

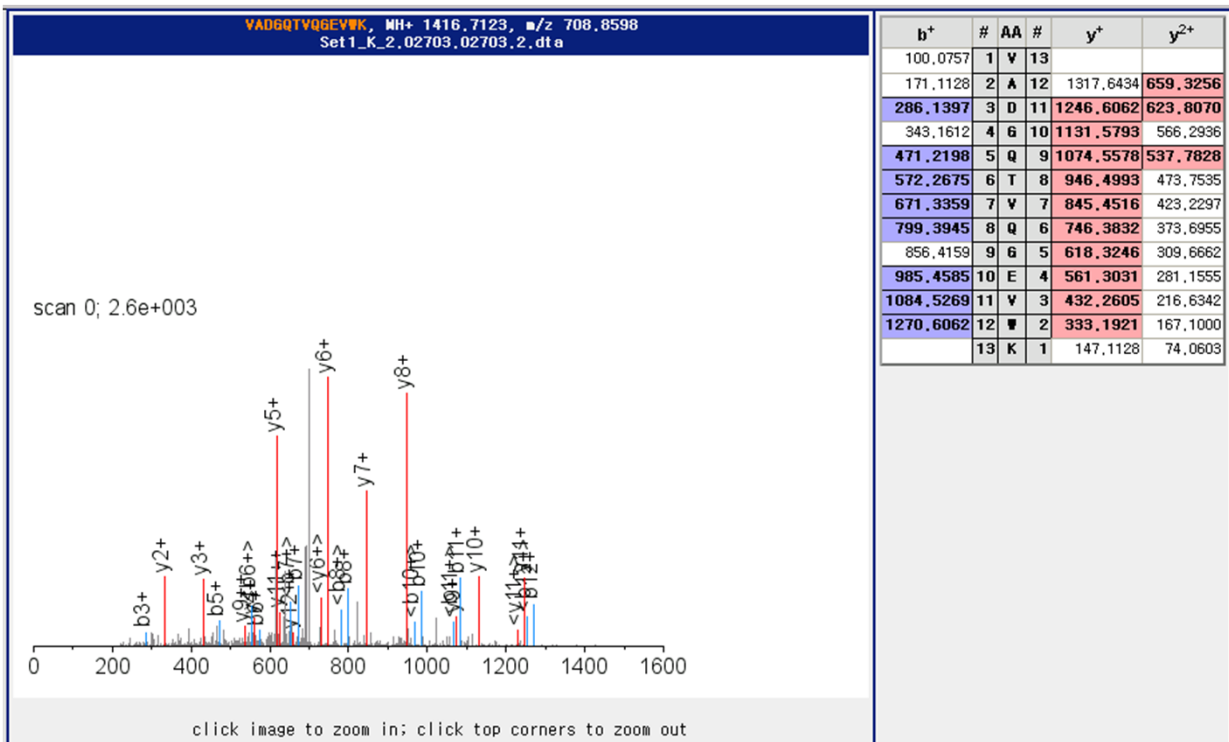
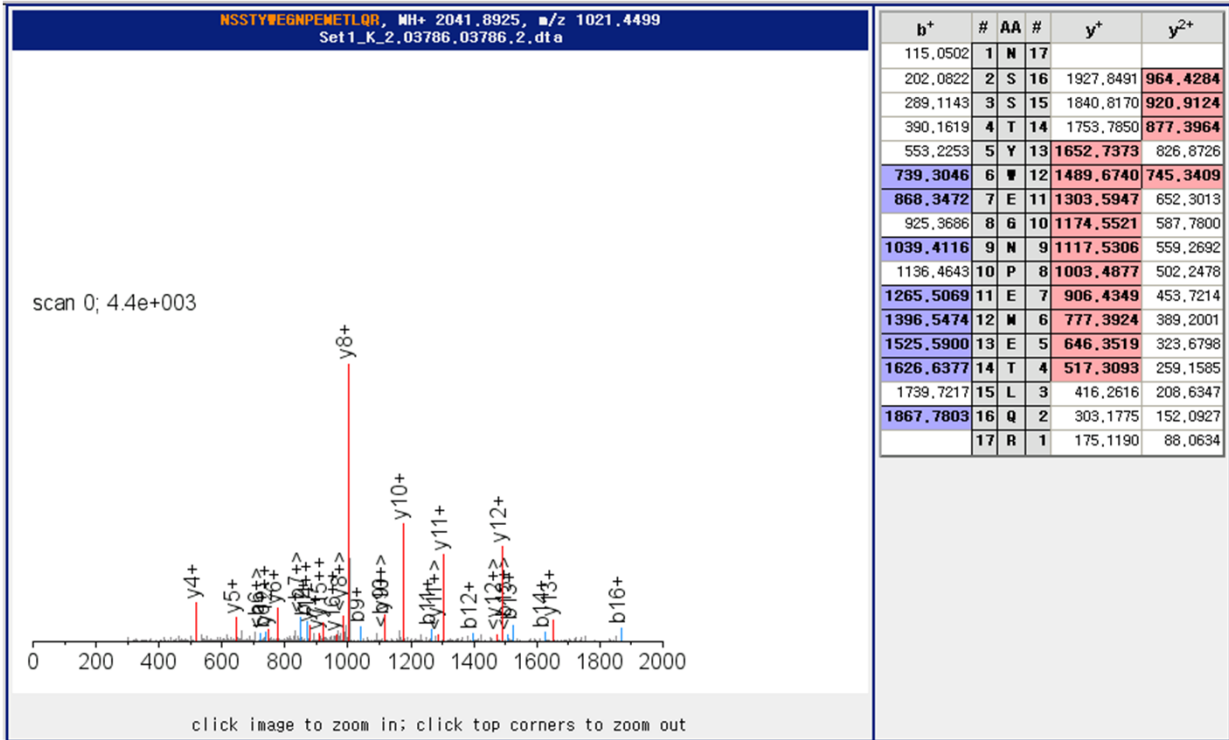
**Figure S1. MS/MS spectra, scores and p-values for specific TARSL2 peptides.**

