Supplemental Spectra S1

Tandem mass spectra of peptides derived from bovine α 1(V) collagen. Each spectrum is accompanied by a table of sequence-specific product ions identified from the spectrum along with product ion mass errors. Localized modifications are indicated above the table and are identified as bold letters in the peptide sequence. Unlocalized and pseudolocalized sites of modification are also given. Note: each product ion in the table met the requirements of having < 10 ppm mass error and a signal-to-noise ratio > 3.

Bovine

1.

K24-OH.Gal.Glc, P27-OH

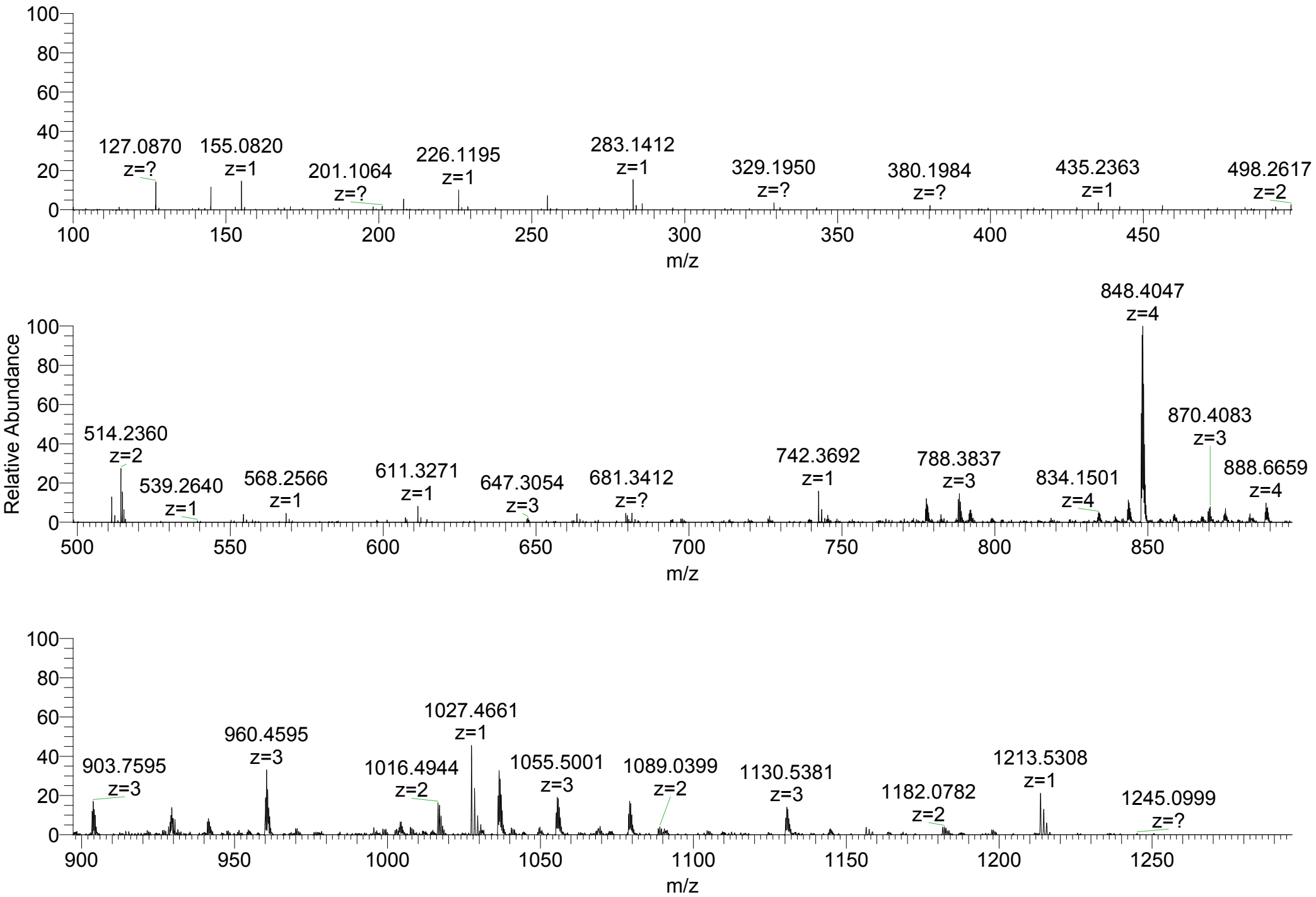
#1-36: GPAGPMGLTGRPGPMGPPGSGGL**K**GE**P**GDMGPQGPR

Ion	charge state	Theoretical *m/z* (mono)	Experimental *m/z* (mono)	Mass error (Da)	Mass error (PPM)
[M+4OH]+4OH+Gal.Glc	4	928.9276	928.9309	0.0132	3.6
a2/GP-28	1	127.0866	127.0870	0.0004	3.1
b2/GP	1	155.0815	155.0820	0.0005	3.2
PQ/PAG	1	226.1186	226.1195	0.0009	4.0
b4/GPQ	1	283.1401	283.1412	0.0011	3.9
y3	1	329.1932	329.1950	0.0018	5.5
y10+OH	2	514.2349	514.2360	0.0022	2.1
b7	1	568.2548	568.2566	0.0018	3.2
y6	1	611.3260	611.3270	0.0010	1.6
y7	1	742.3665	742.3692	0.0027	3.6
b26+3OH	3	788.0475	788.0466	-0.0027	-1.1
[M+4H]+4OH	4	847.9012	847.9055	0.0172	5.1
y28+4OH	3	903.4220	903.4261	0.0123	4.5
y30+4OH	3	960.1239	960.1223	-0.0048	-1.7
b23+2OH	2	1016.4906	1016.4944	0.0076	3.7
y10+OH	1	1027.4626	1027.4661	0.0035	3.4
y32+OH	3	1036.1550	1036.1595	0.0135	4.3
y33+4OH	3	1055.1621	1055.1654	0.0099	3.1
[M+3H]+4OH	3	1130.1992	1130.2025	0.0099	2.9
y12+OH	1	1213.5266	1213.5308	0.0042	3.5

***Unlocalized sites: P18-OH?, P12-OH?,P14-OH?,M15-oxidation?,P17-OH?**

Pseudolocalized sites: P12-OH, P18-OH

2_2_2012Col5a1_Bovine_HCD1_CE30 #3404 RT: 28.21 AV: 1 NL: 1.12E5
T: FTMS + p NSI d Full ms2 929.43@hcd30.00 [100.00-2000.00]



Bovine

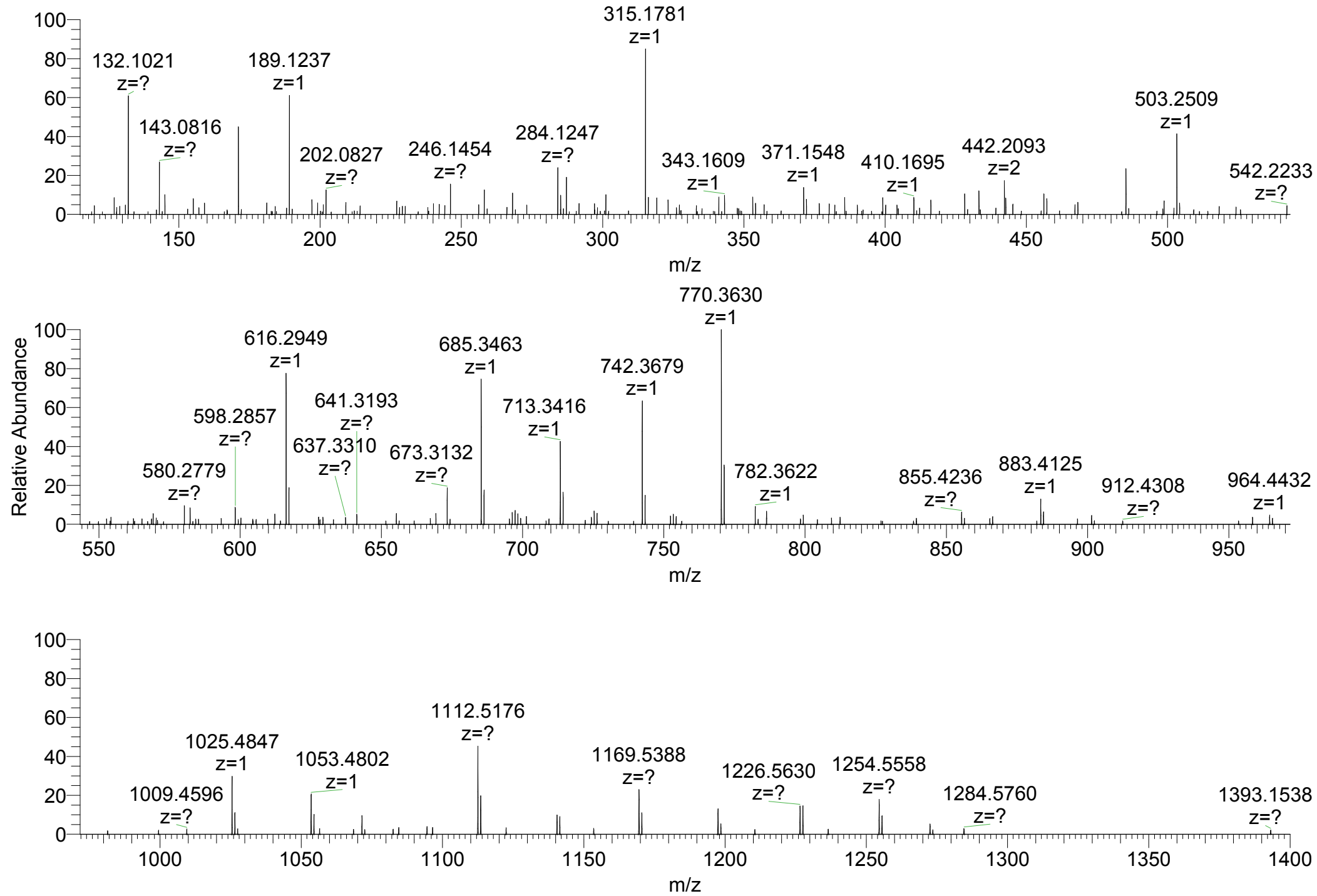
2.

P12-OH, P17-OH, P18-OH

#9-23: TGR**P**GPMG**PP**GSGGL

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH	2	693.3275	693.3293	0.0036	2.6
y1	1	132.1019	132.1021	0.0002	1.5
GP-28+OH	1	143.0815	143.0816	0.0001	0.7
y2	1	189.1234	189.1237	0.0003	1.6
y3	1	246.1448	246.1454	0.0006	2.4
GPP+2OH	1	284.1241	284.1247	0.0006	2.1
b3	1	315.1775	315.1781	0.0006	1.9
b9+2OH	2	442.2082	442.2093	0.0022	2.5
b5+OH	1	485.2467	485.2518	0.0051	10.5
y6+OH	1	503.2460	503.2509	0.0049	9.7
y7+2OH	1	616.2937	616.2949	0.0012	1.9
y8+2OH	1	673.3151	673.3132	-0.0019	-2.8
a7+OH	1	685.3450	685.3463	0.0013	1.9
b7+OH	1	713.3399	713.3416	0.0017	2.4
a8+OH	1	742.3665	742.3679	0.0014	1.9
b8+OH	1	770.3614	770.3630	0.0016	2.1
b9+2OH	1	883.4091	883.4125	0.0034	3.8
a11+3OH	1	1025.4833	1025.4847	0.0014	1.4
b11+3OH	1	1053.4782	1053.4802	0.0020	1.9
y12+3OH	1	1071.4775	1071.4752	-0.0023	-2.1
a12+3OH	1	1112.5153	1112.5176	0.0023	2.1
b12+3OH	1	1140.5102	1140.5161	0.0059	5.2
a13+3OH	1	1169.5368	1169.5388	0.0020	1.7
b13+3OH	1	1197.5317	1197.5282	-0.0035	-2.9
a14+3OH	1	1226.5582	1226.5630	0.0048	3.9
y13+3OH	1	1227.5786	1227.5687	-0.0099	-8.1
b14+3OH	1	1254.5532	1254.5558	0.0026	2.1

4_5_2012Col5a1_Chmy_HCD1 #2591 RT: 17.21 AV: 1 NL: 4.88E6
T: FTMS + p NSI d Full ms2 693.33@hcd35.00 [115.00-1400.00]



Bovine

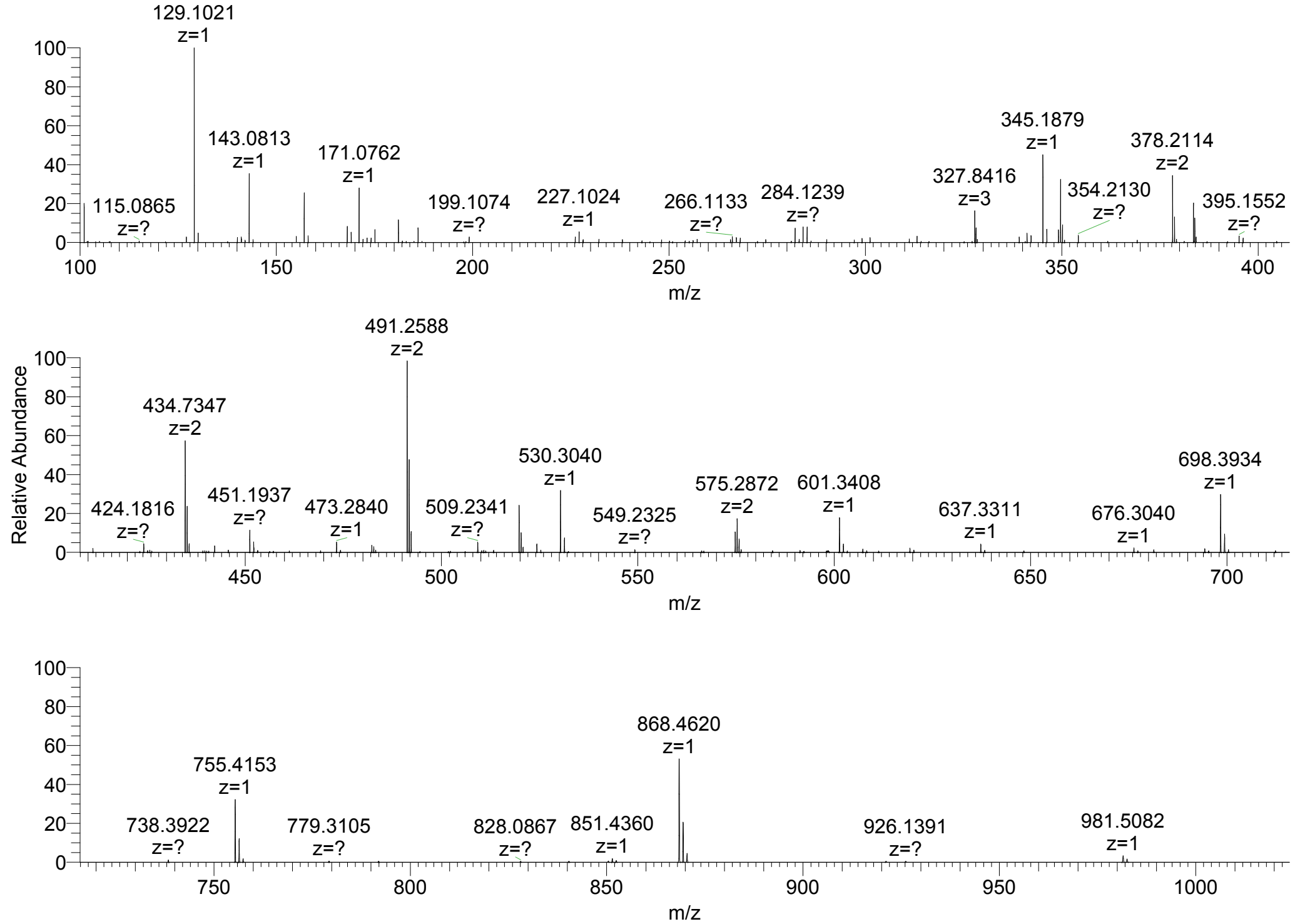
3.

P41-OH, P42-OH, P48-OH

#37-50: GVQG**PP**GPAGK**P**GR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+3OH	3	441.5652	441.5658	0.0018	1.4
K	1	129.1022	129.1021	-0.0001	-0.8
PG-28+OH	1	143.0815	143.0813	-0.0002	-1.4
b2	1	157.0972	157.0970	-0.0002	-1.3
PG+OH	1	171.0764	171.0762	-0.0002	-1.2
y10+3OH	3	327.8419	327.8416	-0.0009	-0.9
y3+OH	1	345.1881	345.1879	-0.0002	-0.6
y7+OH	2	349.7008	349.7005	-0.0006	-0.9
y8+OH	2	378.2116	378.2114	-0.0004	-0.5
b13+3OH	3	383.5280	383.5320	0.0120	10.4
y9+2OH	2	434.7354	434.7347	-0.0014	-1.6
y10+3OH	2	491.2592	491.2588	-0.0008	-0.8
y11+3OH	2	519.7700	519.7692	-0.0016	-1.5
y5+OH	1	530.3045	530.3040	-0.0005	-0.9
y12-NH3+3OH	3	575.2860	575.2872	0.0036	2.1
y6+OH	1	601.3416	601.3408	-0.0008	-1.3
y7+OH	1	698.3944	698.3942	-0.0002	-0.3
y8+OH	1	755.4159	755.4153	-0.0006	-0.8
y9+OH	1	868.4635	868.4620	-0.0015	-1.7

2_25_2012Col5a1_Bovine_ArgC_CE35_3 #313 RT: 4.43 AV: 1 NL: 9.58E6
T: FTMS + p NSI d Full ms2 441.56@hcd35.00 [100.00-1335.00]



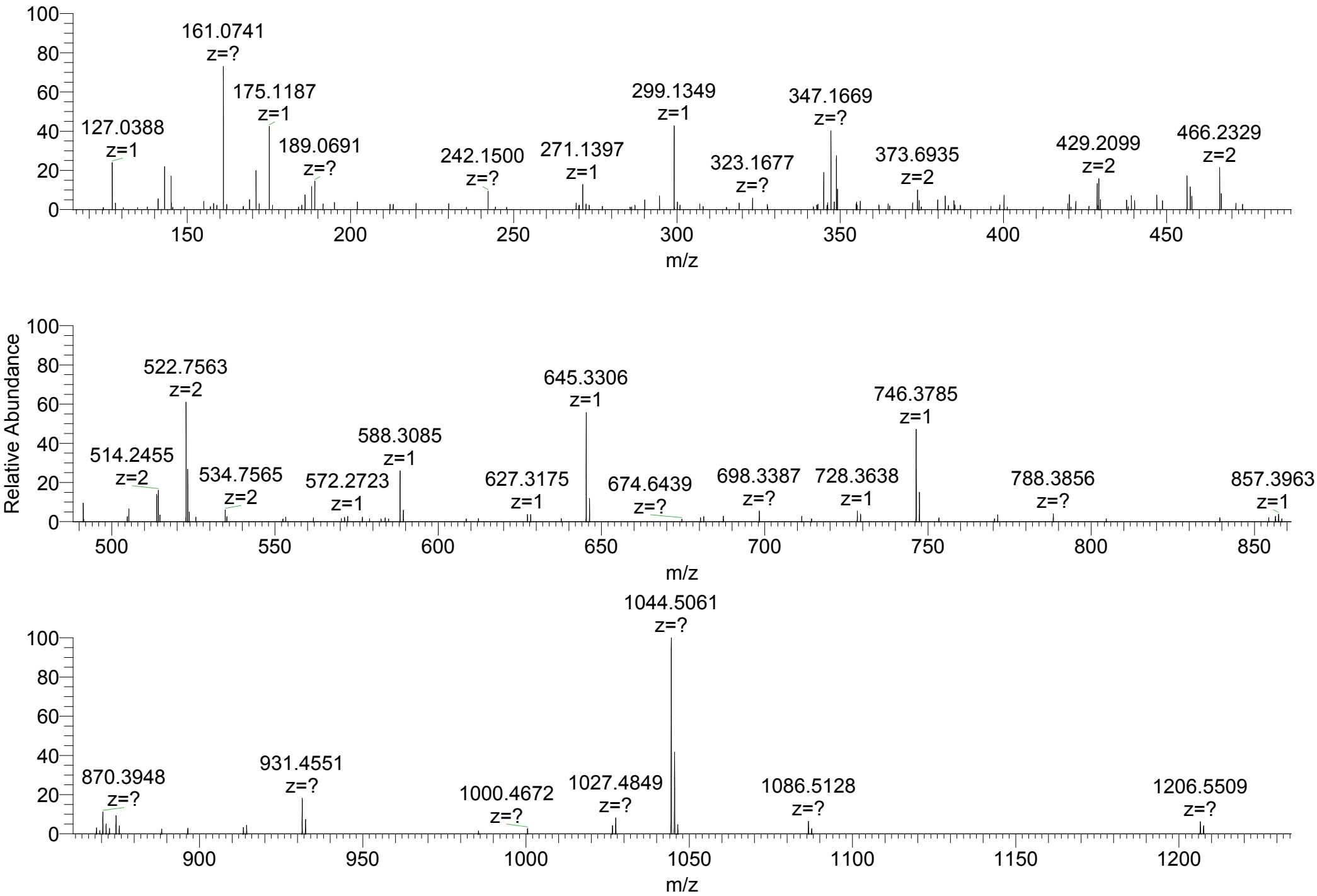
4.

P63-OH, K69-OH.Gal.Glc

#61-72: GM**P**GQTGP**K**GDR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+2OH+Gal.Glc	3	519.5630	519.5634	0.0012	0.8
a2	1	161.0743	161.0741	-0.0002	-1.2
y1	1	175.1190	175.1187	-0.0003	-1.7
b2	1	189.0692	189.0691	-0.0001	-0.5
PK+OH	1	242.1499	242.1500	0.0001	0.4
PGQ-28+OH	1	271.1401	271.1397	-0.0004	-1.5
PGQ+OH/KGQ+OH	1	299.1350	299.1349	-0.0001	-0.3
y3	1	347.1674	347.1669	-0.0005	-1.4
y7+OH	2	373.6932	373.6935	0.0006	0.8
y8-H2O+OH	2	428.7172	428.7176	0.0008	0.9
y8-NH3+OH	2	429.2092	429.2099	0.0014	1.6
y9+OH	2	466.2332	466.2329	-0.0006	-0.6
y4+OH	1	491.2572	491.2584	0.0012	2.4
y10-H2O+2OH	2	513.7518	513.7515	-0.0006	-0.6
y10-NH3+2OH	2	514.2438	514.2455	0.0034	3.3
y10+2OH	2	522.7571	522.7563	-0.0016	-1.5
y7+OH	1	746.3791	746.3785	-0.0006	-0.8
y8+OH	1	874.4377	874.4346	-0.0031	-3.5
y9+OH	1	931.4592	931.4551	-0.0041	-4.4
y10+2OH	1	1044.5069	1044.5061	-0.0008	-0.8
y10+2OH+Gal	1	1206.5597	1206.5509	-0.0088	-7.3

4_5_2012Col5a1_ArgC_HCD5 #357 RT: 3.54 AV: 1 NL: 1.99E5
T: FTMS + p NSI d Full ms2 519.56@hcd35.00 [115.00-1570.00]



5.

P81-OH, K84-OH.Gal.Glc

#73-87: GFDGLAGL**P**GE**K**GHR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+2OH+Gal.Glc	3	622.9620	622.9606	-0.0042	-2.2
F	1	120.0808	120.0804	-0.0004	-3.3
a2	1	177.1022	177.1017	-0.0005	-2.8
b2	1	205.0972	205.0966	-0.0006	-2.9
GLA/LGA/AGL	1	242.1499	242.1495	-0.0004	-1.7
DGL	1	286.1397	286.1390	-0.0007	-2.4
b3/FDG	1	320.1241	320.1233	-0.0008	-2.5
y3	1	369.1993	369.1991	-0.0002	-0.5
y7+2OH	2	406.7041	406.7032	-0.0018	-2.2
DGLAG	1	414.1983	414.1971	-0.0012	-2.9
y9+2OH	2	491.7569	491.7555	-0.0028	-2.8
y10+2OH	2	527.2754	527.2744	-0.0020	-1.9
y12+2OH	2	612.3282	612.3284	0.0004	0.3
y13+2OH	2	669.8417	669.8415	-0.0004	-0.3
y6+OH	1	699.3533	699.3500	-0.0033	-4.7
y7+2OH	1	812.4009	812.3985	-0.0024	-3.0
y8+2OH	1	925.4850	925.4853	0.0003	0.3
y9+2OH	1	982.5065	982.5068	0.0003	0.3
y10+2OH	1	1053.5436	1053.5417	-0.0019	-1.8
y12+2OH	1	1223.6491	1223.6455	-0.0036	-2.9
y13+2OH	1	1338.6761	1338.6726	-0.0035	-2.6

2_25_2012Col5a1_Bovine_ArgC_CE35_3 #3233 RT: 25.05 AV: 1 NL: 5.47E4
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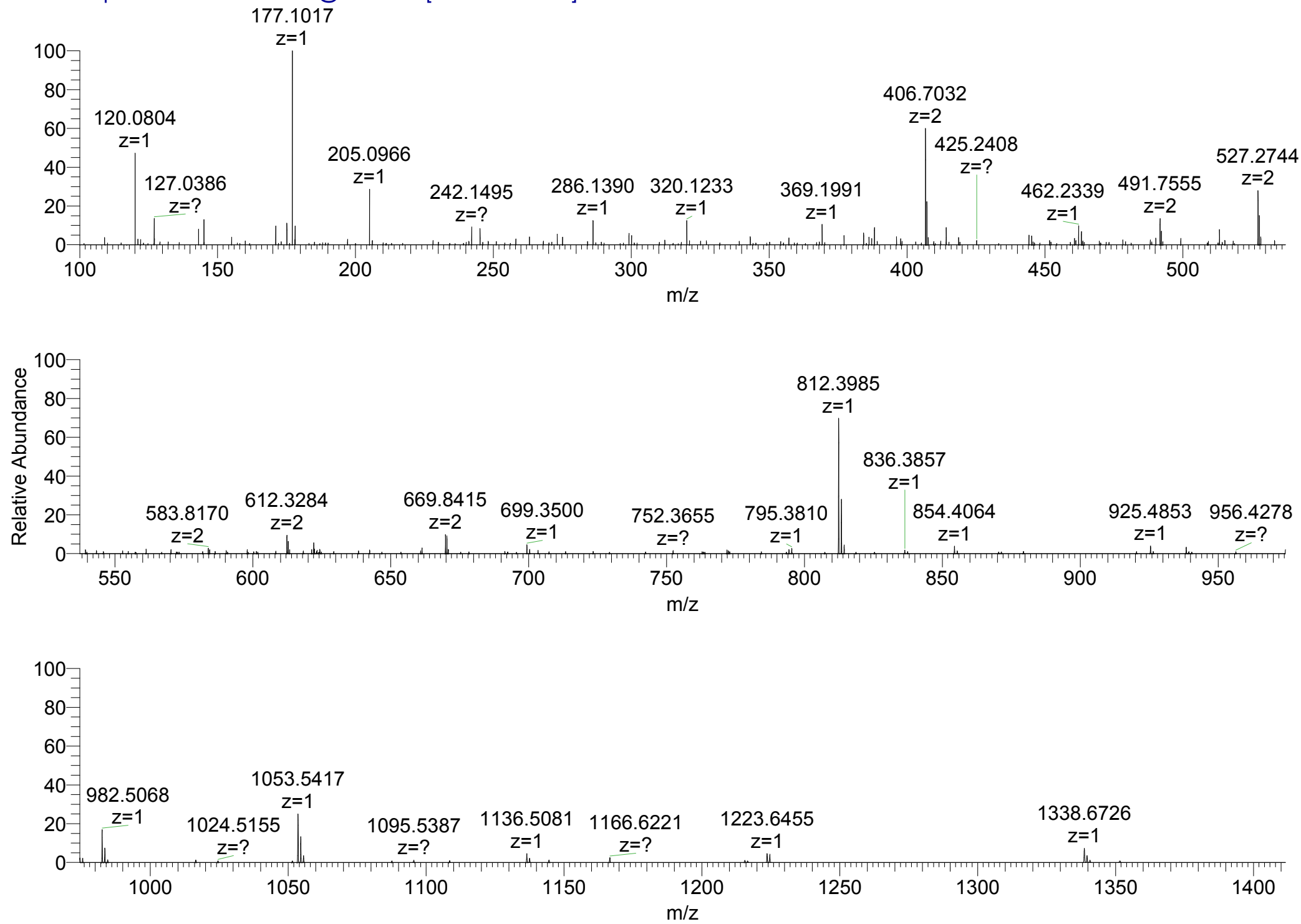


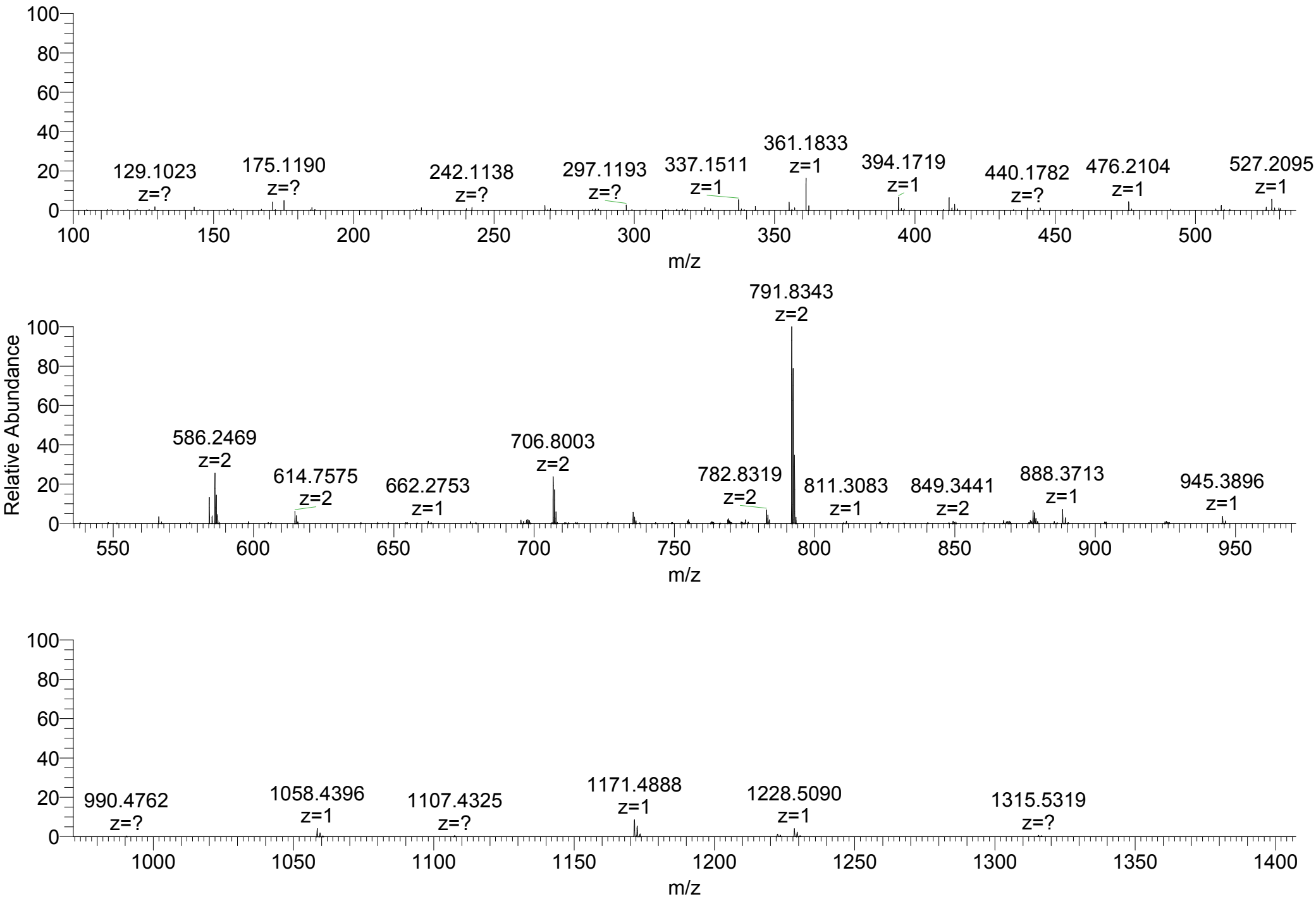
6.

P90-OH, P95-OH, P96-OH, P98-OH, P99-OH

#88-105: GD**P**GPSG**PP**G**PP**GEDGER

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+5OH	2	887.8586	887.8584	-0.0004	-0.2
y3	1	361.1830	361.1833	0.0003	0.8
GPSGP-H2O+OH	1	394.1721	394.1719	-0.0002	-0.5
y4	1	476.2100	476.2104	0.0004	0.8
b6	1	527.2096	527.2095	-0.0001	-0.2
b7-H2O+OH	1	566.2205	566.2205	0.0000	0.0
b7+OH	1	584.2311	584.2308	-0.0003	-0.5
y11+4OH	2	586.2467	586.2469	0.0004	0.3
y12+4OH	2	614.7575	614.7575	0.0000	0.0
y14-H2O+4OH	2	697.7946	697.7933	-0.0026	-1.9
y14+4OH	2	706.7999	706.8003	0.0008	0.6
y16-H2O+5OH	2	782.8291	782.8319	0.0056	3.6
y16+5OH	2	791.8344	791.8343	-0.0002	-0.1
PPGPPGEP+4OH	1	811.3105	811.3083	-0.0022	-2.7
y17+5OH	1	849.3479	849.3441	-0.0038	-4.5
[M+2H]+5OH	2	877.8586	877.8582	-0.0008	-0.5
y8+2OH	1	888.3694	888.3713	0.0019	2.1
y9+2OH	1	945.3908	945.3895	-0.0013	-1.4
y10+3OH	1	1058.4385	1058.4396	0.0011	1.0
y11+4OH	1	1171.4862	1171.4888	0.0026	2.2
y12+4OH	1	1228.5077	1228.5090	0.0013	1.1

2_2_2012Col5a1_Bovine_HCD1_CE30 #383 RT: 4.37 AV: 1 NL: 1.54E5
T: FTMS + p NSI d Full ms2 878.36@hcd30.00 [100.00-1770.00]



7.

P117-OH, P120-OH

#115-123: GL**P**GE**P**GPR

MS^2: GL**P**GEPGPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+2OH	2	456.2327	456.2334	0.0014	1.5
a2	1	143.1179	143.1183	0.0004	2.8
PGE+OH	1	300.1190	300.1198	0.0008	2.7
y7+2OH(MS^3)	2	371.1799	371.1806	0.0014	1.9
y4+OH	1	442.2409	442.2417	0.0008	1.8
y6+OH	1	628.3049	628.3034	-0.0015	-2.4
y7+OH	1	741.3526	741.3545	0.0019	2.6

MS^3: **P**GE**P**GPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
a2/PG-28+OH	1	143.0815	143.0821	0.0006	4.2
b2/GP+OH	1	171.0764	171.0771	0.0007	4.1
y4+OH	2	221.6241	221.6250	0.0018	4.1
EPG-28+OH	1	272.1241	272.1252	0.0011	4.0
b3+OH	1	300.1190	300.1202	0.0012	4.0
y3	1	329.1932	329.1944	0.0012	3.6
[M+2H]+2OH	2	371.1799	371.1813	0.0028	3.8
y4-NH3+OH	1	425.2143	425.2157	0.0014	3.3
y4+OH	1	442.2409	442.2424	0.0015	3.4
b5+2OH	1	470.1882	470.1894	0.0012	2.6
y5-H2O+2OH	1	553.2729	553.2751	0.0022	4.0
y5+OH	1	571.2835	571.2852	0.0017	3.0
y6+OH	1	628.3049	628.3064	0.0015	2.4

2_2_2012Col5a1_Bovine_us2Top3_120203220224 #691 RT: 10.70 AV: 1 NL: 1.05E6
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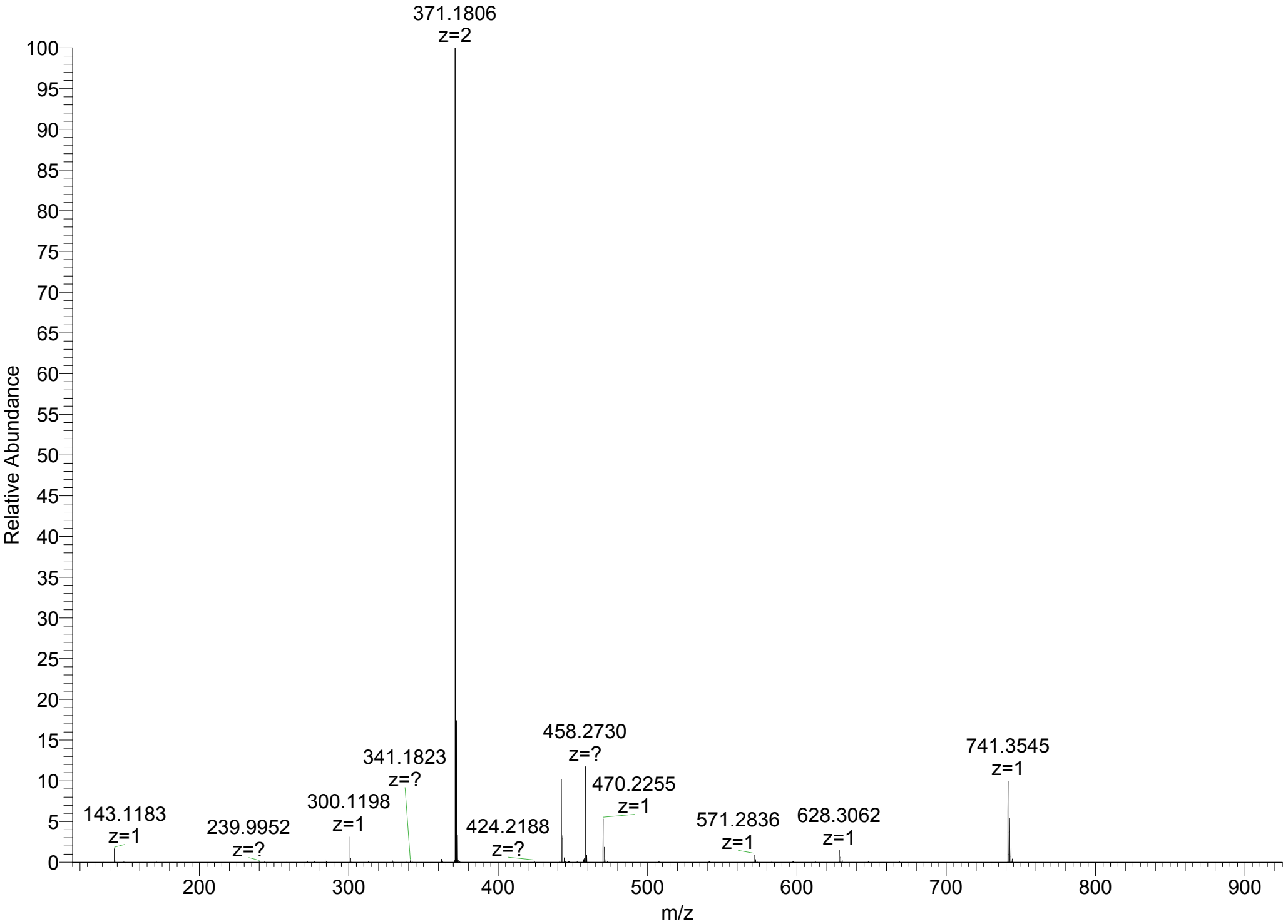

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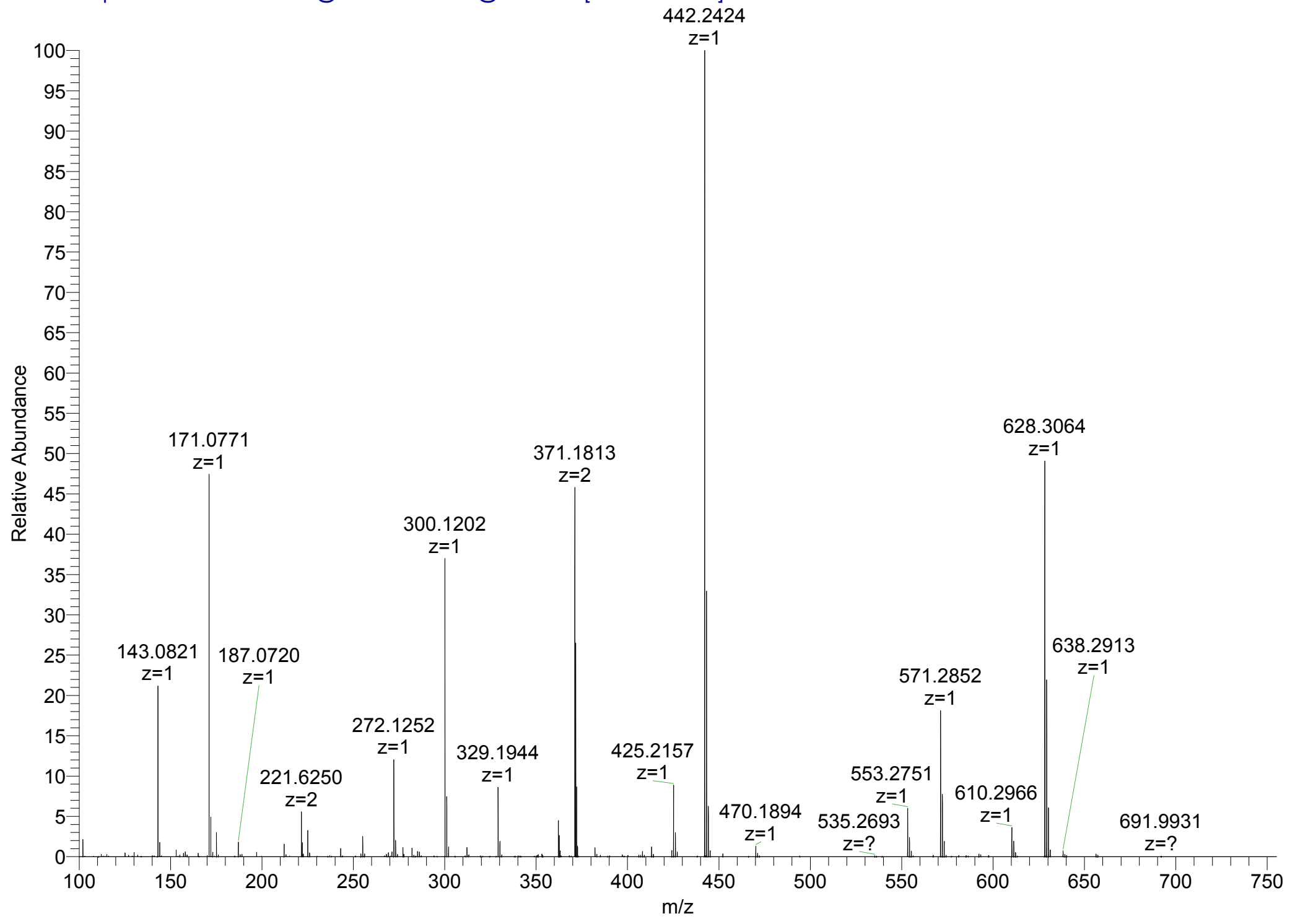

Bovine

8.

