	11
248	3FL	30427	60745	73	-54	-2	543	-50	16	34	2	144	-26	64	10	82	11
249	LNT	-57	-18	429	379	14	-54	-30	21323	-23	48	45	19	30	30	64	10
250	LNnT	14	-41	8479	44293	13007	-86	-96	17	-41	2	54	22	73	21	-10	4
251	LNFPI	1352	48854	-2	43	12	-92	-102	3578	58834	8	-166	16	40	28	20	3
252	LNFPII	11846	59350	2	25	2	-30	177	13	-132	49738	2256	20	34	19	21	14
253	LDFT	30334	61476	-1	50	22	632	10747	14	40	1	107	38	37	23	42	5
254	LNDFHI	9868	62747	-16	465	37	-106	-114	41	76	7	61542	28	2021	21	92	14
255	LSTa	-79	-15	-60	19	8	-189	-119	17	65	165	63	129	55813	18	55	11
256	LSTb	-59	-23	10	-60	13	15	-32	7	19	1	35	4	216	12	84	7
257	LSTc	-40	6	6100	3266	19	60474	-54	26	21	2	47	16	40	19	120	8
258	Sialyl Lea	2816	28169	-45	20	12	-132	-145	22	-59	0	35	15	6960	9	38	7
259	DSLNT	-57	-116	-56	225	9	-159	-179	16	-170	2	-112	15	45085	23	177	22
260	Biotin	2587	4783	1147	1565	845	1353	5913	9	-20	15	-7	8	20	21	64	3

Table S5. Rotavirus VP8* binding HM-SGM-v2, showing data for Fig. 4 and Fig. 5 in tabular form.

		VP8*N155					VP8*RV3					VP8*B223		
Chart ID	Sample ID	2 µg/ml	20 µg/ml	200 µg/ml	Neura 200 µg/ml	Fucase 200 µg/ml	2 µg/ml	20 µg/ml	200 µg/ml	Neura 200 µg/ml	Fucase 200 µg/ml	2 µg/ml	20 µg/ml	Neura 200 µg/ml
1	HMG-1	1	1	6	5	27	3	8	30	1	35	2	126	137
2	HMG-2	2	1	6	7	31	3	6	30	3	47	2	228	197
3	HMG-3	2	2	10	3	28	4	8	37	1	46	1	208	197
4	HMG-4	1	3	3	1	20	1	2	6	1	22	1	11	30
5	HMG-5	3	3	6	6	40	5473	7607	6145	6223	3755	2	211	176
6	HMG-6	3	4	78	24	48	1	6	42	2	32	7	1301	592
7	HMG-7	4	4	10	2	28	1	12	27	7	28	1	190	169
8	HMG-8	2	2	5	6	24	6054	14962	7021	7627	3039	0	75	200
9	HMG-9	2	2	8	4	26	1	19	52	6	32	3	230	190
10	HMG-10	1	3	7	5	28	1	7	30	3	26	0	147	116
11	HMG-11	1	1	3	2	21	1	5	10	0	23	0	10	35
12	HMG-12	6	14	119	29	36	0	10	25	5	33	3	886	361
13	HMG-13	14467	34539	23253	18320	19604	1	17	52	6	47	0	274	212
14	HMG-14	15272	36807	23802	20683	20159	1	3	31	6	32	83	3797	4310
15	HMG-15	2	17	143	15	39	1	4	12	2	25	1	581	288
16	HMG-16	3	932	1770	395	32	1	13	24	2	28	123	4556	2927
17	HMG-17	3	7	3	5	38	1	11	25	3	37	3	186	324
18	HMG-18	14122	34452	23945	19153	21978	1	11	36	4	23	723	8899	3808
19	HMG-19	10	18	5	4	22	2	13	22	2	30	1	269	209
20	HMG-20	1	8	21	6	30	2	7	20	6	43	136	4437	1695