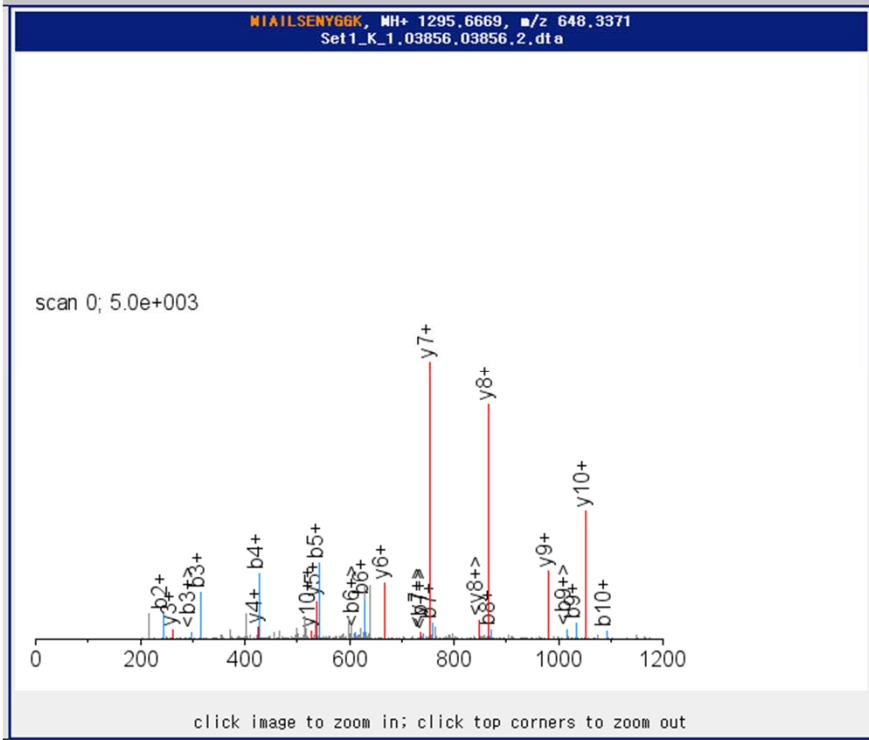
Among many spectra matched to TARSL2 peptides, one representative spectrum per each unique peptide is presented. **(A)** PeptideProphet probability, spectrum number, expect value in MASCOT search result, matched ions, peptide sequence, accession number in IPI database and calculated mass for 16 unique peptides are listed. Note that there were three protein entries in IPI database corresponding to TARSL2. Note that the peptides shared with TARS are not shown. **(B)** MS/MS spectra representing TARSL2.

**A**

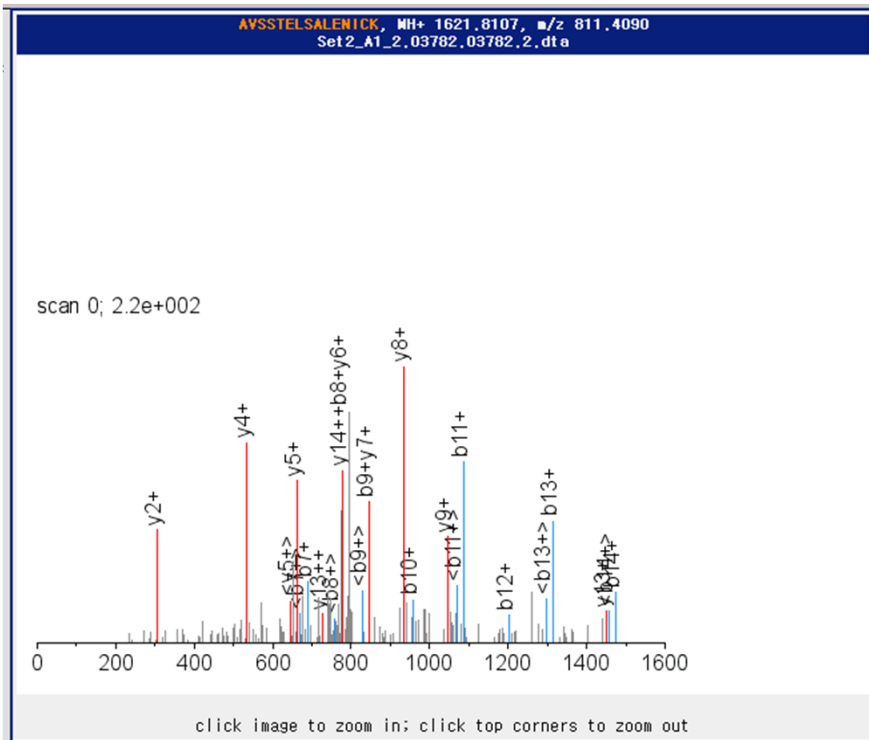
prob	spectrum	expect	ions	peptide	protein	calc_mass
0.9986	Set1_K_2.02703.02703.2	0	11/24	R.VADGQTVQGEVWK.T	IPI00328082 +2	1415.7123
0.9985	Set1_K_2.03786.03786.2	0	10/32	K.NSSTYWEGNPEMETLQR.I	IPI00328082 +2	2040.8925
0.9983	Set1_K_1.03856.03856.2	0	18/22	R.MIAILSENYGCK.W	IPI00328082 +2	1294.6669
0.9901	Set2_A1_2.03782.03782.2	0	12/28	R.AVSSTELSALENIC <sub>160.03</sub> K.A	IPI00328082 +1	1620.8107
0.9775	Set2_K_2.05982.05982.2	0.0002	10/24	R.GAFIYNTLTFIR.E	IPI00328082 +2	1529.7957
0.9789	Set3_K_1.01752.01752.2	0.0001	07/20	K.KGDTSNITIVR.V	IPI00328082 +2	1202.6697
0.9798	Set1_A2_2.02298.02298.2	0	09/22	K.M <sub>147.04</sub> NPGDGAFYGPCK.I	IPI00328082 +2	1268.5574
0.9834	Set2_K_2.01050.01050.2	0.0001	09/18	K.VNTATTTVYR.C	IPI00328082 +2	1124.5904
0.9919	Set1_K_2.05070.05070.2	0	11/26	K.QLQNSLMDFGEPWK.M	IPI00328082 +2	1691.8056
0.9668	Set3_A2_1.03067.03067.2	0.0003	09/22	R.NELSGTSLGLTR.V	IPI00328082 +2	1246.6595
0.9879	Set1_A1_1.03515.03515.2	0	13/18	R.IYGISFPDNK.M	IPI00328082 +2	1152.5893
0.9815	Set3_K_1.06120.06120.2	0.0001	15/42	K.TTPYQVAEISQELAEETVIK.V	IPI00328082 +2	2348.2189
0.9627	Set1_A1_1.03295.03295.2	0.0004	16/26	R.DFTEVLSPNM <sub>147.04</sub> YNSK.L	IPI00328082 +2	1659.7529
0.9785	Set3_K_1.03255.03255.2	0.0001	08/16	R.FADFGVLHR.N	IPI00328082 +2	1060.5533
0.9597	Set3_K_1.03278.03278.2	0.0005	10/24	R.QVMVIPVGPCTC <sub>160.03</sub> EK.Y	IPI00328082 +2	1456.7496
0.6797	Set3_K_1.00265.00265.2	0.0001	08/20	K.MKESEADSEVK.H	IPI00328082 +2	1251.5731