P132-OH, P135-OH, P137-OH, P138-OH, P147-OH

#130-150: GP**P**GP**P**G**PP**GVTGMDGQ**P**GPK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+5OH	2	988.9546	988.9532	-0.0028	-1.4
a2/GP-28	1	127.0866	127.0863	-0.0003	-2.4
b2/GP	1	155.0815	155.0812	-0.0003	-1.9
GP+OH	1	171.0764	171.0761	-0.0003	-1.8
y2	1	244.1656	244.1652	-0.0004	-1.6
b3/GPP+OH	1	268.1292	268.1288	-0.0004	-1.5
b4/GPPG+OH	1	325.1506	325.1504	-0.0002	-0.6
y4+OH	1	414.2347	414.2339	-0.0008	-1.9
y5-NH3+OH/ PGPPGV-28+3OH	1	525.2667	525.2665	-0.0002	-0.4
y6+OH	1	599.3148	599.3141	-0.0007	-1.2
y14+3OH	2	693.3219	693.3227	0.0016	1.2
y7+OH	1	714.3417	714.3380	-0.0037	-5.2
y17+4OH	2	826.8829	826.8785	-0.0088	-5.3
y9+OH	1	902.4036	902.4000	-0.0036	-4.0
y10+OH	1	1003.4513	1003.4546	0.0033	3.3
y13+2OH	1	1272.5889	1272.5785	-0.0104	-8.2
y14+3OH	1	1385.6366	1385.6370	0.0004	0.3
y15+3OH	1	1442.6580	1442.6487	-0.0093	-6.4
y16+4OH	1	1555.7057	1555.7078	0.0021	1.3
y17+4OH	1	1652.7585	1652.7603	0.0018	1.1
y18+4OH	1	1709.7799	1709.7684	-0.0115	-6.7
y19+5OH	1	1822.8276	1822.8253	-0.0023	-1.3

4_5_2012Col5a1_Trypsin_nontrapping_HCD2 #6171 RT: 49.26 AV: 1 NL: 3.21E4
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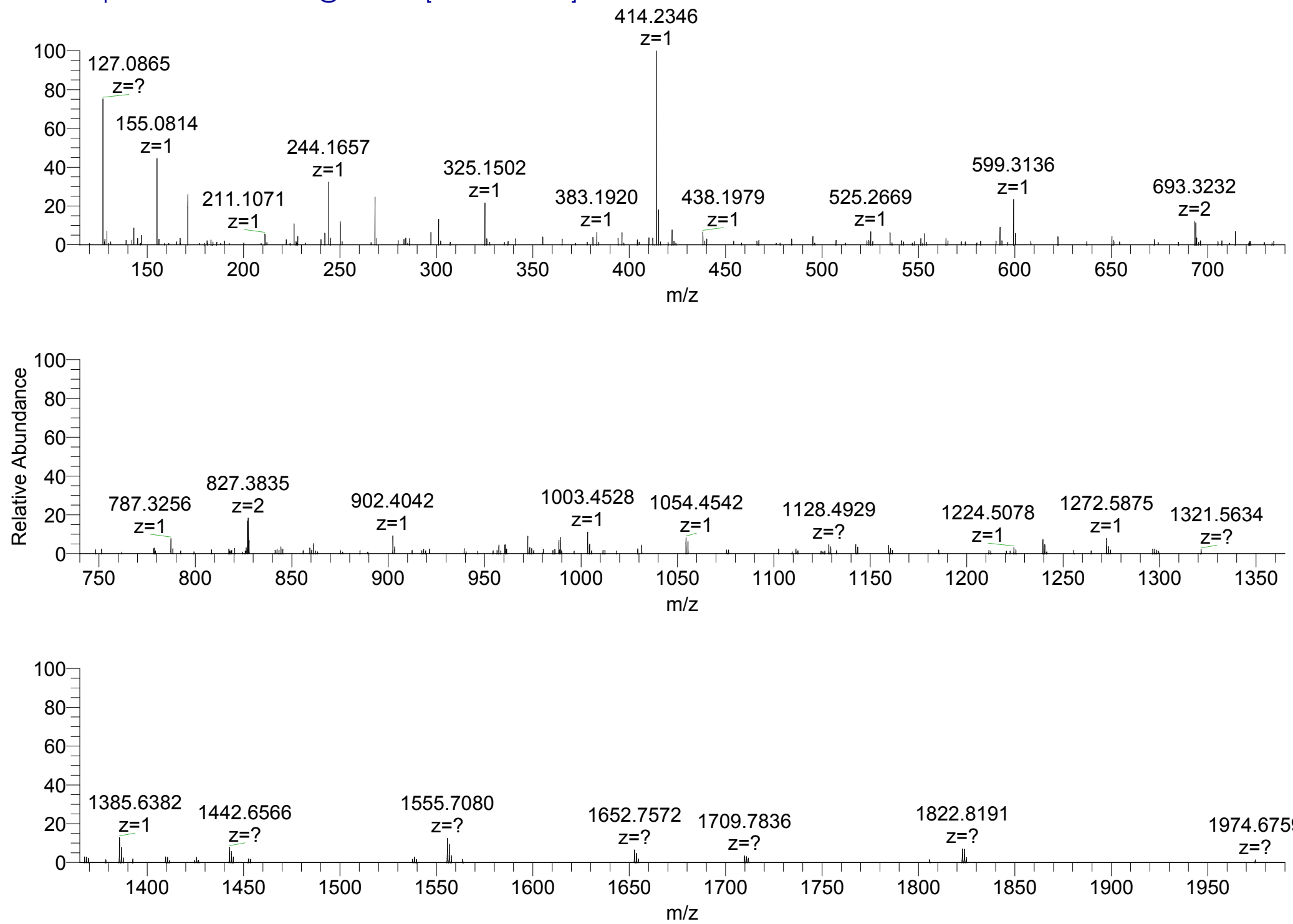


Bovine

9.

P159-OH, P162-OH, P168-OH, P174-OH

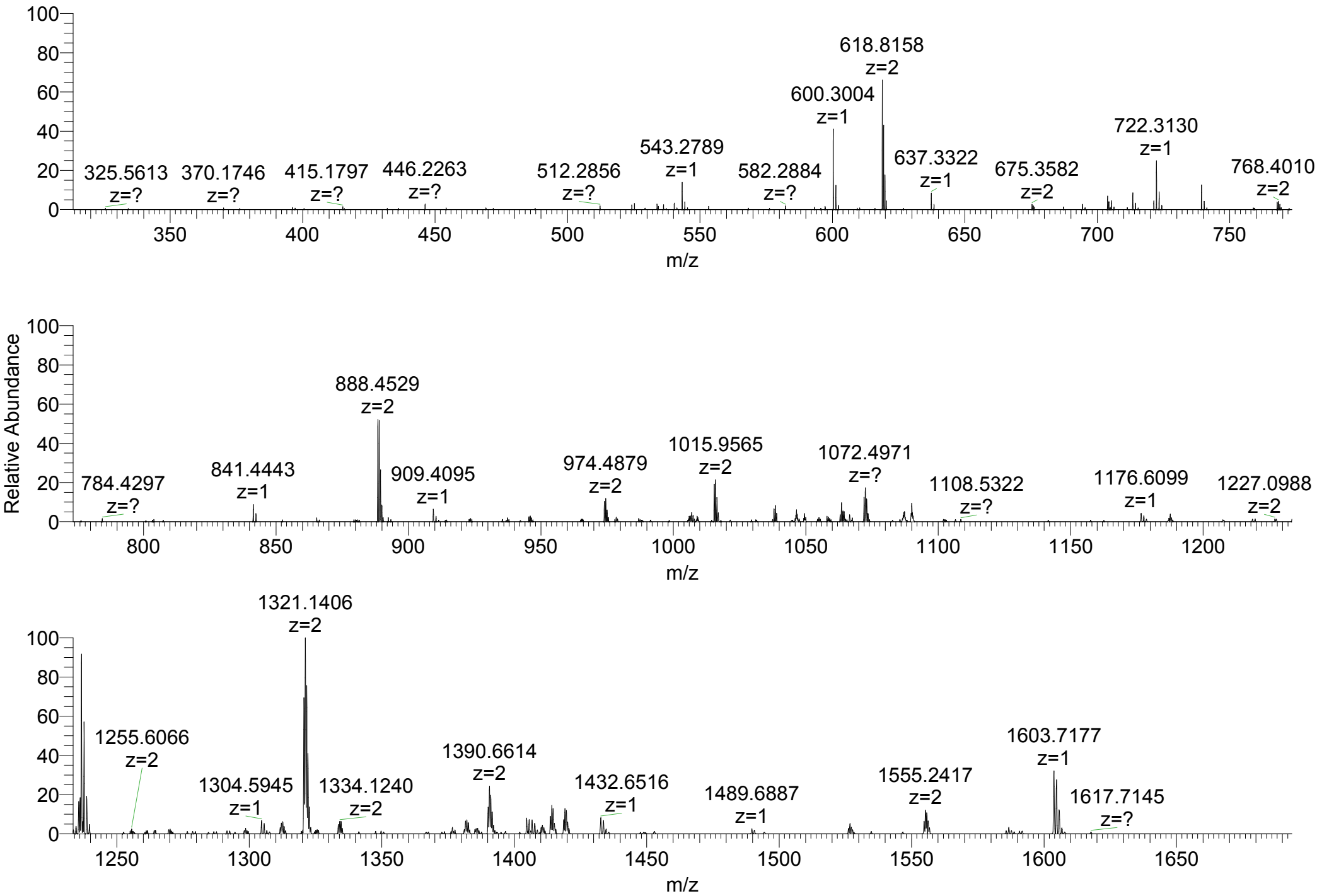
#151-186: GNVGPQGE**P**GP**P**GQQGN**P**GAQGL**P**GPQGAIGPPGEK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+5OH	3	1126.8697	1126.8762	0.0195	5.8
y11+OH	2	533.7800	533.7808	0.0016	1.5
y5+OH	1	543.2773	543.2789	0.0016	2.9
y6+OH	1	600.2988	600.3004	0.0016	2.7
y13+2OH	2	618.8146	618.8158	0.0024	1.9
PGPQGAI+OH	1	637.3304	637.3322	0.0018	2.8
b8-NH3	1	722.3104	722.3130	0.0026	3.6
b8	1	739.3369	739.3401	0.0032	4.3
y16+2OH	2	767.8966	767.9005	0.0078	5.1
y9+OH	1	841.4414	841.4443	0.0029	3.4
y19+3OH	2	888.4498	888.4529	0.0062	3.5
b10+OH	1	909.4061	909.4095	0.0034	3.7
b22+3OH	2	1015.4516	1015.4559	0.0086	4.2
b23+3OH	2	1071.9936	1071.9944	0.0016	0.7
y25+4OH	2	1187.0751	1187.0697	-0.0108	-4.5
y13+2OH	1	1236.6219	1236.6248	0.0029	2.3
y28+5OH	2	1320.6361	1320.6406	0.0090	3.4
b29+4OH	2	1333.6131	1333.6091	-0.0080	-3.0
b30+4OH	2	1390.1552	1390.1565	0.0026	0.9
y33+5OH	2	1554.7345	1554.7412	0.0134	4.3
b17+2OH	1	1603.7095	1603.7177	0.0082	5.1

***Unlocalized sites: P183-OH?,P182-OH?, K186-OH?**

Pseudolocalized sites: P183-OH or K186-OH

2_2_2012Col5a1_Bovine_Top5MS3 #2274 RT: 26.50 AV: 1 NL: 7.94E4
T: FTMS + p NSI d Full ms2 1127.21@cid35.00 [300.00-2000.00]



10.

P168-OH, P174-OH, P183-OH

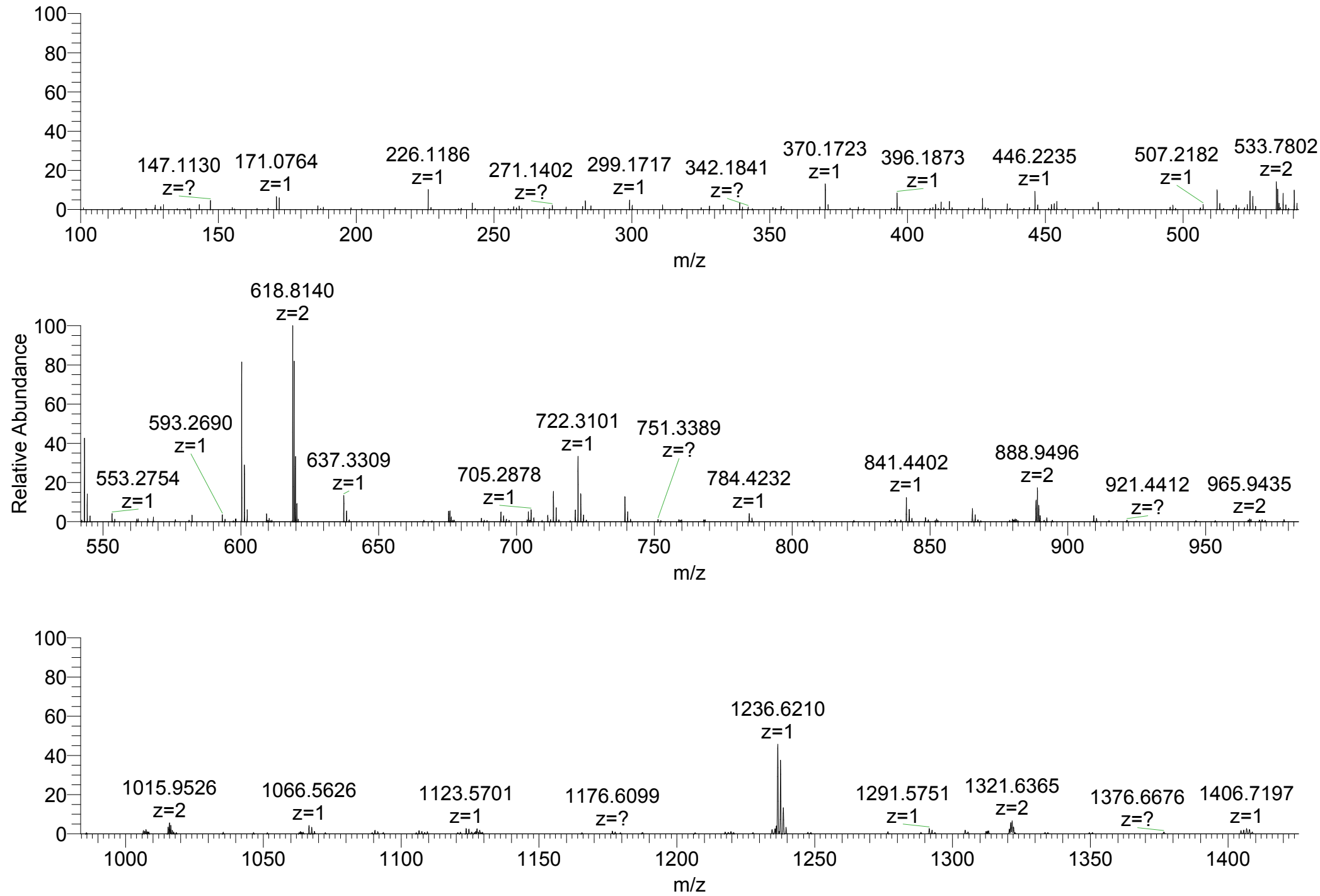
#151-186: GNVGPQGEPGPPGQQGN**P**GAQGL**P**GPQGAIGP**P**GEK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+5OH	3	1126.8697	1126.8722	0.0075	2.2
y1	1	147.1128	147.1130	0.0002	1.4
PG+OH	1	171.0764	171.0764	0.0000	0.0
a3-NH3/PQ	1	226.1186	226.1186	0.0000	0.0
QGL/GAIG	1	299.1714	299.1717	0.0003	1.0
PGAQ+OH	1	370.1721	370.1723	0.0002	0.5
y4+OH	1	446.2245	446.2235	-0.0010	-2.2
y5+OH	1	543.2773	543.2766	-0.0007	-1.3
y6+OH	1	600.2988	600.2985	-0.0003	-0.5
y13+2OH	2	618.8146	618.8140	-0.0012	-1.0
QGAIGPP+OH	1	637.3304	637.3309	0.0005	0.8
b8-NH3	1	722.3104	722.3101	-0.0003	-0.4
b8	1	739.3369	739.3361	-0.0008	-1.1
y9+OH	1	841.4414	841.4402	-0.0012	-1.4
y19+3OH	2	888.4498	888.4515	0.0034	1.9
b22+3OH	2	1015.4516	1015.4552	0.0072	3.5
y11+OH	1	1066.5527	1066.5626	0.0099	9.3
y12+OH	1	1123.5742	1123.5701	-0.0041	-3.6
y13+2OH	1	1236.6219	1236.6210	-0.0009	-0.7

***Unlocalized sites: P159-OH?, P161-OH?, P162-OH?**

Pseudolocalized sites: P159-OH, P162-OH

2_2_2012Col5a1_Bovine_HCD1_CE30 #3161 RT: 26.16 AV: 1 NL: 9.54E4
T: FTMS + p NSI d Full ms2 1126.87@hcd30.00 [100.00-2000.00]



11.

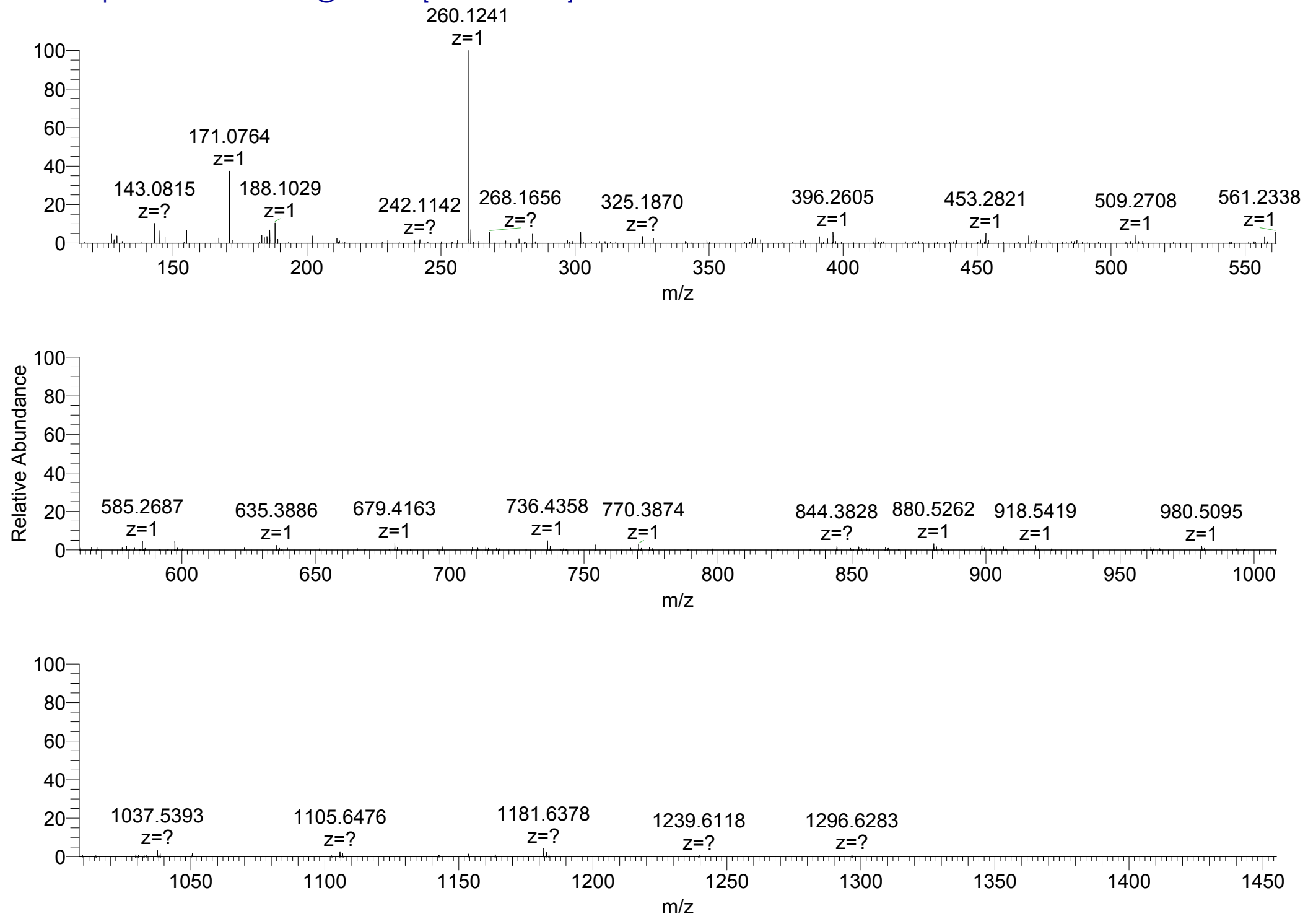
K186-OH, P192-OH, P198-OH

#186-200: **K**GPLGK**P**GLPGM**P**GA

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+4OH	2	720.8794	720.8795	0.0002	0.1
PG+OH	1	127.0866	127.0866	0.0000	0.0
y3+OH	1	260.1241	260.1241	0.0000	0.0
PLGK	1	396.2605	396.2605	0.0000	0.0
KGPLG/GPLGK	1	453.2820	453.2821	0.0001	0.2
y6+2OH	1	561.2337	561.2338	0.0001	0.2
LPGMPG+2OH	1	585.2701	585.2687	-0.0014	-2.4
PLGKPGL+OH/ LGKPGLP+OH	1	679.4137	679.4163	0.0026	3.8
GPLGKPGL+OH	1	736.4352	736.4358	0.0006	0.8
GKPGLPGM+2OH	1	770.3865	770.3874	0.0009	1.2
y9+3OH	1	844.3869	844.3828	-0.0041	-4.9
b9+2OH	1	880.5251	880.5262	0.0011	1.2
b12+3OH	1	1181.6347	1181.6378	0.0031	2.6

***Unlocalized sites: P195-OH?, M198-oxidation?**

4_5_2012Col5a1_GluCandAspN_HCD1 #2972 RT: 15.72 AV: 1 NL: 3.18E7
T: FTMS + p NSI d Full ms2 720.88@hcd35.00 [115.00-1455.00]



Bovine

12.

P195-OH, P198-OH, P204-OH

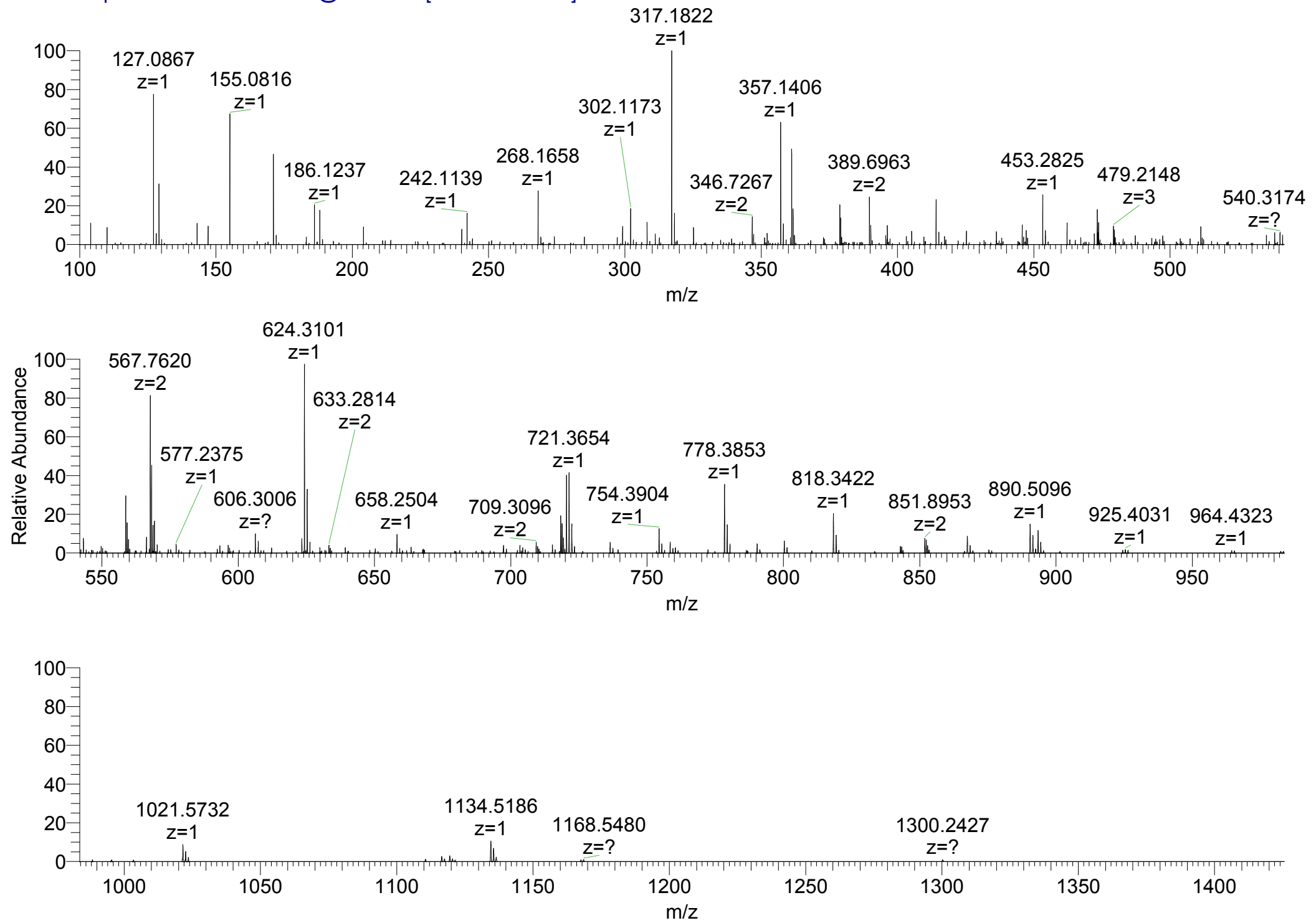
#187-209: GPLGKPGL**P**GM**P**GADGP**P**GHPGK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+4OH	4	539.5205	539.5208	0.0012	0.6
a2/GP-28	1	127.0866	127.0867	0.0001	0.8
GP/b2	1	155.0815	155.0816	0.0001	0.6
GP+OH	1	171.0764	171.0766	0.0002	1.2
GK	1	186.1237	186.1237	0.0000	0.0
PGA+OH	1	242.1135	242.1139	0.0004	1.7
b3/PLG	1	268.1656	268.1658	0.0002	0.7
GMP+OH	1	302.1169	302.1173	0.0004	1.3
y3+OH	1	317.1819	317.1822	0.0003	0.9
a8	2	346.7263	346.7267	0.0008	1.2
PGAD+OH	1	357.1405	357.1406	0.0001	0.3
y7+2OH	2	361.1850	361.1853	0.0006	0.8
y8+2OH	2	389.6958	389.6953	-0.0010	-1.3
b5	1	453.2820	453.2825	0.0005	1.1
y15+4OH	3	479.2139	479.2148	0.0027	1.9
y12-H2O+3OH	2	558.7571	558.7573	0.0004	0.4
y12+3OH	2	567.7624	567.7620	-0.0008	-0.7
y6+2OH	1	624.3100	624.3101	0.0001	0.2
y13+3OH	2	633.2826	633.2814	-0.0024	-1.9
b8	2	720.4403	720.4404	0.0002	0.1
y7+2OH	1	721.3628	721.3654	0.0026	3.6
y8+2OH	1	778.3842	778.3853	0.0011	1.4
ADGPPGHPG+2OH/ GADGPPGHP+2OH/ PGADGPPGH+2OH	1	818.3428	818.3422	-0.0006	-0.7
b10	1	890.5094	890.5096	0.0002	0.2
y12+3OH	1	1134.5174	1134.5186	0.0012	1.1

***Unlocalized sites: P207-OH?, K209-OH?**

Pseudolocalized sites: P207-OH

2_2_2012Col5a1_Bovine_HCD1_CE30 #2331 RT: 19.41 AV: 1 NL: 2.91E6
T: FTMS + p NSI d Full ms2 539.77@hcd30.00 [100.00-2000.00]



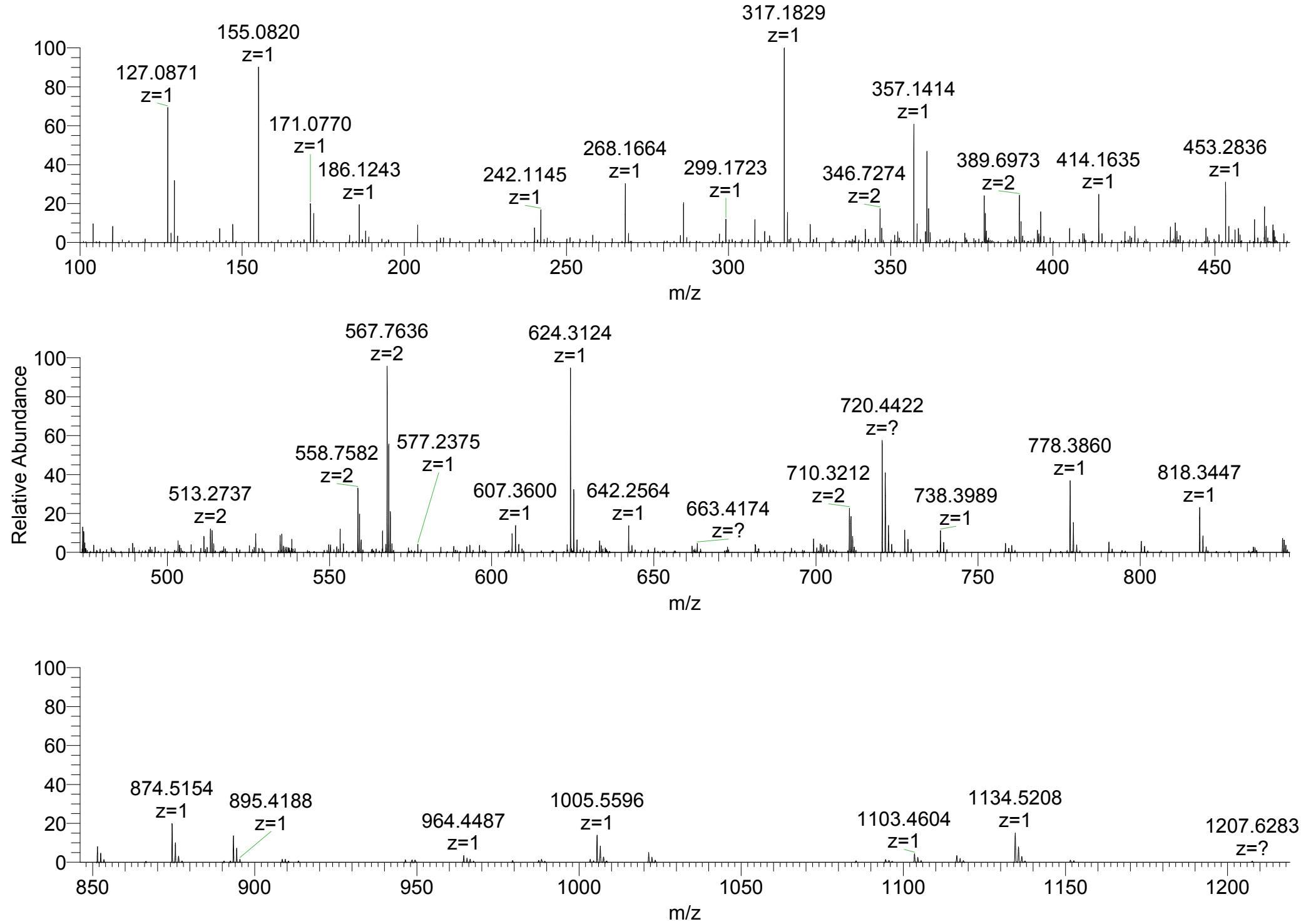
13.

P198-OH, P204-OH, P207-OH

#187-209: GPLGKPGLPGM**P**GADGP**P**GHPGK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+3OH	4	535.5217	535.5237	0.0080	3.7
a2/GP-28	1	127.0866	127.0871	0.0005	3.9
b2/GP	1	155.0815	155.0820	0.0005	3.2
GP+OH	1	171.0764	171.0770	0.0006	3.5
GK	1	186.1237	186.1243	0.0006	3.2
y2	1	204.1343	204.1349	0.0006	2.9
PGA+OH	1	242.1135	242.1145	0.0010	4.1
b3/PLG	1	268.1656	268.1664	0.0008	3.0
y3+OH	1	317.1819	317.1829	0.0010	3.2
a8	2	346.7263	346.7274	0.0022	3.2
PGAD+OH	1	357.1405	357.1414	0.0009	2.5
y8+2OH	2	389.6958	389.6973	0.0030	3.8
b5	1	453.2820	453.2836	0.0016	3.5
y12-H2O+3OH	2	558.7571	558.7582	0.0022	2.0
y12+3OH	2	567.7624	567.7636	0.0024	2.1
b7/GKPGLPG	1	607.3562	607.3600	0.0038	6.3
y6+2OH	1	624.3100	624.3124	0.0024	3.8
PGMPGAD+OH	1	642.2552	642.2564	0.0012	1.9
y15+3OH	2	710.3197	710.3212	0.0030	2.1
b8/LGKPGLPG	1	720.4403	720.4422	0.0019	2.6
y8+2OH	1	778.3842	778.3860	0.0018	2.3
GADGPPGHP+2OH	1	818.3428	818.3447	0.0019	2.3
b10	1	874.5145	874.5154	0.0009	1.0
y9+2OH	1	893.4112	893.4116	0.0004	0.4
b11	1	1005.5550	1005.5596	0.0046	4.6
y12+3OH	1	1134.5174	1134.5208	0.0034	3.0

2_2_2012Col5a1_Bovine_HCD2_CE30 #2602 RT: 23.29 AV: 1 NL: 1.12E5
T: FTMS + p NSI d Full ms2 535.77@hcd30.00 [100.00-2000.00]



14.

P213-OH, K216-OH.Gal.Glc, P221-OH, P222-OH

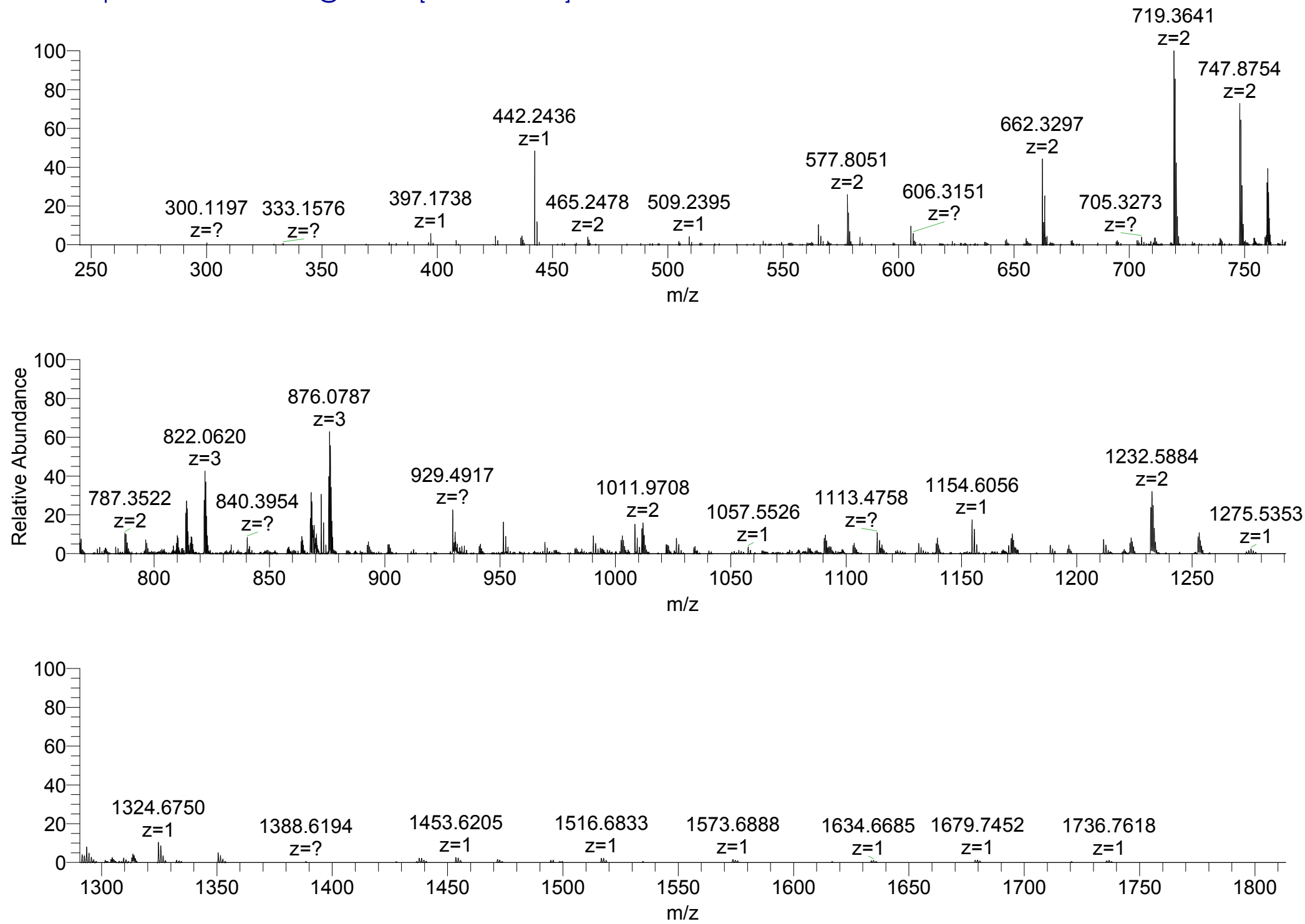
#210-234: EGP**P**GE**K**GGQG**PP**GPQGPIGYPGPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+5OH+Gal.Glc	3	929.7579	929.7585	0.0018	0.6
b4+OH/PPGE+OH	1	397.1718	397.1738	0.0020	5.0
y4+OH	1	442.2409	442.2436	0.0027	6.1
y11+OH	2	577.8013	577.8051	0.0076	6.6
y5+OH	1	605.3042	605.3092	0.0050	8.3
y6+OH	1	662.3257	662.3297	0.0040	6.0
y14+3OH	2	719.3571	719.3635	0.0128	8.9
y15+3OH	2	747.8704	747.8754	0.0100	6.7
y23+5OH	3	759.7013	759.7065	0.0156	6.8
b17-H2O+4OH	2	787.3475	787.3522	0.0094	6.0
[M+3H]+5OH	3	821.7227	821.7288	0.0183	7.4
[M+3H]+5OH+Gal	3	867.7365	867.7424	0.0177	6.8
y9+OH	1	929.4839	929.4917	0.0078	8.4
y22+5OH	2	1090.5220	1090.5323	0.0206	9.4
y11+OH	1	1154.5953	1154.6056	0.0103	8.9
y12+OH	1	1211.6167	1211.6252	0.0085	7.0
[M+2H]+5OH	2	1232.0804	1232.0878	0.0148	6.0
y22+5OH+Gal.Glc	2	1252.5748	1252.5835	0.0174	6.9
y13+2OH	1	1324.6644	1324.6750	0.0106	8.0

***Unlocalized sites: P231-OH?, P233-OH?**

Pseudolocalized sites: P231-OH

2_2_2012Col5a1_Bovine_Top5MS3 #1616 RT: 19.07 AV: 1 NL: 1.58E5
T: FTMS + p NSI d Full ms2 930.09@cid35.00 [245.00-2000.00]



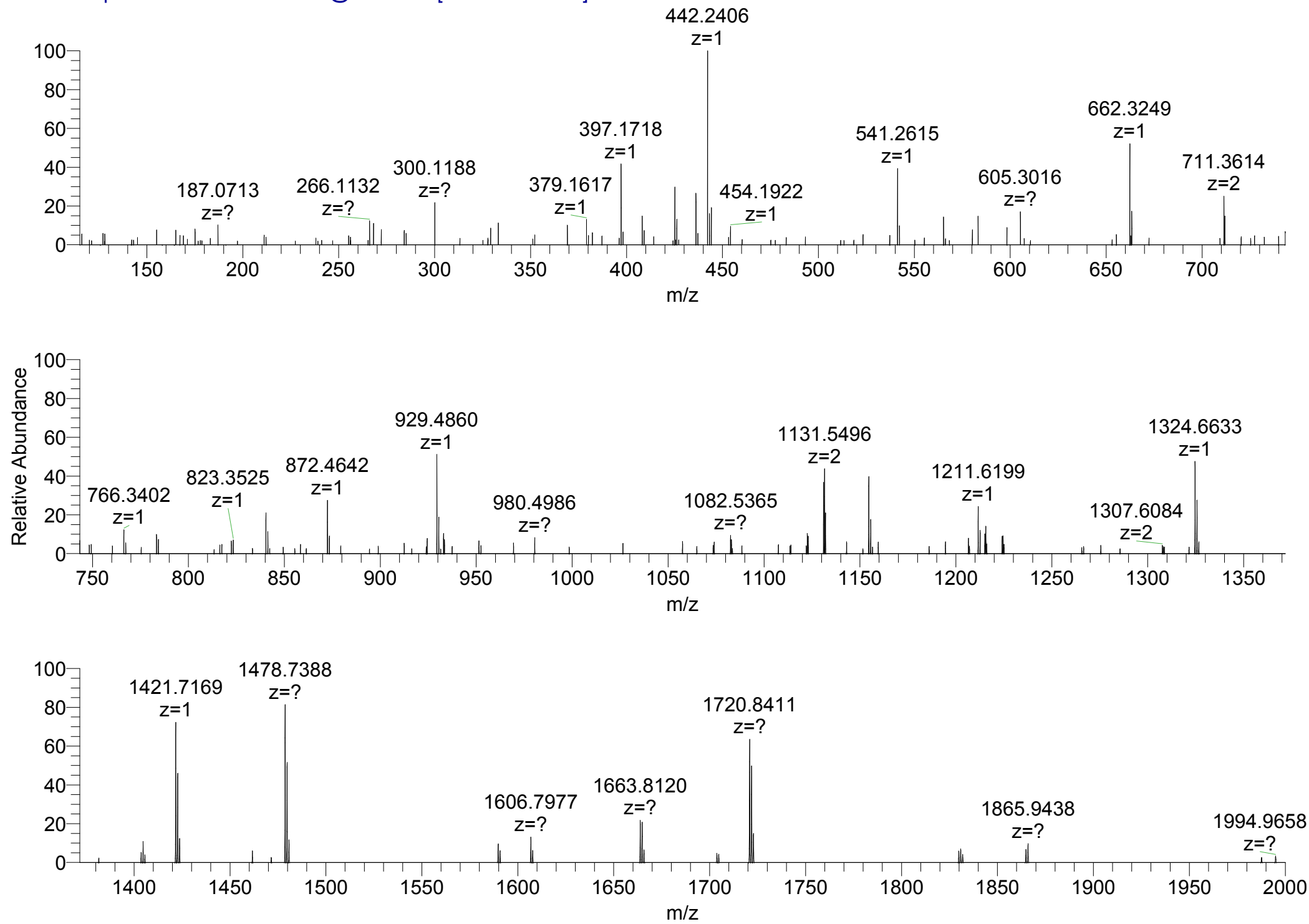
15.