21	HMG-21	17995	37753	23246	20287	20734	1	6	35	8	36	1	490	237
22	HMG-22	1	5	14	1	27	7	11	11	3	26	1	320	200
23	HMG-23	2	1111	1846	675	73	5	18	41	3	32	1036	9331	5420
24	HMG-24	1	4	7	2	22	2	10	15	5	20	0	132	111
25	HMG-25	3	6	4	5	23	2	9	29	2	33	1	202	159
26	HMG-26	3	4	4	4	22	1	3	38	1	29	6	220	170
27	HMG-27	20448	38111	25558	22416	22573	1	10	58	3	41	1	205	164
28	HMG-28	20041	38029	24451	21410	22235	4	17	46	6	44	2	363	265
29	HMG-29	4	2896	10846	8017	21518	2	21	98	7	53	1	249	208
30	HMG-30	1	3	12	3	32	1	6	29	5	32	1	392	247
31	HMG-31	2	18	79	16	56	1	28	40	6	31	297	4612	2823
32	HMG-32	0	3	4	2	21	2	18	32	6	25	1	132	155
33	HMG-33	14119	34297	22308	18681	20033	22	600	157	47	113	1	224	158
34	HMG-34	4	10	26	9	22442	1	19	27	5	34	3	289	256
35	HMG-35	6	16	51	19	74	1	14	36	3	42	4	768	403
36	HMG-36	1	1	6	2	25	1	14	23	5	29	1	149	179
37	HMG-37	3	3	4	6	29	6969	22565	6102	8453	8419	1	215	215
38	HMG-38	0	2	19	6	73	2	33	50	9	33	1	106	175
39	HMG-39	3	1	4	4	27	2	7	21	3	21	1	68	154
40	HMG-40	2	3	3	2	19	3	10	41	2	24	1	138	1484
41	HMG-41	1	1	7	6	25	12902	28255	8581	11341	13335	2	213	209
42	HMG-42	2	3	5	3	21	3	3	18	4	32	2	113	155
43	HMG-43	2	2	5	2	34	1	7	27	2	49	1	209	229
44	HMG-44	1	2	14	4	32	3	8	40	4	29	1	228	220
45	HMG-45	1490	13574	16712	15573	10427	1	4	23	4	35	169	6326	4474
46	HMG-46	1	1	8	6	144	2	3	76	4	28	0	228	1682
47	HMG-47	75	9116	18201	12666	2478	1	5	23	8	25	2548	11069	8714
48	HMG-48	0	4	14	6	24	3529	11742	1452	3083	509	2	769	350
49	HMG-49	2	6	9	4	36	15746	34431	9088	11933	12756	2	346	228
50	HMG-50	3	35	155	36	1312	0	16	33	3	42	2	552	586
51	HMG-51	31	2764	6564	4330	15432	1	38	51	20	45	5	434	310
52	HMG-52	32	2251	2871	2867	649	1	9	27	3	24	5	1035	437
53	HMG-53	1	2	6	10	40	1	13	34	1	30	2	741	361
54	HMG-54	1	345	504	157	59	2	7	45	7	31	1133	8109	7351
55	HMG-55	1	3	3	3	26	13731	32440	8167	11916	12672	2	260	532
56	HMG-56	3	1	2	4	7278	11058	26373	6957	9269	10969	1	146	106
57	HMG-57	1	5	9	8	37	3	5	18	3	20	0	312	228
58	HMG-58	3	5	3	3	22	1	9	22	3	33	1	147	128
59	HMG-59	1	2	23	3	26	4	6	23	4	33	6	147	152
60	HMG-60	1	25	216	94	18122	2	52	122	20	49	1	228	205
61	HMG-61	3	1	3	4	40	4	7	19	5	32	1	156	140
62	HMG-62	1	17	27	5	16424	8056	23227	6847	10232	10020	0	101	238
63	HMG-63	1	7	23	4	35	4	12	26	2	27	1	110	152