B



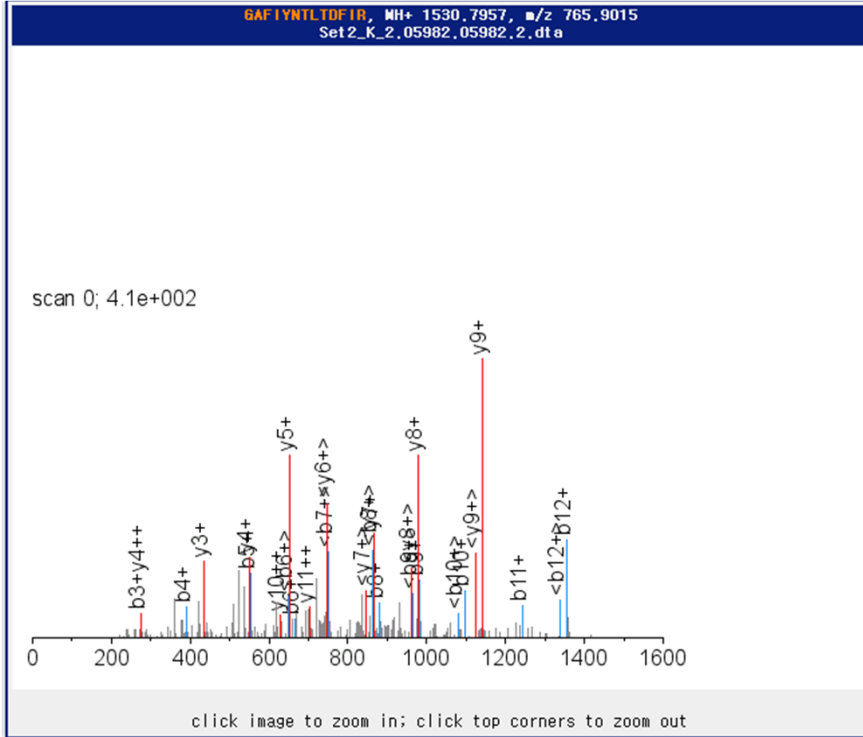


b <sup>+</sup>	#	AA	#	y <sup>+</sup>	y <sup>2+</sup>
132,0478	1	M	12		
245,1318	2	I	11	1164,6259	582,8169
316,1689	3	A	10	1051,5419	526,2748
429,2530	4	I	9	980,5047	490,7563
542,3371	5	L	8	867,4207	434,2142
629,3691	6	S	7	754,3366	377,6722
758,4117	7	E	6	667,3046	334,1562
872,4546	8	N	5	538,2620	269,6349
1035,5179	9	Y	4	424,2191	212,6134
1092,5394	10	G	3	261,1557	131,0818
1149,5609	11	G	2	204,1343	102,5710
	12	K	1	147,1128	74,0603

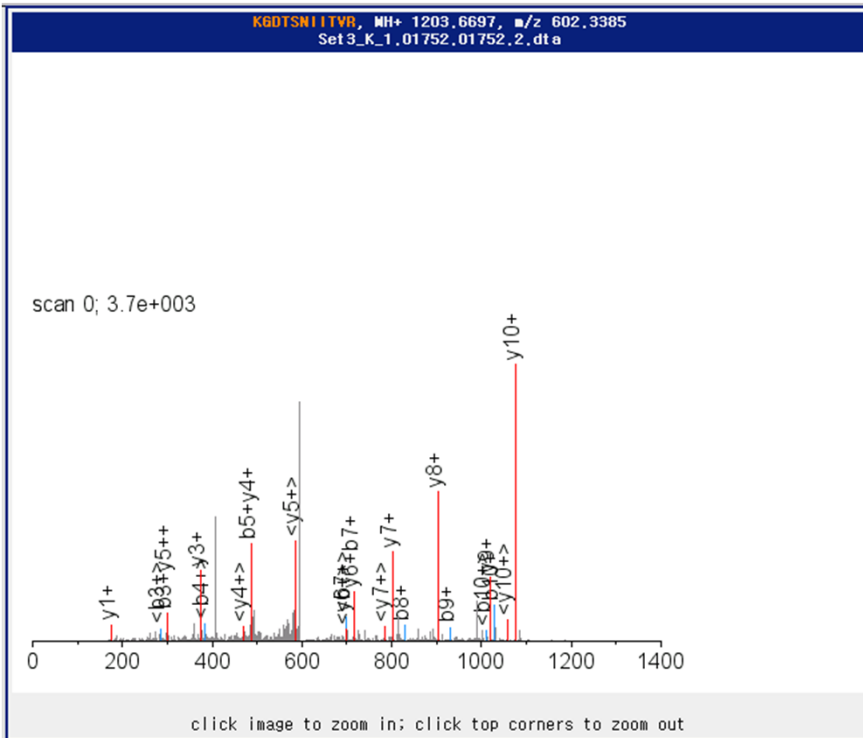


b <sup>+</sup>	#	AA	#	y <sup>+</sup>	y <sup>2+</sup>
72,0444	1	A	15		
171,1128	2	V	14	1550,7731	775,8904
258,1448	3	S	13	1451,7046	726,3562
345,1769	4	S	12	1364,6726	682,8402
446,2245	5	T	11	1277,6406	639,3242
575,2671	6	E	10	1176,5929	588,8004
688,3512	7	L	9	1047,5503	524,2791
775,3832	8	S	8	934,4662	467,7370
846,4203	9	A	7	847,4342	424,2210
959,5044	10	L	6	776,3971	388,7025
1088,5470	11	E	5	663,3130	332,1604
1202,5899	12	N	4	534,2704	267,6391
1315,6740	13	I	3	420,2275	210,6177
1475,7046	14	C	2	307,1435	154,0756
	15	K	1	147,1128	74,0603