P213-OH, K216-OH.Gal.Glc, P222-OH, P231-OH

#210-234: EGP**P**GE**K**GGQGP**P**GPQGPIGY**P**GPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+4OH+Gal.Glc	2	1386.1358	1386.1361	0.0006	0.2
y3	1	329.1932	329.1946	0.0014	4.3
b4-H2O+OH	1	379.1612	379.1617	0.0005	1.3
b4+OH	1	397.1718	397.1718	0.0000	0.0
y4+OH	1	442.2409	442.2406	-0.0003	-0.7
b5+OH	1	454.1932	454.1922	-0.0010	-2.2
PPGEK+2OH	1	541.2617	541.2615	-0.0002	-0.4
y5+OH	1	605.3042	605.3016	-0.0026	-4.3
y6+OH	1	662.3257	662.3249	-0.0008	-1.2
y14+2OH	2	711.3622	711.3614	-0.0016	-1.1
b8-H2O+2OH	1	766.3366	766.3402	0.0036	4.7
y8+OH	1	872.4625	872.4642	0.0017	1.9
y9+OH	1	929.4839	929.4860	0.0021	2.3
y22+4OH	2	1082.5245	1082.5365	0.0240	11.1
y23+4OH	2	1131.0509	1131.0532	0.0046	2.0
y12+OH	1	1211.6167	1211.6199	0.0032	2.6
y13+2OH	1	1324.6644	1324.6633	-0.0011	-0.8
y14+2OH	1	1421.7172	1421.7169	-0.0003	-0.2
y15+2OH	1	1478.7387	1478.7388	0.0001	0.1
y16+2OH	1	1606.7972	1606.7977	0.0005	0.3
y17+2OH	1	1663.8187	1663.8120	-0.0067	-4.0
y18+2OH	1	1720.8402	1720.8411	0.0009	0.5

4_5_2012Col5a1_Trypsin_nontrapping_HCD2 #6988 RT: 53.63 AV: 1 NL: 6.15E5
T: FTMS + p NSI d Full ms2 1386.64@hcd35.00 [115.00-2000.00]



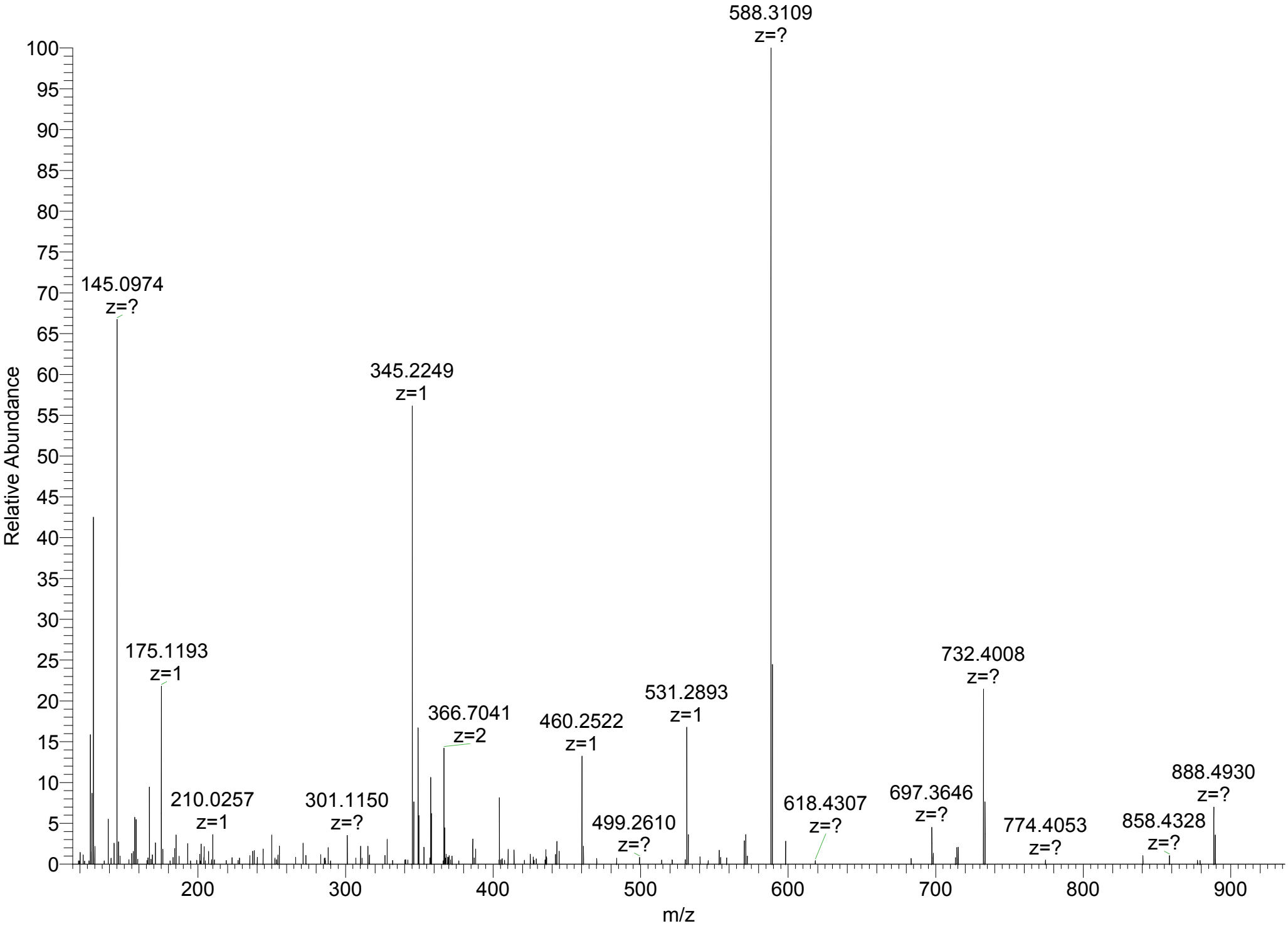
16.

K237-OH.Gal.Glc

#235-243: GV**K**GADGIR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+OH+Gal.Glc	3	404.8700	404.8701	0.0003	0.2
y1	1	175.1190	175.1193	0.0003	1.7
y3	1	345.2245	345.2249	0.0004	1.2
y7+OH	2	366.7036	366.7041	0.0010	1.4
y4	1	460.2514	460.2522	0.0008	1.7
y5	1	531.2885	531.2893	0.0008	1.5
y6	1	588.3100	588.3109	0.0009	1.5
y7-H2O-NH3+OH	1	697.3628	697.3646	0.0018	2.6
y7+OH	1	732.3999	732.4008	0.0009	1.2
[M+H]+OH	1	888.4898	888.4930	0.0032	3.6

4_5_2012Col5a1_Trypsin_nontrapping_HCD2 #4527 RT: 37.93 AV: 1 NL: 1.53E6
T: FTMS + p NSI d Full ms2 404.87@hcd35.00 [115.00-1225.00]



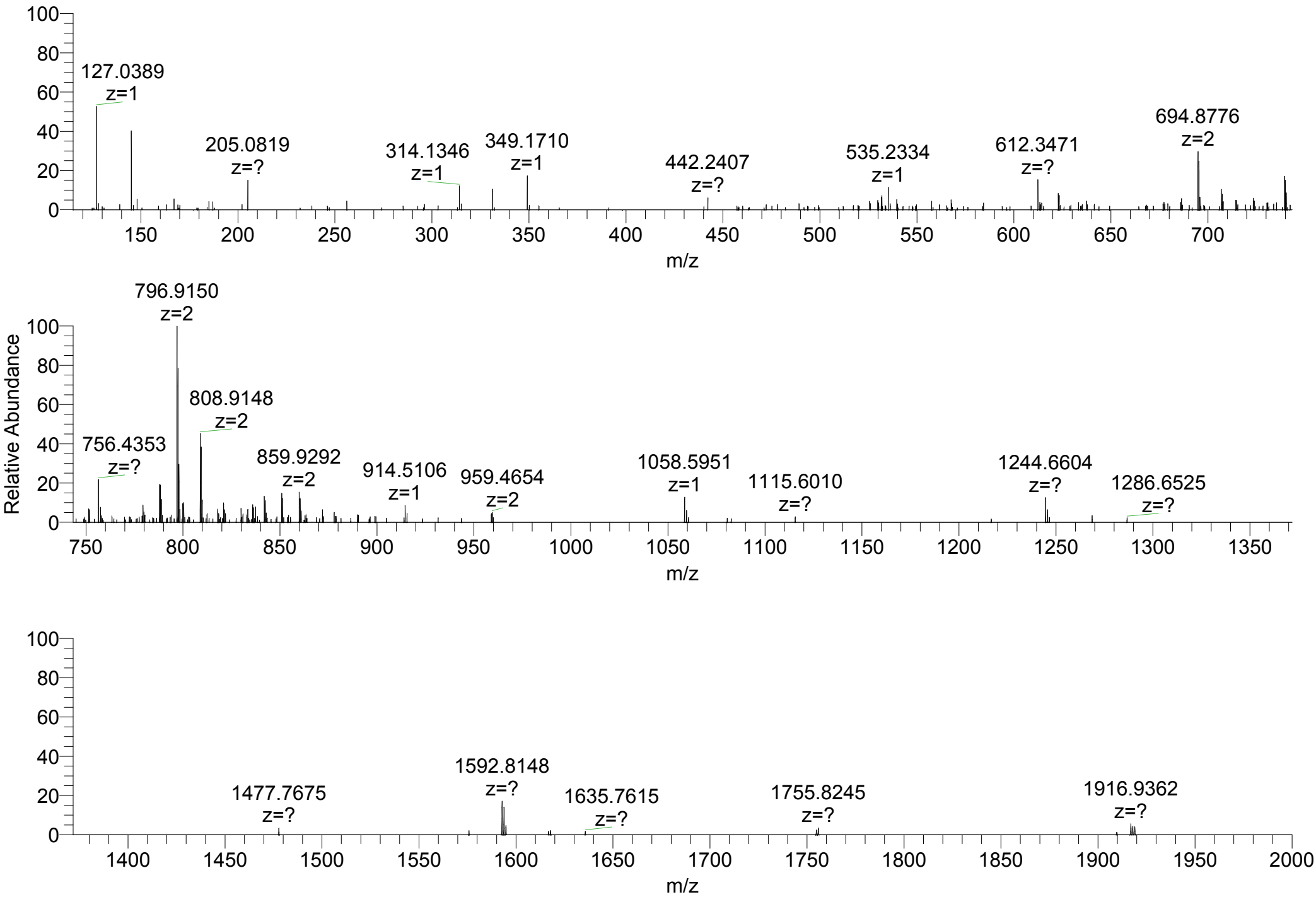
17.

K246-OH.Gal.Glc, K249-OH.Gal.Glc, K252-OH.Gal.Glc

#240-254: DGIRGL**K**GT**K**GE**K**GE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+3OH+3Gal.Glc	3	855.7184	855.7189	0.0015	0.6
y2	1	205.0819	205.0819	0.0000	0.0
y3+OH	1	349.1718	349.1710	-0.0008	-2.3
b4	1	442.2409	442.2407	-0.0002	-0.5
y5+OH	1	535.2358	535.2334	-0.0024	-4.5
b6	1	612.3464	612.3471	0.0007	1.1
b13+2OH	2	694.8782	694.8776	-0.0012	-0.9
[M+2H]+3OH	2	796.9156	796.9150	-0.0012	-0.8
b9+OH	1	914.5054	914.5106	0.0052	5.7
b10+2OH	1	1058.5953	1058.5951	-0.0002	-0.2
b12+2OH	1	1244.6593	1244.6604	0.0011	0.9
[M+H]+3OH	1	1592.8238	1592.8148	-0.0090	-5.7

4_5_2012Col5a1_GluCandAspN_HCD1 #454 RT: 4.14 AV: 1 NL: 3.16E6
T: FTMS + p NSI d Full ms2 856.05@hcd35.00 [115.00-2000.00]



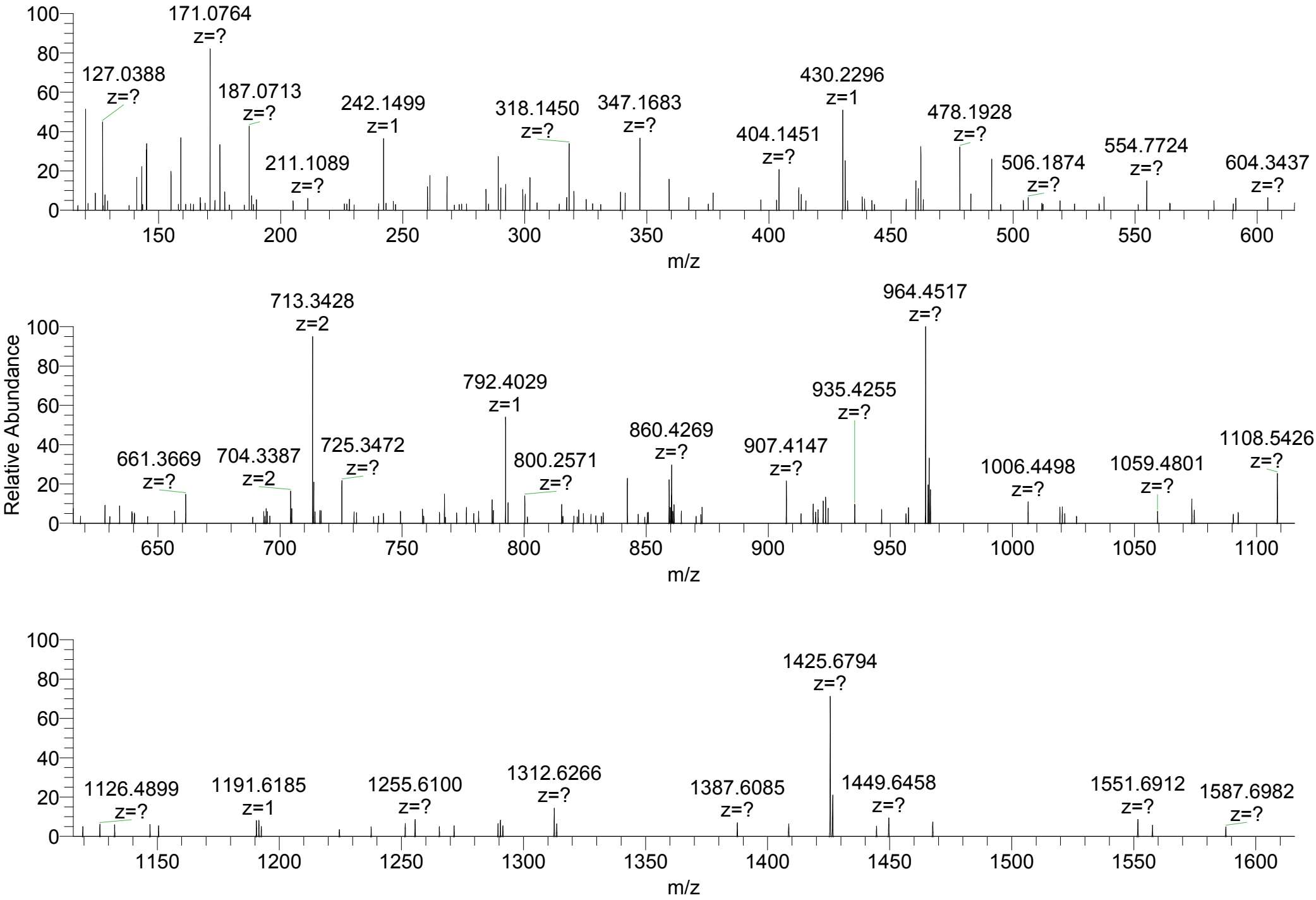
18.

P258-OH, K261-OH.Gal.Glc, K267-OH.Gal.Glc

#253-270: GEDGF**P**GF**K**GDMGI**K**GDR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+3OH+2Gal.Glc	3	860.3619	860.3636	0.0051	2.0
PG+OH	1	171.0764	171.0764	0.0000	0.0
b2	1	187.0713	187.0713	0.0000	0.0
y3	1	347.1674	347.1683	0.0009	2.6
IKGP+OH	1	430.2269	430.2296	0.0027	6.3
a5	1	478.1932	478.1928	-0.0004	-0.8
y4+OH	1	491.2572	491.2575	0.0003	0.6
y13-H2O+3OH	2	704.3379	704.3387	0.0016	1.1
y13+3OH	2	713.3432	713.3428	-0.0008	-0.6
y7+OH	1	792.4032	792.4029	-0.0003	-0.4
y15+3OH	2	815.3881	815.3851	-0.0060	-3.7
y9+OH	1	964.4517	964.4517	0.0000	0.0
y10+2OH	1	1108.5415	1108.5426	0.0011	1.0
y12+2OH	1	1312.6314	1312.6266	-0.0048	-3.7
y13+3OH	1	1425.6791	1425.6794	0.0003	0.2

4_5_2012Col5a1_Trypsin_nontrapping_HCD1 #8788 RT: 63.51 AV: 1 NL: 1.91E4
T: FTMS + p NSI d Full ms2 860.70@hcd35.00 [115.00-2000.00]



19.

P275-OH, P276-OH

#271-279: GEIG**PP**GPR

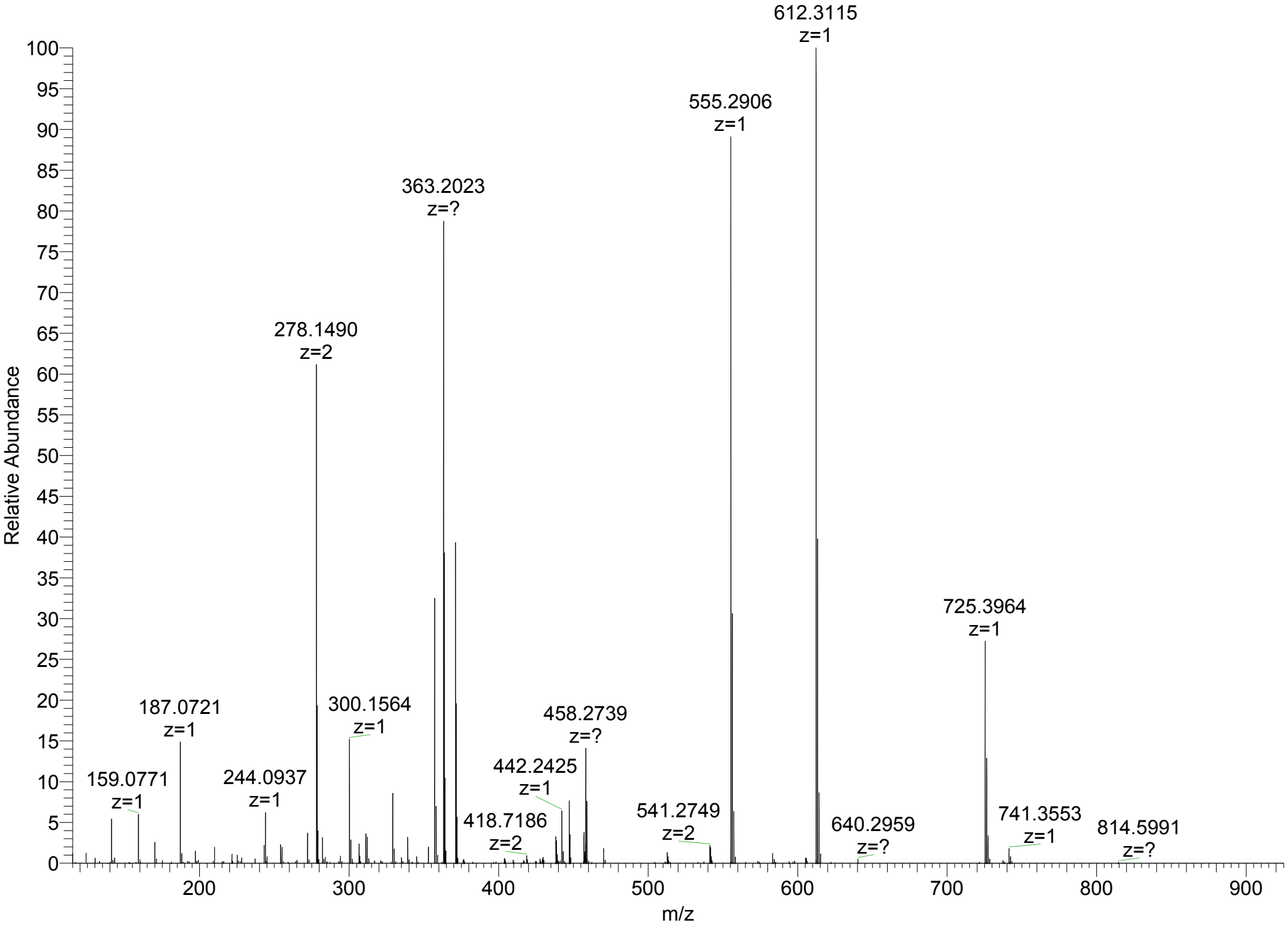
MS^2: GEIG**P**PGPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+2OH	2	456.2327	456.2346	0.0038	4.2
a2	1	159.0764	159.0771	0.0007	4.4
b2	1	187.0713	187.0721	0.0008	4.3
y5+2OH(MS^3)	2	278.1479	278.1490	0.0022	4.0
b3/EIG	1	300.1554	300.1564	0.0010	3.3
b4	1	357.1769	357.1785	0.0016	4.5
y7+2OH	2	363.2007	363.2023	0.0032	4.4
y4+OH	1	442.2409	442.2425	0.0016	3.6
y5+2OH	1	555.2885	555.2906	0.0021	3.8
y6+2OH	1	612.3100	612.3115	0.0015	2.4
y7+2OH	1	725.3941	725.3964	0.0023	3.2

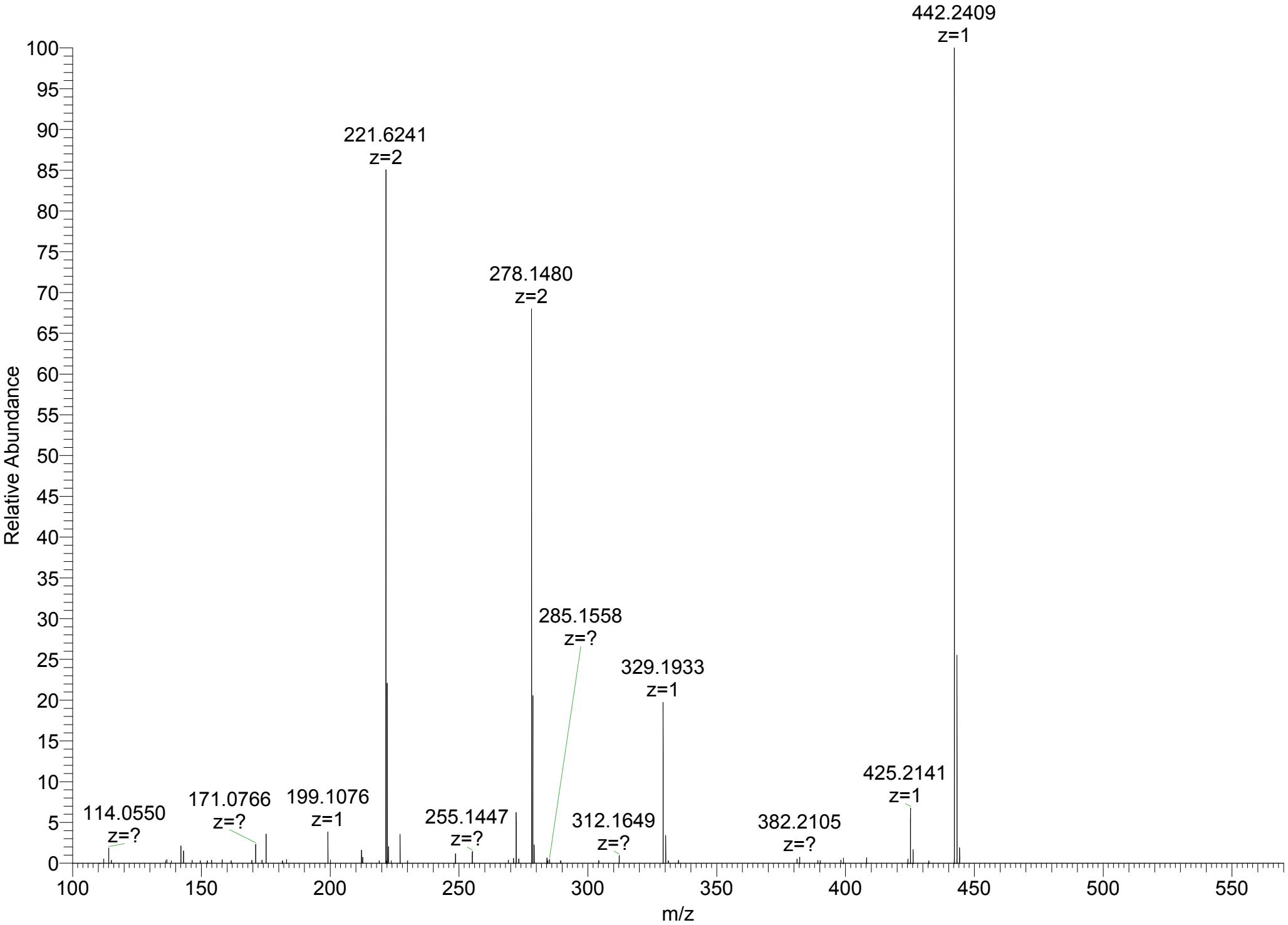
MS^3: **PP**GPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
y4+OH	2	221.6241	221.6241	0.0000	0.0
[M+2H]+2OH	2	278.1479	278.1480	0.0002	0.4
y3	1	329.1932	329.1933	0.0001	0.3
y4-NH3+OH	1	425.2143	425.2141	-0.0002	-0.5
y4+OH	1	442.2409	442.2409	0.0000	0.0

2_2_2012Col5a1_Bovine_Top5MS3_2 #760 RT: 9.57 AV: 1 NL: 4.18E5
T: FTMS + p NSI d Full ms2 456.23@cid35.00 [115.00-925.00]



2_2_2012Col5a1_Bovine_Top5MS3_2 #761 RT: 9.58 AV: 1 NL: 1.35E5
T: FTMS + p NSI d Full ms3 456.23@cid35.00 278.15@hcd30.00 [100.00-570.00]



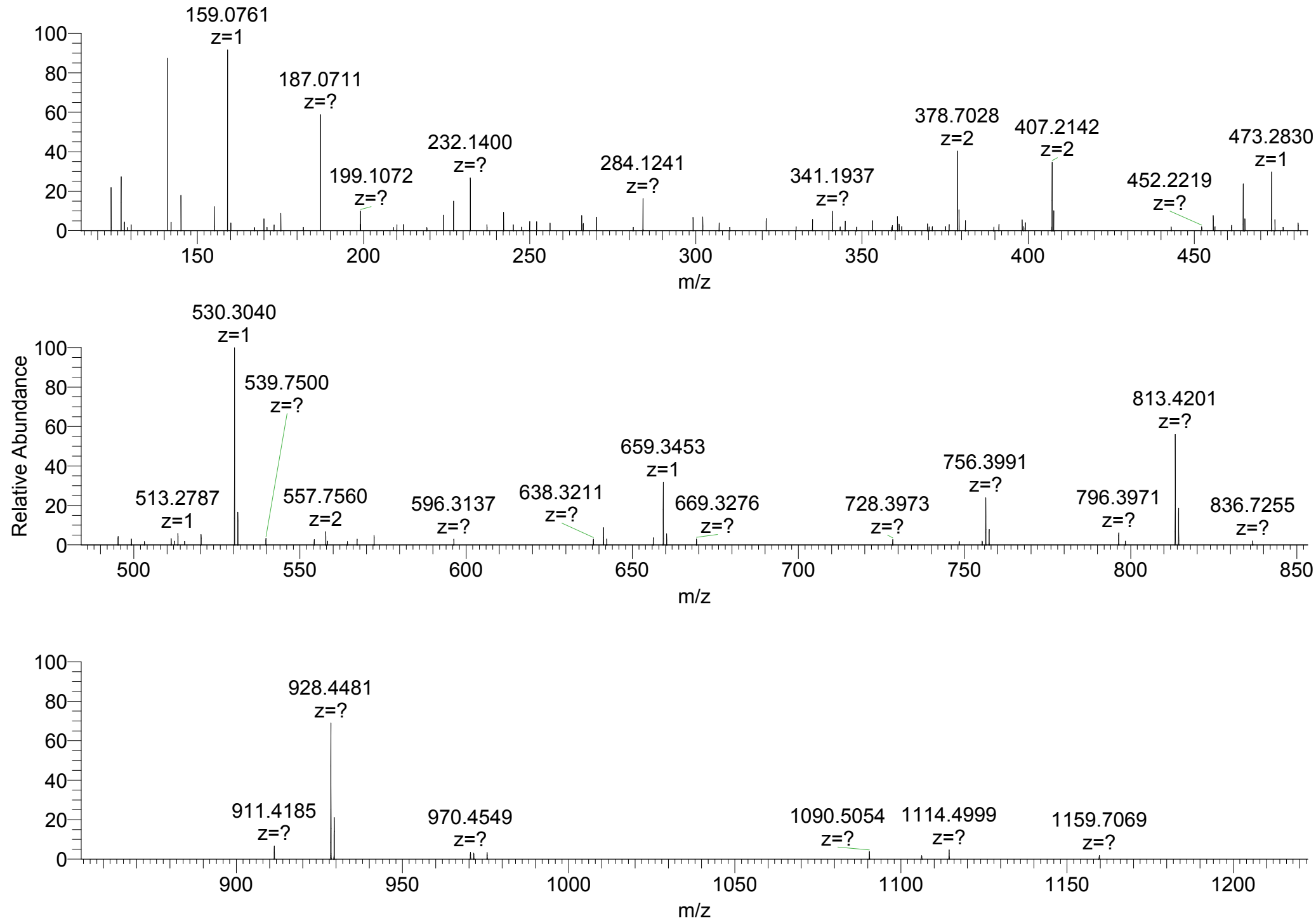
20.

K288-OH.Gal.Glc

#280-290: GEDGPEGP**K**GR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+OH+Gal.Glc	3	480.2108	480.2114	0.0018	1.3
a2/EG-28	1	159.0764	159.0761	-0.0003	-1.9
b2/EG	1	187.0713	187.0711	-0.0002	-1.1
y2	1	232.1404	232.1400	-0.0004	-1.7
EGP	1	284.1241	284.1241	0.0000	0.0
y7+OH	2	378.7036	378.7028	-0.0016	-2.1
y8+OH	2	407.2143	407.2142	-0.0002	-0.2
y9+OH	2	464.7278	464.7283	0.0010	1.1
y4+OH	1	473.2831	473.2830	-0.0001	-0.2
y5-NH3+OH	1	513.2780	513.2787	0.0007	1.4
y5+OH	1	530.3045	530.3040	-0.0005	-0.9
[M+2H]+OH	2	557.7598	557.7560	-0.0076	-6.8
y6-H2O+OH	1	641.3365	641.3375	0.0010	1.6
y6+OH	1	659.3471	659.3453	-0.0018	-2.7
y7+OH	1	756.3999	756.3991	-0.0008	-1.1
y8+OH	1	813.4213	813.4201	-0.0012	-1.5
y9+OH	1	928.4483	928.4481	-0.0002	-0.2

4_5_2012Col5a1_Trypsin_nontrapping_HCD2 #256 RT: 2.65 AV: 1 NL: 7.38E3
T: FTMS + p NSI d Full ms2 480.21@hcd35.00 [115.00-1455.00]



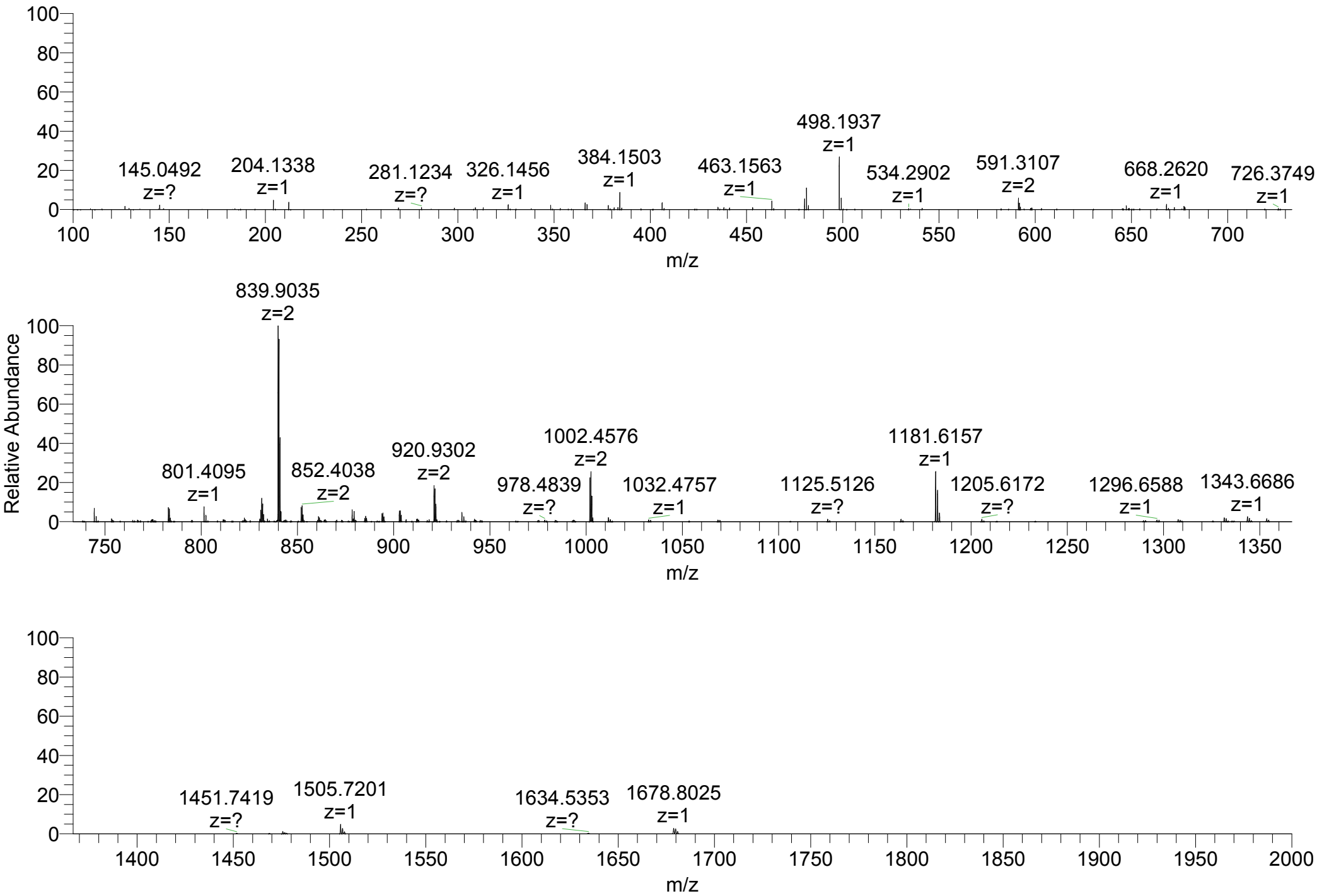
21.

P297-OH, P303-OH, K306-OH.Gal.Glc

#291-308: GGPNGD**P**GPLGP**P**GE**K**GK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH+Gal.Glc	2	1001.9580	1001.9548	-0.0064	-3.2
y2	1	204.1343	204.1338	-0.0005	-2.5
PNGD	1	384.1514	384.1503	-0.0011	-2.9
b6	1	498.1943	498.1937	-0.0006	-1.2
y12+3OH	2	591.3117	591.3107	-0.0020	-1.7
y6+2OH	1	647.3359	647.3360	0.0001	0.2
b8+OH	1	668.2634	668.2620	-0.0014	-2.1
y8+2OH	1	801.4101	801.4095	-0.0006	-0.7
[M+2H]+3OH	2	839.9052	839.9035	-0.0034	-2.0
[M+2H]+3OH+Gal	2	920.9316	920.9302	-0.0028	-1.5
[M+2H]+3OH+Gal.Glc	2	1001.9580	1001.9573	-0.0014	-0.7
y12+3OH	1	1181.6161	1181.6157	-0.0004	-0.3
y12+3OH+Gal.Glc	1	1505.7217	1505.7201	-0.0016	-1.1
[M+H]+3OH	1	1678.8031	1678.8025	-0.0006	-0.4

2_25_2012Col5a1_Bovine_Trypsin_nonrrapping_1 #2698 RT: 29.81 AV: 1 NL: 7.63E6
T: FTMS + p NSI d Full ms2 1001.95@hcd30.00 [100.00-2000.00]



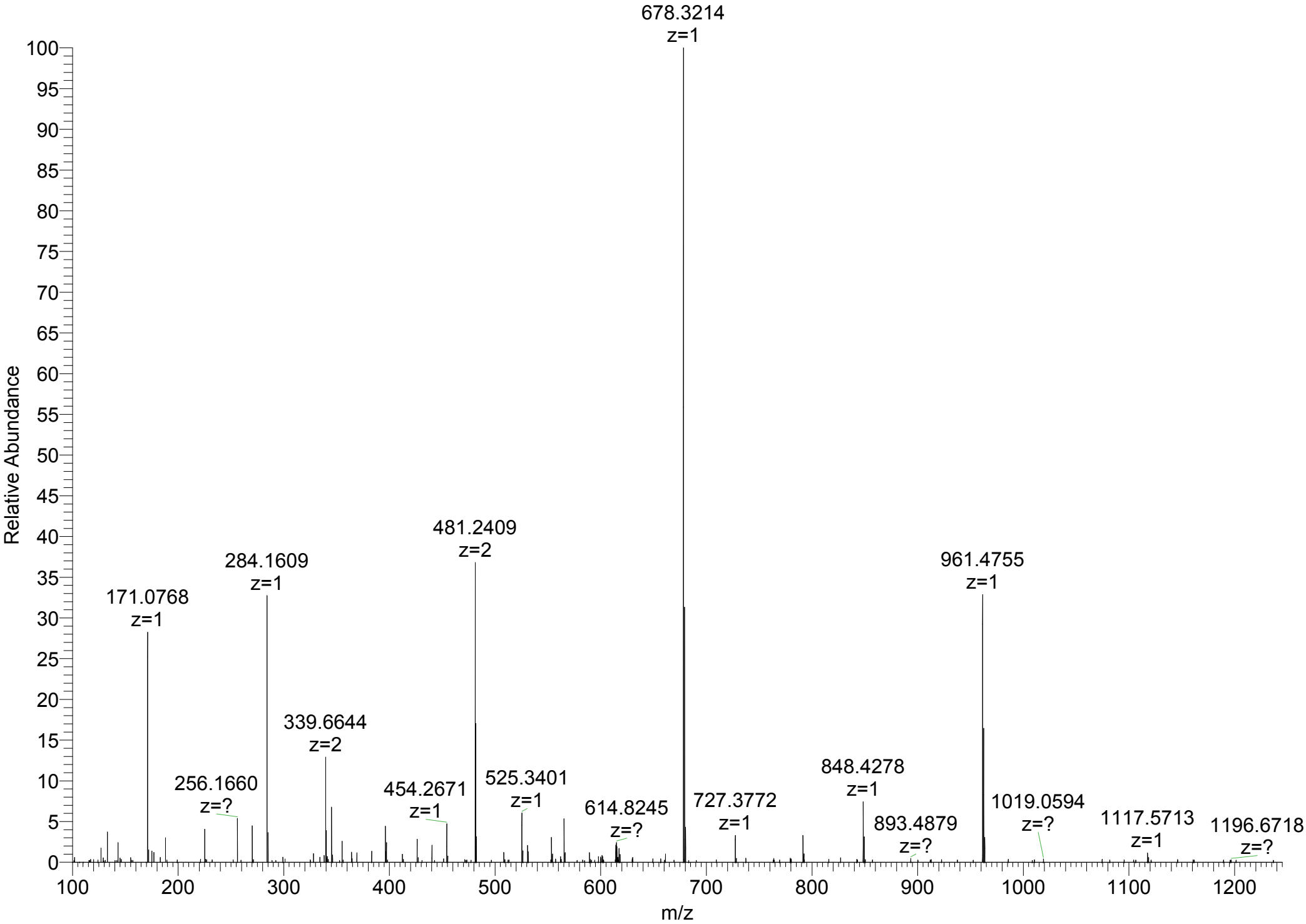
22.

P312-OH, P315-OH, P318-OH

#309-320: LGV**P**GL**P**GY**P**GR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+2OH	2	615.8275	615.8331	0.0112	9.1
PG+OH	1	171.0764	171.0768	0.0004	2.4
PGL+OH	1	284.1605	284.1609	0.0004	1.4
y6+2OH	2	339.6639	339.6644	0.0010	1.5
y3+OH	1	345.1881	345.1891	0.0010	2.9
y9+3OH	2	481.2405	481.2409	0.0008	0.8
a6	1	525.3395	525.3401	0.0006	1.1
y5+OH	1	565.2729	565.2730	0.0001	0.2
y6+2OH	1	678.3206	678.3214	0.0008	1.2
y7+2OH	1	791.4046	791.4070	0.0024	3.0
y8+2OH	1	848.4261	848.4278	0.0017	2.0
y9+3OH	1	961.4738	961.4755	0.0017	1.8
y11+3OH	1	1117.5636	1117.5713	0.0077	6.9

2_2_2012Col5a1_Bovine_HVD3_CE30 #8192 RT: 74.72 AV: 1 NL: 1.89E5
T: FTMS + p NSI d Full ms2 615.83@hcd30.00 [100.00-1245.00]



23.