64	HMG-64	3	5	54	9	25	2	10	19	3	22	1	482	293

		VP8*N155					VP8*RV3					VP8*B223		
Chart ID	Sample ID	2 μg/ml	20 μg/ml	200 μg/ml	Neura 200 μg/ml	Fucase 200 μg/ml	2 μg/ml	20 μg/ml	200 μg/ml	Neura 200 μg/ml	Fucase 200 μg/ml	2 μg/ml	20 μg/ml	Neura 200 μg/ml
65	HMG-65	926	7756	17342	12921	9922	6	8	43	4	32	27	2227	1928
66	HMG-66	4	1915	12142	7106	2774	1	37	96	9	45	896	9953	6712
67	HMG-67	3	1781	7639	4686	5298	1	5	46	5	37	6	1178	672
68	HMG-68	1	4	7	3	22	0	5	25	4	32	1	111	136
69	HMG-69	2	1	3	4	28	6381	18976	6176	10183	10451	1	278	215
70	HMG-70	2	1	9	9	28	3	4	21	3	26	1	152	159
71	HMG-71	1	2	24	7	29	1	6	13	4	29	1	84	119
72	HMG-72	1	3	3	3	20	4	27	47	8	27	1	116	65
73	HMG-73	2	3	11	2	48	0	6	18	5	32	2	618	263
74	HMG-74	1	2	36	16	35	11	5	29	2	30	2	517	259
75	HMG-75	1	5	26	17	38	0	11	30	1	34	0	184	150
76	HMG-76	1	3	14	3	36	14392	33234	8505	12823	13170	2	785	345
77	HMG-77	1	23	219	35	76	2	8	34	4	35	3	606	305
78	HMG-78	2	21	330	83	81	2	3	35	2	30	0	218	234
79	HMG-79	3	2	16	5	26	5	16	30	2	29	1	300	251
80	HMG-80	1	4	46	7	95	1	5	22	5	22	1	331	257
81	HMG-81	2	36	518	108	106	1	7	30	3	44	2	263	274
82	HMG-82	3	7	8	4	24	3	10	51	12	26	2	225	2330
83	HMG-83	4	2	4	2	22	1	47	162	87	67	1	91	560
84	HMG-84	0	3	6	8	92	1	6	45	5	33	1	194	1127
85	HMG-85	6	181	229	112	93	1	6	26	2	28	1	527	301
86	HMG-86	4	10	6	3	20	2	9	26	1	32	1	124	171
87	HMG-87	1	5	5	1	17	4	9	18	2	26	3	81	1953
88	HMG-88	3	4	9	14	32	2	12	22	16	27	2	198	247
89	HMG-89	1732	15530	19223	16303	20604	4159	17298	3738	9199	4395	2	1331	488
90	HMG-90	795	8292	16919	13545	15293	5	82	331	158	106	8	575	432
91	HMG-91	928	8047	16641	10388	14778	1	30	249	100	88	3	310	293
92	HMG-92	897	8175	16186	13136	13017	1	53	220	70	60	1	386	286
93	HMG-93	103	3924	9900	11147	7281	2	14	113	24	48	1	240	254
94	HMG-94	97	4503	8978	11053	3931	3	17	145	33	36	3	265	308
95	HMG-95	25	2786	6742	9406	711	2	33	161	55	45	1	170	291
96	HMG-96	4	333	1795	4705	195	3	17	106	20	31	3	188	456
97	HMG-97	1	12	3	11	25	1	2	23	3	28	1	177	379
98	HMG-98	3	2	9	340	28	3	7	31	1	27	1	560	4153
99	HMG-99	1	3	4	2	20	1	7	20	3	29	1	80	168
100	HMG-100	2	3	3	7	22	0	2	26	5	30	1	173	266
101	HMG-101	1	2	7	4	18	2	6	12	3	30	2	104	1696
102	HMG-102	2	4	4	4	19	0	2	16	4	33	1	84	293
103	HMG-103	2	3	14	7	22	1	2	21	1	23	1	126	1626