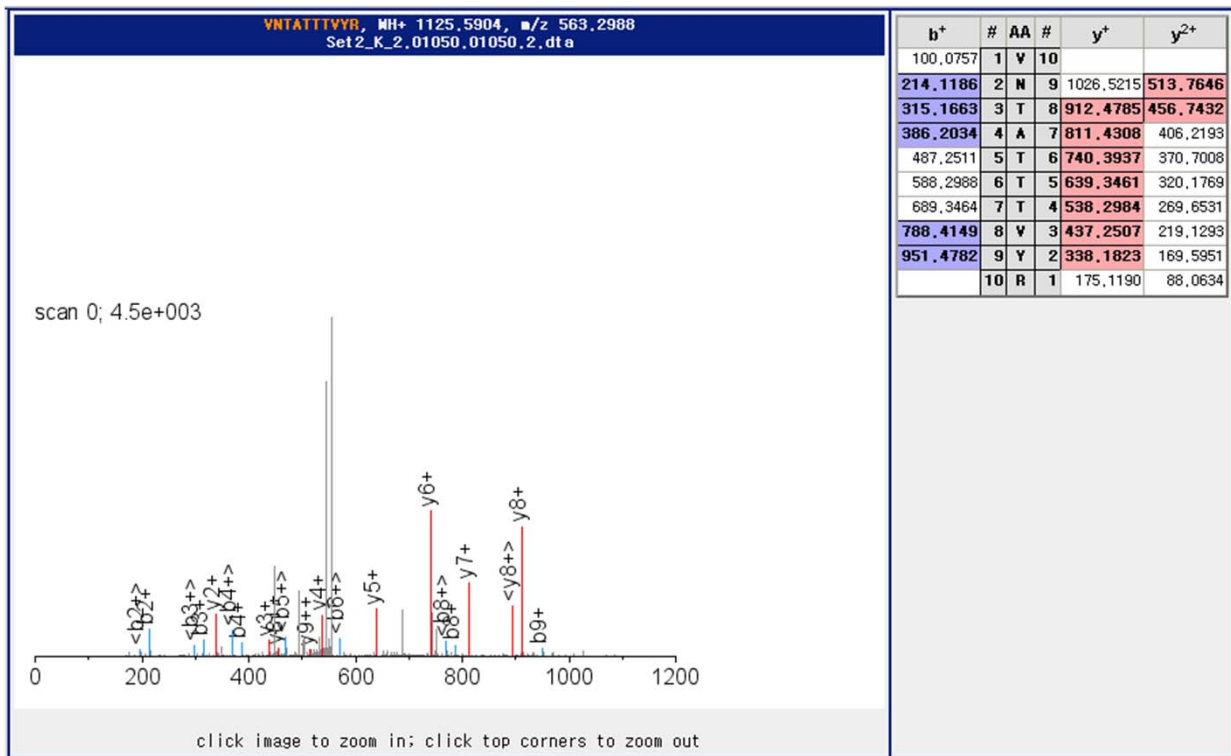
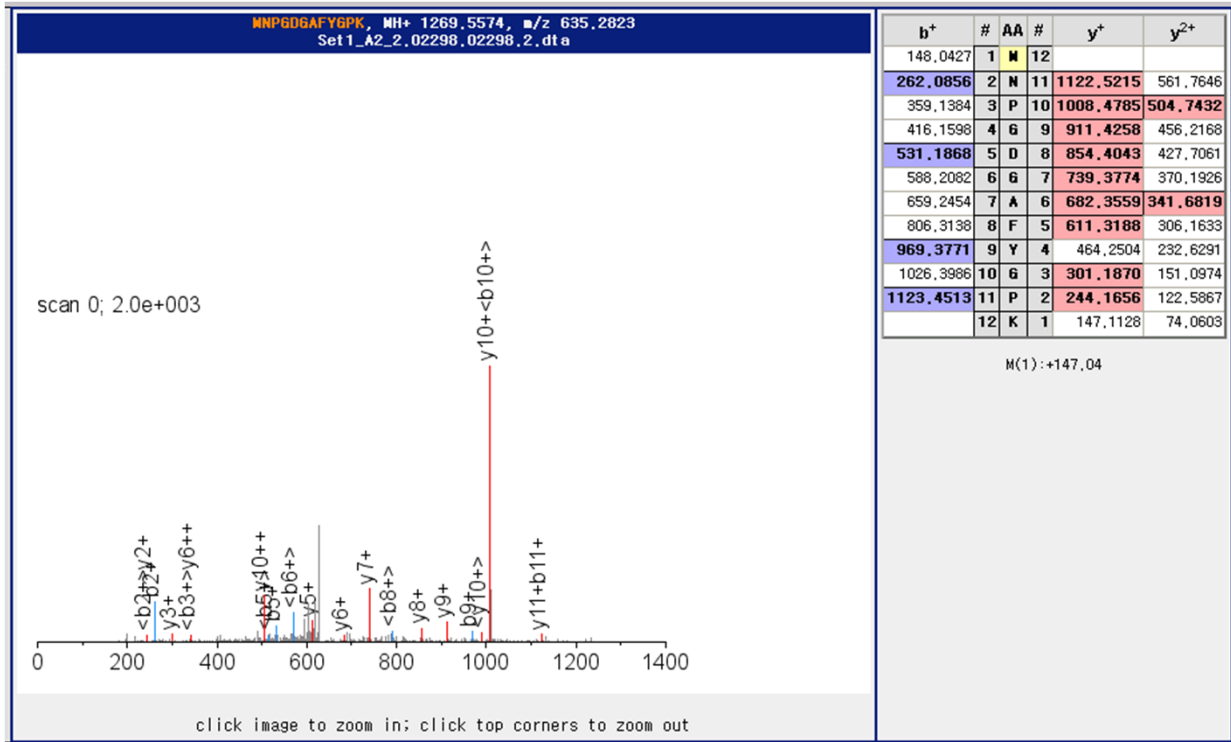
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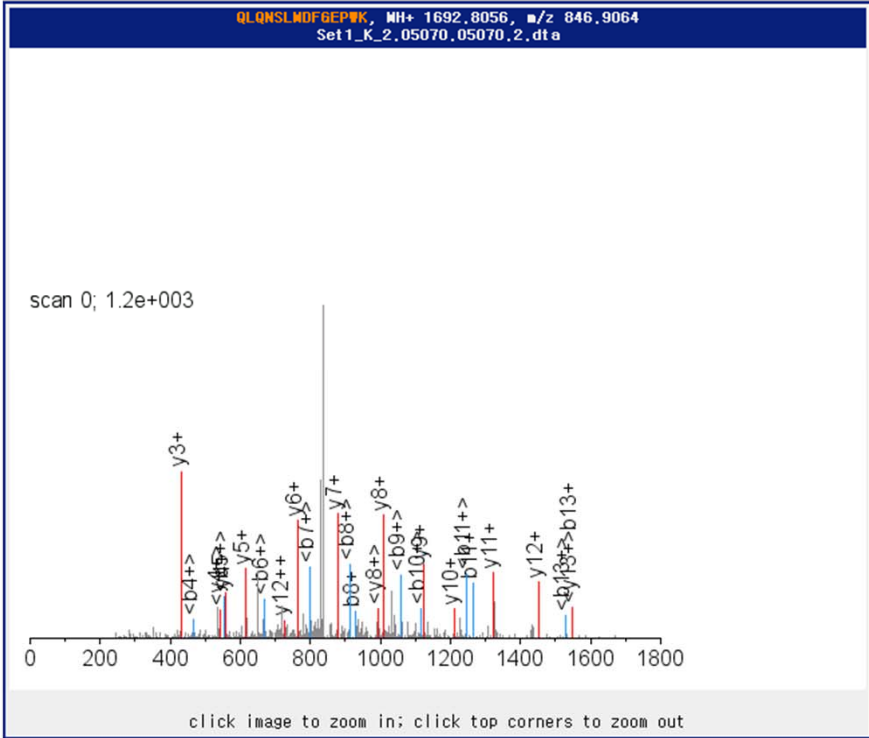