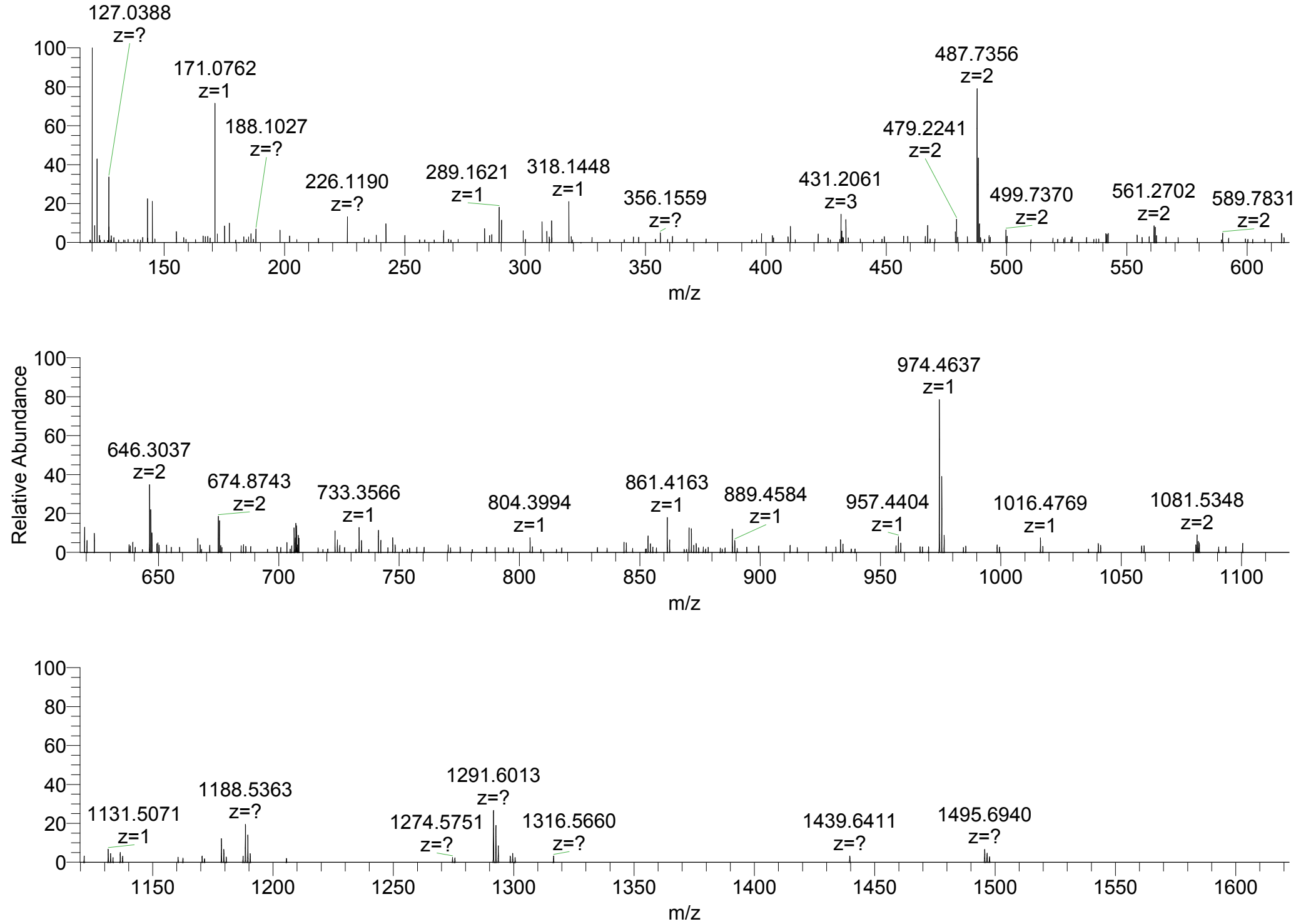
K324-OH.Gal.Glc, P330-OH, P333-OH, K339-OH.Gal.Glc

#321-342: QGP**K**GSIGF**P**GF**P**GANGE**K**GGR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+4OH+Gal.Glc	4	707.5714	707.5726	0.0048	1.7
PG+OH	1	171.0764	171.0762	-0.0002	-1.2
GFP+OH	1	318.1448	318.1448	0.0000	0.0
y13+3OH	3	431.2057	431.2061	0.0012	0.9
y10+2OH	2	487.7361	487.7356	-0.0010	-1.0
y11+2OH	2	561.2703	561.2703	0.0000	0.0
y6+OH	1	619.3158	619.3164	0.0006	1.0
y13+3OH	2	646.3049	646.3037	-0.0024	-1.9
b8+OH	1	741.3890	741.3928	0.0038	5.1
y8+OH	1	804.3959	804.3994	0.0035	4.4
y9+OH	1	861.4173	861.4163	-0.0010	-1.2
y10+2OH	1	974.4650	974.4637	-0.0013	-1.3
y13+3OH	1	1291.6026	1291.6013	-0.0013	-1.0

E:\MY Files\...\4_5_2012Col5a1_ArgC_HCD4 4/7/2012 4:27:10 AM

4_5_2012Col5a1_ArgC_HCD4 #3469 RT: 28.32 AV: 1 NL: 2.21E4
T: FTMS + p NSI d Full ms2 707.82@hcd35.00 [115.00-2000.00]



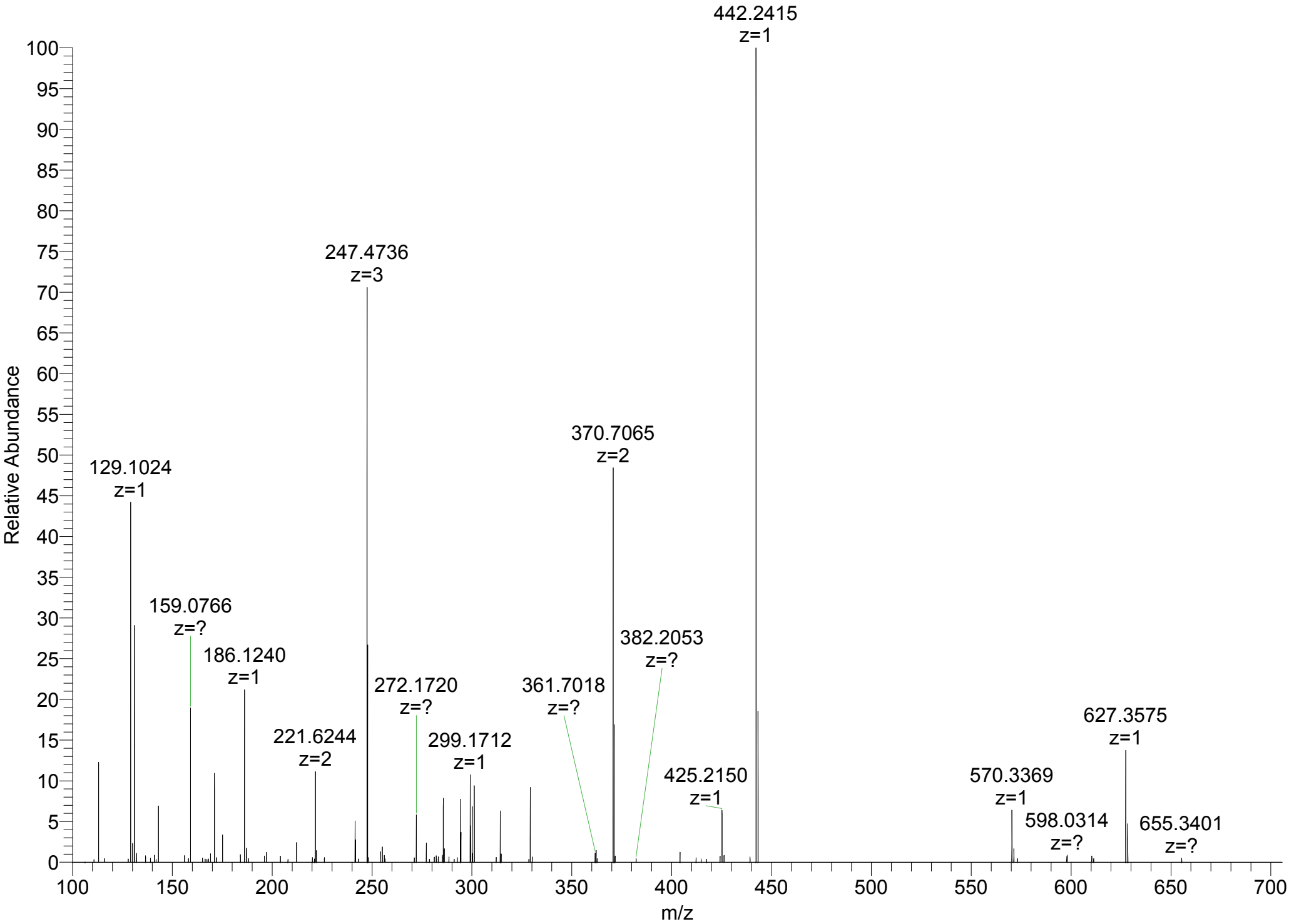
24.

P345-OH, P348-OH

#343-351: GT**P**GK**P**GPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+2OH	3	300.1629	300.1627	-0.0006	-0.7
K	1	129.1022	129.1024	0.0002	1.6
b2	1	159.0764	159.0766	0.0002	1.3
GK	1	186.1237	186.1240	0.0003	1.6
y4+OH	2	221.6241	221.6244	0.0006	1.4
y7+2OH	3	247.4732	247.4736	0.0012	1.6
y2	1	272.1717	272.1720	0.0003	1.1
PGK+OH	1	299.1714	299.1712	-0.0002	-0.7
y3	1	329.1932	329.1938	0.0006	1.8
y7+2OH	2	370.7061	370.7065	0.0008	1.1
y4-NH3+OH	1	425.2143	425.2150	0.0007	1.7
y4+OH	1	442.2409	442.2415	0.0006	1.4
y5+OH	1	570.3358	570.3369	0.0011	1.9
y6+OH	1	627.3573	627.3575	0.0002	0.3

2_2_2012Col5a1_Bovine_HCD1_CE30 #790 RT: 7.81 AV: 1 NL: 1.18E5
T: FTMS + p NSI d Full ms2 300.16@hcd30.00 [100.00-915.00]



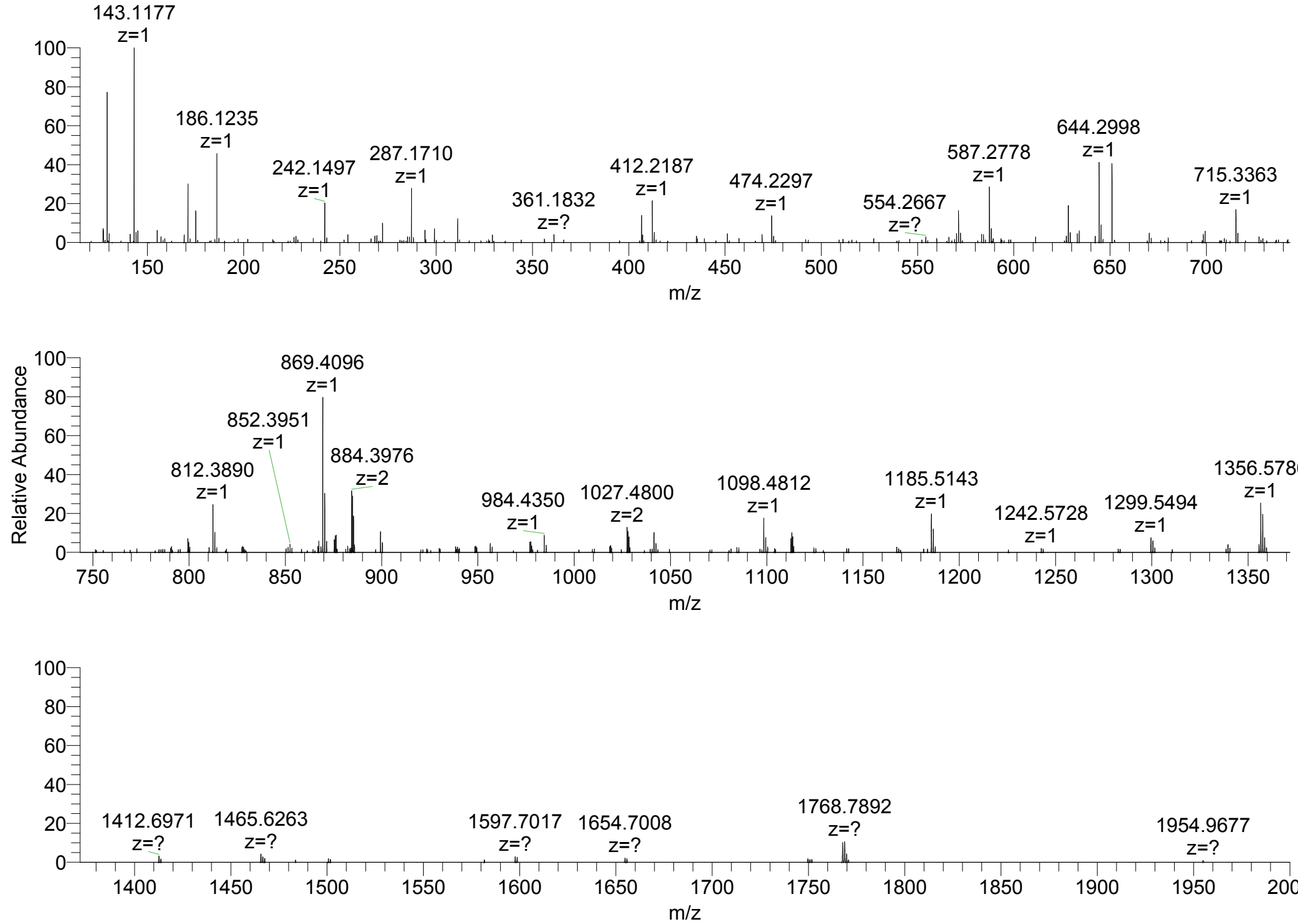
25.

P372-OH, K375-OHGal.Glc, P386-OH, P387-OH

#367-390: GITGK**P**GP**K**GNSGGDGPAG**PP**GER

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+4OH+Gal.Glc	3	850.0591	850.0590	-0.0003	-0.1
K	1	129.1022	129.1021	-0.0001	-0.8
a2	1	143.1179	143.1177	-0.0002	-1.4
GK	1	186.1237	186.1235	-0.0002	-1.1
KP+OH	1	242.1499	242.1497	-0.0002	-0.8
TGK	1	287.1714	287.1710	-0.0004	-1.4
y8+2OH	2	406.6985	406.6982	-0.0006	-0.7
PGPV+OH	1	412.2191	412.2187	-0.0004	-1.0
y4+OH	1	474.2307	474.2297	-0.0010	-2.1
y5+2OH	1	587.2784	587.2778	-0.0006	-1.0
y6+2OH	1	644.2998	644.2998	0.0000	0.0
y7+2OH	1	715.3369	715.3363	-0.0006	-0.8
y17+3OH	2	799.3637	799.3596	-0.0082	-5.1
y8+2OH	1	812.3897	812.3890	-0.0007	-0.9
y9+2OH	1	869.4112	869.4096	-0.0016	-1.8
y19+4OH	2	884.3983	884.3976	-0.0014	-0.8
PGPKGNSGGP+2OH	1	899.3854	899.3853	-0.0001	-0.1
y10+2OH	1	984.4381	984.4350	-0.0031	-3.2
y22+4OH	2	1027.4803	1027.4800	-0.0006	-0.3
y12+2OH	1	1098.4810	1098.4812	0.0002	0.2
y13+2OH	1	1185.5131	1185.5143	0.0012	1.0
y14+2OH	1	1299.5560	1299.5494	-0.0066	-5.1
y15+2OH	1	1356.5775	1356.5786	0.0011	0.8
y19+4OH	1	1767.7892	1767.7932	0.0040	2.3

4_5_2012Col5a1_Trypsin_nontrapping_HCD1 #4645 RT: 38.42 AV: 1 NL: 1.17E5
T: FTMS + p NSI d Full ms2 850.39@hcd35.00 [115.00-2000.00]



26.

P402-OH

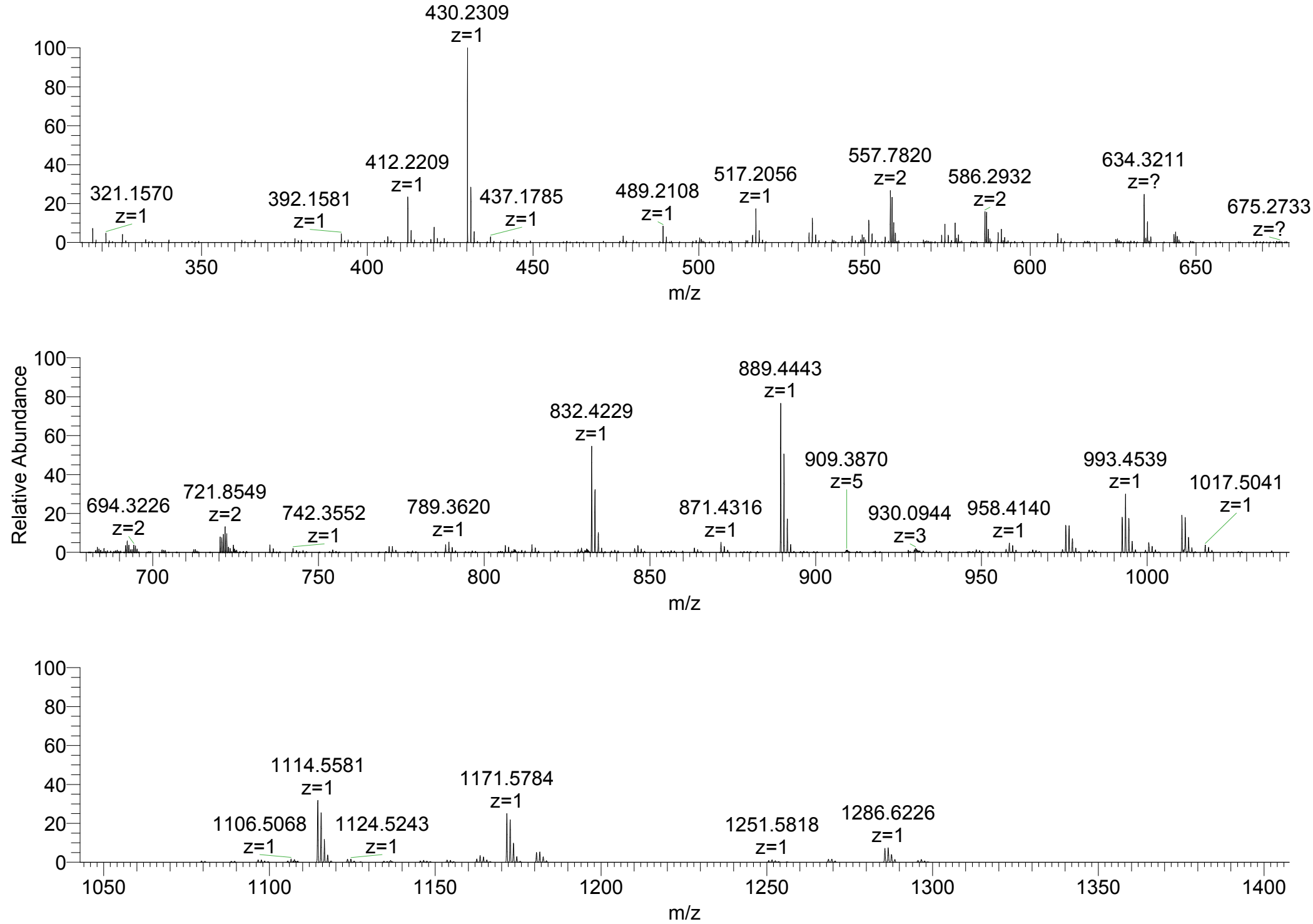
#391-405: GPNGPQGPTGF**P**GPK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+2OH	2	720.3493	720.3513	0.0040	2.8
y3+OH	1	317.1819	317.1833	0.0014	4.4
y4+OH	1	430.2296	430.2309	0.0013	3.0
a6-2NH3	1	489.2092	489.2108	0.0016	3.3
b6-2NH3	1	517.2041	517.2056	0.0015	2.9
y11+2OH	2	557.7800	557.7820	0.0040	3.6
y12+2OH	2	586.2907	586.2932	0.0050	4.3
y6+2OH	1	634.3195	634.3211	0.0016	2.5
y8+2OH	1	832.4199	832.4229	0.0030	3.6
y9+2OH	1	889.4414	889.4443	0.0029	3.3
y11+2OH	1	1114.5527	1114.5581	0.0054	4.8
y12+2OH	1	1171.5742	1171.5784	0.0042	3.6

***Unlocalized sites: P404-OH?, K405-OH?**

Pseudolocalized sites: K405-OH

2_2_2012Col5a1_Bovine_Top5MS3 #1632 RT: 19.25 AV: 1 NL: 2.36E5
T: FTMS + p NSI d Full ms2 720.35@cid35.00 [185.00-1455.00]



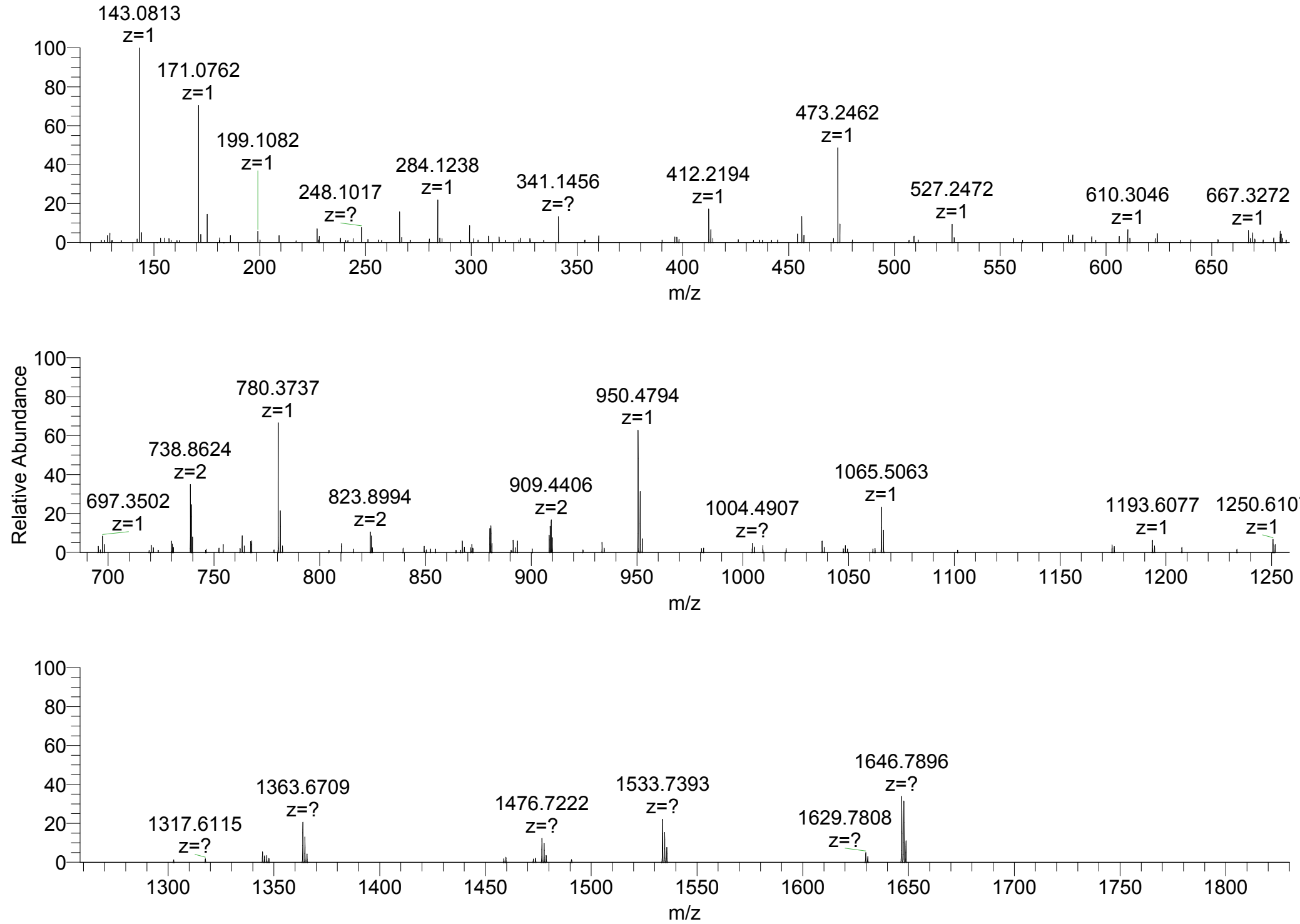
27.

P407-OH, P408-OH,P410-OH, P411-OH, P417-OH, P420-OH

#406-423: G**PP**G**PP**GKDGL**P**GH**P**GQR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+6OH	2	908.9323	908.9326	0.0006	0.3
a2/PG-28+OH	1	143.0815	143.0813	-0.0002	-1.4
b2/PG+OH	1	171.0764	171.0762	-0.0002	-1.2
b3+2OH/PPG+2OH	1	284.1241	284.1238	-0.0003	-1.1
GPPG+2OH/ b4+2OH	1	341.1456	341.1456	0.0000	0.0
PPGK+2OH	1	412.2191	412.2194	0.0003	0.7
y4+OH	1	473.2467	473.2462	-0.0005	-1.1
PPGKD+2OH	1	527.2460	527.2472	0.0012	2.3
y5+OH	1	610.3056	610.3046	-0.0010	-1.6
y6+OH	1	667.3270	667.3272	0.0002	0.3
y14+4OH	2	738.8631	738.8624	-0.0014	-0.9
y7+2OH	1	780.3747	780.3737	-0.0010	-1.3
y16+5OH	2	823.8977	823.8994	0.0034	2.1
[M+2H]+6OH	2	908.9323	908.9303	-0.0040	-2.2
y9+2OH	1	950.4803	950.4794	-0.0009	-0.9
y10+2OH	1	1065.5072	1065.5063	-0.0009	-0.8
y11+2OH	1	1193.6022	1193.6077	0.0055	4.6
y13+3OH	1	1363.6713	1363.6709	-0.0004	-0.3
y14+4OH	1	1476.7190	1476.7222	0.0032	2.2
y15+4OH	1	1533.7404	1533.7393	-0.0011	-0.7
y16+5OH	1	1646.7881	1646.7896	0.0015	0.9

4_5_2012Col5a1_Trypsin_nontrapping_HCD1 #3719 RT: 31.40 AV: 1 NL: 4.47E4
T: FTMS + p NSI d Full ms2 909.43@hcd35.00 [115.00-1830.00]



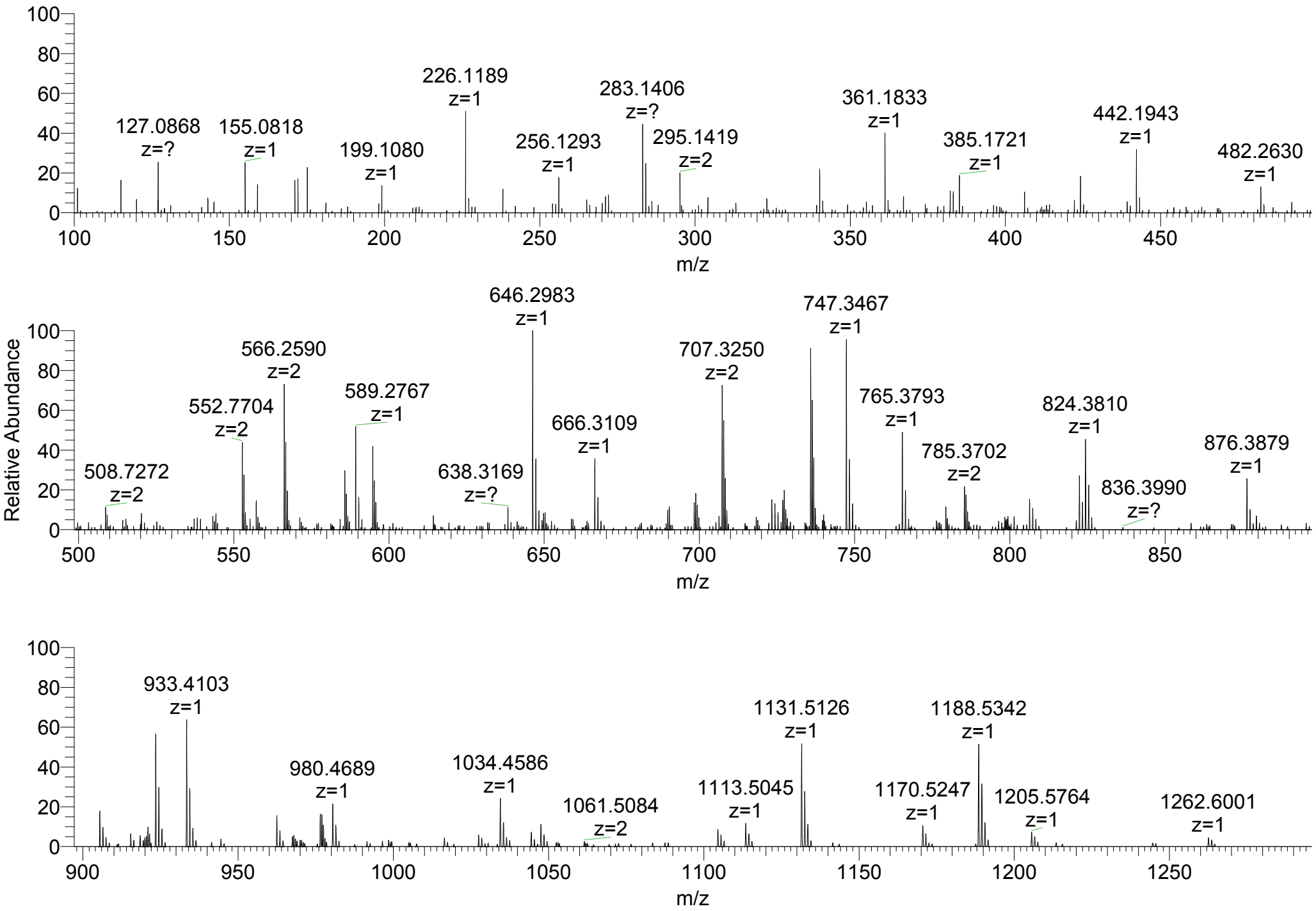
28.

P434-OH, P435-OH, P437-OH, P438-OH

#432-456: TG**PP**G**PP**GVVGPQGPTGETGPMGER

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+4OH	3	798.3728	798.3746	0.0054	2.3
PQ	1	226.1186	226.1189	0.0003	1.3
GPT	1	256.1292	256.1293	0.0001	0.4
PQG	1	283.1401	283.1406	0.0005	1.8
y5	2	295.1418	295.1419	0.0002	0.3
y3	1	361.1830	361.1833	0.0003	0.8
b4+2OH/ETGP	1	385.1718	385.1721	0.0003	0.8
b5+2OH/GPTGE	1	442.1932	442.1943	0.0011	2.5
PPGVV+2OH	1	482.2609	482.2630	0.0021	4.4
y11	2	566.2586	566.2590	0.0008	0.7
y5	1	589.2763	589.2767	0.0004	0.7
y12	2	594.7693	594.7704	0.0022	1.9
y6	1	646.2977	646.2983	0.0006	0.9
PPGPPGV+4OH	1	666.3093	666.3109	0.0016	2.4
y14	2	707.3250	707.3250	0.0000	0.0
y15	2	735.8357	735.8370	0.0026	1.8
y7	1	747.3454	747.3467	0.0013	1.7
PPGPPGVV+4OH	1	765.3777	765.3793	0.0016	2.1
y16	2	785.3699	785.3702	0.0006	0.4
b9+4OH	1	824.3785	824.3810	0.0025	3.0
y8	1	876.3880	876.3879	-0.0001	-0.1
b10+4OH	1	923.4469	923.4485	0.0016	1.7
y9	1	933.4095	933.4103	0.0008	0.9
y20+2OH	2	976.4625	976.4644	0.0038	1.9
b11+4OH	1	980.4684	980.4689	0.0005	0.5
y10	1	1034.4571	1034.4589	0.0018	1.7
y11-H2O	1	1113.4993	1113.5045	0.0052	4.7
y11	1	1131.5099	1131.5126	0.0027	2.4
y12-H2O	1	1170.5208	1170.5247	0.0039	3.3
y12	1	1188.5314	1188.5342	0.0028	2.4

2_2_2012Col5a1_Bovine_HCD1_CE30 #2840 RT: 23.43 AV: 1 NL: 1.12E5
T: FTMS + p NSI d Full ms2 798.71@hcd30.00 [100.00-2000.00]



Bovine

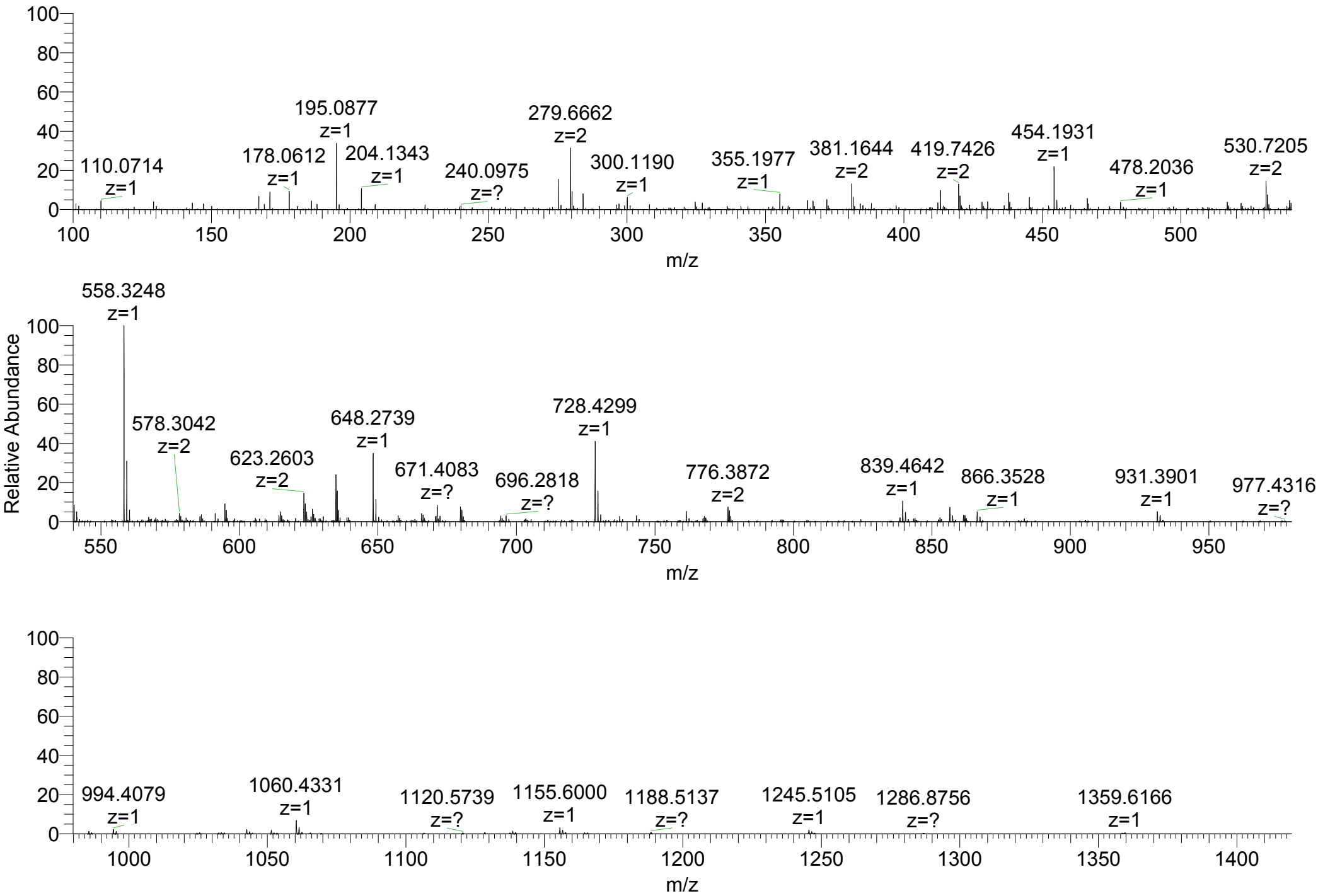
29.

P459-OH, P461-OH,P462-OH,P464-OH,P465-OH,P471-OH

#457-476: GH**P**G**PP**G**PP**GEQGL**P**GLAGK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+6OH	3	639.3097	639.3101	0.0012	0.6
b2	1	195.0877	195.0877	0.0000	0.0
y2	1	204.1343	204.1343	0.0000	0.0
y3	1	275.1714	275.1716	0.0002	0.7
y6+OH	2	279.6659	279.6662	0.0006	1.1
b8+4OH	2	381.1643	381.1644	0.0002	0.3
GPPGP+3OH	1	454.1932	454.1931	-0.0001	-0.2
b11+5OH	2	530.7202	530.7205	0.0006	0.6
y6+OH	1	558.3246	558.3248	0.0002	0.4
b13	2	623.2602	623.2603	0.0002	0.2
y13+3OH	2	634.8277	634.8275	-0.0004	-0.3
b7+3OH	1	648.2736	648.2739	0.0003	0.5
y8+OH	1	728.4301	728.4299	-0.0002	-0.3
y16+5OH	2	776.3861	776.3872	0.0022	1.4
y9-NH3+OH	1	839.4621	839.4642	0.0021	2.5
b10+5OH	1	931.3904	931.3901	-0.0003	-0.3
b11+5OH	1	1060.4330	1060.4331	0.0001	0.1

2_2_2012Col5a1_Bovine_HCD1_CE30 #1921 RT: 16.46 AV: 1 NL: 1.07E7
T: FTMS + p NSI d Full ms2 639.64@hcd30.00 [100.00-1930.00]



30.

P483-OH, P489-OH, P495-OH

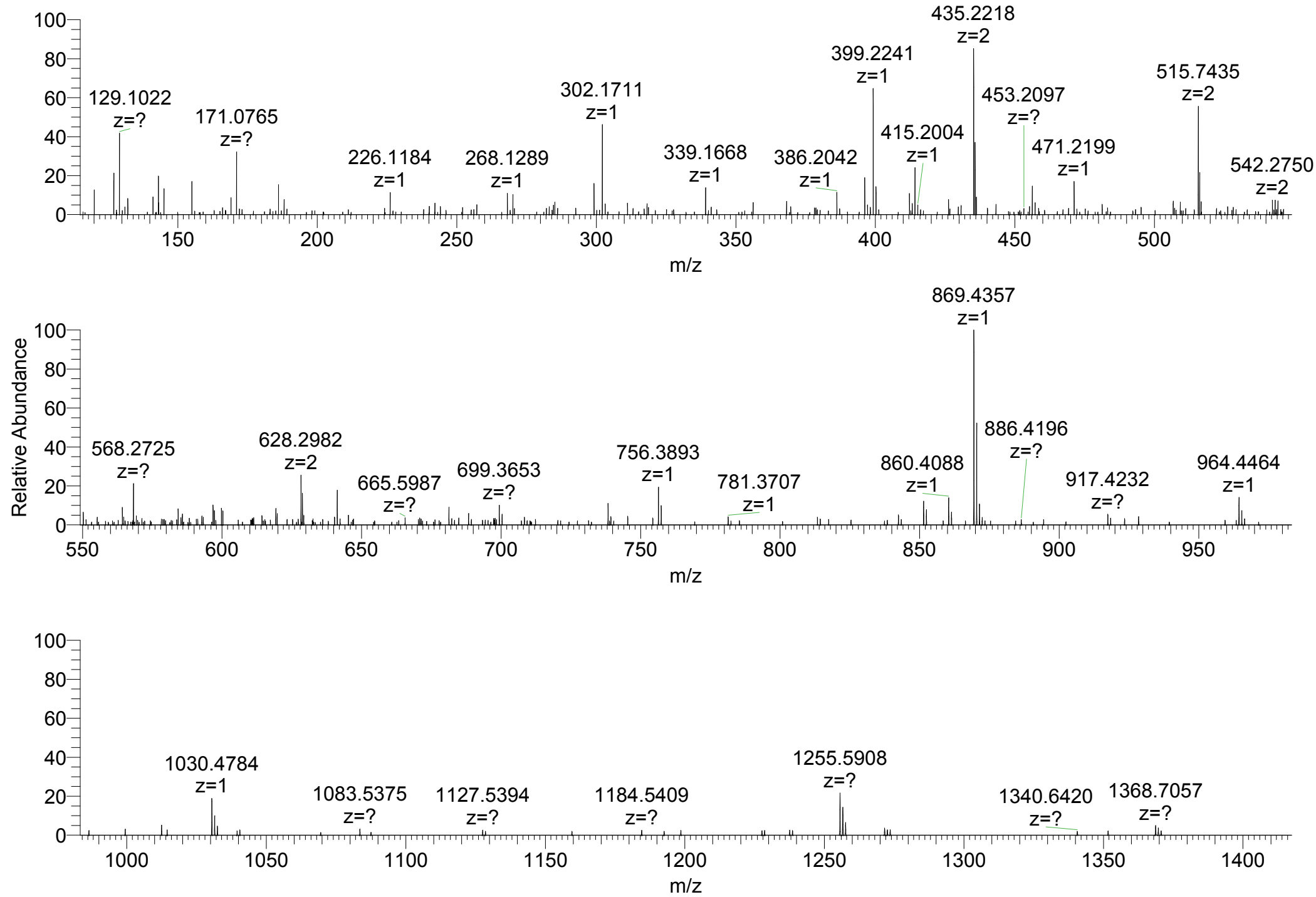
#474-497: AGKEGTKGD**P**GPAGL**P**GKDGP**P**GL

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+4OH+Gal.Glc	4	641.0580	641.0593	0.0052	2.0
K	1	129.1020	129.1022	0.0002	1.6
PAG	1	226.1186	226.1184	-0.0002	-0.9
GPP+OH	1	268.1292	268.1289	-0.0003	-1.1
y3+OH	1	302.1710	302.1711	0.0001	0.3
PGPA+OH	1	339.1663	339.1668	0.0005	1.5
b4/PGKD-28+OH	1	386.2034	386.2042	0.0008	2.1
y4+OH	1	399.2238	399.2241	0.0003	0.8
y9+2OH	2	435.2218	435.2218	0.0000	0.0
EGTKG-H2O+OH/ PGKDG+OH	1	471.2198	471.2199	0.0001	0.2
b11+2OH	2	515.7436	515.7435	-0.0002	-0.2
GKDGPP+OH	1	568.2726	568.2725	-0.0001	-0.2
b14+2OH	2	628.2993	628.2982	-0.0022	-1.8
y7+OH	1	699.3672	699.3653	-0.0019	-2.7
y8+OH	1	756.3886	756.3893	0.0007	0.9
b9+OH	1	860.4108	860.4088	-0.0020	-2.3
y9+2OH	1	869.4363	869.4357	-0.0006	-0.7
b11+2OH	1	1030.4800	1030.4784	-0.0016	-1.6
b14+2OH	1	1255.5913	1255.5908	-0.0005	-0.4

***Unlocalized sites: K476-OHGal.Glc?, K480-OH.Gal.Glc?**

Pseudolocalized sites: K480-OH.Gal.Glc

4_5_2012Col5a1_Chmy_HCD1 #2646 RT: 17.52 AV: 1 NL: 3.43E5
T: FTMS + p NSI d Full ms2 641.31@hcd35.00 [115.00-2000.00]



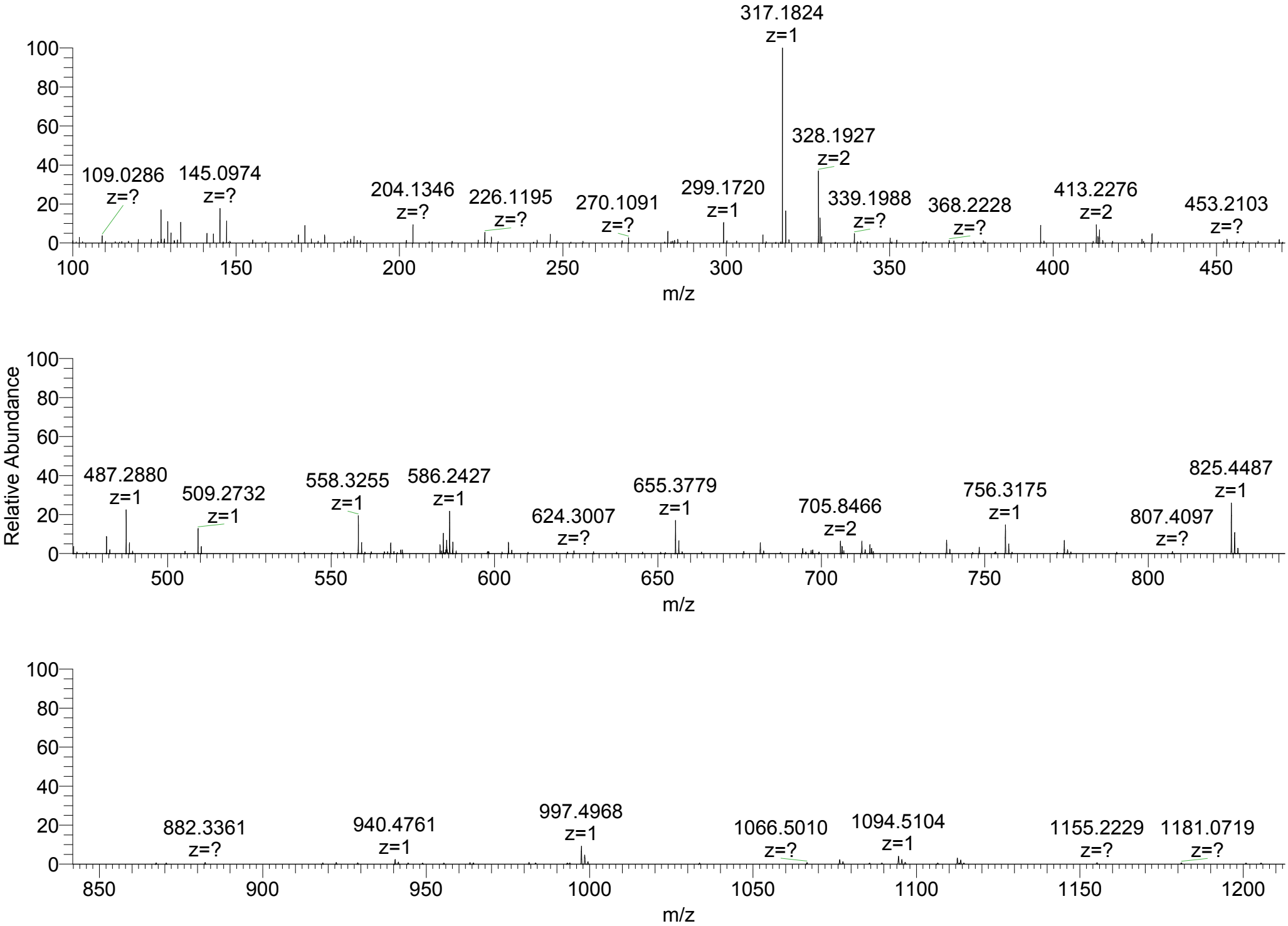
31.