104	HMG-104	4	16	5	2	27	1	6	16	6876	28	1	138	200
105	HMG-105	2	3	10	12	34	144	562	1279	7806	134	2	174	223
106	HMG-106	2	2	2	8	22	1	2	4	2	21	1	13	2508
107	HMG-107	1	1	7	5	25	1	10	29	7	38	2	220	192
108	HMG-108	1	2	12	6	31	848	1525	3296	10416	810	2	188	253
109	HMG-109	2	2	2	2	25	1	4	18	2	24	1	14	70
110	HMG-110	2	5	6	2	28	2	11	31	10729	45	2	130	230
111	HMG-111	5	1	4	4	28	3	9	26	10177	36	1	138	272
112	HMG-112	1	2	6	4	25	1	12	24	3	31	1	184	256
113	HMG-113	2	11	9	50	33	1	2	27	4	37	2	228	1302
114	HMG-114	8	13	5	7	34	0	10	26	3	30	1	231	1062
115	HMG-115	1	5	4	11821	17	2	8	20	2	25	1	191	4075
116	HMG-116	1	1	1	1	15	1	2	3	1	25	1	192	6
117	HMG-117	1	2	10	5	47	4	5	36	3	46	1	181	247
118	HMG-118	7	10	5	8	27	1	8	36	1	25	1	249	276
119	HMG-119	1	4	3	7	30	2	3	36	4	36	1	87	255
120	HMG-120	6	2	7	25022	27	3	2	25	6	33	3	149	251
121	HMG-121	2	7	39	82	31	1	2	18	5	33	1	555	375
122	HMG-122	3	3	5	3	20	9	10	17	4	41	5	286	249
123	HMG-123	1	2	3	14	21	3	4	21	6	29	1	235	408
124	HMG-124	1	5	2	4	15	3	1963	8	1	15	0	7	87
125	HMG-125	1	6	36	6418	34	1	4	19	3	22	5	1680	2615
126	HMG-126	4	2	7	4	29	2	4	29	5	32	31	117	204
127	HMG-127	3	11	11	2308	20	1	4	24	3	26	2	475	3567
128	HMG-128	3	9	5	3	15	1	6	15	3	25	0	101	173
129	HMG-129	2	2	3	2	28	1	28	67	15	51	1	206	227
130	HMG-130	4	2	6	6	20	1	4	16	4	31	1	235	266
131	HMG-131	0	3	3	2	24	2	8	18	3	25	0	226	238
132	HMG-132	1	1	6	6	31	2	12	26	1	29	2	195	1883

		VP8*N155					VP8*RV3					VP8*B223		
Chart ID	Sample ID	2 µg/ml	20 µg/ml	200 µg/ml	Neura 200 µg/ml	Fucase 200 µg/ml	2 µg/ml	20 µg/ml	200 µg/ml	Neura 200 µg/ml	Fucase 200 µg/ml	2 µg/ml	20 µg/ml	Neura 200 µg/ml
133	HMG-133	2	2	2	2	20	1	4	6	2	21	1	12	2660
134	HMG-134	1	1	5	7	32	1	6	26	3	40	1	188	1050
135	HMG-135	1	2	6	2	20	3	8	52	2	33	1	95	253
136	HMG-136	1	1	6	2	21	2	5	17	3	19	1	79	311
137	HMG-137	2	2	3	2	38	13	31	11	33	31	0	170	302
138	HMG-138	1	5	16	9	22	2	39	104	259	59	1	231	284
139	HMG-139	1	2	7	2179	29	1	6	26	3	28	9	281	4554
140	HMG-140	3	1	2	12	21	2	7	20	2	41	0	200	2225
141	HMG-141	3	6	11	73	26	2	5	19	2	28	1	561	2862
142	HMG-142	3	3	5	5	27	14244	33184	8299	14063	14913	2	254	253
143	HMG-143	3	2	5	12	32	2	7	28	3	28	1	139	4356
144	HMG-144	3	5	2	7	24	3	7	21	6	22	0	83	165