b <sup>+</sup>	#	AA #	y <sup>+</sup>	y <sup>2+</sup>
58,0287	1	G 13		
129,0659	2	A 12	1473,7736	737,3907
<b>276,1343</b>	3	F 11	1402,7365	<b>701,8722</b>
<b>389,2183</b>	4	I 10	1255,6681	<b>628,3380</b>
552,2817	5	Y 9	<b>1142,5841</b>	571,7959
<b>666,3246</b>	6	N 8	<b>979,5207</b>	490,2643
767,3723	7	T 7	<b>865,4778</b>	433,2428
<b>880,4563</b>	8	L 6	764,4301	382,7190
<b>981,5040</b>	9	T 5	<b>651,3461</b>	326,1769
<b>1096,5310</b>	10	D 4	<b>550,2984</b>	<b>275,6531</b>
<b>1243,5994</b>	11	F 3	<b>435,2714</b>	218,1396
<b>1356,6834</b>	12	I 2	288,2030	144,6054
	13	R 1	175,1190	88,0634

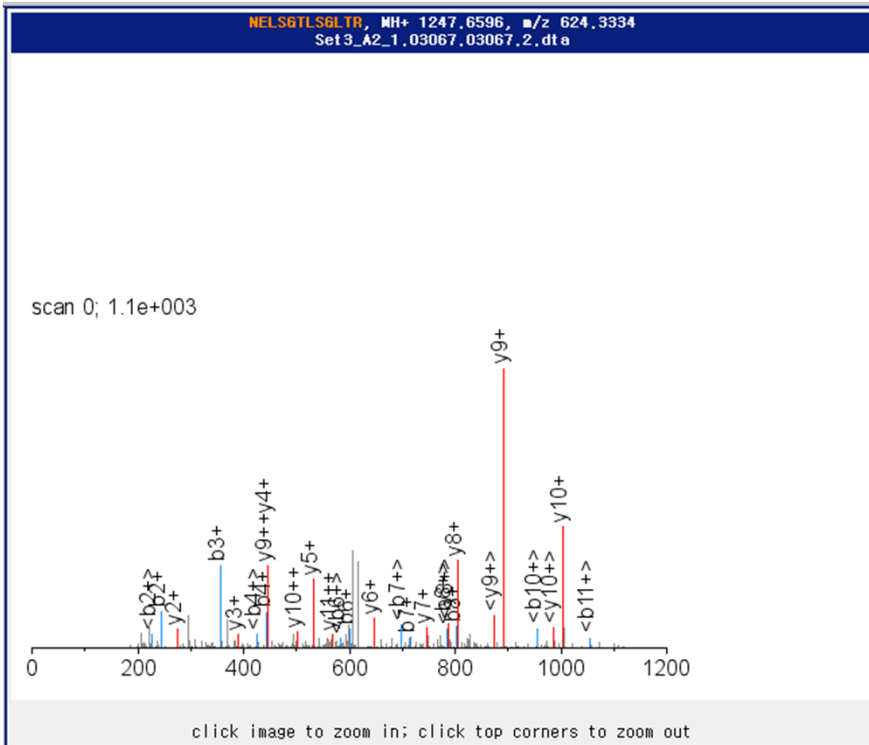


b <sup>+</sup>	#	AA #	y <sup>+</sup>	y <sup>2+</sup>
129,1022	1	K 11		
186,1237	2	G 10	<b>1075,5742</b>	538,2910
<b>301,1506</b>	3	D 9	<b>1018,5528</b>	509,7803
402,1983	4	T 8	<b>903,5258</b>	452,2668
<b>489,2304</b>	5	S 7	<b>802,4781</b>	401,7430
603,2733	6	N 6	<b>715,4461</b>	358,2270
<b>716,3573</b>	7	I 5	601,4032	<b>301,2055</b>
<b>829,4414</b>	8	I 4	<b>488,3191</b>	244,6635
<b>930,4891</b>	9	T 3	<b>375,2350</b>	188,1214
<b>1029,5575</b>	10	V 2	274,1874	137,5976
	11	R 1	<b>175,1190</b>	88,0634