K480-OH.Gal.Glc, P483-OH, P489-OH

#477-491: EGT**K**GD**P**GPAGL**P**GK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+3OH+Gal.Glc	3	584.9389	584.9410	0.0063	3.6
y2	1	204.1343	204.1346	0.0003	1.5
y3+OH	1	317.1819	317.1824	0.0005	1.6
y7+OH	2	328.1923	328.1927	0.0008	1.2
y5+OH	1	487.2875	487.2880	0.0005	1.0
y6+OH	1	558.3246	558.3255	0.0009	1.6
b6-H2O+OH	1	586.2467	586.2427	-0.0040	-6.8
y7+OH	1	655.3774	655.3779	0.0005	0.8
b8-H2O+2OH	1	756.3159	756.3175	0.0016	2.1
y9+2OH	1	825.4465	825.4487	0.0022	2.7
y11+2OH	1	997.4949	997.4968	0.0019	1.9

2_2_2012Col5a1_Bovine_CE35_HCD1 #8100 RT: 74.74 AV: 1 NL: 8.85E4
T: FTMS + p NSI d Full ms2 585.28@hcd35.00 [100.00-1770.00]



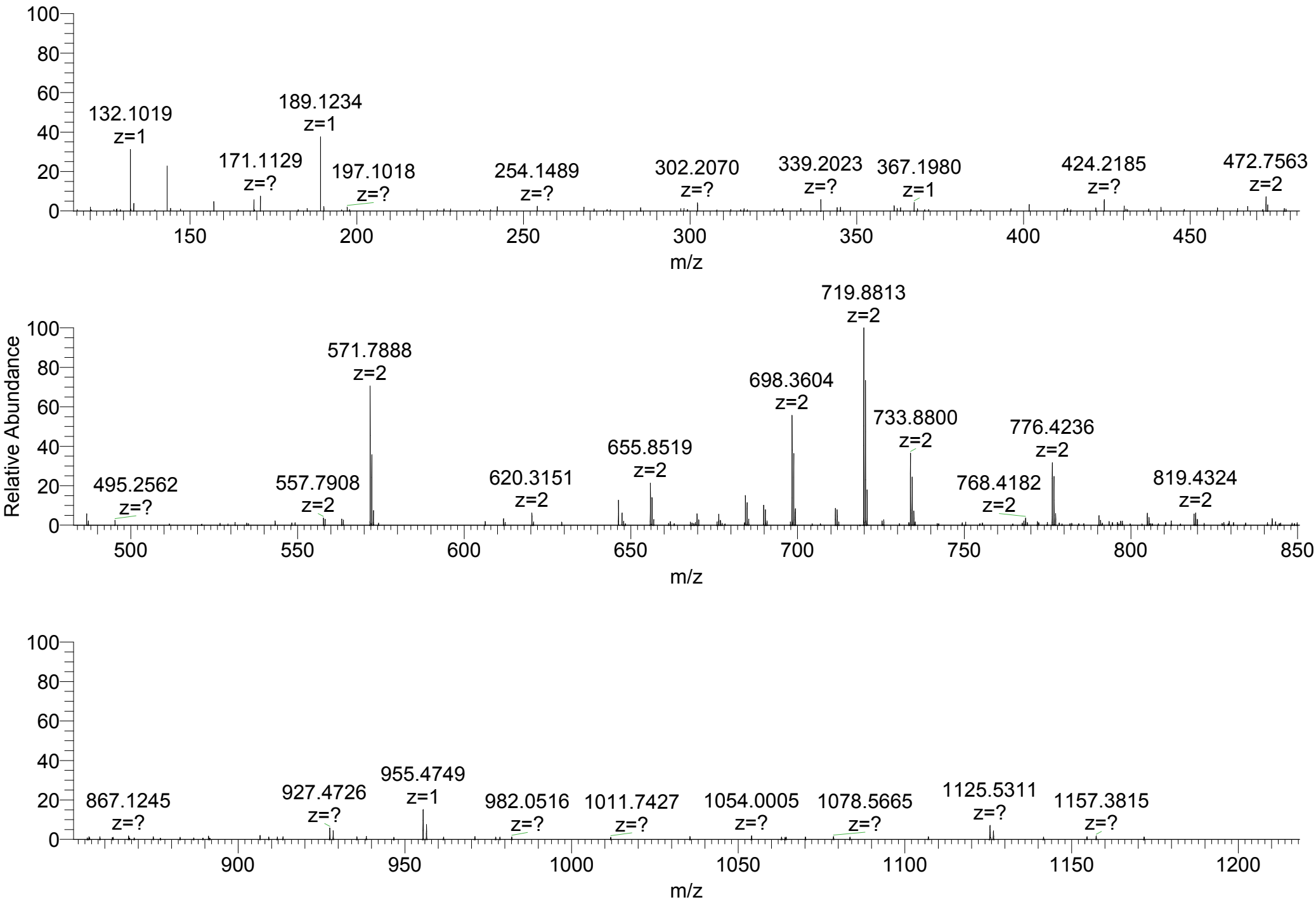
32.

P501-OH, P507-OH

#498-515: RGF**P**GDRGL**P**GPVGALGL

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+2OH	3	589.9882	589.9886	0.0012	0.7
y1	1	132.1019	132.1019	0.0000	0.0
y2	1	189.1234	189.1234	0.0000	0.0
y3	1	302.2074	302.2070	-0.0004	-1.3
a9+OH	2	472.7567	472.7563	-0.0008	-0.8
b11+2OH	2	571.7887	571.7888	0.0002	0.2
b6+OH	1	646.2944	646.2930	-0.0014	-2.2
a13+2OH	2	655.8518	655.8519	0.0002	0.2
b13+2OH	2	669.8493	669.8484	-0.0018	-1.3
b14+2OH	2	698.3600	698.3604	0.0008	0.6
a15+2OH	2	719.8811	719.8813	0.0004	0.3
b15+2OH	2	733.8786	733.8800	0.0028	1.9
a16+2OH	2	776.4232	776.4236	0.0008	0.5
b17+2OH	2	818.9313	818.9321	0.0016	1.0
b9-NH3+OH	1	955.4744	955.4749	0.0005	0.5

4_5_2012Col5a1_Chmy_HCD1 #8506 RT: 54.09 AV: 1 NL: 8.57E5
T: FTMS + p NSI d Full ms2 590.32@hcd35.00 [115.00-1785.00]



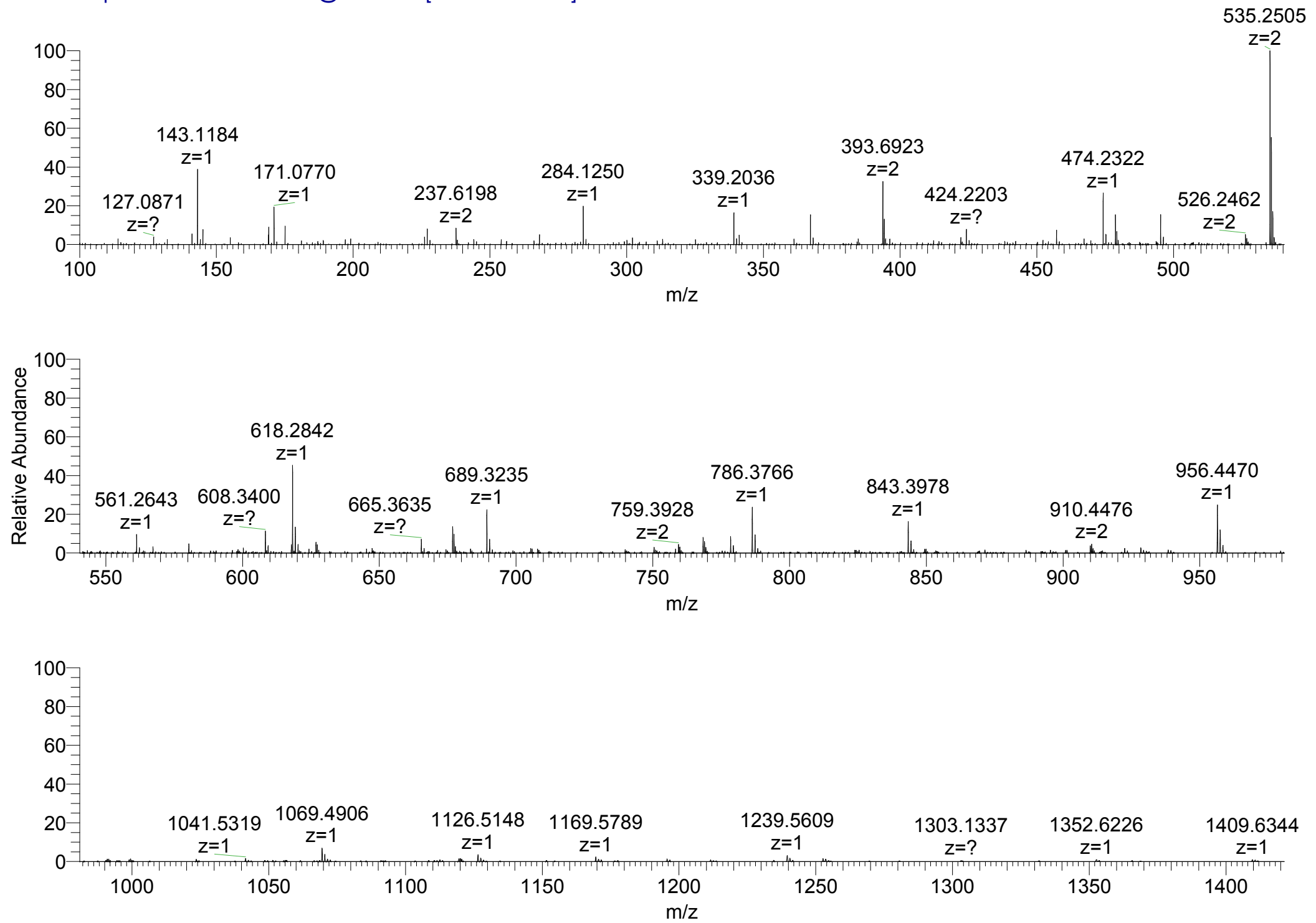
33.

K516-OH.Gal.Glc, P521-OH, P522-OH, P524-OH, P525-OH, P531-OH

#505-534: GLPGPVGALGL**K**GSEG**PP**G**PP**GPAGS**P**GER

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+7OH+Gal.Glc	4	775.3717	775.3750	0.0132	4.3
a2/LG-28	1	143.1179	143.1184	0.0005	3.5
PG+OH	1	171.0764	171.0770	0.0006	3.5
y4+OH	2	237.6190	237.6198	0.0016	3.4
GPP+2OH	1	284.1241	284.1250	0.0009	3.2
PGPV-28+OH	1	339.2027	339.2036	0.0009	2.7
y8+OH	2	393.6907	393.6923	0.0032	4.1
y4+OH	1	474.2307	474.2322	0.0015	3.2
y11+3OH	2	535.2491	535.2505	0.0028	2.6
y6+OH	1	618.2842	618.2842	0.0000	0.0
y7+OH	1	689.3213	689.3235	0.0022	3.2
y8+OH	1	786.3741	786.3766	0.0025	3.2
y9+OH	1	843.3955	843.3978	0.0023	2.7
y10+2OH	1	956.4432	956.4470	0.0038	4.0
y11+3OH	1	1069.4909	1069.4906	-0.0003	-0.3
y12+3OH	1	1126.5123	1126.5148	0.0025	2.2
y13+4OH	1	1239.5600	1239.5609	0.0009	0.7
y15+5OH	1	1409.6292	1409.6344	0.0052	3.7

2_2_2012Col5a1_Bovine_CE35_HCD1 #3149 RT: 29.42 AV: 1 NL: 1.80E5
T: FTMS + p NSI d Full ms2 775.37@hcd35.00 [100.00-2000.00]



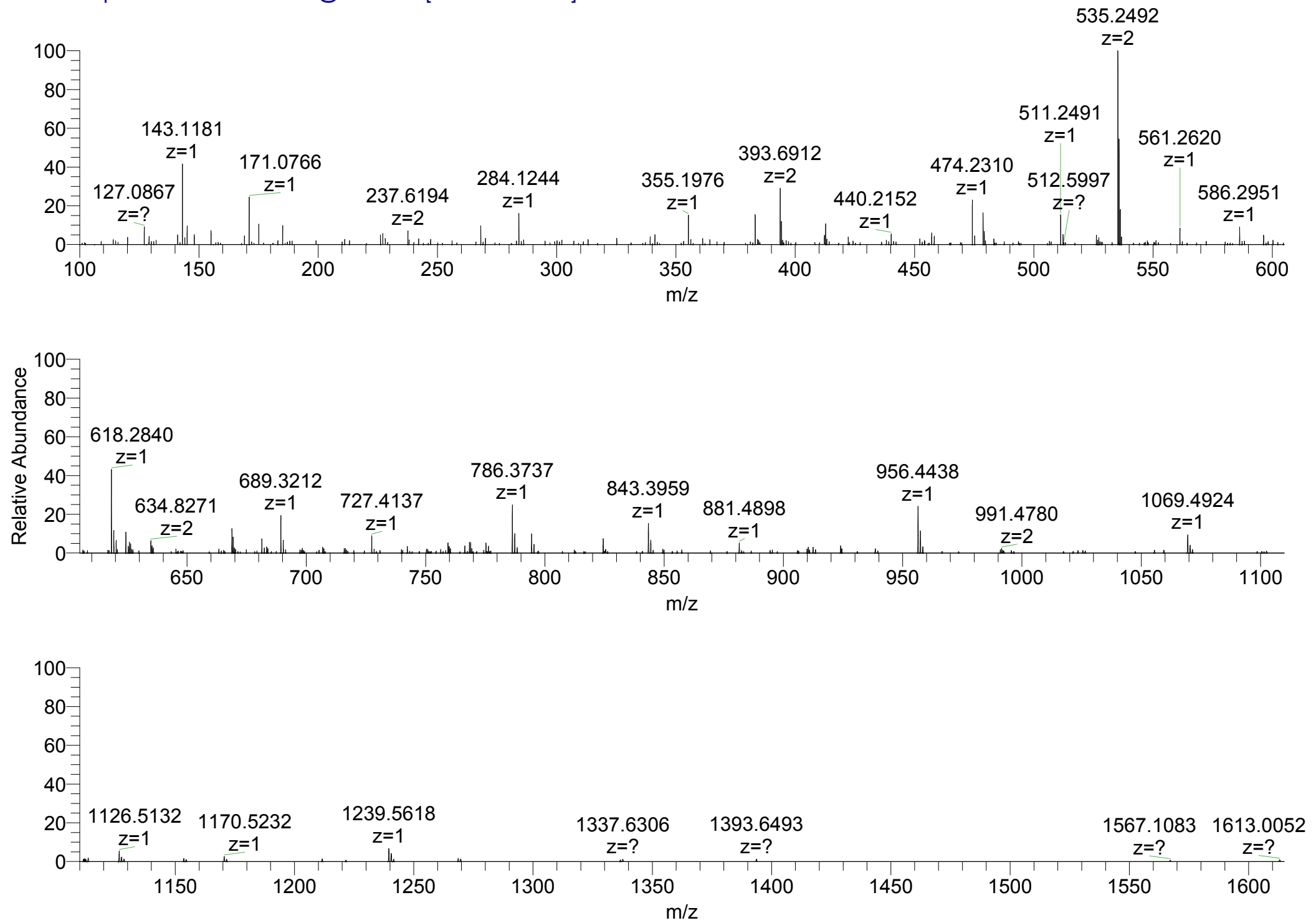
34.

P507-OH, P509-OH, K516-OH.Gal.Glc, P522-OH, P524-OH, P525-OH, P531-OH

#505-534: GL**P**G**P**VGALGL**K**GSEGP**P**G**PP**GPAGS**P**GER

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+7OH+Gal.Glc	4	775.3717	775.3749	0.0128	4.1
a2/LG-28	1	143.1179	143.1181	0.0002	1.4
y4+OH	2	237.6190	237.6194	0.0008	1.7
EGP/GPP+2OH	1	284.1241	284.1244	0.0003	1.1
PGPV-28+2OH	1	355.1976	355.1976	0.0000	0.0
PGPV+2OH	1	383.1925	383.1924	-0.0001	-0.3
y8+OH	2	393.6907	393.6912	0.0010	1.3
y10+2OH	2	478.7252	478.7258	0.0012	1.3
PGPVGA+2OH	1	511.2511	511.2491	-0.0020	-3.9
y11+3OH	2	535.2491	535.2492	0.0002	0.2
y5+OH	1	561.2627	561.2620	-0.0007	-1.2
y6+OH	1	618.2842	618.2840	-0.0002	-0.3
y14+4OH	2	668.8100	668.8109	0.0018	1.3
b8+2OH/ PGPVGALG+2OH	1	681.3566	681.3574	0.0008	1.2
y7+OH	1	689.3213	689.3212	-0.0001	-0.1
y8+OH	1	786.3741	786.3737	-0.0004	-0.5
y9+OH	1	843.3955	843.3959	0.0004	0.5
y10+2OH	1	956.4432	956.4438	0.0006	0.6
y11+3OH	1	1069.4909	1069.4924	0.0015	1.4
y12+3OH	1	1126.5123	1126.5132	0.0009	0.8
y13+4OH	1	1239.5600	1239.5618	0.0018	1.5

2_2_2012Col5a1_Bovine_CE35_HCD1 #2835 RT: 26.65 AV: 1 NL: 7.67E4
T: FTMS + p NSI d Full ms2 775.62@hcd35.00 [100.00-2000.00]



35.

P546-OH, K561-OH.Gal.Glc

#535-567: GPAGAAGPIGI**P**GRPGPQGP**P**GPAGE**K**GAPGEK

MS^2: GPAGAAGPIGIPGRPGPQGPPGPAGEKGAPGEK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+4OH+Gal.Glc	4	822.6561	822.6582	0.0084	2.6
b5/GAAGP	1	354.1772	354.1787	0.0015	4.2
PAGAAG/b6/ PGPQG-28+OH	1	425.2143	425.2159	0.0016	3.8
b7	1	482.2358	482.2373	0.0015	3.1
y6	1	558.2882	558.2905	0.0023	4.1
y22+4OH	3	701.3469	701.3498	0.0087	4.1
[M+4H]+4OH (MS^3)	4	741.6297	741.6335	0.0152	5.1
[M+4H]+4OH+Gal	4	782.1429	782.1462	0.0132	4.2
y26+4OH	3	828.0943	828.0978	0.0105	4.2
y27+4OH	3	847.1015	847.1038	0.0069	2.7
b11	1	862.4781	862.4808	0.0027	3.1
y24+4OH+Gal.Glc	3	866.0839	866.0864	0.0075	2.9
y26+4OH+Gal	3	882.1120	882.1132	0.0036	1.4
y27+4OH+Gal	3	901.1191	901.1184	-0.0021	-0.8
y26+4OH+Gal.Glc	3	936.1296	936.1336	0.0120	4.3
y27+4OH+Gal.Glc	3	955.1367	955.1392	0.0075	2.6
y28+4OH+Gal.Glc	3	978.8158	978.8158	0.0000	0.0
[M+3H]+4OH	3	988.5038	988.5079	0.0123	4.2
y22+4OH	2	1051.5167	1051.5206	0.0078	3.7
y24+4OH	2	1136.5695	1136.5730	0.0070	3.1
y27+4OH	2	1270.1486	1270.1555	0.0138	5.4

MS^3: GPAGAAGPIGI**P**GRPGPQGPPGPAGE**K**GAPGEK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
PIG	1	268.1656	268.1660	0.0004	1.5
a5/GAAGP-28	1	326.1823	326.1833	0.0010	3.1
b5/GAAGP	1	354.1772	354.1779	0.0007	2.0
b6/ PGPQG-28+OH	1	425.2143	425.2144	0.0001	0.2
b7	1	482.2358	482.2363	0.0005	1.0
AGPIGI	1	509.3082	509.3084	0.0002	0.4
y6	1	558.2882	558.2892	0.0010	1.8
y22+4OH	3	701.3469	701.3477	0.0024	1.1
[M+4H]+4OH	4	741.6297	741.6311	0.0056	1.9

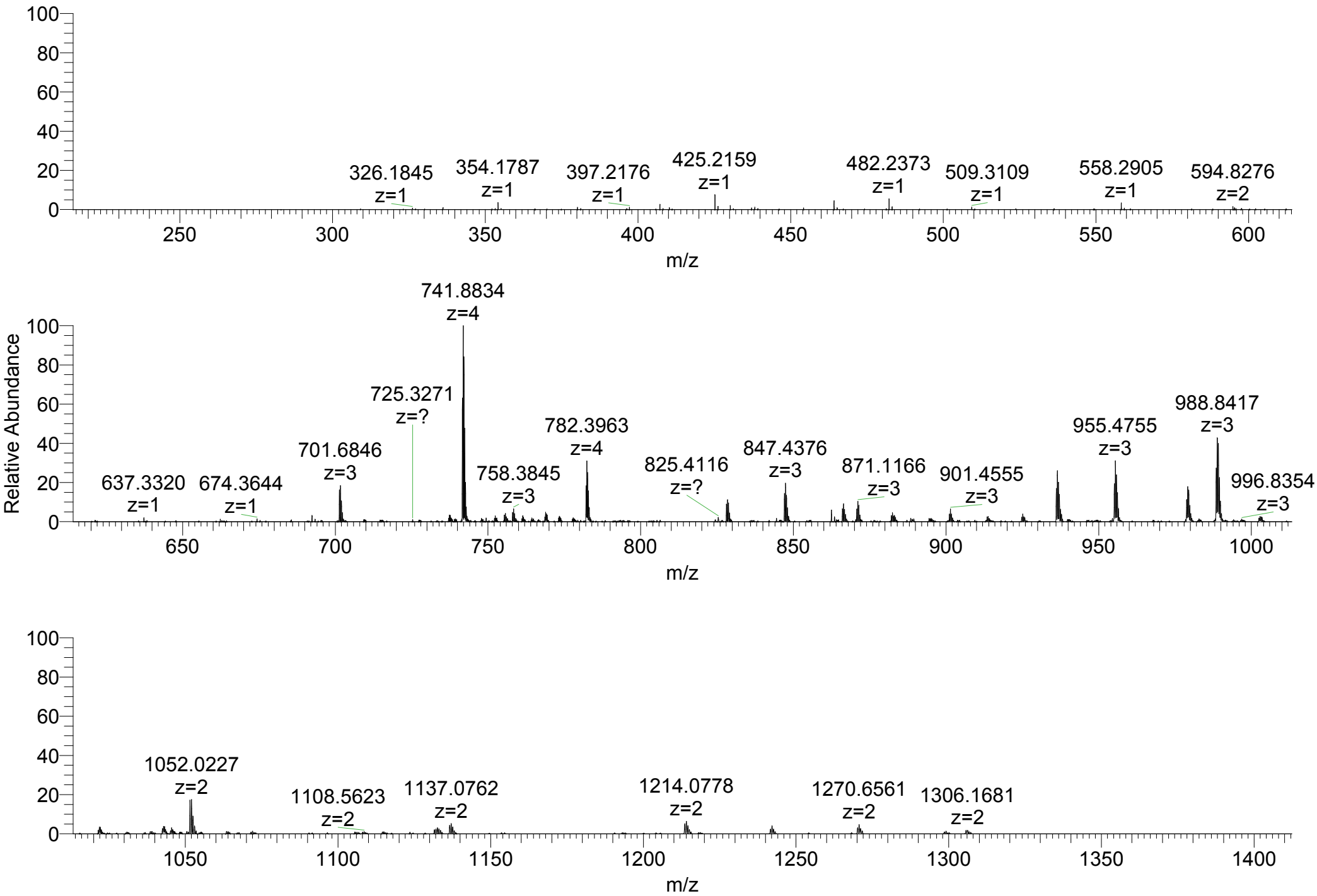
Bovine

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
y24+4OH	3	758.0487	758.0489	0.0006	0.3
y26+4OH	3	828.0943	828.0950	0.0021	0.8
y27+4OH	3	847.1015	847.1031	0.0048	1.9
y19+3OH	2	888.4316	888.4390	0.0148	8.3
b22+3OH	2	954.4898	954.4960	0.0124	6.5
y22+4OH	2	1051.5167	1051.5188	0.0042	2.0
y24+4OH	2	1136.5695	1136.5714	0.0038	1.7

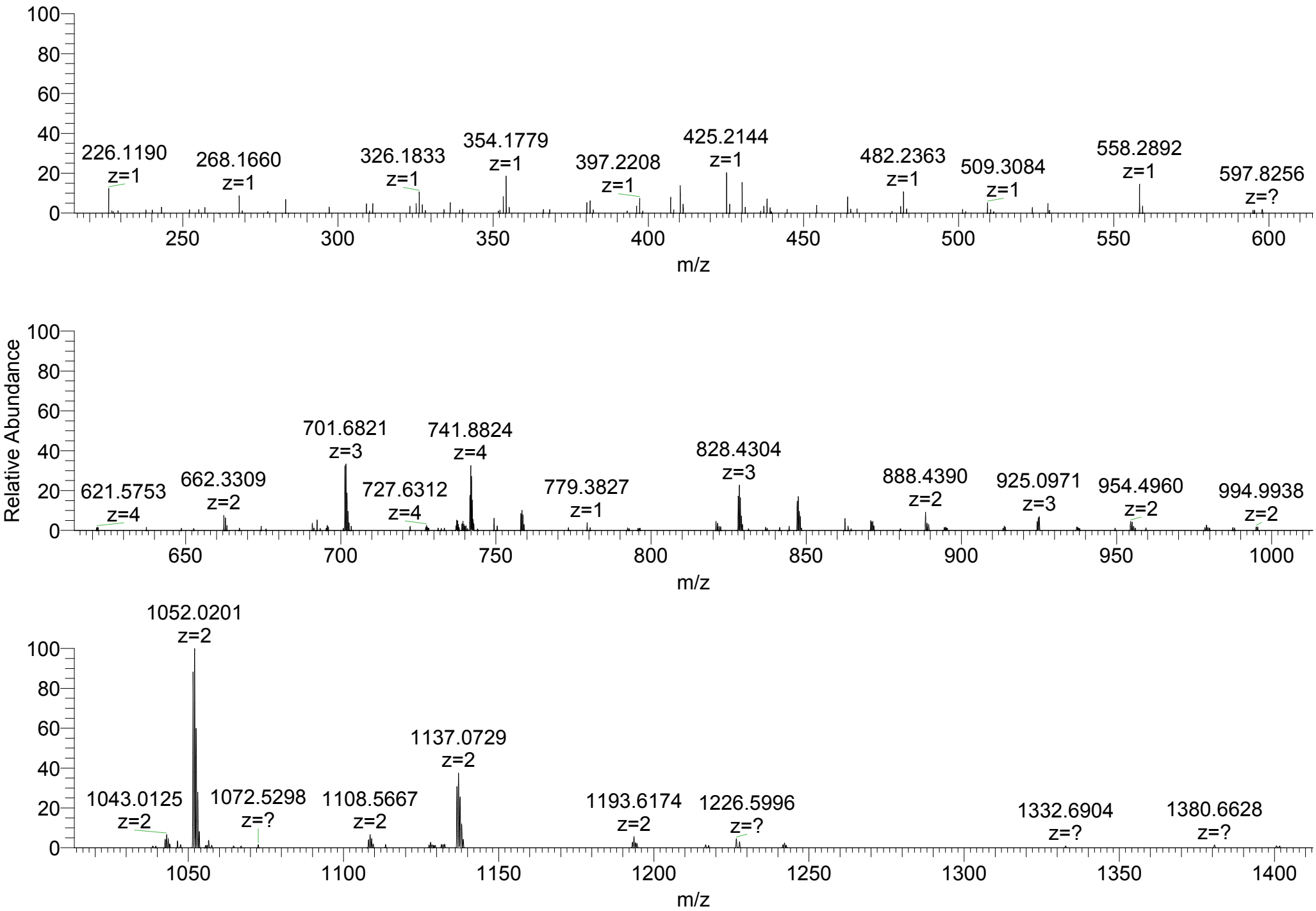
***Unlocalized sites: P549-OH?, P551-OH?, P554-OH?, P555-OH?**

Pseudolocalized sites: P549-OH, P555-OH

2_2_2012Col5a1_Bovine_Top5MS3 #1770 RT: 20.79 AV: 1 NL: 1.77E5
T: FTMS + p NSI d Full ms2 823.16@cid35.00 [215.00-2000.00]



2_2_2012Col5a1_Bovine_Top5MS3 #1771 RT: 20.80 AV: 1 NL: 5.57E4
T: FTMS + p NSI d Full ms3 823.16@cid35.00 741.88@hcd30.00 [100.00-2000.00]



36.

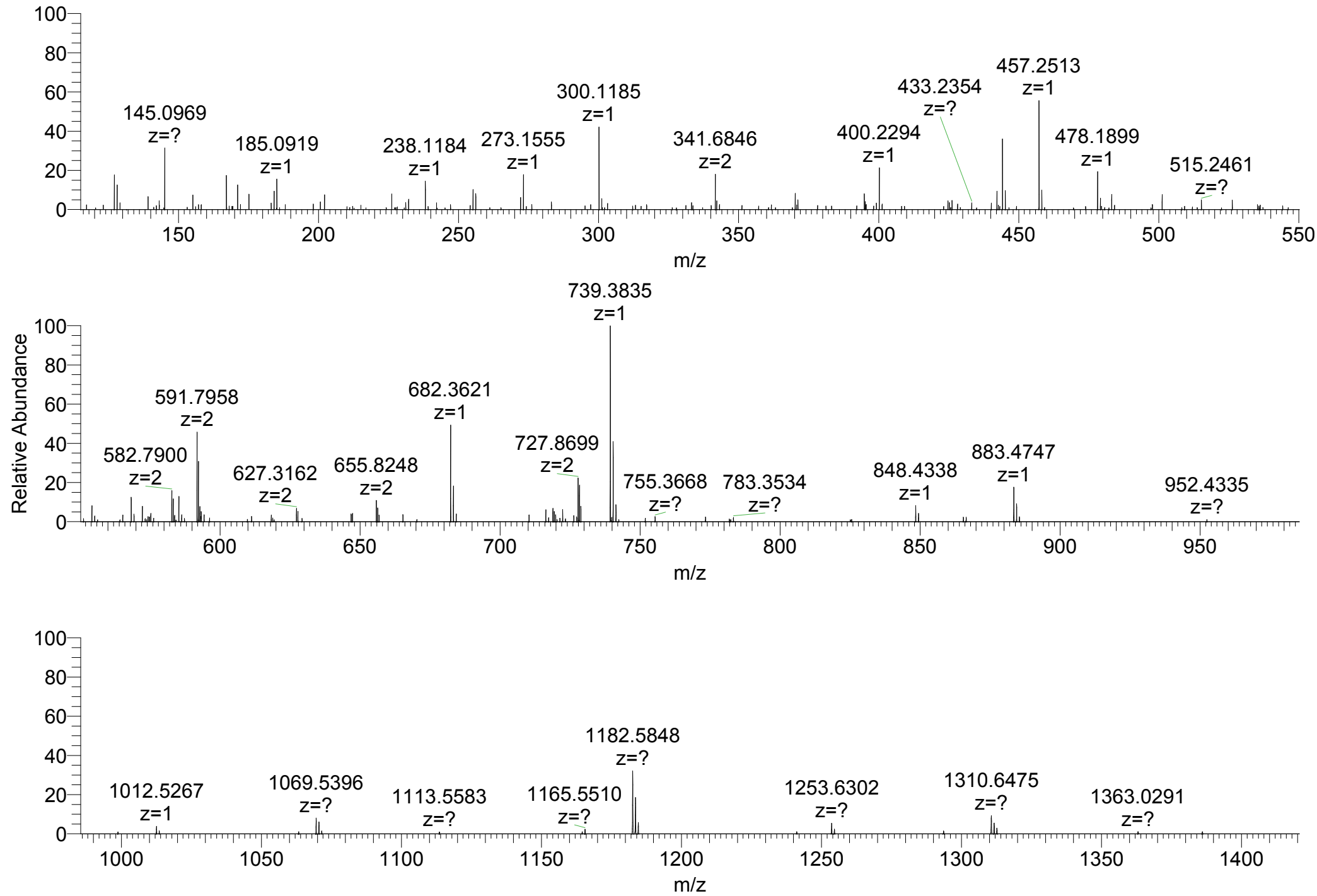
K561-OH, P564-OH, K567-OH

#561-575: **K**GA**P**GE**K**GPQGPAGR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+3OH+Gal.Glc	3	593.6183	593.6183	0.0000	0.0
AP+OH	1	185.0921	185.0919	-0.0002	-1.1
b3+OH	1	273.1557	273.1555	-0.0002	-0.7
PGE+OH	1	300.1190	300.1185	-0.0005	-1.7
y7	2	341.6851	341.6846	-0.0010	-1.5
y4	1	400.2303	400.2294	-0.0009	-2.3
PGEK+2OH	1	444.2089	444.2080	-0.0009	-2.0
y5	1	457.2518	457.2518	0.0000	0.0
y12+2OH	2	591.7967	591.7658	-0.0618	-52.3
y13+2OH	2	627.3153	627.3162	0.0018	1.4
y14+2OH	2	655.8260	655.8248	-0.0024	-1.8
y7	1	682.3631	682.3621	-0.0010	-1.5
[M+2H]+3OH	2	727.8710	727.8699	-0.0022	-1.5
y8	1	739.3846	739.3835	-0.0011	-1.5
y9+OH	1	883.4744	883.4747	0.0003	0.3
y11+OH	1	1069.5385	1069.5396	0.0011	1.0
y12+2OH	1	1182.5862	1182.5848	-0.0014	-1.2
y14+2OH	1	1310.6448	1310.6475	0.0027	2.1

***Unlocalized sites: K561-OH.Gal.Glc, K567-OH.Gal.Glc**

4_5_2012Col5a1_GluCandAspN_HCD1 #391 RT: 3.91 AV: 1 NL: 4.75E5
T: FTMS + p NSI d Full ms2 593.95@hcd35.00 [115.00-1795.00]



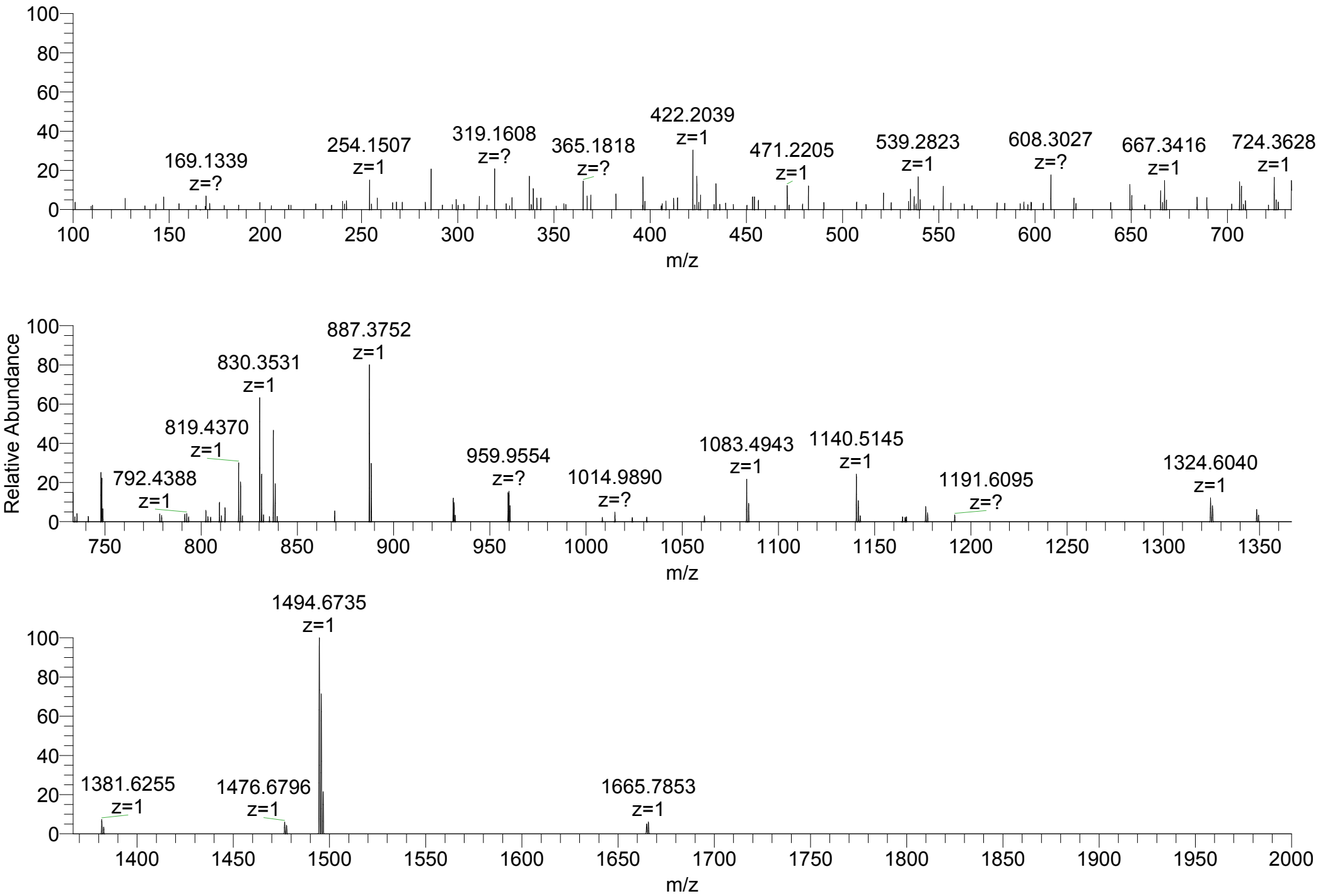
37.

P585-OH, P587-OH, P594-OH

#576-600: DGLQGPVGL**P**G**P**AGPVGP**P**GEDGDK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH	2	1166.0586	1166.0651	0.0130	5.6
GPV	1	254.1499	254.1507	0.0008	3.2
y3	1	319.1612	319.1608	-0.0004	-1.3
QGPVG-NH3	1	422.2034	422.2039	0.0005	1.2
b5	1	471.2198	471.2205	0.0007	1.5
PGPAGPV+2OH	1	608.3039	608.3027	-0.0012	-2.0
b7	1	667.3410	667.3416	0.0006	0.9
b8	1	724.3624	724.3628	0.0004	0.6
y7+OH	1	733.2999	733.2988	-0.0011	-1.5
y16+3OH	2	747.8390	747.8395	0.0010	0.7
b9-H2O	1	819.4359	819.4370	0.0011	1.3
y8+OH	1	830.3527	830.3531	0.0004	0.5
b9	1	837.4465	837.4458	-0.0007	-0.8
y9+OH	1	887.3741	887.3752	0.0011	1.2
y20+3OH	2	930.9523	930.9539	0.0032	1.7
y11+OH	1	1083.4953	1083.4943	-0.0010	-0.9
y12+OH	1	1140.5168	1140.5145	-0.0023	-2.0
y14+2OH	1	1324.6016	1324.6040	0.0024	1.8
y15+2OH	1	1381.6230	1381.6255	0.0025	1.8
y16+3OH	1	1494.6707	1494.6735	0.0028	1.9

2_2_2012Col5a1_Bovine_HCD1_CE30 #3890 RT: 32.48 AV: 1 NL: 2.17E4
T: FTMS + p NSI d Full ms2 1166.07@hcd30.00 [100.00-2000.00]



38.

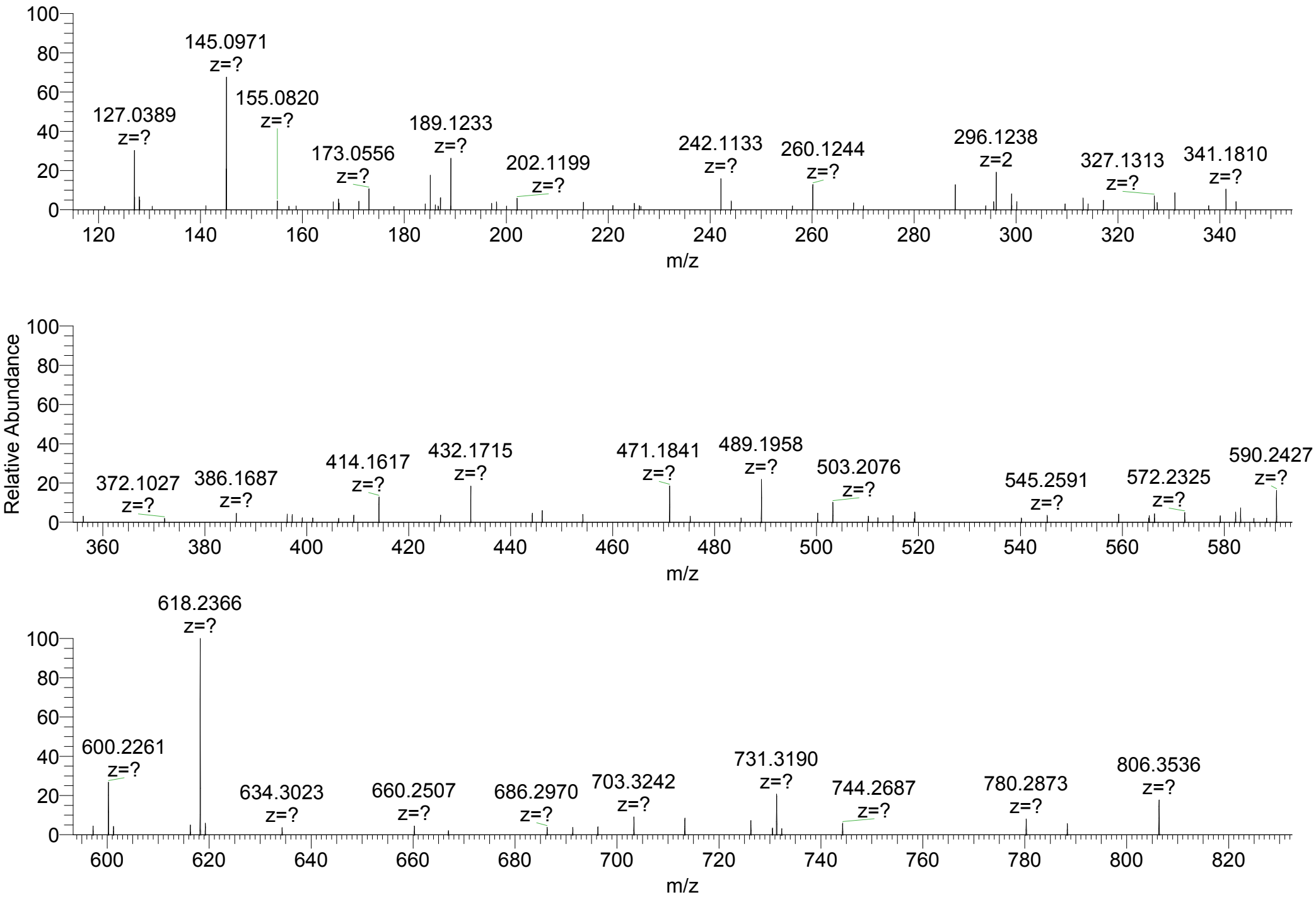
K600-OH.Gal.Glc

#597-604: DGD**K**GEIG

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+OH+Gal.Glc	2	565.7328	565.7333	0.0010	0.9
y2	1	189.1234	189.1233	-0.0001	-0.5
DK+OH-H2O	1	242.1135	242.1133	-0.0002	-0.8
DK+OH	1	260.1241	260.1244	0.0003	1.2
b4+OH	1	432.1725	432.1715	-0.0010	-2.3
b5-H2O+OH	1	471.1834	471.1841	0.0007	1.5
b5+OH	1	489.1940	489.1958	0.0018	3.7
b6-H2O+OH	1	600.2260	600.2261	0.0001	0.2
b6+OH	1	618.2366	618.2366	0.0000	0.0
a7+OH	1	703.3257	703.3242	-0.0015	-2.1
b7+OH	1	731.3206	731.3190	-0.0016	-2.2
[M+H]+OH	1	806.3527	806.3536	0.0009	1.1

E:\MY Files\...\4_5_2012Col5a1_AspN_HCD2 4/6/2012 1:24:22 AM

4_5_2012Col5a1_AspN_HCD2 #636 RT: 3.93 AV: 1 NL: 1.98E5
T: FTMS + p NSI d Full ms2 565.73@hcd35.00 [115.00-1145.00]



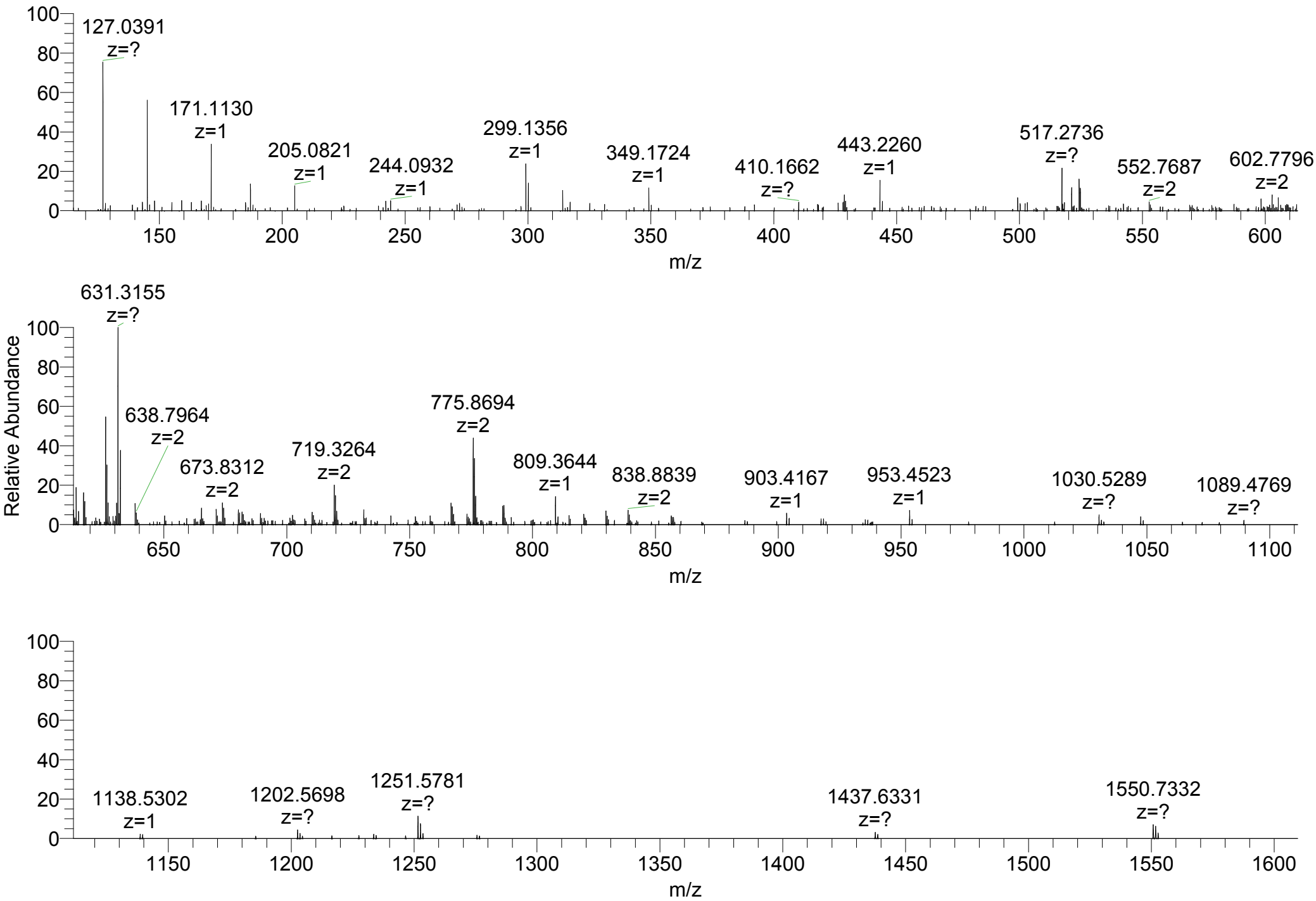
39.