145	HMG-145	4	9	7	3	22	3	3	13	4	26	1	68	214
146	HMG-146	1	9	8	60	22	18	3	23	3	30	0	190	4893
147	HMG-147	2	2	9	2	24	1	5	29	7	27	0	145	171
148	HMG-148	0	2	5	10	29	13005	32801	7100	11627	13168	1	347	2919
149	HMG-149	2	1	9	13	24	1	3	16	4	30	1	127	3765
150	HMG-150	4	6	6	9	22	2	4	20	2	30	1	137	1169
151	HMG-151	1	1	4	18	23	3	3	22	4	29	1	100	400
152	HMG-152	1	6	19	32	63	1620	7348	1119	3877	1178	4	751	4764
153	HMG-153	1	5	8	4	27	1	10	42	9058	29	1	225	274
154	HMG-154	1	6	8	62	25	8951	26858	7018	13122	13172	1	317	262
155	HMG-155	1	3	7	5	28	2	47	102	12022	63	1	282	230
156	HMG-156	1	8	3	7	26	3	12	40	11	32	1	174	187
157	HMG-157	3	7	6	5	78	1	7	19	9	33	0	151	149
158	HMG-158	1	2	11	5	28	2	14	101	8424	44	1	195	266
159	HMG-159	4	2	7	5	35	109	825	1637	8042	168	1	191	303
160	HMG-160	2	6	4	6	22	2	8	14	13866	26	1	25	113
161	HMG-161	4	9	8	3	22	3	3	31	1	35	3	109	169
162	HMG-162	2	4	4	25	21	1	5	17	4	22	1	241	4706
163	HMG-163	1	2	6	1490	29	1	5	46	6	37	1	262	6096
164	HMG-164	1	6	5	1	33	10134	28246	6842	12873	10940	1	299	254
165	HMG-165	2	4	11	35	42	4	7	38	8	35	82	4757	4990
166	HMG-166	3	1	4	7	25	591	2227	530	4240	173	1	161	308
167	HMG-167	1	2	6	6	24	2	4	33	12204	31	1	93	176
168	HMG-168	8	41	4	3	23	15694	33334	8770	12542	15343	1	127	240
169	HMG-169	2	7	3	7	24	9573	27514	6525	13580	11419	1	200	1028
170	HMG-170	1	3	4	8	18	1	2	12	3	22	2	42	4323
171	HMG-171	4	6	12	43	34	3	2	18	6	28	1	537	4176
172	HMG-172	2	1	5	3	32	2	4	21	8	37	1	161	182
173	HMG-173	3	5	7	5	35	1	5	17	9	37	1	264	243
174	HMG-174	7	2	6	7	30	2	4	27	6	29	2	72	170
175	HMG-175	3	3	4	8	20	2	5	22	7	25	1	205	2550
176	HMG-176	3	3	5	6	18	2	7	16	5	26	1	132	184
177	HMG-177	3	7	5	4	26	6	10	15	6	27	1	86	216
178	HMG-178	2	2	6	737	19	2	5	15	3	21	1	162	326
179	HMG-179	2	6	3	16	22	1	7	14	8	27	1	217	4234
180	HMG-180	3	3	13	11	25	2	5	13	3	26	1	444	408
181	HMG-181	7	14	4	3	37	8335	25100	5177	9159	8565	0	221	1306
182	HMG-182	12	12	5	8	21	2	10	18	3	26	1	143	198
183	HMG-183	1	1	7	11	25	2	2	16	10	28	3	102	359
184	HMG-184	3	2	3	4	20	2	8	26	11084	23	2	84	162
185	HMG-185	4	10	8	5	26	2	6	34	6	37	6	84	324
186	HMG-186	1	8	5	7	21	1	5	29	10	27	2	175	231
187	HMG-187	1	3	2	3	21	3	10	18	2	62	3	181	337
188	HMG-188	6	3	4	15	25	2	2	16	5	30	2	144	4100
189	HMG-189	4	6	5	10	23	2	6	18	18	24	3	61	248