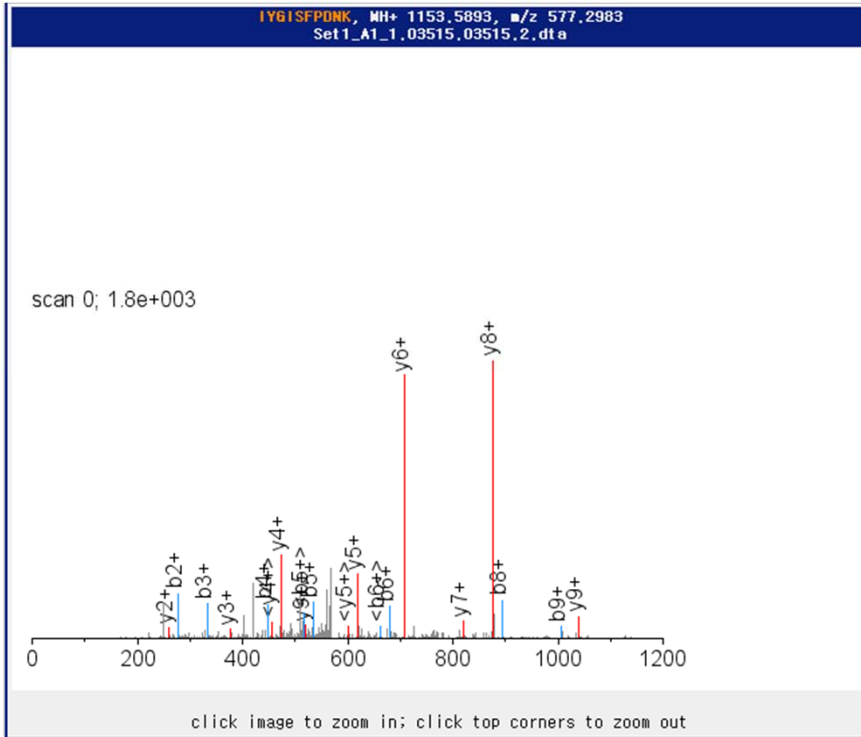




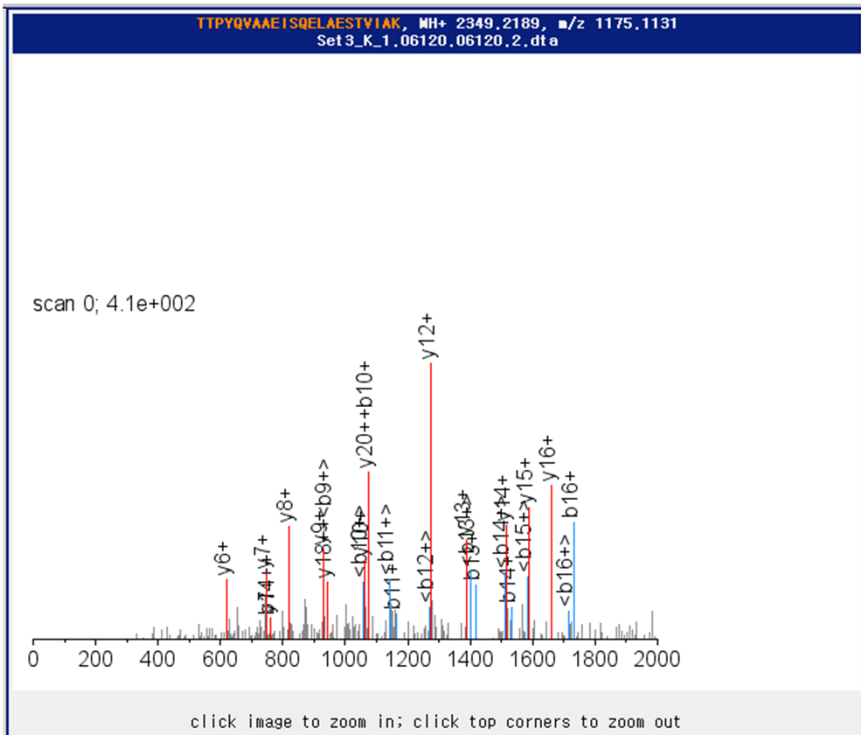
b <sup>+</sup>	#	AA #	y <sup>+</sup>	y <sup>2+</sup>
129,0659	1	Q 14		
242,1499	2	L 13	1564,7464	782,8771
370,2085	3	Q 12	1451,6624	726,3351
484,2514	4	N 11	1323,6038	662,3058
571,2835	5	S 10	1209,5609	605,2843
684,3675	6	L 9	1122,5288	561,7683
815,4080	7	M 8	1009,4448	505,2263
930,4349	8	D 7	878,4043	439,7061
1077,5034	9	F 6	763,3774	382,1926
1134,5248	10	G 5	616,3089	308,6584
1263,5674	11	E 4	559,2875	280,1476
1360,6202	12	P 3	430,2449	215,6264
1546,6995	13	W 2	333,1921	167,1000
	14	K 1	147,1128	74,0603