P606-OH, K609-OHGal.Glc, K612-OH.Gal.Glc, K615-OH.Gal.Glc

#603-617: IGE**P**GQ**K**GS**K**GD**K**GE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+4OH+3Gal.Glc	4	631.5170	631.5176	0.0024	1.0
b2	1	171.1128	171.1130	0.0002	1.2
y2-H2O/GE	1	187.0713	187.0716	0.0003	1.6
y2	1	205.0819	205.0821	0.0002	1.0
GDK-H2O+OH	1	299.1350	299.1356	0.0006	2.0
y3+OH	1	349.1718	349.1724	0.0006	1.7
PGQK+2OH/ KGDK-H2O+2OH	1	443.2249	443.2260	0.0011	2.5
y5+OH	1	521.2202	521.2225	0.0023	4.4
y12+4OH	2	626.2942	626.2953	0.0022	1.8
b13+4OH	2	673.8310	673.8312	0.0004	0.3
y14+4OH	2	719.3262	719.3264	0.0004	0.3
[M+2H]+4OH	2	775.8683	775.8694	0.0022	1.4
y8+2OH	1	809.3636	809.3644	0.0008	1.0
y9+3OH	1	953.4534	953.4523	-0.0011	-1.2
b10+3OH	1	1030.5164	1030.5289	0.0125	12.1
b12+3OH	1	1202.5648	1202.5698	0.0050	4.2
y12+4OH	1	1251.5811	1251.5781	-0.0030	-2.4
y14+4OH	1	1437.6452	1437.6331	-0.0121	-8.4
[M+H]+4OH	1	1550.7293	1550.7332	0.0039	2.5

4_5_2012Col5a1_GluCandAspN_HCD2 #520 RT: 3.23 AV: 1 NL: 1.87E4
T: FTMS + p NSI d Full ms2 631.77@hcd35.00 [115.00-2000.00]



40.

K615-OH.Gal.Glc, P621-OH, P633-OH

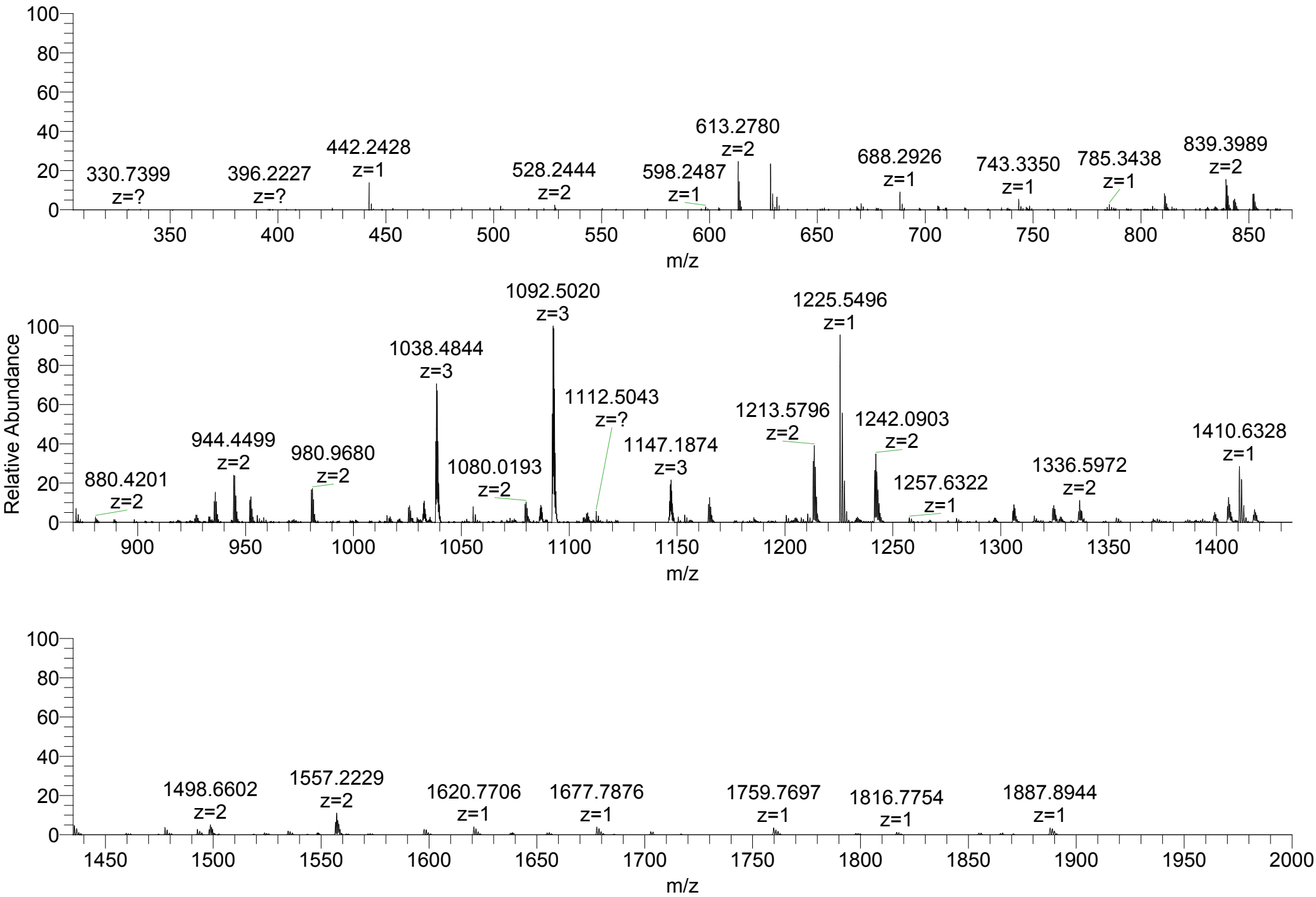
#613-645: GD**K**GEQGP**P**GPTGPQGPIGQ**P**GPSGADGEPGPR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+4OH+Gal.Glc	3	1146.1801	1146.1863	-0.0186	-5.4
y4+OH	1	442.2409	442.2428	-0.0019	-4.3
y13+2OH	2	613.2758	613.2780	-0.0044	-3.6
y6+OH	1	628.3049	628.3075	-0.0026	-4.1
b7+OH	1	688.2897	688.2926	-0.0029	-4.2
y7+OH	1	743.3319	743.3350	-0.0031	-4.2
y18+2OH	2	839.3950	839.3989	-0.0078	-4.7
b20-H2O+2OH	2	935.4399	935.4437	-0.0076	-4.1
b20+2OH	2	944.4452	944.4499	-0.0094	-5.0
y20+2OH	2	951.9507	951.9557	-0.0100	-5.3
y21+2OH	2	980.4614	980.4667	-0.0106	-5.4
[M+3H]+4OH	3	1038.1449	1038.1510	-0.0183	-5.9
[M+3H]+4OH+Gal	3	1092.1625	1092.1685	-0.0180	-5.5
y12+OH	1	1112.4967	1112.5043	-0.0076	-6.8
[M+3H]+4OH+Gal.Glc	3	1146.1801	1146.1862	-0.0183	-5.3
y25+3OH	2	1164.5462	1164.5527	-0.0130	-5.6
y13+OH	1	1225.5444	1225.5496	-0.0052	-4.2
y27+3OH	2	1241.5833	1241.5894	-0.0122	-4.9
b29+3OH	2	1336.0970	1336.1017	-0.0094	-3.5
y15+2OH	1	1410.6244	1410.6328	-0.0084	-6.0
b29+3OH+Gal.Glc	2	1498.1498	1498.1575	-0.0154	-5.1

***Unlocalized sites: P642-OH?,P644-OH?**

Pseudolocalized sites: P642-OH

2_2_2012Col5a1_Bovine_us2Top3MS3Top2 #1032 RT: 14.66 AV: 1 NL: 1.76E5
T: FTMS + p NSI d Full ms2 1146.52@cid35.00 [305.00-2000.00]



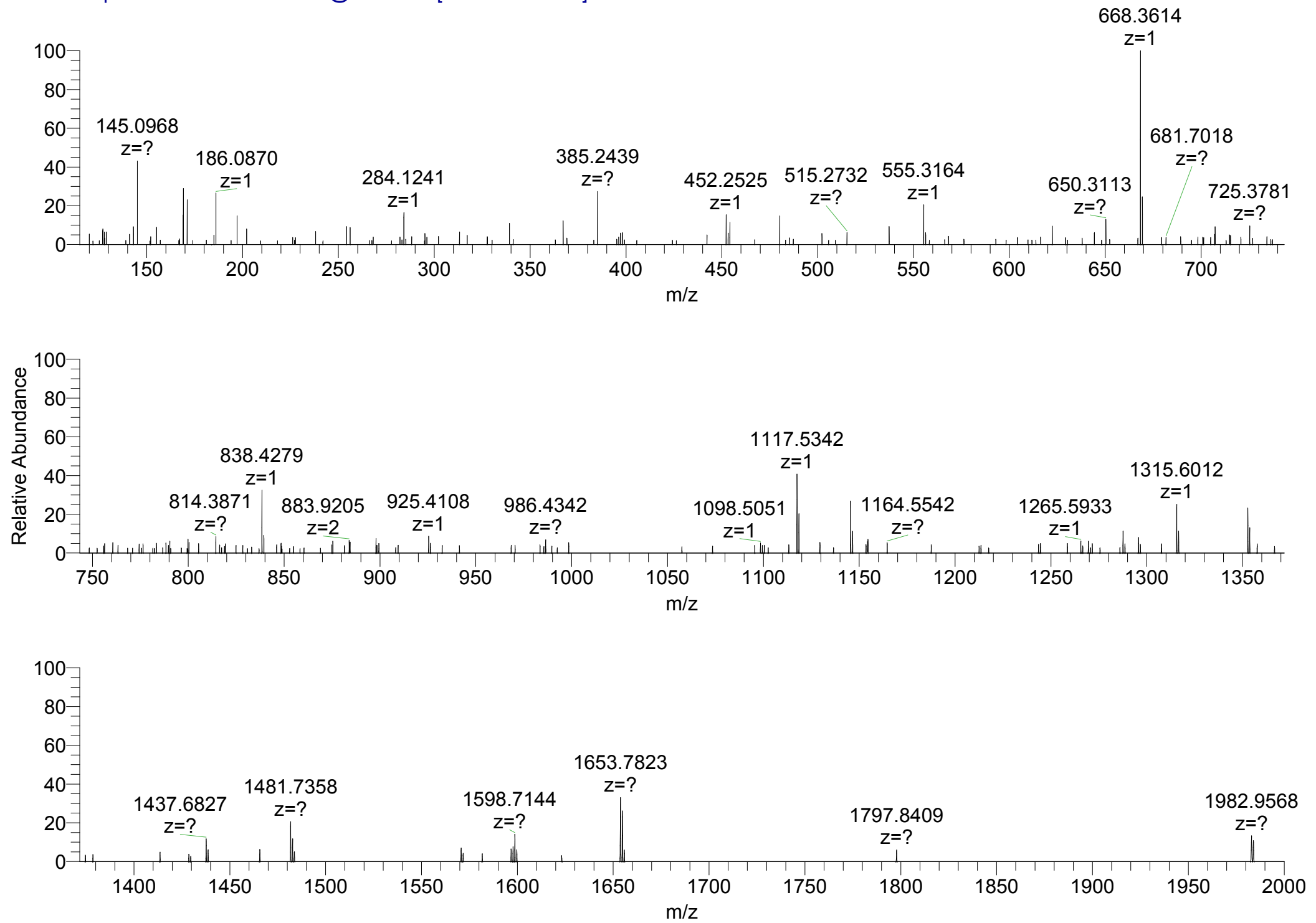
41.

K654-OH.Gal.Glc, P663-OH, P665-OH, P666-OH

#652-671: GQ**K**GDEGPRGF**P**G**PP**GPVGL

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+4OH+Gal.Glc	2	1154.0348	1154.0363	0.0030	1.3
b2	1	186.0873	186.0870	-0.0003	-1.6
GPP+2OH	1	284.1241	284.1241	0.0000	0.0
y4	1	385.2445	385.2439	-0.0006	-1.6
PPGPV-28+2OH	1	452.2504	452.2525	0.0021	4.7
PPGPV+2OH	1	480.2453	480.2454	0.0001	0.2
y6+OH	1	555.3137	555.3164	0.0027	4.9
y7+2OH	1	668.3614	668.3614	0.0000	0.0
y9+3OH	1	838.4305	838.4279	-0.0026	-3.1
a11+OH	1	1117.5385	1117.5342	-0.0043	-3.9
b11+OH	1	1145.5334	1145.5361	0.0027	2.4
b13+2OH	1	1315.6026	1315.6012	-0.0014	-1.1
y14+3OH	1	1352.6957	1352.7001	0.0044	3.3
y15+3OH	1	1481.7383	1481.7358	-0.0025	-1.7
y17+3OH	1	1653.7867	1653.7823	-0.0044	-2.7
[M+H]+4OH	1	1982.9566	1982.9566	0.0000	0.0

4_5_2012Col5a1_Chmy_HCD2 #4876 RT: 29.56 AV: 1 NL: 7.79E4
T: FTMS + p NSI d Full ms2 1154.54@hcd35.00 [115.00-2000.00]



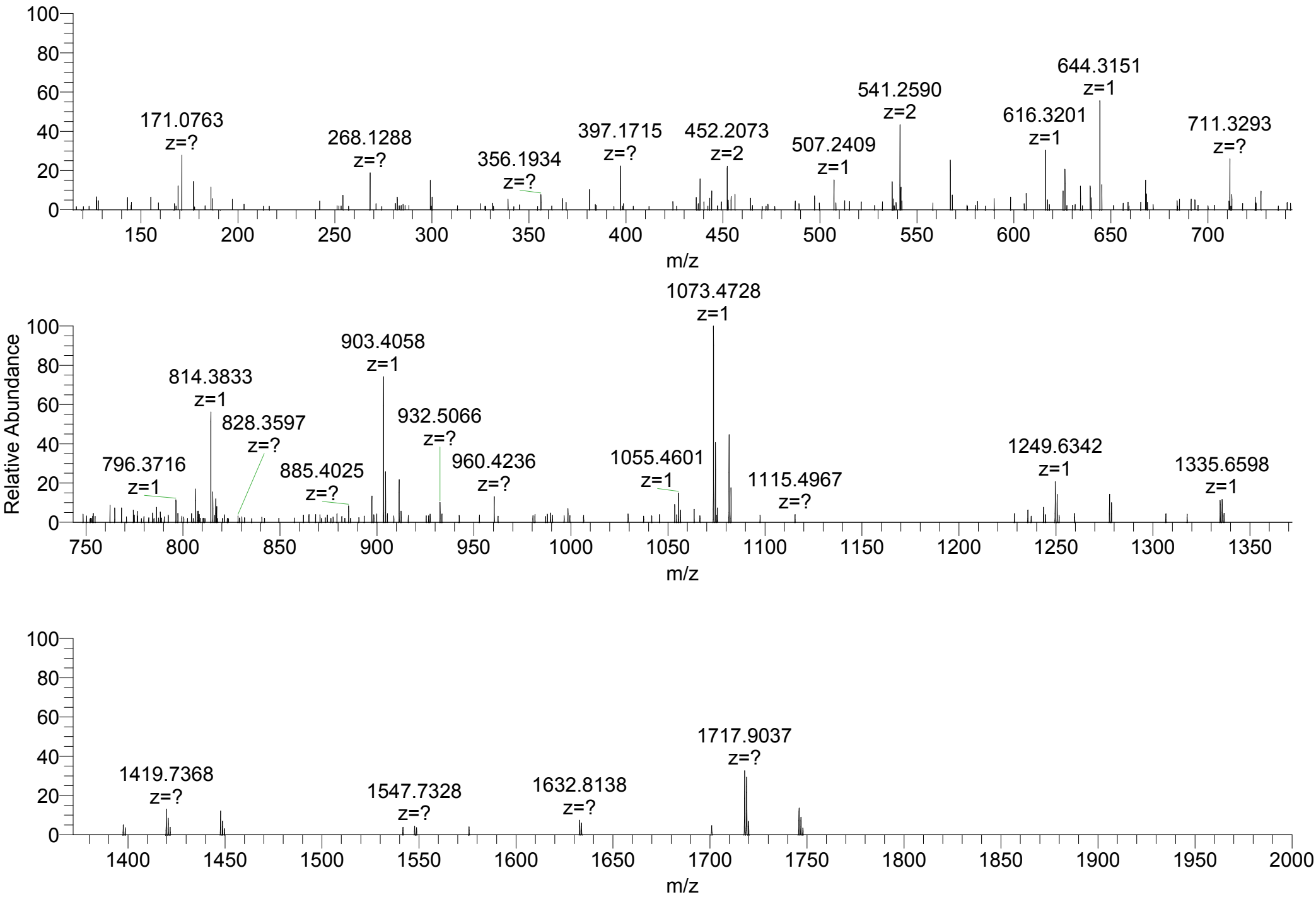
42.

P663-OH, P666-OH, P675-OH, P678-OH, K681-OH.Gal.Glc

#675-685: EGPRGF**P**GP**P**GPVGLQGL**P**GP**P**GE**K**GETG

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+5OH+Gal.Glc	3	1048.1615	1048.1616	0.0003	0.1
PG+OH	1	171.0764	171.0763	-0.0001	-0.6
PPG+OH	1	268.1292	268.1288	-0.0004	-1.5
PPGE+OH	1	397.1718	397.1715	-0.0003	-0.8
y5+OH	1	507.2409	507.2409	0.0000	0.0
b11+2OH	2	541.2567	541.2590	0.0046	4.3
a6	1	616.3202	616.3201	-0.0001	-0.2
b6	1	644.3151	644.3151	0.0000	0.0
PGPPGEK+3OH	1	711.3308	711.3293	-0.0015	-2.1
y8+2OH	1	806.3527	806.3507	-0.0020	-2.5
b8+OH	1	814.3842	814.3833	-0.0009	-1.1
y9+2OH	1	903.4054	903.4058	0.0004	0.4
b9+OH	1	911.4370	911.4343	-0.0027	-3.0
y10+2OH	1	960.4269	960.4236	-0.0033	-3.4
y11+3OH	1	1073.4746	1073.4728	-0.0018	-1.7
b11+2OH	1	1081.5061	1081.5048	-0.0013	-1.2
a13+2OH	1	1249.6324	1249.6342	0.0018	1.4
b13+2OH	1	1277.6273	1277.6323	0.0050	3.9
b14+2OH	1	1334.6488	1334.6412	-0.0076	-5.7
a15+2OH	1	1419.7379	1419.7368	-0.0011	-0.8
b17+2OH	1	1632.8129	1632.8129	0.0000	0.0
a18+2OH	1	1717.9020	1717.9037	0.0017	1.0
b18+2OH	1	1745.8969	1745.8976	0.0007	0.4

4_5_2012Col5a1_AspN_HCD1 #8137 RT: 32.50 AV: 1 NL: 4.26E6
T: FTMS + p NSI d Full ms2 1048.50@hcd35.00 [115.00-2000.00]



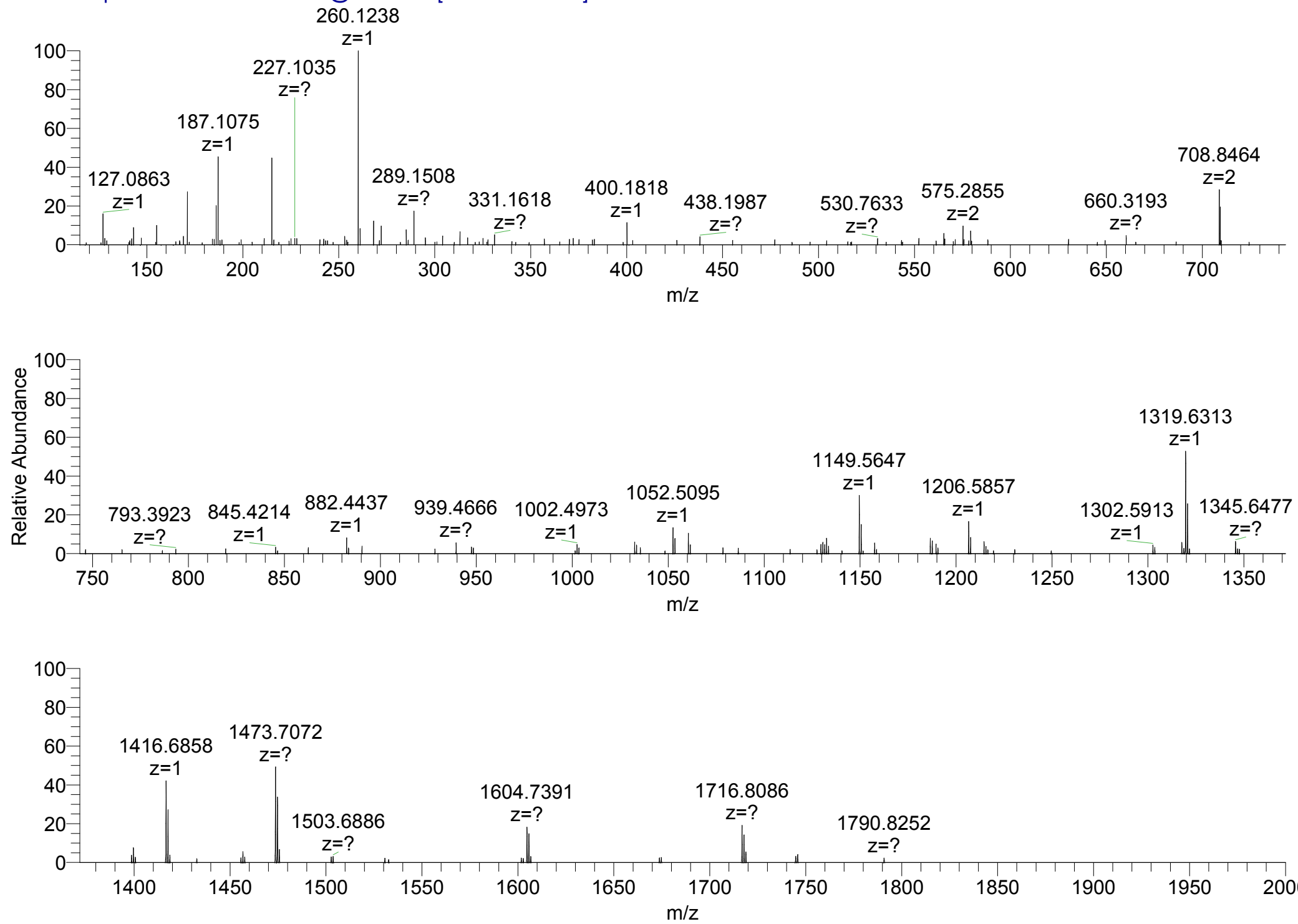
43.

P693-OH, P696-OH, P705-OH

#686-707: DVGQMGP**P**GP**P**GPRGPSGA**P**GA

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH	2	1002.4656	1002.4658	0.0004	0.2
a2	1	187.1077	187.1075	-0.0002	-1.1
b2	1	215.1026	215.1023	-0.0003	-1.4
y3+OH	1	260.1241	260.1238	-0.0003	-1.2
b4	1	400.1827	400.1818	-0.0009	-2.3
y13+2OH	2	575.2860	575.2855	-0.0010	-0.9
y16+3OH	2	708.8469	708.8464	-0.0010	-0.7
y10+OH	1	882.4428	882.4437	0.0009	1.0
y11+OH	1	939.4643	939.4666	0.0023	2.5
y12+2OH	1	1052.5119	1052.5095	-0.0024	-2.3
y13+2OH	1	1149.5647	1149.5647	0.0000	0.0
y14+2OH	1	1206.5862	1206.5857	-0.0005	-0.4
y15+3OH	1	1319.6339	1319.6313	-0.0026	-2.0
y16+3OH	1	1416.6866	1416.6858	-0.0008	-0.6
y17+3OH	1	1473.7081	1473.7072	-0.0009	-0.6
y18+3OH	1	1604.7486	1604.7391	-0.0095	-5.9
a19+2OH	1	1716.8122	1716.8086	-0.0036	-2.1

4_5_2012Col5a1_GluCandAspN_HCD2 #4491 RT: 18.47 AV: 1 NL: 2.53E5
T: FTMS + p NSI d Full ms2 1002.97@hcd35.00 [115.00-2000.00]



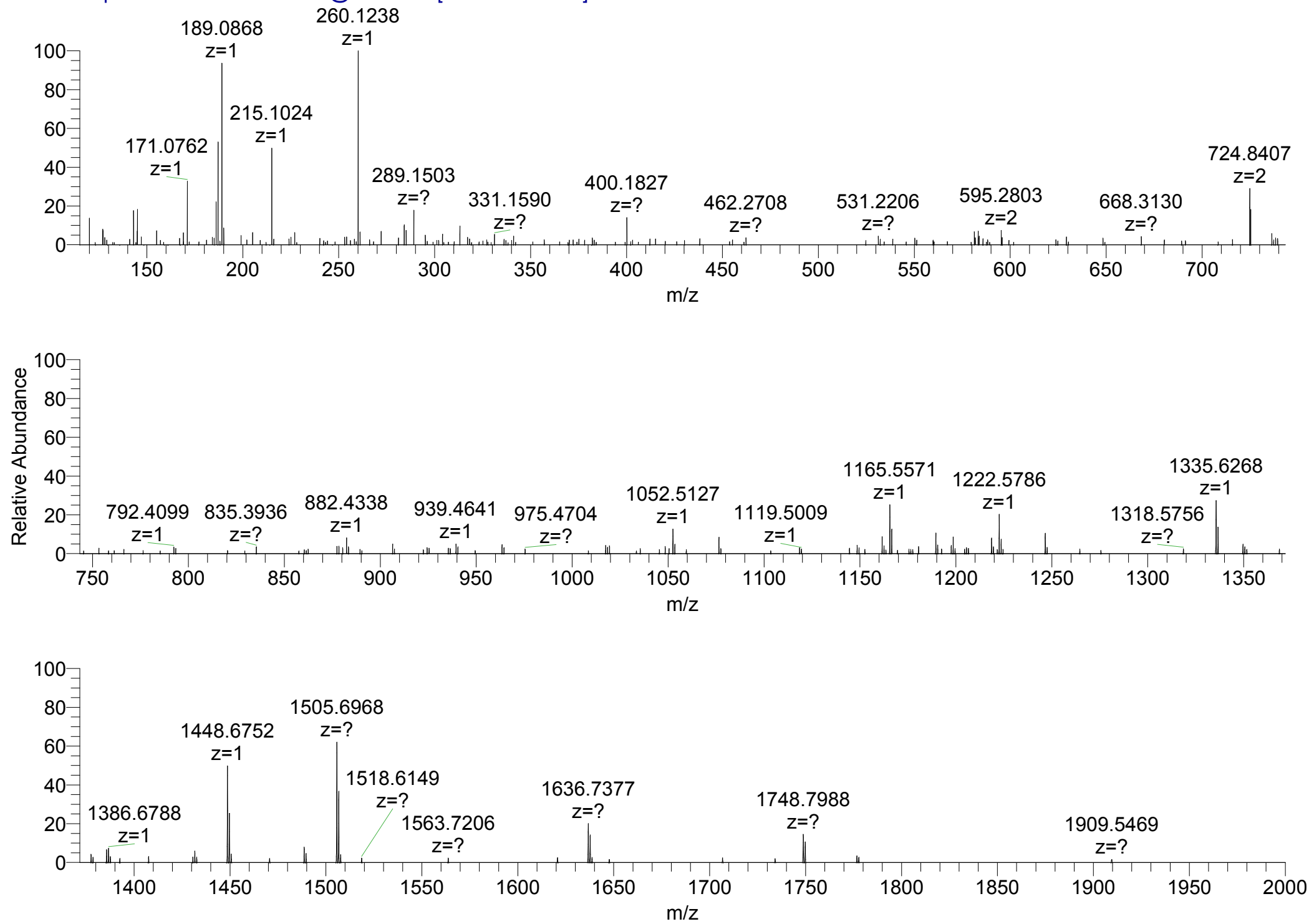
44.

P692-OH, P693-OH, P695-OH, P696-OH, P705-OH

#686-707: DVGQMGP**P**GP**P**GPRGPSGA**P**GA

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+5OH	2	1018.4605	1018.4595	-0.0020	-1.0
b2	1	215.1026	215.1024	-0.0002	-0.9
y3+OH	1	260.1241	260.1238	-0.0003	-1.2
b4	1	400.1827	400.1827	0.0000	0.0
y16+5OH	2	724.8419	724.8407	-0.0024	-1.7
y10+OH	1	882.4428	882.4428	0.0000	0.0
y12+2OH	1	1052.5119	1052.5127	0.0008	0.8
y13+3OH	1	1165.5596	1165.5571	-0.0025	-2.1
y14+3OH	1	1222.5811	1222.5786	-0.0025	-2.0
y15+4OH	1	1335.6288	1335.6268	-0.0020	-1.5
y16+5OH	1	1448.6764	1448.6752	-0.0012	-0.8
y17+5OH	1	1505.6979	1505.6979	0.0000	0.0
y18+5OH	1	1636.7384	1636.7377	-0.0007	-0.4
a19+4OH	1	1748.8021	1748.7988	-0.0033	-1.9

4_5_2012Col5a1_AspN_HCD2 #3337 RT: 14.94 AV: 1 NL: 1.78E5
T: FTMS + p NSI d Full ms2 1018.96@hcd35.00 [115.00-2000.00]



45.

P720-OH

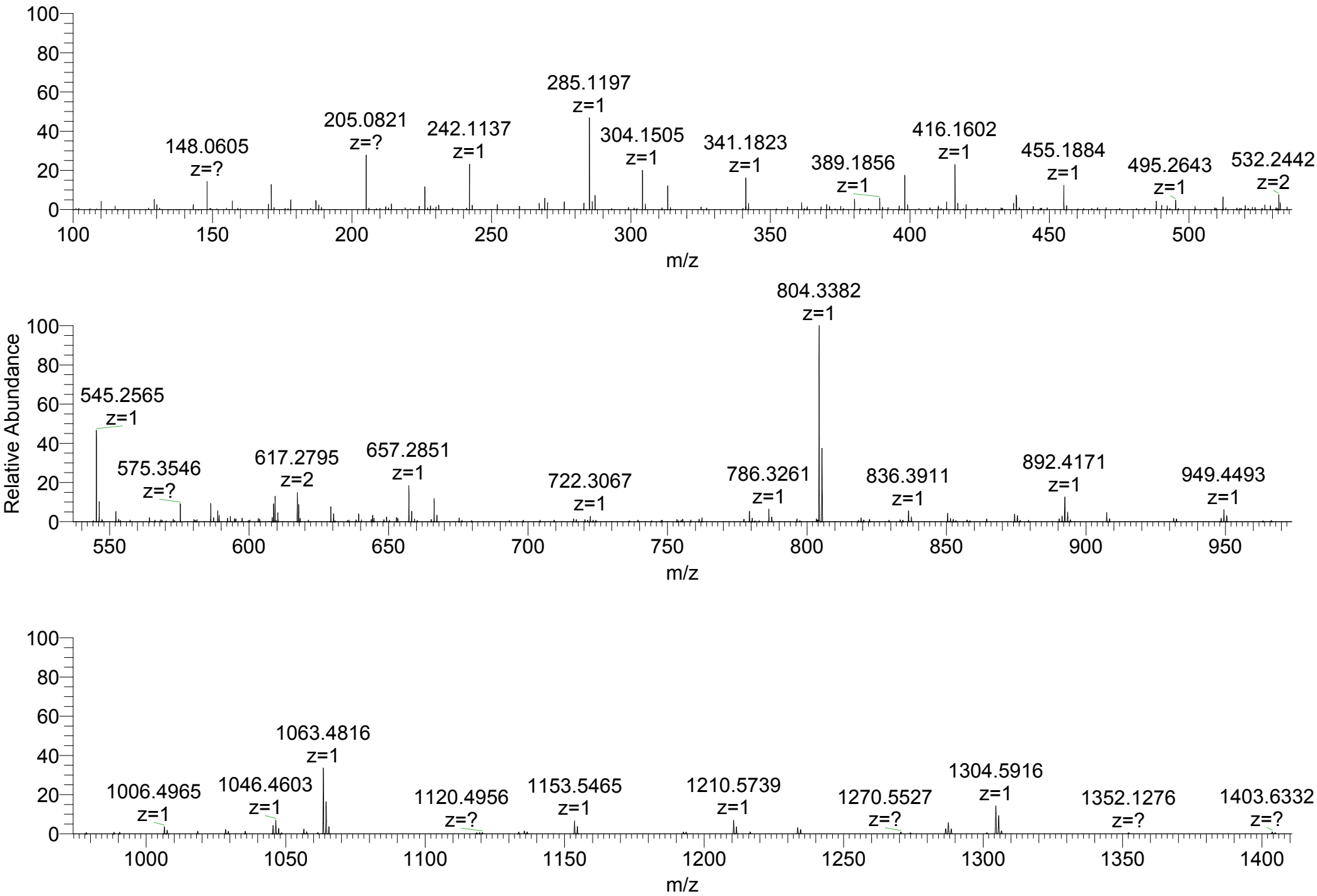
#708-725: DGPQGPPGGIGN**P**GAVGE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+2OH	2	804.3684	804.3658	-0.0052	-3.2
y1	1	148.0604	148.0605	0.0001	0.7
y2	1	205.0819	205.0821	0.0002	1.0
a3/PGA+OH	1	242.1135	242.1137	0.0002	0.8
NPG+OH	1	285.1193	285.1197	0.0004	1.4
y3	1	304.1503	304.1505	0.0002	0.7
PGGI+OH/ PGAV+OH	1	341.1819	341.1823	0.0004	1.2
b5	1	455.1885	455.1884	-0.0001	-0.2
y6+OH	1	545.2566	545.2565	-0.0001	-0.2
b14+2OH	2	617.2784	617.2795	0.0022	1.8
b10+OH	1	892.4159	892.4171	0.0012	1.3
b11+OH	1	949.4374	949.4493	0.0119	12.5
b12+OH	1	1063.4803	1063.4816	0.0013	1.2
y13+2OH	1	1153.5484	1153.5465	-0.0019	-1.6
y14+2OH	1	1210.5699	1210.5739	0.0040	3.3
b15+2OH	1	1304.5866	1304.5916	0.0050	3.8

***Unlocalized sites: P713-OH?, P714-OH?**

Pseudolocalized sites: P714-OH

2_24_2012Col5a1_Bovine_AspNGluC_2 #2000 RT: 17.94 AV: 1 NL: 1.14E5
T: FTMS + p NSI d Full ms2 804.37@hcd30.00 [100.00-1620.00]



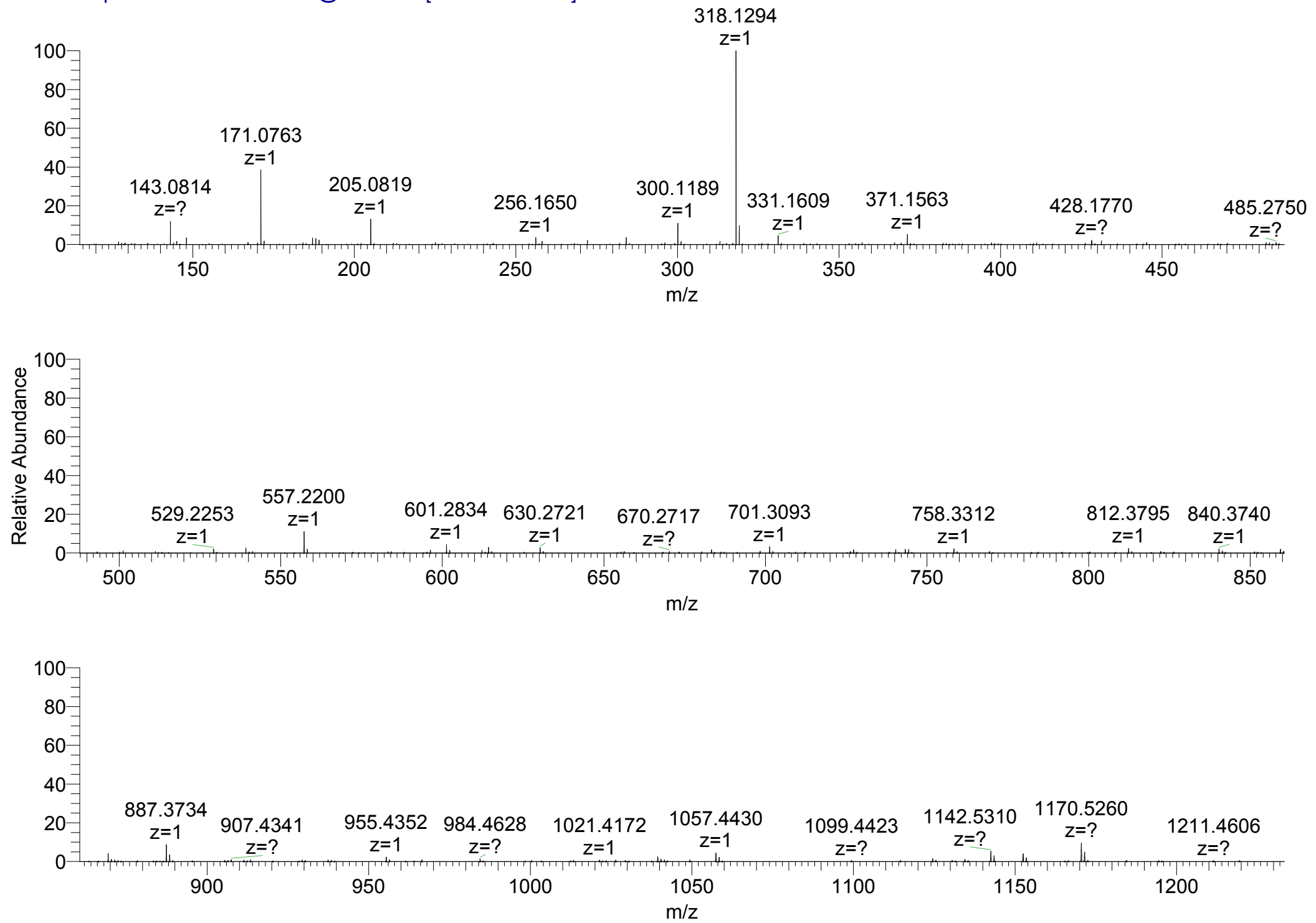
46.

K726-OH.Gal.Glc, P729-OH, P735-OH, P738-OH

#726-740: **K**GE**P**GEAGE**P**GL**P**GE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+4OH+Gal.Glc	2	906.3813	906.3818	0.0010	0.6
PG+OH	1	171.0764	171.0763	-0.0001	-0.6
y2	1	205.0819	205.0819	0.0000	0.0
y3-H2O+OH/PGE+OH	1	300.1190	300.1189	-0.0001	-0.3
y3+OH	1	318.1296	318.1294	-0.0002	-0.6
b3+OH	1	331.1612	331.1609	-0.0003	-0.9
y6+2OH	1	601.2828	601.2834	0.0006	1.0
b7+2OH	1	701.3101	701.3093	-0.0008	-1.1
b9+2OH	1	887.3741	887.3734	-0.0007	-0.8
b11+3OH	1	1057.4433	1057.4430	-0.0003	-0.3
a12+3OH	1	1142.5324	1142.5310	-0.0014	-1.2
b12+3OH	1	1170.5273	1170.5260	-0.0013	-1.1

4_5_2012Col5a1_GluC_HCD1 #2388 RT: 15.94 AV: 1 NL: 2.33E5
T: FTMS + p NSI d Full ms2 906.38@hcd35.00 [115.00-1825.00]



47.