190	HMG-190	3	2	5	689	20	1	3	19	18	27	1	170	9275
191	HMG-191	2	13	6	5	26	1	4	17	8	26	1	105	3996
192	HMG-192	1	2	6	48	29	3	4	9	2	29	1	34	128
193	HMG-193	1	2	10	10	25	3	6	21	3	19	0	186	4039
194	HMG-194	3	5	11	79	21	2	2	21	5	19	0	197	3690
195	HMG-195	4	4	33	15	41	1	5	16	3	22	2	546	381
196	HMG-196	1	3	9	13	28	1	3	25	4	28	3	143	6278
197	HMG-197	0	3	6	8761	58	3	59	196	118	85	1	233	1505
198	HMG-198	4	3	15	5	16	2	12	21	11	32	1	181	348
199	HMG-199	1	3	10	3	33	1	5	35	9	29	1	199	322
200	HMG-200	1	1	2	8	19	2	4	17	10	25	3	97	178

		VP8*N155					VP8*RV3					VP8*B223		
Chart ID	Sample ID	2 µg/ml	20 µg/ml	200 µg/ml	Neura 200 µg/ml	Fucase 200 µg/ml	2 µg/ml	20 µg/ml	200 µg/ml	Neura 200 µg/ml	Fucase 200 µg/ml	2 µg/ml	20 µg/ml	Neura 200 µg/ml
201	HMG-201	2	2	8	2	26	6	4	23	6	30	2	82	154
202	HMG-202	1	1	3	7	35	2	22	13	4	23	1	177	1792
203	HMG-203	1	6	12	53	34	0	2	15	6	32	2	496	3440
204	HMG-204	4	2	6	3	23	1	4	21	3	29	1	106	1016
205	HMG-205	1	2	6	5	19	0	3	24	15	29	1	163	1110
206	HMG-206	3	3	9	2	27	1	7	29	5	33	1	189	239
207	HMG-207	2	4	5	10	20	1	4	15	7	32	0	107	789
208	HMG-208	3	4	7	3	42	1	2	30	7771	23	1	135	368
209	HMG-209	2	5	6	5	22	1	6	23	5	33	1	133	199
210	HMG-210	4	12	11	9	32	0	6	28	4	35	1	197	315
211	HMG-211	1	4	7	19881	22	1	8	30	12	36	3	222	357
212	HMG-212	1	27	3	3	25	2	15	37	4	22	3	159	275
213	HMG-213	2	3	3	3	25	1	4	15	9656	28	2	59	185
214	HMG-214	3	3	4	4	25	1	4	29	13	27	2	102	214
215	HMG-215	1	1	9	4	20	1	7	54	454	36	0	65	224
216	HMG-216	1	4	2	3	20	1	4	21	1	23	1	80	210
217	HMG-217	0	4	5	2937	23	2	3	27	5	31	1	99	400
218	HMG-218	3	1	4	2	23	9	23	33	7	29	1	169	232
219	HMG-219	2	2	6	8	22	3	8	20	15	29	1	174	285
220	HMG-220	2	2	7	2	30	1	15	60	23	41	2	168	271
221	HMG-221	2	3	8	24	28	36	668	351	6937	147	0	240	285
222	HMG-222	1	4	4	1198	25	2	9	23	12	25	2	155	3101
223	HMG-223	2	2	3	5	24	1	5	29	3	24	0	72	238
224	HMG-224	3	8	16	18930	25	3	7	23	21	25	1	124	251
225	HMG-225	4	2	29	16	35	2	3	20	4	33	1	391	453
226	HMG-226	2	1	8	3	22	2	19	23	11515	21	2	184	240
227	HMG-227	2	1	4	8	27	1	10	28	12209	27	2	166	271
228	HMG-228	2	2	6	3	23	1	8	31	5	26	1	175	211
229	HMG-229	4	1	3	2992	27	1	2	17	8	27	1	126	5253
230	HMG-230	1	2	8	3	27	2	22	55	11859	35	0	130	248