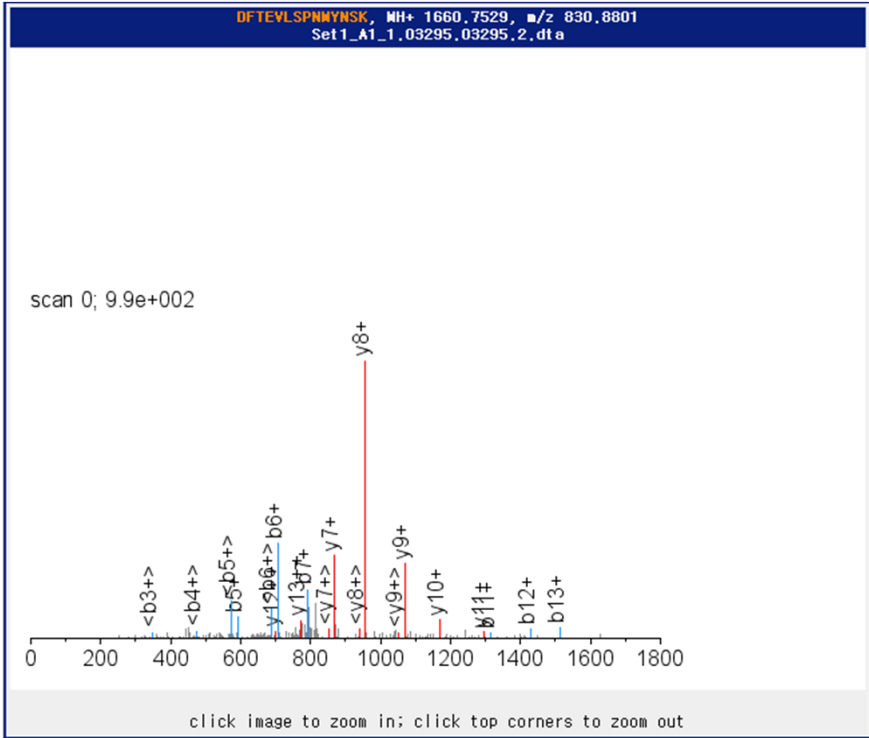
b <sup>+</sup>	#	AA #	y <sup>+</sup>	y <sup>2+</sup>
115,0502	1	N 12		
244,0928	2	E 11	1133,6161	567,3120
357,1769	3	L 10	1004,5735	502,7907
444,2089	4	S 9	891,4894	446,2486
501,2304	5	G 8	804,4574	402,7326
602,2780	6	T 7	747,4359	374,2219
715,3621	7	L 6	646,3883	323,6980
802,3941	8	S 5	533,3042	267,1560
859,4156	9	G 4	446,2722	223,6400
972,4997	10	L 3	389,2507	195,1293
1073,5473	11	T 2	276,1666	138,5872
	12	R 1	175,1190	88,0634



b <sup>+</sup>	#	AA	#	y <sup>+</sup>	y <sup>2+</sup>
114,0913	1	I	10		
277,1547	2	Y	9	1040,5047	520,7563
334,1761	3	G	8	877,4414	439,2246
447,2602	4	I	7	820,4199	410,7139
534,2922	5	S	6	707,3359	354,1719
681,3606	6	F	5	620,3039	310,6558
778,4134	7	P	4	473,2354	237,1216
893,4403	8	D	3	376,1827	188,5952
1007,4833	9	N	2	261,1557	131,0818
	10	K	1	147,1128	74,0603

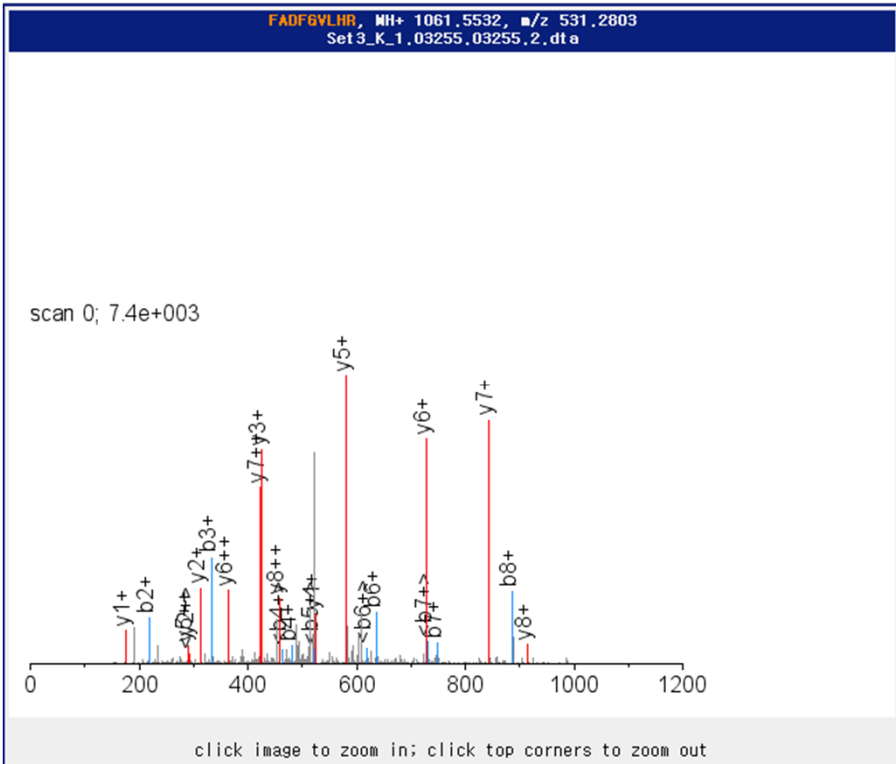


b <sup>+</sup>	#	AA	#	y <sup>+</sup>	y <sup>2+</sup>
102,0550	1	T	22		
203,1026	2	T	21	2248,1707	1124,5893
300,1554	3	P	20	2147,1230	1074,0654
463,2187	4	Y	19	2050,0703	1025,5391
591,2773	5	Q	18	1887,0069	944,0074
690,3457	6	V	17	1758,9484	879,9781
761,3828	7	A	16	1659,8800	830,4439
832,4199	8	A	15	1588,8428	794,9253
961,4625	9	E	14	1517,8057	759,4068
1074,5466	10	I	13	1388,7631	694,8855
1161,5786	11	S	12	1275,6791	638,3434
1289,6372	12	Q	11	1188,6470	594,8274
1418,6798	13	E	10	1060,5885	530,7981
1531,7639	14	L	9	931,5459	466,2768
1602,8010	15	A	8	818,4618	409,7348
1731,8436	16	E	7	747,4247	374,2163
1818,8756	17	S	6	618,3821	309,6950
1919,9233	18	T	5	531,3501	266,1789
2018,9917	19	V	4	430,3024	215,6551
2132,0758	20	I	3	331,2340	166,1209
2203,1129	21	A	2	218,1499	109,5789
	22	K	1	147,1128	74,0603