P729-OH, P735-OH, P738-OH, K747-OH.Gal.Glc

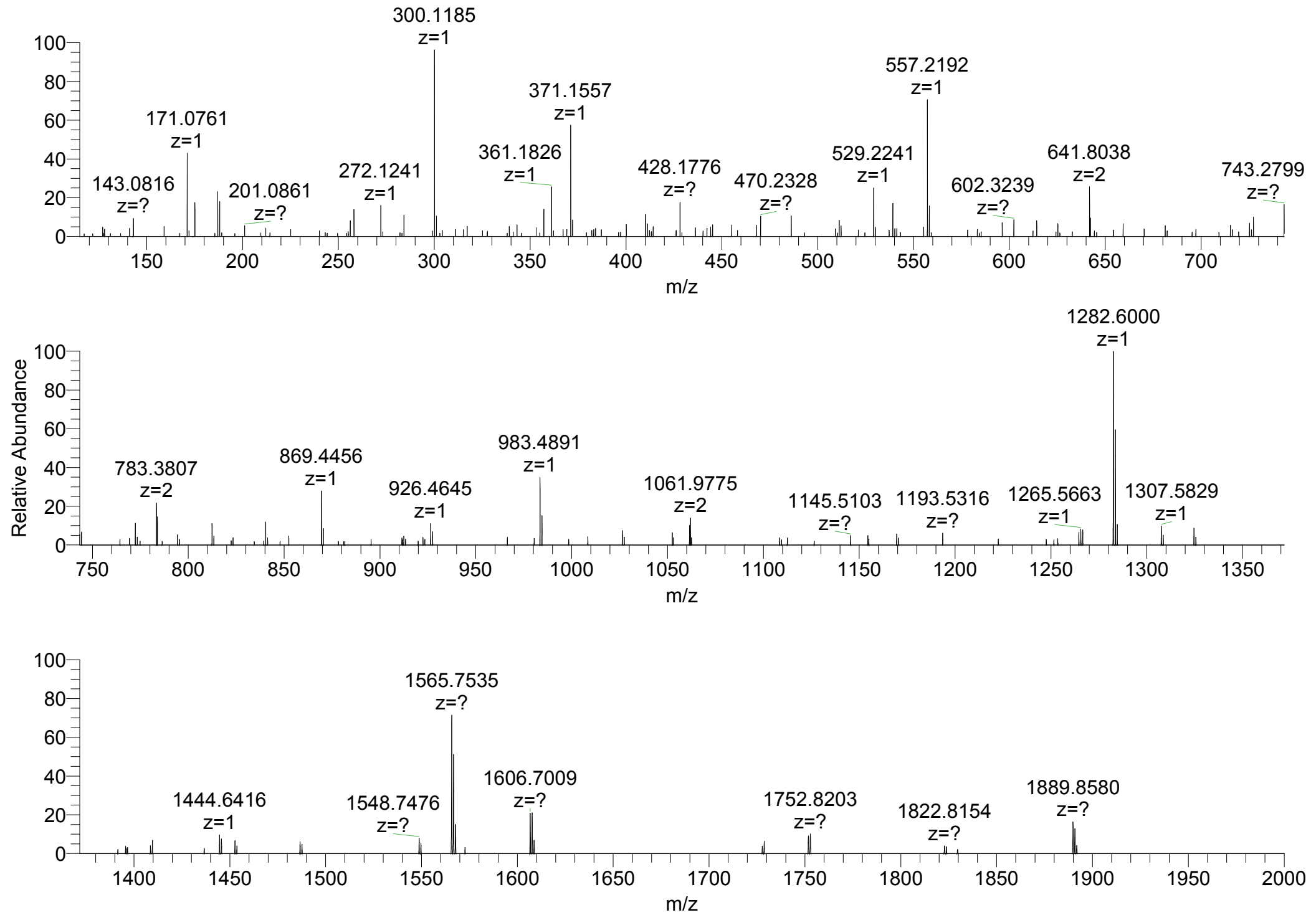
#727-750: GE**P**GEAGE**P**GL**P**GEGGPPGP**K**GER

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+5OH+Gal.Glc	2	1316.5727	1316.5756	0.0058	2.2
GP+OH	1	171.0764	171.0761	-0.0003	-1.8
b3/EPG+OH	1	300.1190	300.1185	-0.0005	-1.7
y3	1	361.1830	361.1826	-0.0004	-1.1
PGEA+OH	1	371.1561	371.1557	-0.0004	-1.1
AGEPG+OH	1	428.1776	428.1776	0.0000	0.0
a6/PGEAGE-28+OH	1	529.2253	529.2241	-0.0012	-2.3
b6+OH/PGEAGE+OH	1	557.2202	557.2192	-0.0010	-1.8
y13+3OH	2	641.8047	641.8038	-0.0018	-1.4
b8+OH	1	743.2842	743.2799	-0.0043	-5.8
y16+4OH	2	783.3814	783.3807	-0.0014	-0.9
y8+2OH	1	869.4476	869.4456	-0.0020	-2.3
y9+2OH	1	926.4690	926.4645	-0.0045	-4.9
y10+2OH	1	983.4905	983.4891	-0.0014	-1.4
y22+5OH	2	1061.4878	1061.4834	-0.0088	-4.1
y13+3OH	1	1282.6022	1282.6000	-0.0022	-1.7
y16+4OH	1	1565.7554	1565.7535	-0.0019	-1.2
y13+3OH+Gal.Glc	1	1606.7079	1606.7009	-0.0070	-4.4
y16+4OH+Gal.Glc	1	1889.8611	1889.8580	-0.0031	-1.6

***Unlocalized sites: P744-OH?, P746-OH?**

Pseudolocalized sites: P744-OH

4_5_2012Col5a1_Trypsin_nontrapping_HCD1 #5839 RT: 46.63 AV: 1 NL: 1.57E4
T: FTMS + p NSI d Full ms2 1317.08@hcd35.00 [115.00-2000.00]



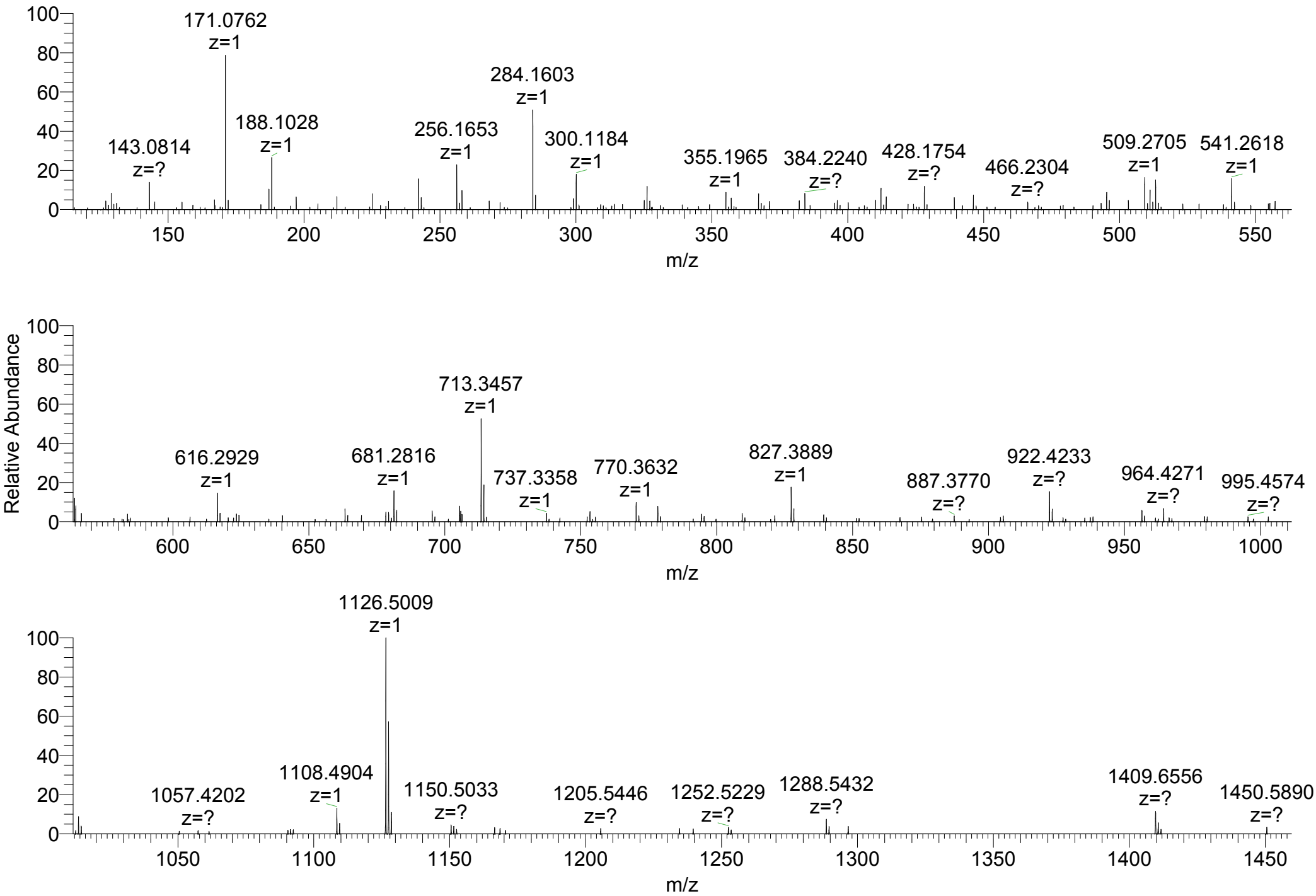
48.

P735-OH, P738-OH, P744-OH, K747-OH.Gal.Glc

#732-749: AGE**P**GL**P**GEGGP**P**GP**K**GE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+4OH+Gal.Glc	2	995.9342	995.9341	-0.0002	-0.1
PG+OH	1	171.0764	171.0762	-0.0002	-1.2
GLP-28+OH	1	256.1656	256.1653	-0.0003	-1.2
GLP+OH	1	284.1605	284.1603	-0.0002	-0.7
GEP+OH	1	300.1190	300.1184	-0.0006	-2.0
b5+OH	1	428.1776	428.1754	-0.0022	-5.2
y4+OH	1	446.2245	446.2248	0.0003	0.7
b6+OH	1	541.2617	541.2618	0.0001	0.2
y6+2OH	1	616.2937	616.2929	-0.0008	-1.3
y7+2OH	1	713.3464	713.3457	-0.0007	-1.0
y8+2OH	1	770.3679	770.3632	-0.0047	-6.1
y9+2OH	1	827.3894	827.3889	-0.0005	-0.6
PGEGGPPGPK+3OH	1	922.4265	922.4233	-0.0032	-3.5
y11+2OH	1	1013.4534	1013.4547	0.0013	1.3
y12-H2O+3OH	1	1108.4905	1108.4904	-0.0001	-0.1
y12+3OH	1	1126.5011	1126.5009	-0.0002	-0.2
y15+4OH	1	1409.6543	1409.6556	0.0013	0.9

4_5_2012Col5a1_GluC_HCD2 #2434 RT: 16.26 AV: 1 NL: 1.02E5
T: FTMS + p NSI d Full ms2 996.44@hcd35.00 [115.00-2000.00]



49.

K753-OH.Gal.Glc, P765-OH

#751-765: GE**K**GESGPSGAAGP**P**GPK

MS^2: GE**K**GESGPSGAAGPPGPK

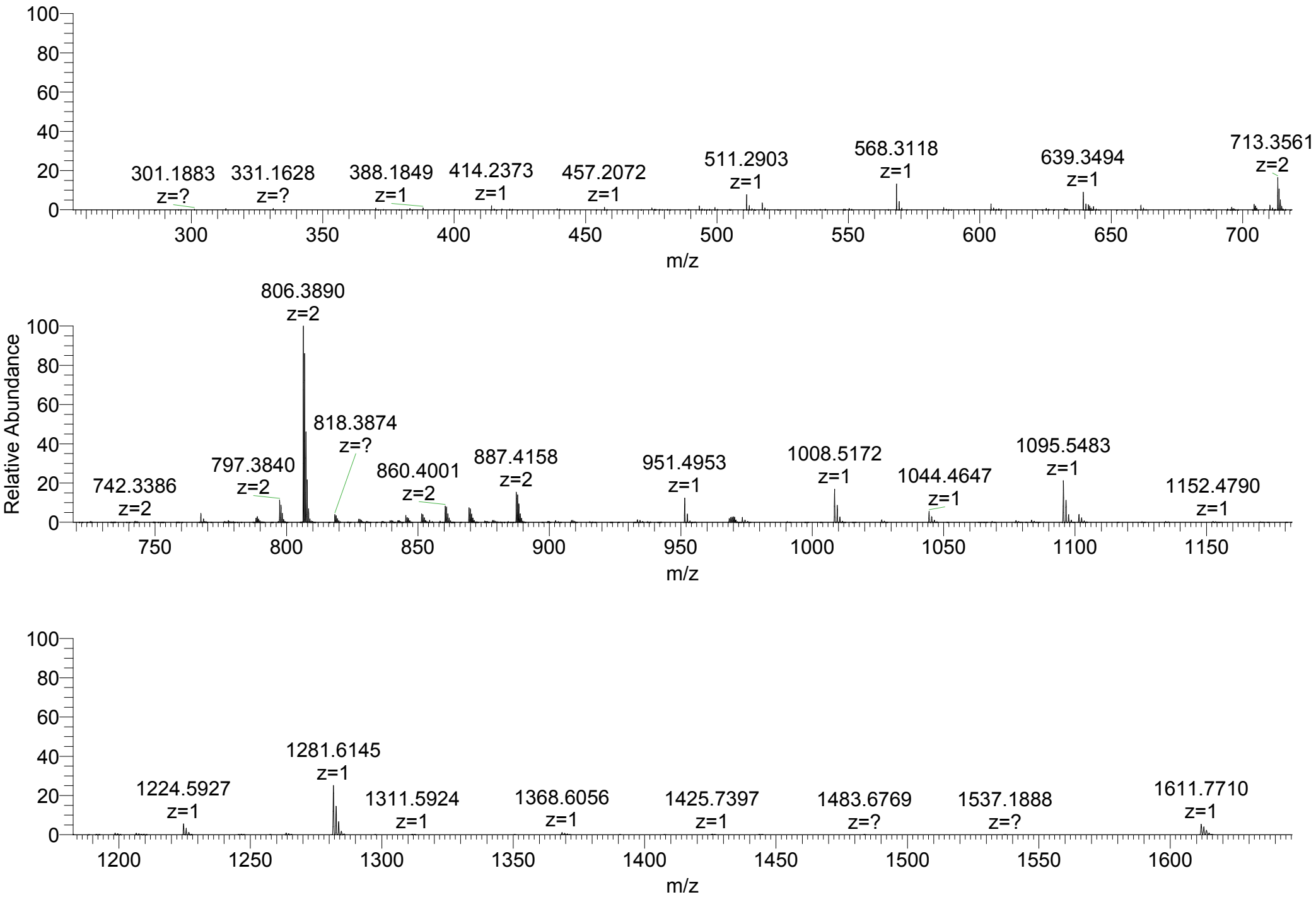
Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+2OH+Gal.Glc	2	968.4369	968.4395	0.0052	2.7
y4+OH	1	414.2347	414.2373	0.0026	6.3
y5+OH	1	511.2875	511.2903	0.0028	5.5
y6+OH	1	568.3089	568.3118	0.0029	5.1
y7+OH	1	639.3461	639.3494	0.0033	5.2
y16+2OH	2	713.3512	713.3561	0.0098	6.9
[M+2H]+2OH(MS^3)	2	806.3890	806.3841	-0.0098	-6.1
[M+2H]+2OH+Gal	2	887.4105	887.4158	0.0106	6.0
y11+OH	1	951.4894	951.4953	0.0059	6.2
y12+OH	1	1008.5109	1008.5172	0.0063	6.3
y13+OH	1	1095.5429	1095.5483	0.0054	4.9
y14+OH	1	1224.5855	1224.5927	0.0072	5.9
y15+OH	1	1281.6070	1281.6145	0.0075	5.9
[M+H]+2OH	1	1611.7609	1611.7710	0.0101	6.3

MS^3: GE**K**GESGPSGAAGP**P**GPK

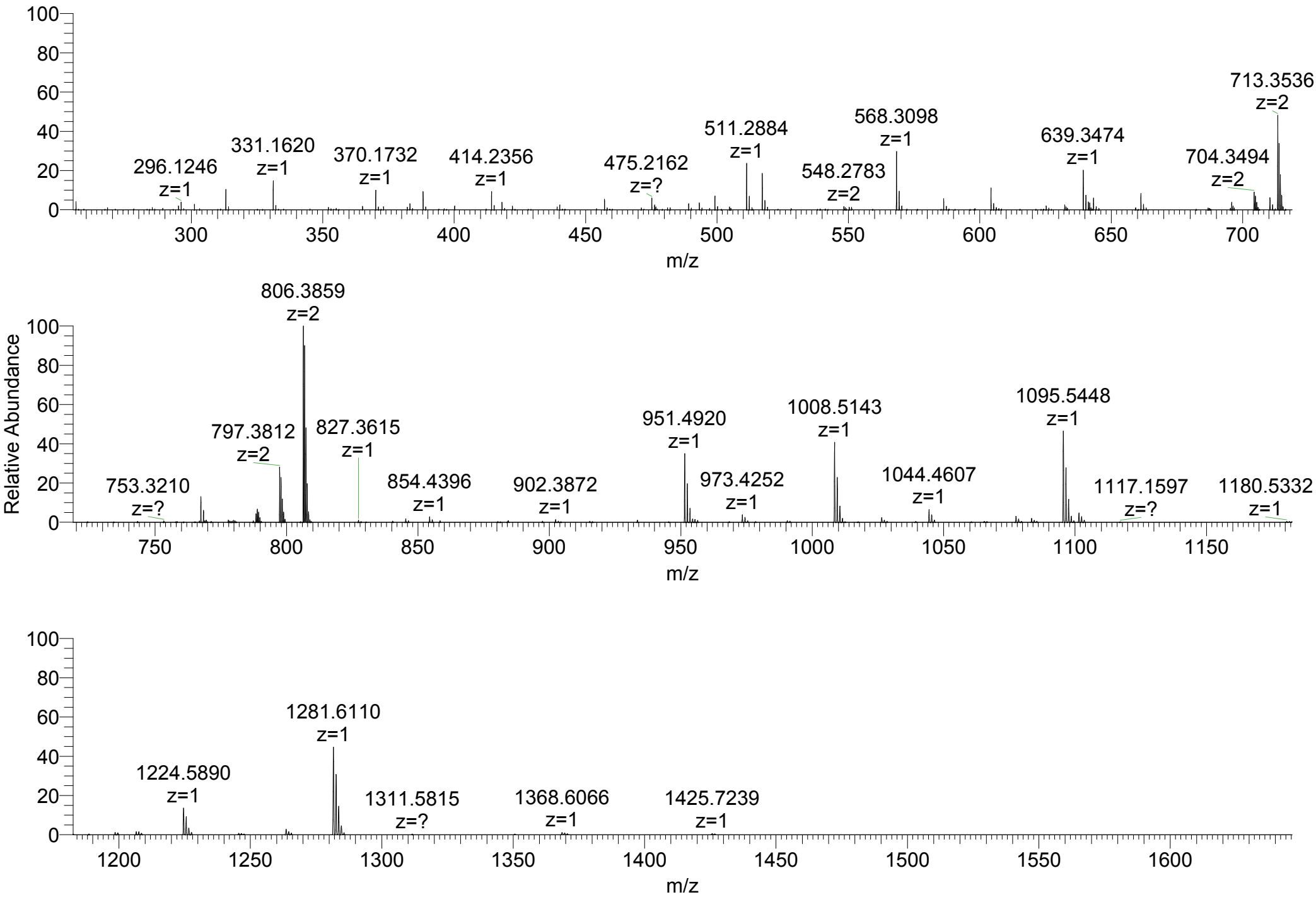
Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
y2	1	244.1656	244.1662	0.0006	2.5
b4-H2O/GPSGA	1	370.1721	370.1732	0.0011	3.0
y4+OH	1	414.2347	414.2356	0.0009	2.2
y5+OH	1	511.2875	511.2884	0.0009	1.8
b5+OH	1	517.2253	517.2265	0.0012	2.3
y6+OH	1	568.3089	568.3098	0.0009	1.6
b6 /EKGESG+OH	1	604.2573	604.2584	0.0011	1.8
y7+OH	1	639.3461	639.3474	0.0013	2.0
y16-H2O+2OH	2	704.3468	704.3494	0.0052	3.7
y16+2OH	2	713.3521	713.3536	0.0030	2.1
y9+OH	1	767.4046	767.4073	0.0027	3.5
[M+2H]-H2O+2OH	2	797.3788	797.3812	0.0048	3.0
[M+2H]+2OH	2	806.3841	806.3859	0.0036	2.2
y11+OH	1	951.4894	951.4920	0.0026	2.7
y12+OH	1	1008.5109	1008.5143	0.0034	3.4
b12+OH	1	1044.4592	1044.4607	0.0015	1.4
y13+OH	1	1095.5429	1095.5448	0.0019	1.7

y14+OH	1	1224.5855	1224.5855	0.0000	0.0
y15+OH	1	1281.6070	1281.6110	0.0040	3.1

2_2_2012Col5a1_Bovine_Top5MS3 #427 RT: 5.69 AV: 1 NL: 5.88E5
T: FTMS + p NSI d Full ms2 968.44@cid35.00 [255.00-1950.00]



2_2_2012Col5a1_Bovine_Top5MS3 #428 RT: 5.70 AV: 1 NL: 1.90E5
T: FTMS + p NSI d Full ms3 968.44@cid35.00 806.39@hcd30.00 [100.00-1625.00]



50.

P771-OH

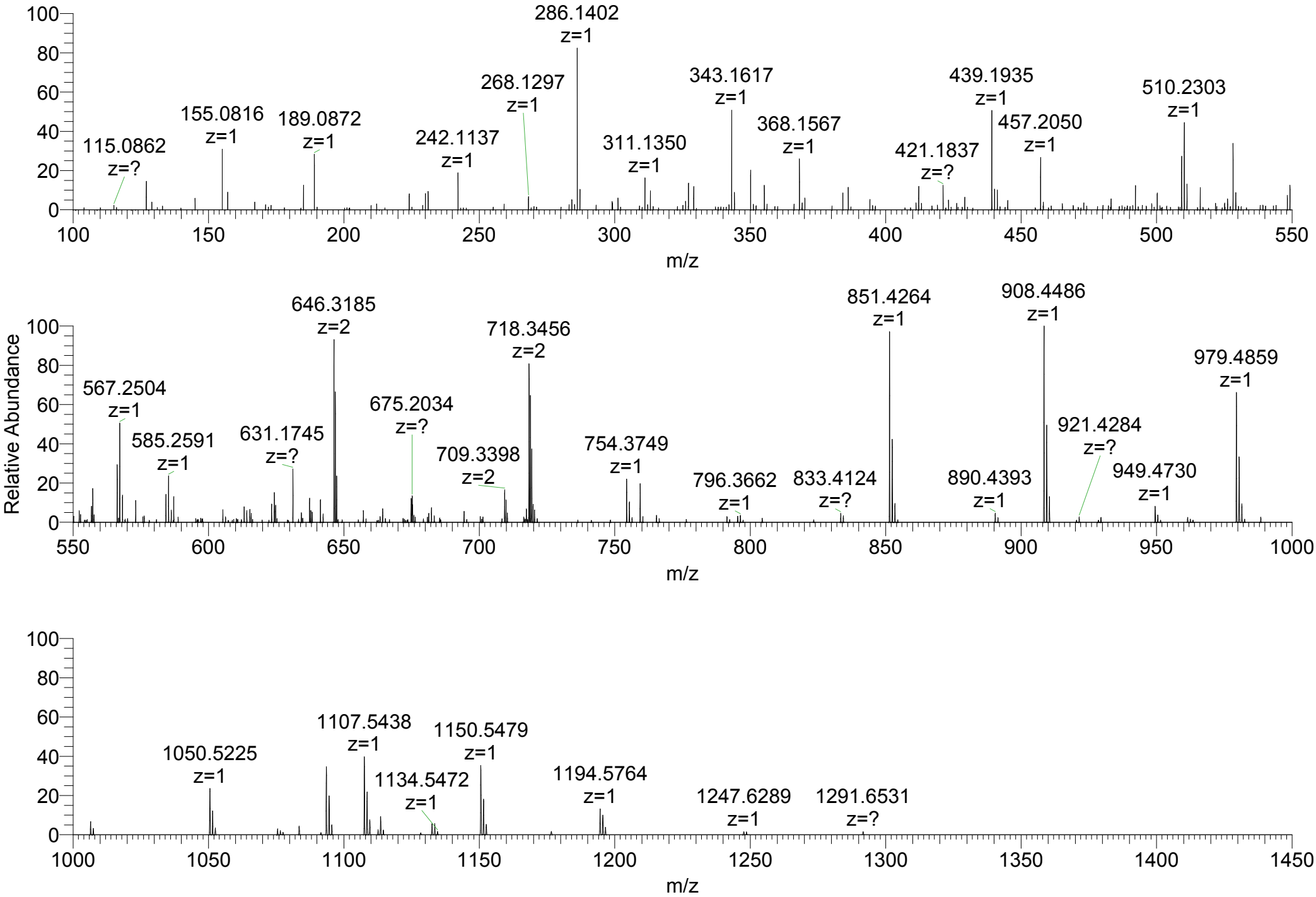
#756-772: SGPSGAAGPPGPKGP**P**G

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH	2	718.3442	718.3412	-0.0060	-4.2
GP	1	155.0815	155.0816	0.0001	0.6
y2+OH	1	189.0870	189.0872	0.0002	1.1
b3/GPS	1	242.1135	242.1137	0.0002	0.8
y3+OH	1	286.1402	286.1397	-0.0005	-1.8
b4-H2O	1	311.1350	311.1350	0.0000	0.0
y4+OH	1	343.1612	343.1617	0.0005	1.5
b5-H2O	1	368.1565	368.1567	0.0002	0.5
b6-H2O	1	439.1936	439.1935	-0.0001	-0.2
b6/SGAAGP+OH	1	457.2041	457.2041	0.0000	0.0
b7-H2O	1	510.2307	510.2303	-0.0004	-0.8
b7	1	528.2413	528.2421	0.0008	1.5
b8-H2O	1	567.2522	567.2504	-0.0018	-3.2
b15+2OH	2	624.3044	624.3055	0.0022	1.8
y15+3OH	2	646.3175	646.3185	0.0020	1.5
[M+2H]-H2O+3OH	2	709.3390	709.3398	0.0016	1.1
[M+2H]+3OH	2	718.3442	718.3456	0.0028	2.0
y8+3OH	1	754.3730	754.3749	0.0019	2.5
y9+3OH	1	851.4258	851.4264	0.0006	0.7
y10+3OH	1	908.4472	908.4486	0.0014	1.5
y11+3OH	1	979.4843	979.4859	0.0016	1.6
y12+3OH	1	1050.5214	1050.5225	0.0011	1.0
b13+2OH	1	1093.5273	1093.5282	0.0009	0.8
y13+3OH	1	1107.5429	1107.5438	0.0009	0.8
b14+2OH	1	1150.5487	1150.5479	-0.0008	-0.7
y14+3OH	1	1194.5764	1194.5764	0.0000	0.0

***Unlocalized sites: P765-OH?, P767-OH?,K768-OH?**

Pseudolocalized sites: P765-OH, K-768

2_24_2012Col5a1_Bovine_AspNGluC_3 #3016 RT: 32.67 AV: 1 NL: 1.45E4
T: FTMS + p NSI d Full ms2 718.34@hcd30.00 [100.00-1450.00]



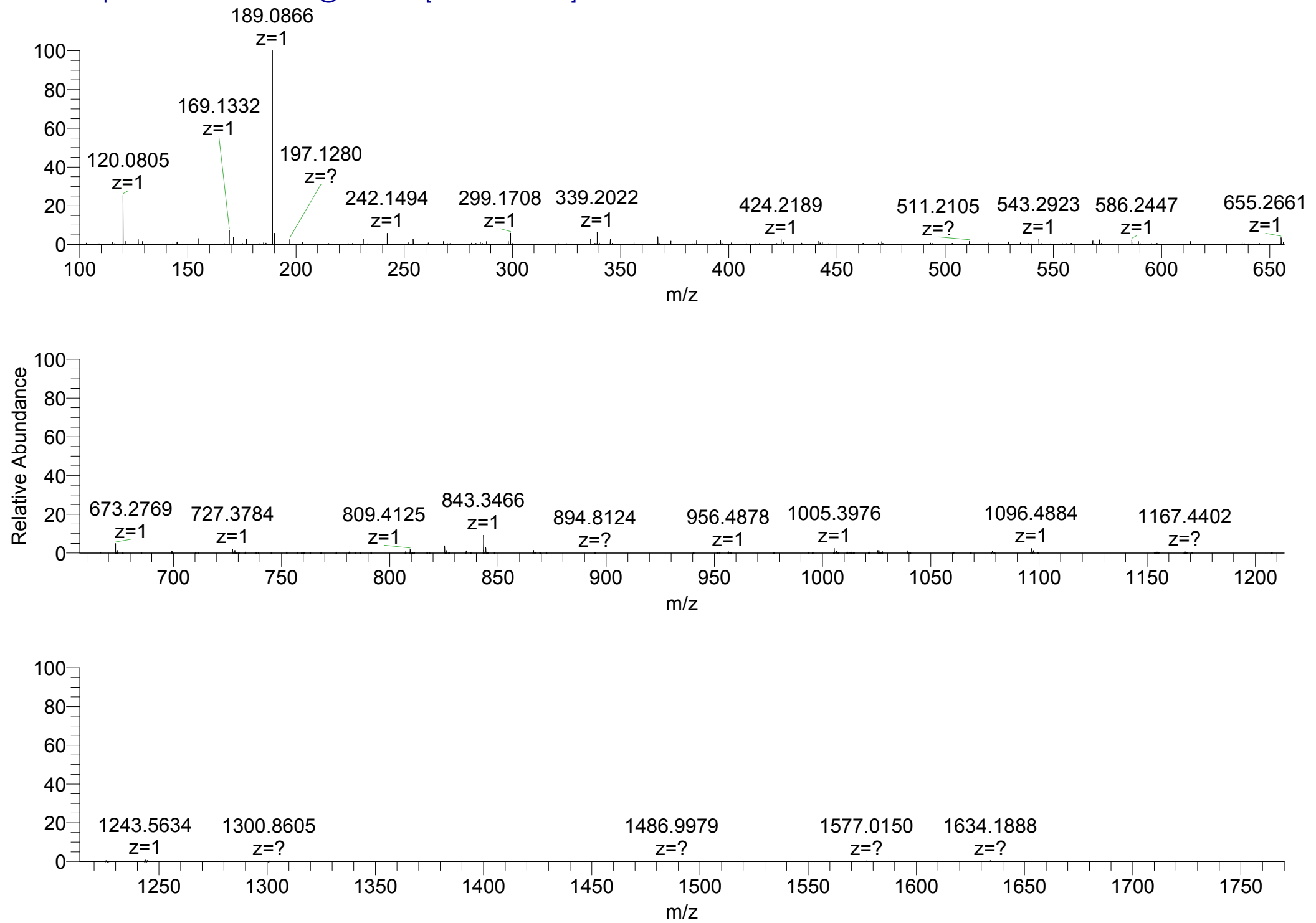
51.

K777-OH.Gal.Glc, P780-OH, P786-OH

#773-787: DDGP**K**GS**P**GPVGF**P**G

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH+Gal.Glc	2	878.3758	878.3711	-0.0094	-5.4
F	1	120.0808	120.0805	-0.0003	-2.5
y2	1	189.0870	189.0866	-0.0004	-2.1
PV	1	242.1499	242.1494	-0.0005	-2.1
PKG+OH/GPK+OH	1	299.1714	299.1708	-0.0006	-2.0
PGPK-28+2OH	1	339.2027	339.2022	-0.0005	-1.5
PGPVG+OH	1	424.2191	424.2189	-0.0002	-0.5
b10+2OH	2	470.7040	470.7021	-0.0038	-4.0
b7-H2O+OH	1	655.2682	655.2661	-0.0021	-3.2
b7+OH	1	673.2788	673.2769	-0.0019	-2.8
b9+2OH	1	843.3479	843.3466	-0.0013	-1.5
b12+2OH	1	1096.4905	1096.4884	-0.0021	-1.9

2_24_2012Col5a1_Bovine_AspNGluC_CE40 #2028 RT: 18.14 AV: 1 NL: 5.94E5
T: FTMS + p NSI d Full ms2 878.37@hcd40.00 [100.00-1770.00]



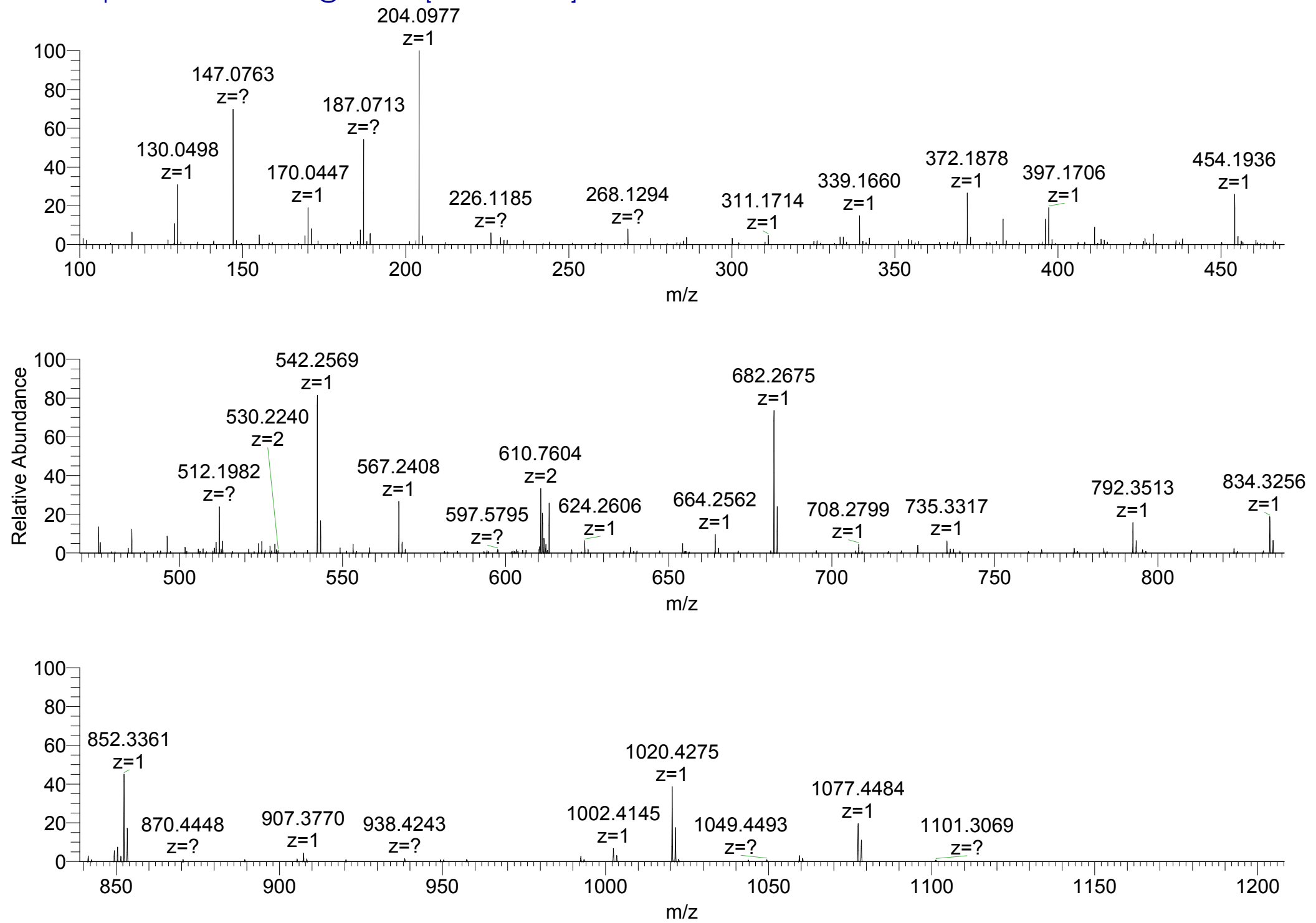
52.

P789-OH, P792-OH, P795-OH

#788-800: D**P**GP**P**GE**P**GPAGQ

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH	2	612.2624	612.2607	-0.0034	-2.8
y1-NH3	1	130.0499	130.0498	-0.0001	-0.8
y1	1	147.0764	147.0763	-0.0001	-0.7
GE/y2-NH3	1	187.0713	187.0713	0.0000	0.0
y2	1	204.0979	204.0977	-0.0002	-1.0
PGPA+OH	1	339.1663	339.1660	-0.0003	-0.9
y4	1	372.1878	372.1878	0.0000	0.0
b4+OH	1	383.1567	383.1562	-0.0005	-1.3
EPGP+OH	1	397.1718	397.1706	-0.0012	-3.0
GEPGP+OH	1	454.1932	454.1936	0.0004	0.9
y10-H2O+2OH	2	460.7091	460.7064	-0.0054	-5.9
y6+OH	1	542.2569	542.2569	0.0000	0.0
GPPGEP+2OH	1	567.2409	567.2408	-0.0001	-0.2
b7+2OH	1	682.2679	682.2675	-0.0004	-0.6
GPPGEPGPA+2OH/ PPGEPGPAG+2OH	1	792.3523	792.3513	-0.0010	-1.3
b9-H2O+3OH	1	834.3264	834.3256	-0.0008	-1.0
b9+3OH	1	852.3370	852.3361	-0.0009	-1.1
b11+3OH	1	1020.4269	1020.4275	0.0006	0.6
b12+3OH	1	1077.4483	1077.4484	0.0001	0.1

2_24_2012Col5a1_Bovine_AspNGluC_2 #317 RT: 4.47 AV: 1 NL: 4.15E5
T: FTMS + p NSI d Full ms2 612.26@hcd30.00 [100.00-1235.00]



53.

P813-OH, P819-OH, P825-OH

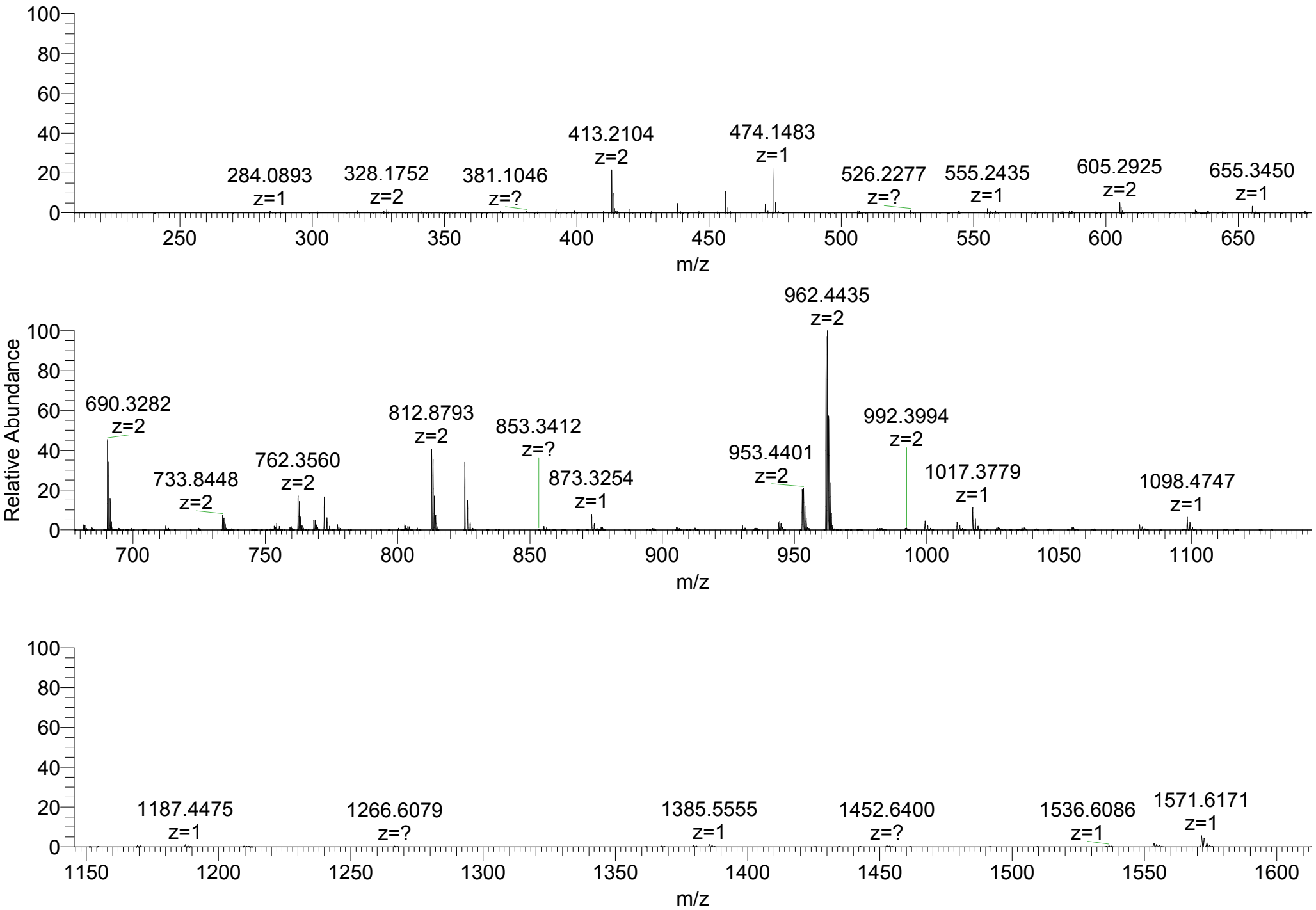
#808-833: GDDGE**P**GQTGS**P**GPTGE**P**GPSGPPGK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+4OH	3	799.3422	799.3444	0.0066	2.8
y9+2OH	2	413.2087	413.2104	0.0034	4.1
b5	1	474.1467	474.1483	0.0016	3.4
y13+2OH	2	605.2909	605.2925	0.0032	2.6
y7+OH	1	655.3410	655.3450	0.0040	6.1
y15+3OH	2	690.3255	690.3282	0.0054	3.9
y17+3OH	2	762.3523	762.3560	0.0074	4.9
b8+OH	1	772.2744	772.2771	0.0027	3.5
y18+3OH	2	812.8761	812.8793	0.0064	3.9
y9+2OH	1	825.4101	825.4131	0.0030	3.6
b9+OH/ DDGEPGQTG+OH	1	873.3221	873.3254	0.0033	3.8
y21-H2O+4OH	2	952.9347	952.9398	0.0102	5.4
y21+4OH	2	961.9400	961.9431	0.0062	3.2
b11+OH	1	1017.3756	1017.3779	0.0023	2.3
b17+2OH	1	1571.6092	1571.6171	0.0079	5.0

***Unlocalized sites: P831-OH? , K833-OH?**

Pseudolocalized sites: P831-OH

2_2_2012Col5a1_Bovine_us2Top3 #764 RT: 11.72 AV: 1 NL: 3.72E5
T: FTMS + p NSI d Full ms2 799.68@cid35.00 [210.00-2000.00]



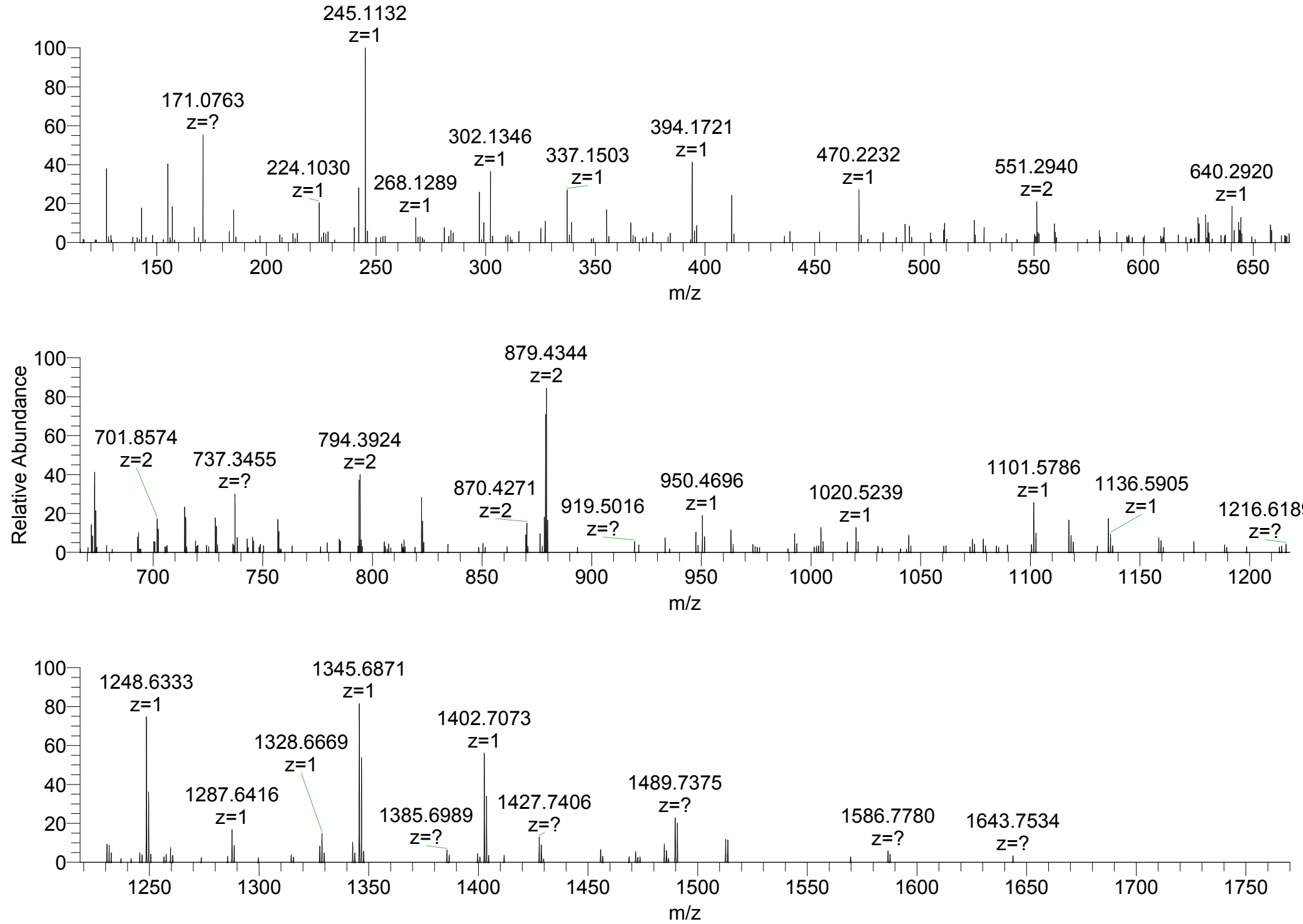
54.