231	HMG-231	2	4	36	26	31	2	8	36	5	30	2	308	401
232	HMG-232	3	3	10	4	21	1	1	29	11214	22	1	64	133
233	HMG-233	0	2	5	2	15	2	4	21	4	25	0	120	163
234	HMG-234	1	6	3	5	24	6308	21608	5913	13777	11545	1	175	241
235	HMG-235	3	725	3959	8293	277	6	93	278	159	64	2	228	441
236	HMG-236	4	79	328	2054	78	3	53	118	41	63	2	245	468
237	HMG-237	3	42	174	1222	77	1	31	97	7	47	0	223	455
238	HMG-238	1	15	11	10	20	4	11	16	1130	34	1	63	97
239	HMG-239	4	18	5	1	17	2	3	6	0	20	0	3	14
240	HMG-240	1	3	8	17	20	1	5	31	3	19	0	18	132
241	HMG-241	5	430	3543	10577	1592	3	30	104	365	49	2	192	359
242	HMG-242	1	149	1230	12849	264	3	54	199	5587	65	18	367	524
243	HMG-243	1	5	145	14851	107	1	15	100	838	89	1	292	612
244	HMG-244	4	31	300	16204	154	2	38	95	1759	43	1	302	666
245	HMG-245	3	6	21	4989	54	3	19	75	46	42	1	164	365
246	HMG-246	2	2	10	1012	26	3	14	30	1481	31	1	200	563
247	HMG-247	4	7	22	193	52	5	49	59	204	44	1	157	620
248	3FL	2	1	6	2	26	2	6	47	2	25	1	48	230
249	LNT	1	3	3	2	26	3727	10076	6003	7760	3816	1	395	259
250	LNnT	1	18	38	17	35	1	5	29	3	24	19	2133	1103
251	LNFPI	1	2	6	2	33	3223	8837	6800	8853	817	1	253	272
252	LNFPII	2	9	6	2	33	2	14	33	4	37	0	263	238
253	LDFT	1	3	6	4	56	1	7	31	1	43	2	204	300
254	LNDFHI	4	3	13	5	44	2	23	60	5	27	1	312	366
255	LSTa	5	11	11	3	20	9	128	746	1925	27	1	141	153
256	LSTb	1	3	5	3	29	2	9	40	7810	37	0	48	212
257	LSTc	1	5	6	32	36	2	7	34	6	40	2	290	1084
258	Sialyl Lea	0	6	9	2	19	1	3	6	1	22	1	32	37
259	DSLNT	1	1	1	1	45	2	6	35	8293	32	1	228	228
260	Biotin	1	2	3	1	22	1	2	4	2	14	1	2	4

Table S6: Virological and clinical characteristics of rotavirus strains used in this study

Variable	**N155**	**RV3**	**B223**
Stool sample from	Human, neonate	Human, neonate	Bovine, calf
Genotype	G10P[11]	G3P[6]	G10P[11]
Country of origin	India	Australia	United States
Gastrointestinal symptoms reported in subject	Yes	No	Yes
Reassortant virus	Yes (Bovine-human reassortant)	No	No
Origin of VP4 gene	Bovine	Human	Bovine
VP4 genotype exclusively associated with presence or absence of GI symptoms?	No. P[11] viruses have been detected in stool samples from neonates with GI symptoms and those with asymptomatic infections	No. P[6] viruses belonging to the same cluster as RV3 have been isolated from symptomatic neonates	No.