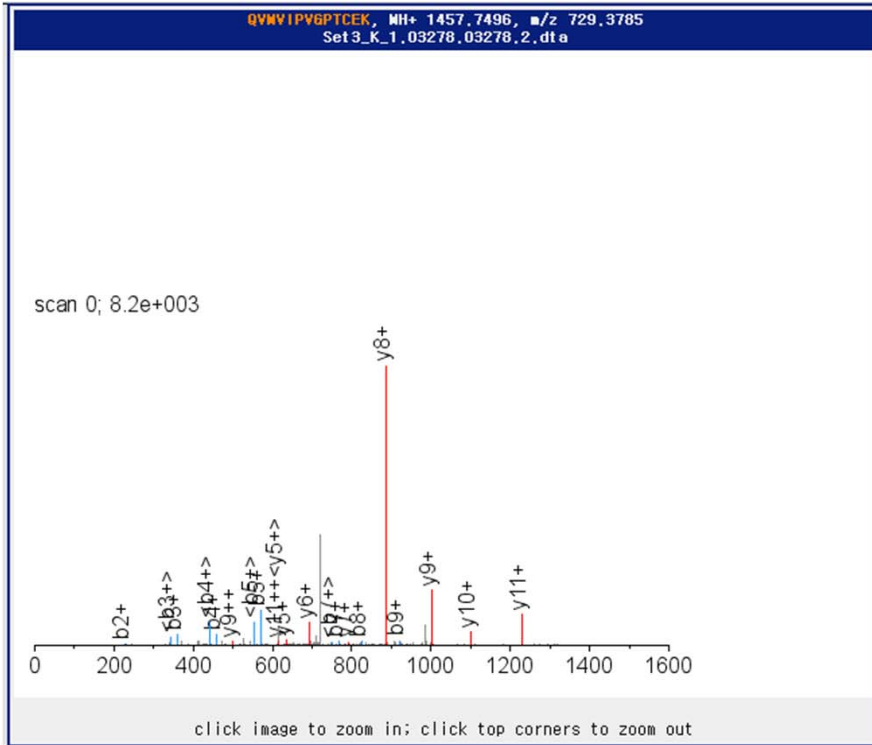
b <sup>+</sup>	#	AA #	y <sup>+</sup>	y <sup>2+</sup>
116,0342	1	D 14		
263,1026	2	F 13	1545,7254	773,3666
364,1503	3	T 12	1398,6570	699,8324
493,1929	4	E 11	1297,6093	649,3086
592,2613	5	V 10	1168,5667	584,7873
705,3454	6	L 9	1069,4983	535,2530
792,3774	7	S 8	956,4142	478,7110
889,4302	8	P 7	869,3822	435,1950
1003,4731	9	N 6	772,3294	386,6686
1150,5085	10	M 5	658,2865	329,6472
1313,5718	11	Y 4	511,2511	256,1295
1427,6148	12	N 3	348,1878	174,5978
1514,6468	13	S 2	234,1448	117,5763
	14	K 1	147,1128	74,0603

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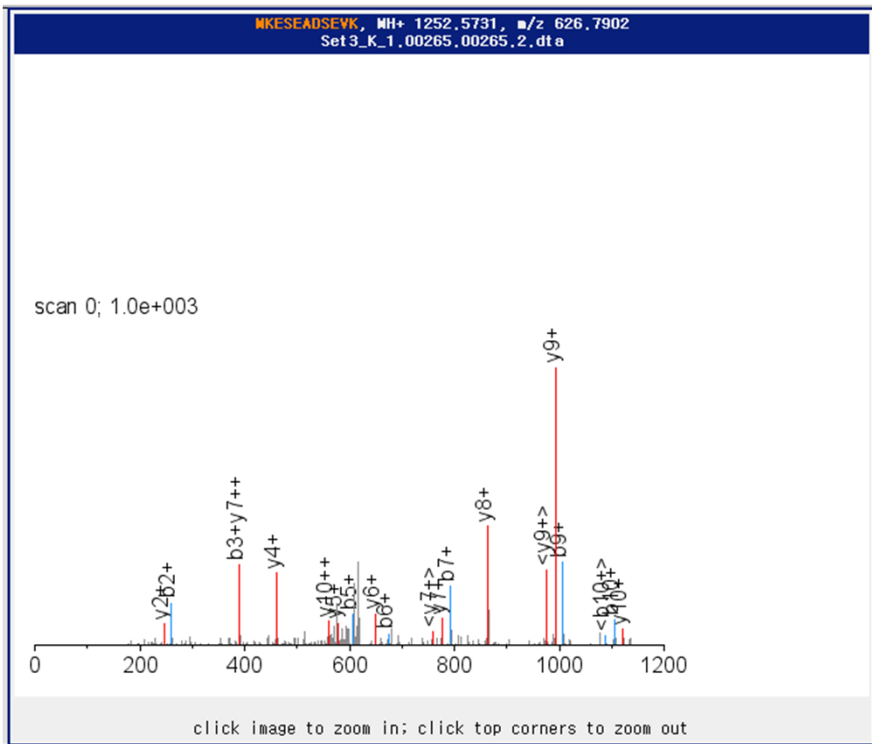
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148,0757	1	F 9		
219,1128	2	A 8	914,4843	457,7461
334,1397	3	D 7	843,4472	422,2275
481,2082	4	F 6	728,4202	364,7140
538,2296	5	G 5	581,3518	291,1798
637,2980	6	V 4	524,3303	262,6691
750,3821	7	L 3	425,2619	213,1349
887,4410	8	H 2	312,1779	156,5928
	9	R 1	175,1190	88,0634





b <sup>+</sup>	#	AA #	y <sup>+</sup>	y <sup>2+</sup>
129,0659	1	Q 13		
228,1343	2	V 12	1329,6905	665,3492
359,1748	3	M 11	1230,6221	615,8150
458,2432	4	V 10	1099,5816	550,2947
571,3272	5	I 9	1000,5132	500,7605
668,3800	6	P 8	887,4291	444,2185
767,4484	7	V 7	790,3764	395,6921
824,4699	8	G 6	691,3080	346,1579
921,5226	9	P 5	634,2865	317,6472
1022,5703	10	T 4	537,2337	269,1208
1182,6010	11	C 3	436,1860	218,5989
1311,6436	12	E 2	276,1554	138,5816
	13	K 1	147,1128	74,0603

C(11):+160,03



b <sup>+</sup>	#	AA #	y <sup>+</sup>	y <sup>2+</sup>
132,0478	1	M 11		
260,1427	2	K 10	1121,5321	561,2699
389,1853	3	E 9	993,4371	497,2225
476,2173	4	S 8	864,3945	432,7012
605,2599	5	E 7	777,3625	389,1852
676,2971	6	A 6	648,3199	324,6639
791,3240	7	D 5	577,2828	289,1453
878,3560	8	S 4	462,2558	231,6318
1007,3986	9	E 3	375,2238	188,1158
1106,4670	10	V 2	246,1812	123,5945
	11	K 1	147,1128	74,0603