P825-OH, P831-OH, P837-OH

#825-843: **P**GPSGP**P**GKRGP**P**GPAGPE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+3OH	2	878.9343	878.9348	0.0010	0.6
b2/GP+OH	1	171.0764	171.0763	-0.0001	-0.6
PSG-H2O	1	224.1030	224.1030	0.0000	0.0
y2	1	245.1132	245.1132	0.0000	0.0
y3	1	302.1347	302.1346	-0.0001	-0.3
b4/y4-H2O	1	355.1612	355.1614	0.0002	0.6
b5-H2O+OH	1	394.1721	394.1721	0.0000	0.0
b5+OH	1	412.1827	412.1828	0.0001	0.2
y5	1	470.2245	470.2232	-0.0013	-2.8
y7+OH	1	640.2937	640.2920	-0.0017	-2.7
y14+2OH	2	673.3466	673.3455	-0.0022	-1.6
y15+2OH	2	701.8573	701.8574	0.0002	0.1
a16+3OH	2	714.3731	714.3731	0.0000	0.0
b16+3OH	2	728.3706	728.3696	-0.0020	-1.4
y8+OH	1	737.3464	737.3455	-0.0009	-1.2
b17+3OH	2	756.8813	756.8817	0.0008	0.5
y17+2OH	2	793.8997	793.8984	-0.0026	-1.6
y18+2OH	2	822.4104	822.4098	-0.0012	-0.7
[M+2H]+3OH	2	878.9343	878.9338	-0.0010	-0.6
y10+OH	1	950.4690	950.4695	0.0005	0.5
b11+2OH	1	1020.5221	1020.5239	0.0018	1.8
y12+OH	1	1135.5854	1135.5834	-0.0020	-1.8
y13+2OH	1	1248.6331	1248.6333	0.0002	0.2
b14+3OH	1	1287.6440	1287.6416	-0.0024	-1.9
y14+2OH	1	1345.6859	1345.6871	0.0012	0.9
y15+2OH	1	1402.7074	1402.7073	-0.0001	-0.1
y16+2OH	1	1489.7394	1489.7375	-0.0019	-1.3

4_5_2012Col5a1_GluC_HCD2 #1454 RT: 11.36 AV: 1 NL: 5.20E4
T: FTMS + p NSI d Full ms2 878.93@hcd35.00 [115.00-1770.00]



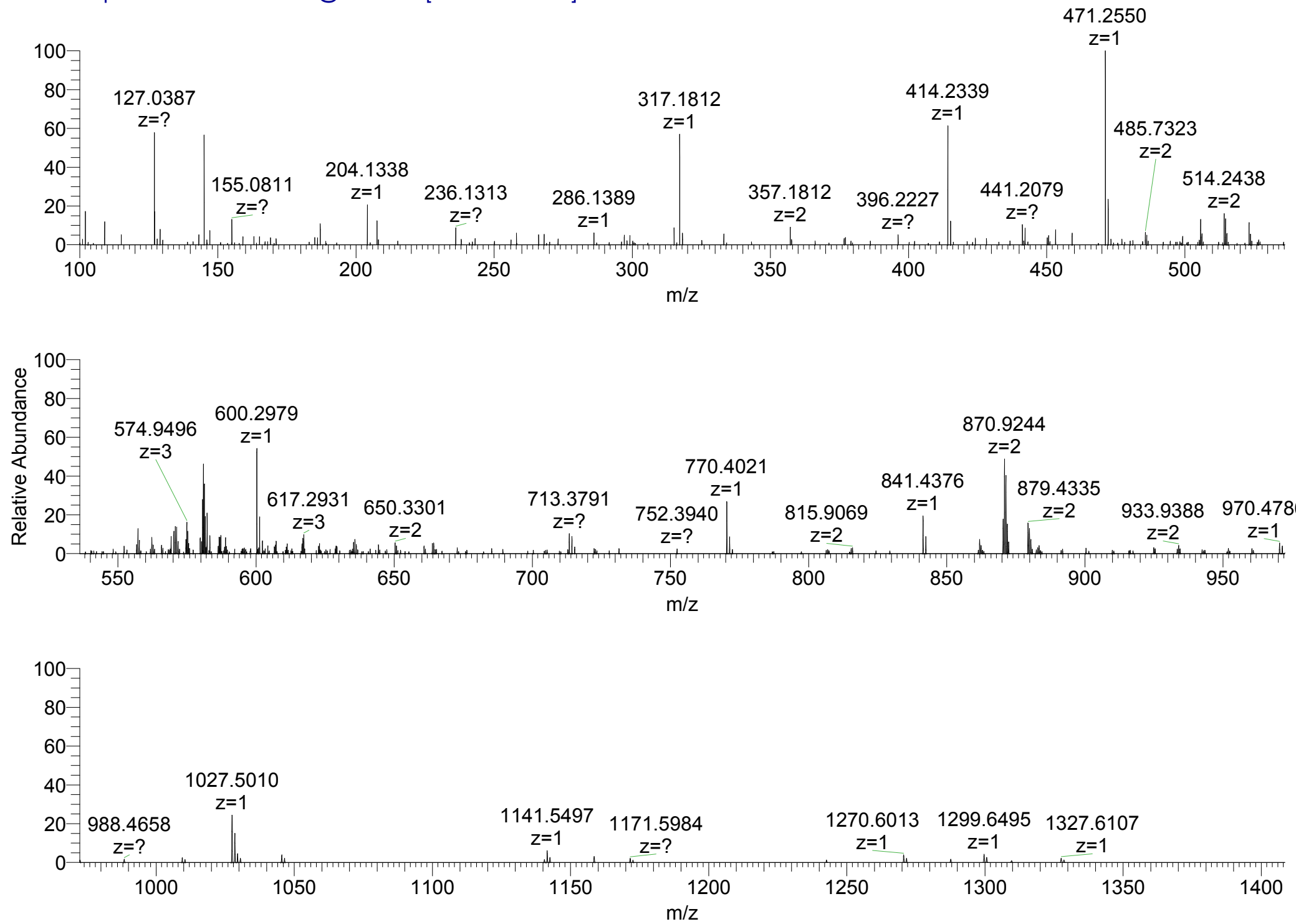
55.

K849-OH.Gal.Glc, K852-OH.Gal.Glc, P861-OH

#846-863: QGE**K**GA**K**GEAGLEGP**P**GK

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+3OH+Gal.Glc	4	602.2749	602.2726	-0.0092	-3.8
y2	1	204.1343	204.1338	-0.0005	-2.5
y3+OH	1	317.1819	317.1812	-0.0007	-2.2
y4+OH	1	414.2347	414.2339	-0.0008	-1.9
y5+OH	1	471.2562	471.2550	-0.0012	-2.6
y6+OH	1	600.2988	600.2979	-0.0009	-1.5
y7+OH	1	713.3828	713.3791	-0.0037	-5.2
y8+OH	1	770.4043	770.4021	-0.0022	-2.9
y9+OH	1	841.4414	841.4376	-0.0038	-4.5
[M+2H]-H2O+3OH	2	870.4316	870.4302	-0.0028	-1.6
[M+2H]+3OH	2	879.4369	879.4335	-0.0068	-3.9
y10+OH	1	970.4840	970.4786	-0.0054	-5.6
y11+OH	1	1027.5055	1027.5010	-0.0045	-4.4
b12-NH3+2OH	1	1141.5484	1141.5497	0.0013	1.1
y14+2OH	1	1299.6539	1299.6495	-0.0044	-3.4

2_25_2012Col5a1_Bovine_Trypsin_nontraping_CE35 #2547 RT: 29.35 AV: 1 NL: 2.29E6
T: FTMS + p NSI d Full ms2 602.52@hcd35.00 [100.00-2000.00]



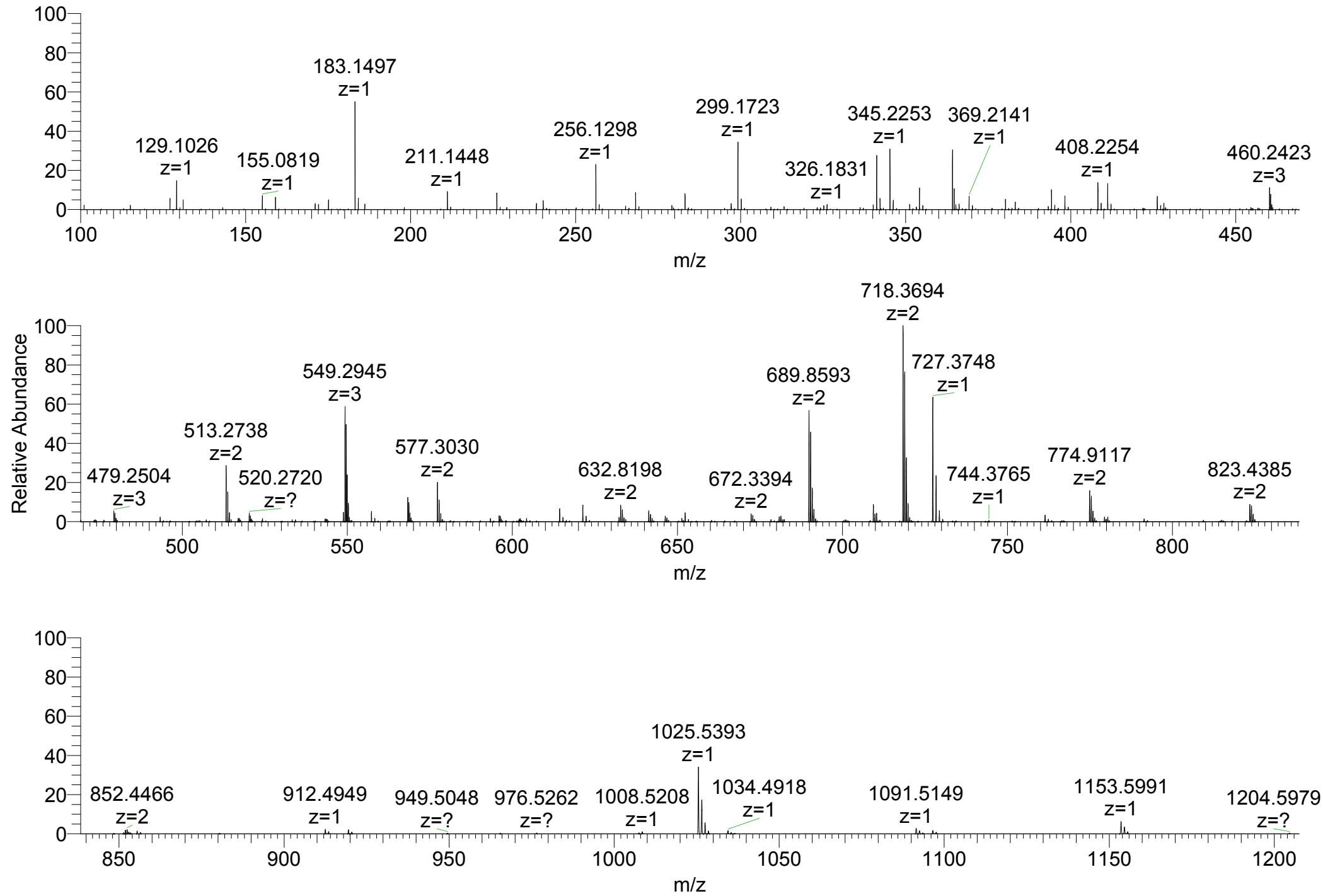
56.

P873-OH, P876-OH

#864-882: TGPIGPQGA**P**GK**P**GPDGLR

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+2OH	3	601.9831	601.9832	0.0003	0.2
K	1	129.1022	129.1026	0.0004	3.1
PI-28	1	183.1492	183.1497	0.0005	2.7
PI	1	211.1441	211.1448	0.0007	3.3
b3	1	256.1292	256.1298	0.0006	2.4
KPG+OH	1	299.1714	299.1723	0.0009	3.0
y3	1	345.2245	345.2253	0.0008	2.3
b5-H2O	1	408.2241	408.2254	0.0013	3.2
y14+2OH	3	460.2406	460.2423	0.0051	3.7
y10+2OH	2	513.2724	513.2738	0.0028	2.7
y17+2OH	3	549.2934	549.2945	0.0033	2.0
y5	1	557.3042	557.3052	0.0010	1.8
y12+2OH	2	577.3016	577.3030	0.0028	2.4
y6	1	614.3257	614.3266	0.0009	1.5
y14+2OH	2	689.8573	689.8593	0.0040	2.9
y15+2OH	2	718.3680	718.3694	0.0028	2.0
y7+OH	1	727.3733	727.3748	0.0015	2.1
y16+2OH	2	774.9101	774.9117	0.0032	2.1
y17+2OH	2	823.4365	823.4385	0.0040	2.4
y9+OH	1	912.4898	912.4949	0.0051	5.6
y10+2OH	1	1025.5374	1025.5393	0.0019	1.9

2_2_2012Col5a1_Bovine_HCD1_CE30 #1734 RT: 15.06 AV: 1 NL: 2.73E7
T: FTMS + p NSI d Full ms2 601.98@hcd30.00 [100.00-1820.00]



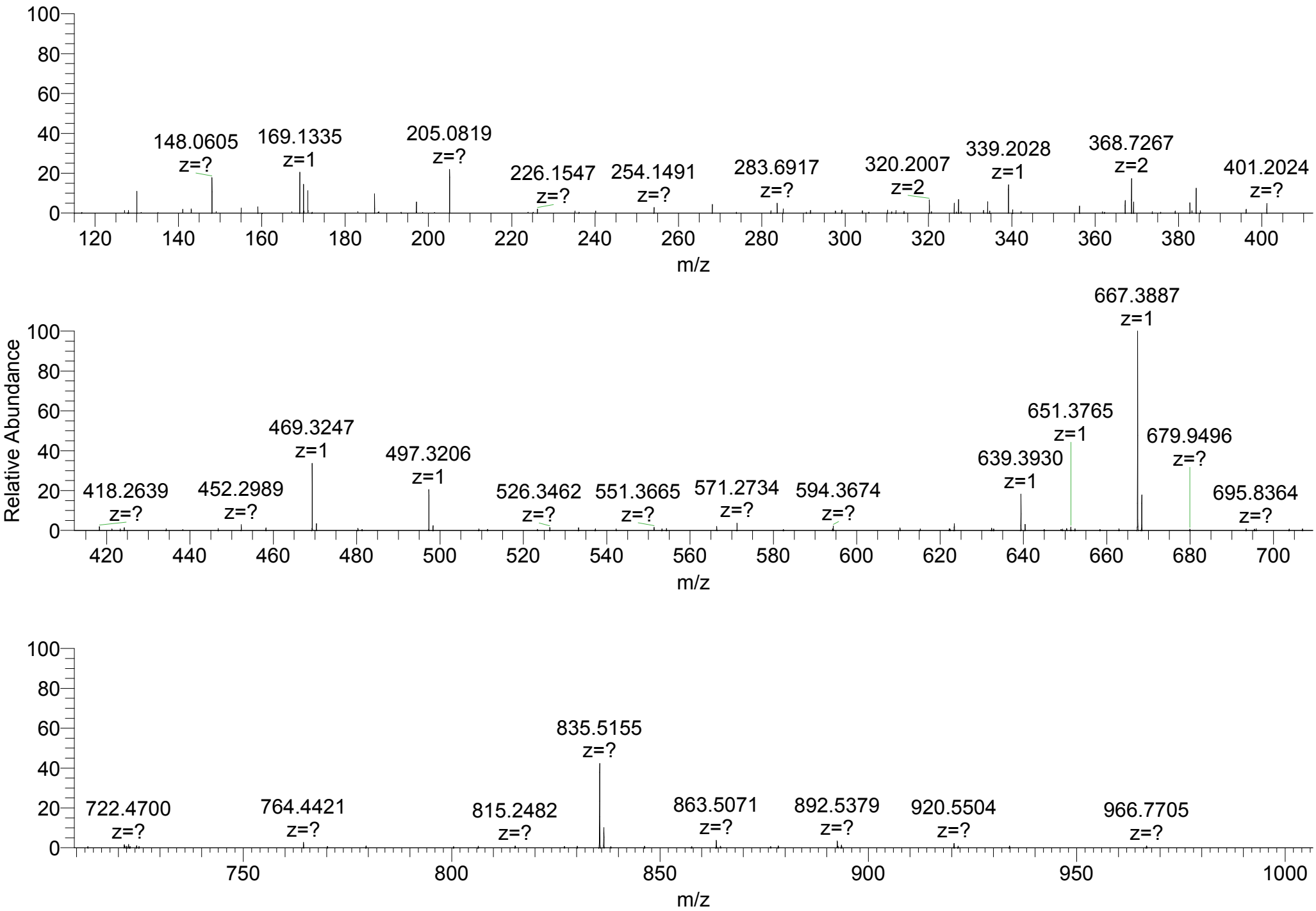
57.

P885-OH

#880-890: GLRGI**P**GPVGE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+OH	2	534.2958	534.2969	0.0022	2.1
y1	1	148.0604	148.0605	0.0001	0.7
y2	1	205.0819	205.0819	0.0000	0.0
a4-NH3/PGPV-28+OH	1	339.2027	339.2028	0.0001	0.3
a8+OH	2	368.7269	368.7267	-0.0004	-0.5
b4	1	384.2354	384.2359	0.0005	1.3
a5	1	469.3245	469.3247	0.0002	0.4
b5	1	497.3194	497.3206	0.0012	2.4
a7+OH	1	639.3937	639.3930	-0.0007	-1.1
b7+OH	1	667.3886	667.3887	0.0001	0.2
a9+OH/ LRGIPGPVG-28+OH	1	835.5148	835.5155	0.0007	0.8
b9+OH	1	863.5098	863.5071	-0.0027	-3.1

4_5_2012Col5a1_GluC_HCD1 #4547 RT: 26.88 AV: 1 NL: 5.93E6
T: FTMS + p NSI d Full ms2 534.30@hcd35.00 [115.00-1080.00]



58.

P894-OH, P897-OH, P912-OH

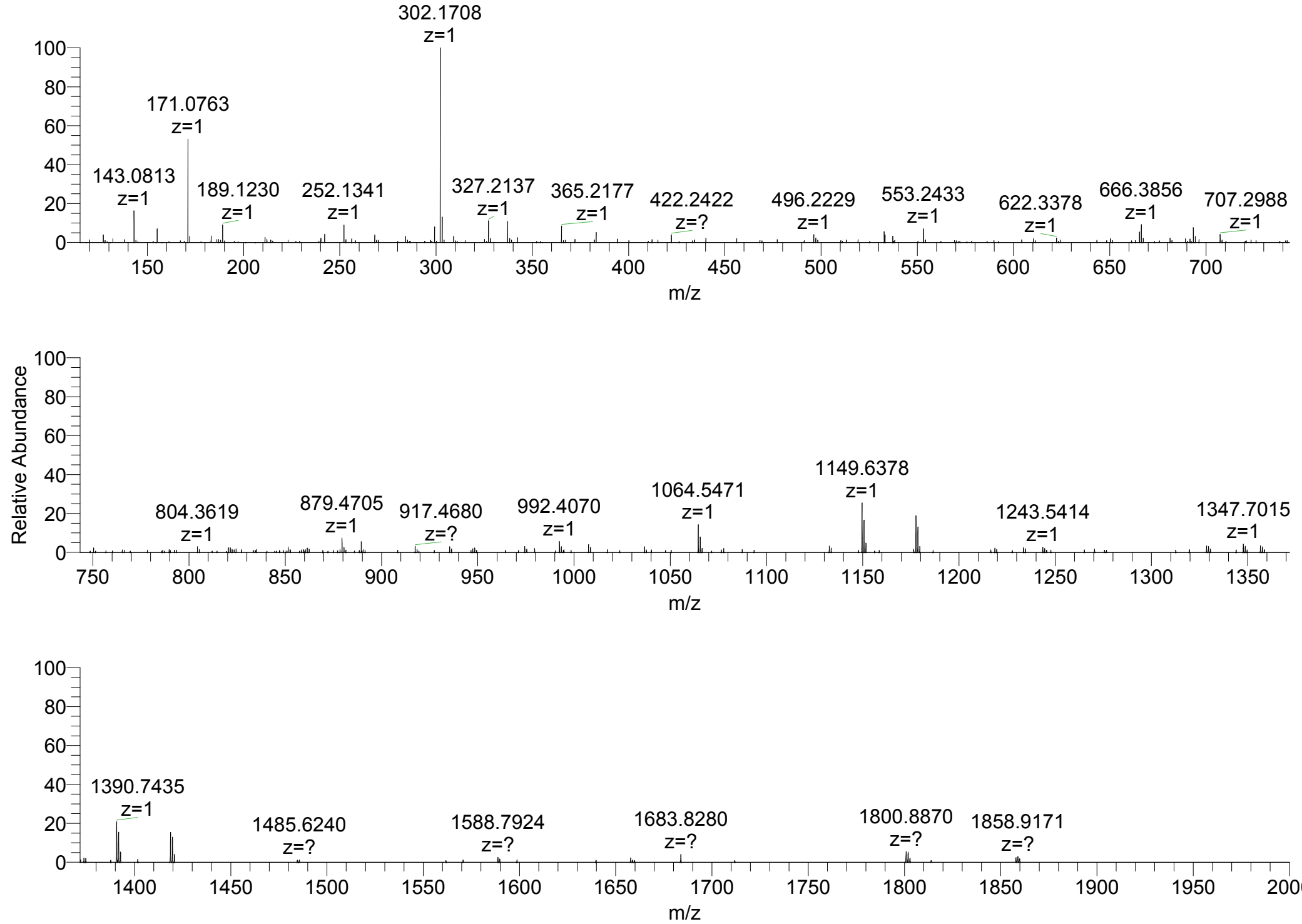
#882-914: RGIPGPVGEQGL**P**GA**P**GPDGPPGPMGPPGL**P**GL

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+5OH	3	1025.8450	1025.8444	-0.0018	-0.6
PG+OH	1	171.0764	171.0763	-0.0001	-0.6
y3+OH	1	302.1710	302.1708	-0.0002	-0.7
b3	1	327.2139	327.2137	-0.0002	-0.6
PPGPM+OH	1	496.2224	496.2229	0.0005	1.0
PGPMGP+OH	1	553.2439	553.2433	-0.0006	-1.1
y7+OH	1	666.3821	666.3856	0.0035	5.3
b9+OH	1	879.4683	879.4705	0.0022	2.5
b11+OH	1	1064.5483	1064.5471	-0.0012	-1.1
a12+OH	1	1149.6375	1149.6378	0.0003	0.3
b12+OH	1	1177.6324	1177.6353	0.0029	2.5
a15+2OH	1	1390.7437	1390.7435	-0.0002	-0.1
b15+2OH	1	1418.7387	1418.7358	-0.0029	-2.0
b17+3OH	1	1588.8078	1588.7924	-0.0154	-9.7
b19+3OH	1	1800.8875	1800.8870	-0.0005	-0.3

***Unlocalized sites: P885-OH?, P887-OH?, P902-OH?, P903-OH?, P905-OH?**

Pseudolocalized sites: P885-OH, P903-OH

4_5_2012Col5a1_Chmy_HCD2 #9028 RT: 57.63 AV: 1 NL: 6.49E5
T: FTMS + p NSI d Full ms2 1026.51@hcd35.00 [115.00-2000.00]



59.

K915-OH, K924-OH, P927-OH

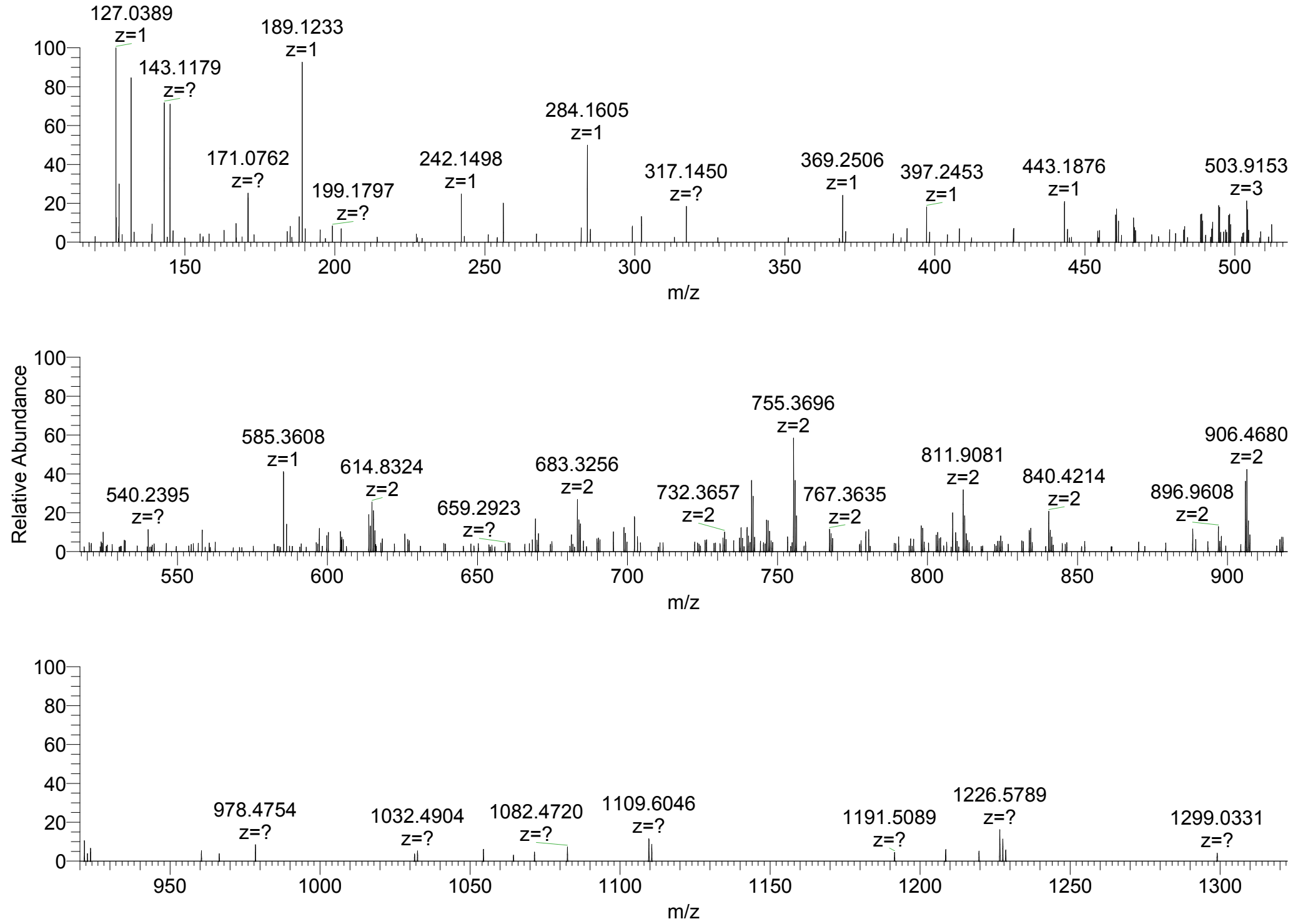
#915-932: **K**GDSGPKGE**K**GH**P**GLIGL

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+4H]+4OH+2Gal.Glc	4	615.5406	615.5419	0.0052	2.1
GL-28/Gl-28	1	143.1179	143.1179	0.0000	0.0
PG+OH	1	171.0764	171.0762	-0.0002	-1.2
y2	1	189.1234	189.1233	-0.0001	-0.5
PGL+OH	1	284.1605	284.1605	0.0000	0.0
b3+OH	1	317.1456	317.1450	-0.0006	-1.9
PGLl-28+OH	1	369.2496	369.2506	0.0010	2.7
b5-H2O	1	443.1885	443.1878	-0.0007	-1.6
b15+4OH	3	503.9146	503.9153	0.0021	1.4
y6+OH	1	585.3606	585.3608	0.0002	0.3
a15+4OH	2	741.3708	741.3695	-0.0026	-1.8
b15+4OH	2	755.3682	755.3696	0.0028	1.9
b16+4OH	2	811.9103	811.9081	-0.0044	-2.7
b17+4OH	2	840.4210	840.4214	0.0008	0.5
[M+2H]+4OH	2	905.9683	905.9662	-0.0042	-2.3
y11+2OH	1	1109.5949	1109.6046	0.0097	8.7
b12+3OH	1	1226.5760	1226.5789	0.0029	2.4

***Unlocalized sites: K915-OH.Gal.Glc?, P920-OH?, K921-OH.Gal.Glc?, K924-OH.Gal.Glc?**

Pseudolocalized sites: K915-OH.Gal.Glc or K921-OH.Gal.Glc or K924-OH.Gal.Glc

4_5_2012Col5a1_Chmy_HCD1 #2911 RT: 19.07 AV: 1 NL: 3.80E5
T: FTMS + p NSI d Full ms2 615.79@hcd35.00 [115.00-2000.00]



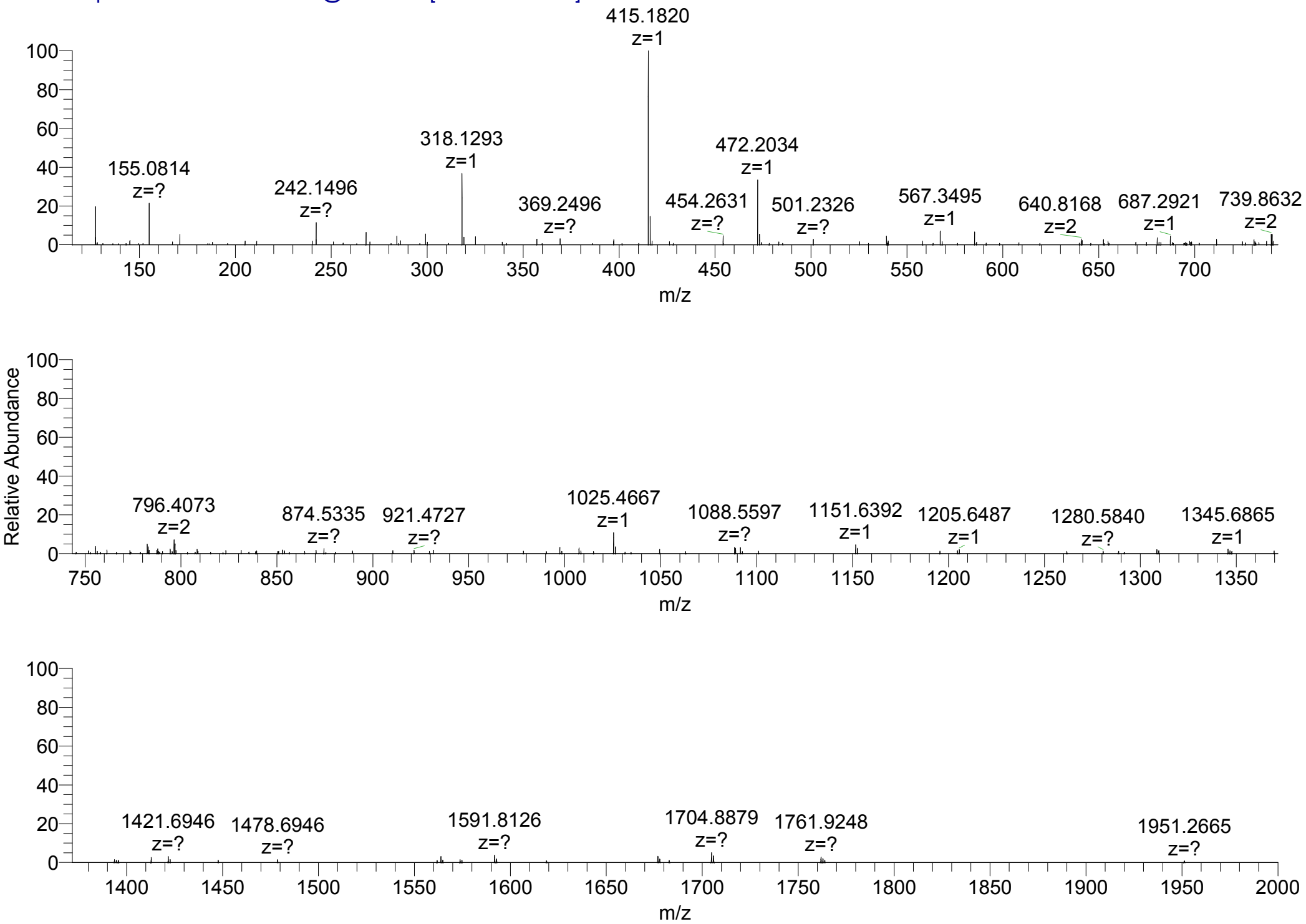
60.

K921-OH.Gal.Glc, K924-OH.Gal.Glc, P927-OH, P936-OH

#917-938: DSGP**K**GE**K**GH**P**GLIGLIGP**P**GE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+4OH+2Gal.Glc	2	1412.6533	1412.6548	0.0030	1.1
GP-28	1	127.0866	127.0864	-0.0002	-1.6
GP	1	155.0815	155.0814	-0.0001	-0.6
PV	1	242.1499	242.1496	-0.0003	-1.2
y3+OH	1	318.1296	318.1293	-0.0003	-0.9
y4+OH	1	415.1823	415.1820	-0.0003	-0.7
y5+OH	1	472.2038	472.2034	-0.0004	-0.8
PGLIGL+OH	1	567.3501	567.3496	-0.0005	-0.9
a13+3OH	2	640.8151	640.8168	0.0034	2.7
y6+OH	1	585.2879	585.2869	-0.0010	-1.7
b7+OH	1	687.2944	687.2921	-0.0023	-3.4
b15+3OH	2	739.8653	739.8632	-0.0042	-2.8
b16+3OH	2	796.4047	796.4073	0.0052	3.3
b10+2OH	1	1025.4647	1025.4667	0.0020	2.0
y12+2OH	1	1151.6307	1151.6392	0.0085	7.4
y14+2OH	1	1345.7110	1345.6865	-0.0245	-18.2
b14+3OH	1	1421.7019	1421.6946	-0.0073	-5.1
b16+3OH	1	1591.8075	1591.8126	0.0051	3.2
b17+3OH	1	1704.8915	1704.8879	-0.0036	-2.1

4_5_2012Col5a1_GluCandAspN_HCD1 #5626 RT: 25.18 AV: 1 NL: 4.48E5
T: FTMS + p NSI d Full ms2 1413.66@hcd35.00 [115.00-2000.00]



61.

K942-OH.Gal.Glc, P948-OH, K957-OH.Gal.Glc

#942-959: **K**GDRGV**P**GPQGSSGP**K**GE

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+3H]+3OH+2Gal.Glc	3	802.6890	802.6888	-0.0006	-0.2
y2	1	205.0819	205.0817	-0.0002	-1.0
VPG-18+OH	1	242.1499	242.1500	0.0001	0.4
GVPG-28+OH	1	299.1714	299.1713	-0.0001	-0.3
PGPQ+OH	1	396.1878	396.1881	0.0003	0.8
y4+OH	1	446.2245	446.2244	-0.0001	-0.2
y5+OH	1	503.2460	503.2460	0.0000	0.0
y6+OH	1	590.2780	590.2794	0.0014	2.4
a6+OH	1	601.3416	601.3429	0.0013	2.2
b6+OH	1	629.3365	629.3370	0.0005	0.8
b14+2OH	2	656.8156	656.8151	-0.0010	-0.8
y8+OH	1	734.3315	734.3316	0.0001	0.1
b16+2OH	2	777.3870	777.3860	-0.0020	-1.3
b8+2OH	1	799.4057	799.4042	-0.0015	-1.9
[M+2H]+4OH	2	879.4243	879.4244	0.0002	0.1
b10+3OH	1	1024.5170	1024.5171	0.0001	0.1
y12+2OH	1	1129.5120	1129.5120	0.0000	0.0
b14+2OH	1	1312.6240	1312.6238	-0.0002	-0.2
[M+H]+3OH	1	1757.8413	1757.8402	-0.0011	-0.6

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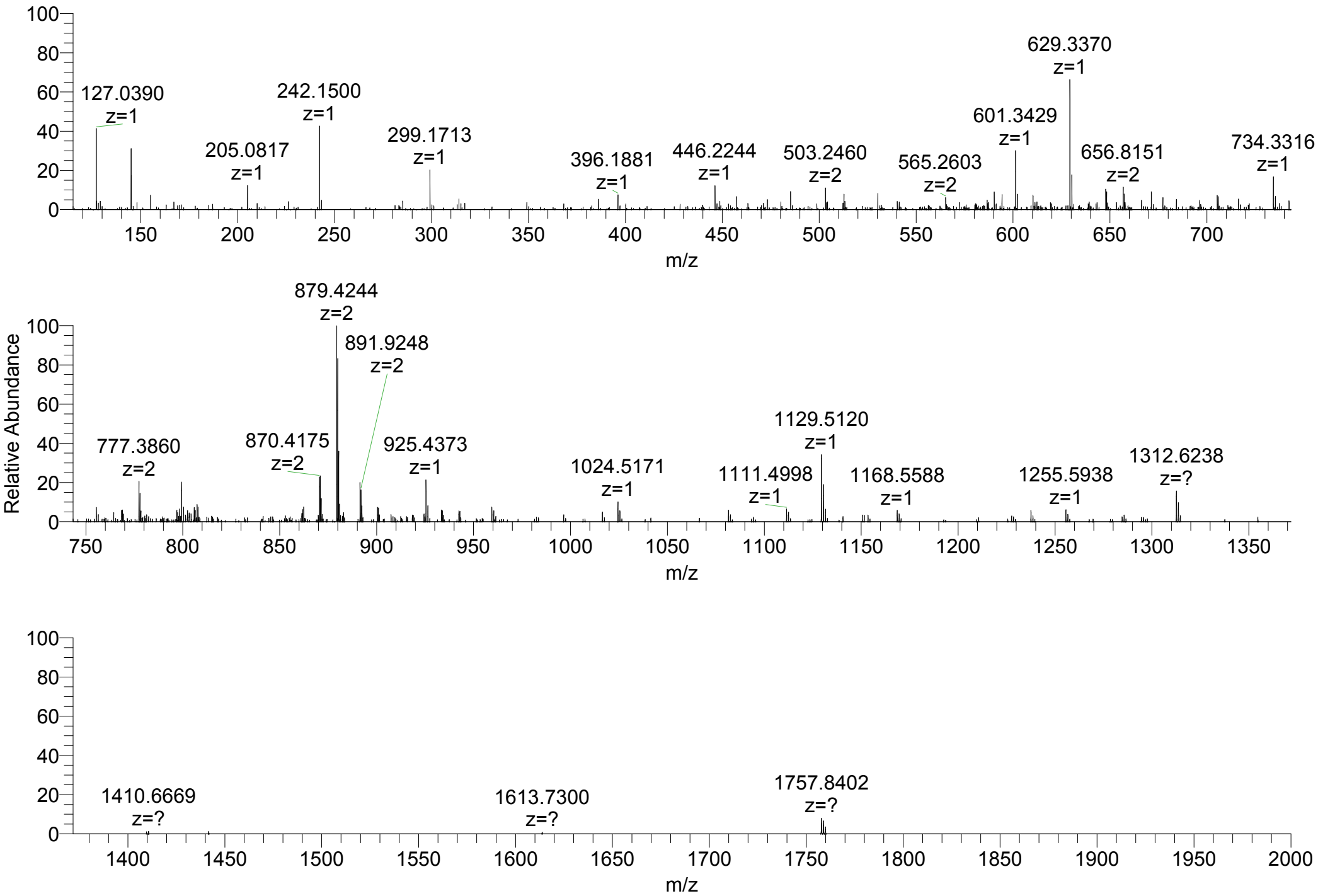
4_5_2012Col5a1_GluC_HCD1 #1285 RT: 10.46 AV: 1 NL: 2.51E4
T: FTMS + p NSI d Full ms2 802.69@hcd35.00 [115.00-2000.00]



62.

P1002-OH, P1004-OH, P1005-OH, P1007-OH, P1008-OH, P1010-OH, P1011-OH

#999-1013: AGQ**P**G**PP**G**PP**G**PP**GEV

Ion	charge state	Theoretical m/z (mono)	Experimental m/z (mono)	Mass error (Da)	Mass error (PPM)
[M+2H]+7OH	2	712.3022	712.3035	0.0026	1.8
b2/Q	1	129.0659	129.0659	0.0000	0.0
PG+OH	1	171.0764	171.0764	0.0000	0.0
b3	1	257.1244	257.1247	0.0003	1.2
GPP+2OH	1	284.1241	284.1243	0.0002	0.7
y3+OH	1	318.1296	318.1297	0.0001	0.3
GPPG+2OH	1	341.1456	341.1457	0.0001	0.3
PGPP+3OH	1	397.1718	397.1713	-0.0005	-1.3
y4+2OH	1	431.1773	431.1774	0.0001	0.2
PGPPG+3OH	1	454.1932	454.1933	0.0001	0.2
y5+2OH	1	488.1987	488.1983	-0.0004	-0.8
b6+2OH	1	540.2413	540.2433	0.0020	3.7
PGPPGP+4OH	1	567.2409	567.2410	0.0001	0.2
y6+3OH	1	601.2464	601.2467	0.0003	0.5
GPPGPPG+4OH	1	624.2624	624.2623	-0.0001	-0.2
y7+4OH	1	714.2941	714.2941	0.0000	0.0
GPPGPPGP+5OH	1	737.3101	737.3102	0.0001	0.1
y8+4OH	1	771.3155	771.3148	-0.0007	-0.9
y9+5OH	1	884.3632	884.3637	0.0005	0.6
y10+6OH	1	997.4109	997.4110	0.0001	0.1
y11+6OH	1	1054.4324	1054.4316	-0.0008	-0.8
y12+7OH	1	1167.4800	1167.4783	-0.0017	-1.5

4_5_2012Col5a1_GluC_HCD2 #737 RT: 6.07 AV: 1 NL: 2.14E4
T: FTMS + p NSI d Full ms2 712.30@hcd35.00 [115.00-1435.00]